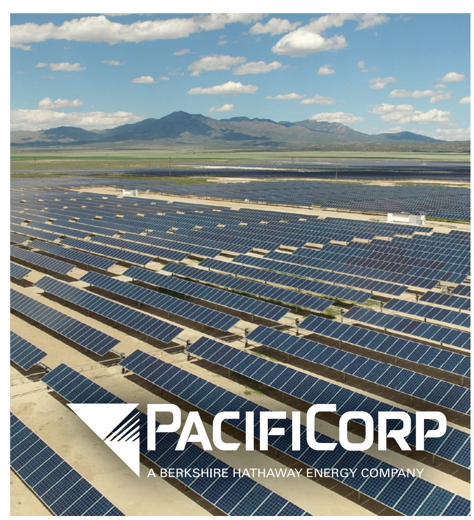
2019 Integrated resource plan

VOLUME II – APPENDICES A-L
OCTOBER 18, 2019



This 2019 Integrated Resource Plan Report is based upon the best available information at the time of preparation. The IRP action plan will be implemented as described herein, but is subject to change as new information becomes available or as circumstances change. It is PacifiCorp's intention to revisit and refresh the IRP action plan no less frequently than annually. Any refreshed IRP action plan will be submitted to the State Commissions for their information.

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Cover Photos (Top to Bottom):
Marengo Wind Project
Transmission Line
Electric Meter
Pavant III Solar Plant

TABLE OF CONTENTS

INDEX OF TABLES

INDEX OF FIGURES

APPENDIX A – LOAD FORECAST DETAILS

Introduction

This appendix reviews the load forecast used in the modeling and analysis of the 2019 Integrated Resource Plan (IRP), including scenario development for case sensitivities. The load forecast used in the IRP is an estimate of the energy sales, and peak demand over a 20-year period. The 20-year horizon is important to anticipate electricity demand in order to develop a timely response of resources.

In the development of its load forecast PacifiCorp employs econometric models that use historical data and inputs such as regional and national economic growth, weather, seasonality, and other customer usage and behavior changes. The forecast is divided into classes that use energy for similar purposes and at comparable retail rates. These separate customer classes include residential, commercial, industrial, irrigation, and lighting customer classes. The classes are modeled separately using variables specific to their usage patterns. For residential customers, typical energy uses include space heating, air conditioning, water heating, lighting, cooking, refrigeration, dish washing, laundry washing, televisions and various other end use appliances. Commercial and industrial customers use energy for production and manufacturing processes, space heating, air conditioning, lighting, computers and other office equipment.

Jurisdictional peak load forecasts are developed using econometric equations that relate observed monthly peak loads, peak producing weather and the weather-sensitive loads for all classes. The system coincident peak forecast, which is used in portfolio development, is the maximum load required on the system in any hourly period and is extracted from the hourly forecast model.

Summary Load Forecast

PacifiCorp updated its load forecast in September 2018. The compound annual energy growth rate for the 10-year period (2019 through 2028) is 0.87 percent. Relative to the load forecast prepared for the 2017 IRP Update, PacifiCorp 2028 energy forecasted energy requirement increased in all jurisdictions other than Wyoming and Idaho, while PacifiCorp system energy requirement increased approximately 3.15 percent. Figure A.1 has a comparison of energy forecasts from the 2019 IRP to the 2017 IRP Update.

Figure A.1 – PacifiCorp System Energy Load Forecast Change, at Generation, pre-DSM

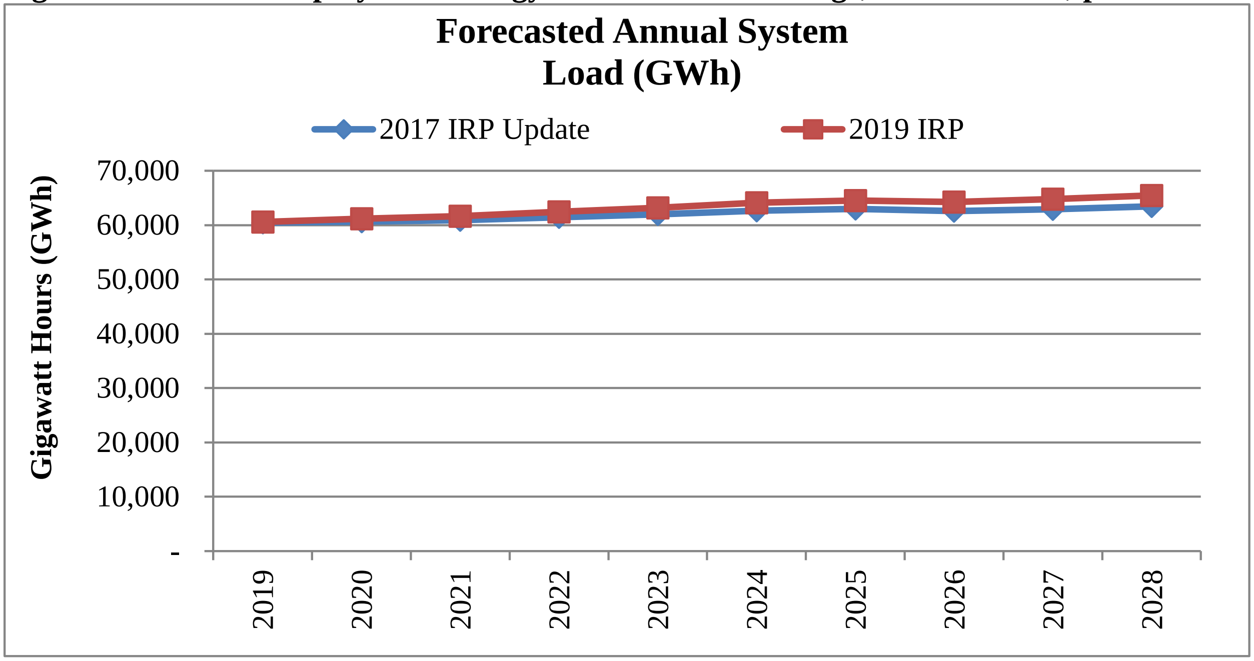


Table A.1 and Table A.2 show the annual load and coincident peak load forecast when not reducing load projections to account for new energy efficiency measures (Class 2 DSM).[1] Table A.3 and Table A.4 show the forecast changes relative to the 2017 IRP Update load forecast for loads and coincident system peak, respectively.

Table A.1 Forecasted Annual Load, 2019 through 2028 (Megawatt-hours), at Generation, pre-DSM

Year	Total	OR	WA	CA	UT	WY	ID
2019	60,555,090	15,116,420	4,648,980	888,050	25,905,480	10,034,340	3,961,820
2020	61,200,990	15,458,460	4,683,290	894,090	26,240,960	9,947,800	3,976,390
2021	61,668,220	15,762,730	4,696,950	886,220	26,490,100	9,844,530	3,987,690
2022	62,430,120	16,073,620	4,724,840	883,300	26,889,210	9,851,110	4,008,040
2023	63,189,850	16,226,410	4,756,440	881,850	27,359,260	9,935,110	4,030,780
2024	64,099,060	16,422,560	4,802,810	882,180	27,876,700	10,058,210	4,056,600
2025	64,561,310	16,522,910	4,821,500	877,420	28,220,370	10,052,750	4,066,360
2026	64,235,860	16,669,290	4,855,450	873,460	27,647,290	10,110,510	4,079,860
2027	64,827,020	16,821,000	4,892,190	867,600	27,944,390	10,210,990	4,090,850
2028	65,443,430	17,016,870	4,944,450	863,690	28,255,530	10,260,170	4,102,720
Compound Annual Growth Rate							
2019 - 2028	**0.87%**	**1.32%**	**0.69%**	**-0.31%**	**0.97%**	**0.25%**	**0.39%**

[1] Class 2 demand-side management (DSM) load reductions are included as resources in the System Optimizer model.

Table A.2 – Forecasted Annual Coincident Peak Load (Megawatts) at Generation, pre-DSM

Year	Total	OR	WA	CA	UT	WY	ID
2019	10,197	2,406	767	147	4,786	1,307	784
2020	10,279	2,447	774	146	4,827	1,301	785
2021	10,357	2,491	779	145	4,862	1,291	788
2022	10,468	2,526	786	144	4,928	1,293	791
2023	10,581	2,543	792	146	5,005	1,301	794
2024	10,687	2,555	788	141	5,088	1,324	791
2025	10,786	2,579	808	143	5,155	1,316	784
2026	10,818	2,596	815	142	5,144	1,322	799
2027	10,895	2,613	822	141	5,186	1,332	800
2028	10,985	2,629	830	141	5,250	1,337	799
Compound Annual Growth Rate							
2019 - 2028	0.83%	0.99%	0.88%	-0.49%	1.03%	0.25%	0.21%

Table A.3 – Annual Load Change: September 2018 Forecast less November 2017 Forecast (Megawatt-hours) at Generation, pre-DSM

Year	Total	OR	WA	CA	UT	WY	ID
2019	106,560	(31,660)	46,810	(11,290)	33,630	28,140	40,930
2020	516,600	286,760	60,670	2,420	211,460	(81,630)	36,920
2021	715,580	544,030	76,140	2,350	279,490	(219,250)	32,820
2022	978,340	757,450	90,500	3,300	389,520	(288,990)	26,560
2023	1,206,810	803,410	103,860	5,170	556,490	(281,790)	19,670
2024	1,437,060	851,760	113,690	6,560	712,080	(257,650)	10,620
2025	1,556,540	893,570	120,030	8,490	842,170	(307,270)	(450)
2026	1,657,600	947,910	127,000	8,850	905,310	(318,900)	(12,570)
2027	1,904,560	1,004,000	137,810	6,900	1,069,810	(287,310)	(26,650)
2028	1,998,380	1,062,760	152,300	3,490	1,157,930	(332,600)	(45,500)

Table A.4 – Annual Coincident Peak Change: September 2018 Forecast less November 2017 Forecast (Megawatts) at Generation, pre-DSM

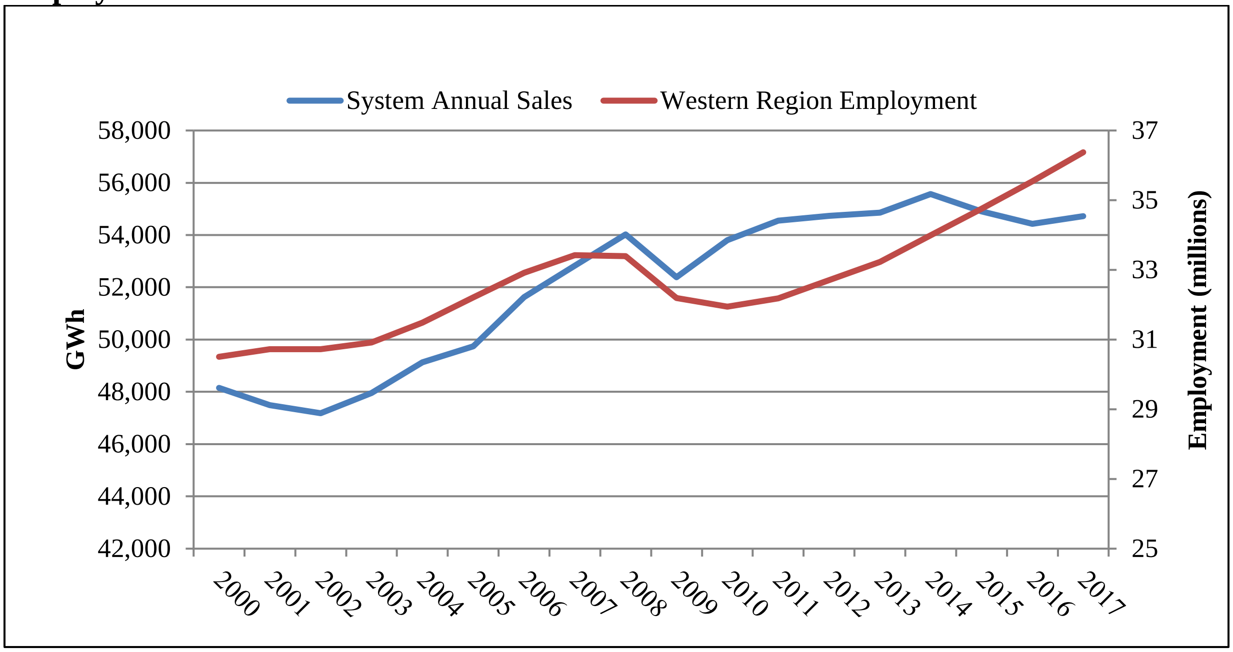
Year	Total	OR	WA	CA	UT	WY	ID
2019	192	50	10	(0)	101	27	4
2020	241	88	10	0	123	18	2
2021	248	123	12	(0)	111	3	(1)
2022	278	149	13	(0)	125	(5)	(4)
2023	314	157	15	(0)	155	(5)	(7)
2024	344	164	5	(3)	185	7	(15)
2025	366	173	17	(0)	194	(8)	(10)
2026	396	182	19	(0)	222	(10)	(16)
2027	433	192	20	(1)	253	(8)	(23)
2028	449	201	22	(3)	272	(14)	(29)

Load Forecast Assumptions

Regional Economy by Jurisdiction

The PacifiCorp electric service territory is comprised of six states and within these states the company serves customers in a total of 90 counties. The level of retail sales for each state and county is correlated with economic conditions and population statistics in each state. PacifiCorp uses both economic data, such as employment, and population data, to forecast its retail sales. Looking at historical sales and employment data for PacifiCorp's service territory, 2000 through 2017, in Figure A.2, it is apparent that the company's retail sales are correlated to economic conditions in its service territory, and most recently the 2008-2009 recession.

Figure A.2 – PacifiCorp Annual Retail Sales 2000 through 2017 and Western Region Employment

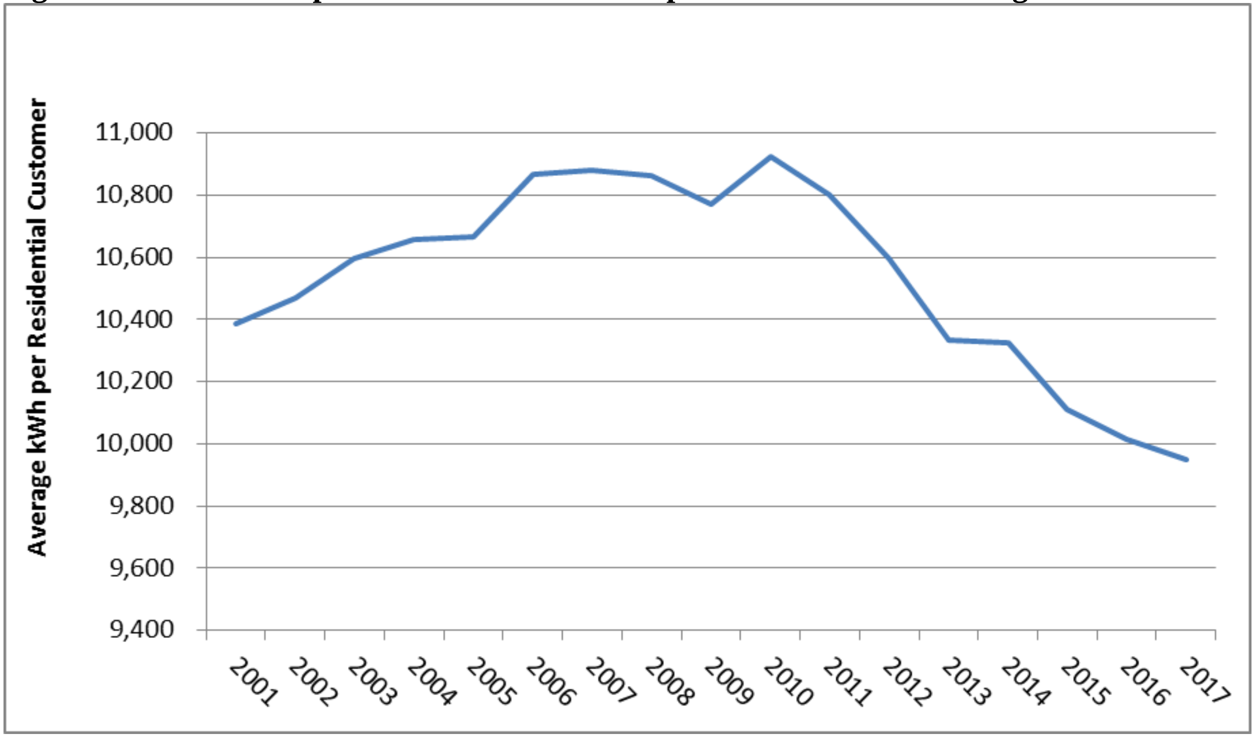


Sources: PacifiCorp and United States Department of Labor, Bureau of Labor Statistics

The 2019 IRP forecast utilizes the February 2018 release of IHS Markit economic driver forecast; whereas the 2017 IRP Update relies on the February 2017 release from IHS Markit. As discussed below, although both the economic and demographic forecast is relatively unchanged from the 2017 IRP Update, the load forecast has increased. There are two changes which are driving the 2019 IRP load and peak forecast higher. First, higher projected demand from data centers are driving up the commercial forecast; whereas, a higher residential customer forecast is driving a higher residential forecast.

Figure A.3 shows the weather normalized average system residential use per customer. As illustrated, residential use per customer has been decreasing since 2010.

Figure A.3 – PacifiCorp Annual Residential Use per Customer 2001 through 2017

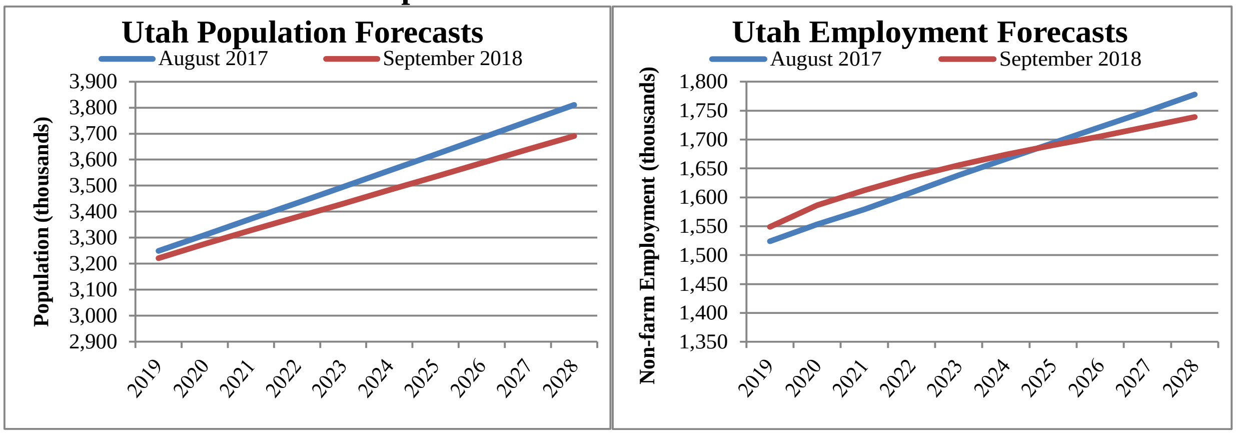


Residential use per customer across all six of PacifiCorp's states is changing due to increased energy efficiency driven primarily by lighting efficiency standards resulting from the 2007 Federal Energy legislation. In addition, there has been a shift from single-family and manufactured housing to multi-dwelling units and a trend of replacing older electric appliances with more energy efficient appliances.

Utah

PacifiCorp serves 26 of the 29 counties in the state of Utah, with Salt Lake City being the largest metropolitan area served by the company within the state. Utah is expected to experience an annual increase of 1.30 percent in non-farm employment over the next 10 years. Figure A.4 shows the change in population and employment forecasts between the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the population forecast is slightly lower. The employment forecast is slightly higher over the 2019 through 2024 timeframe, while it is lower over the 2025 through 2028 timeframe. Relative to the load forecast prepared for the 2017 IRP Update, the Utah 2028 retail load forecast increased approximately 4.95 percent. This increase is attributable to higher projected demand from data centers driving up the commercial forecast and higher residential demand due to higher projected residential customers.

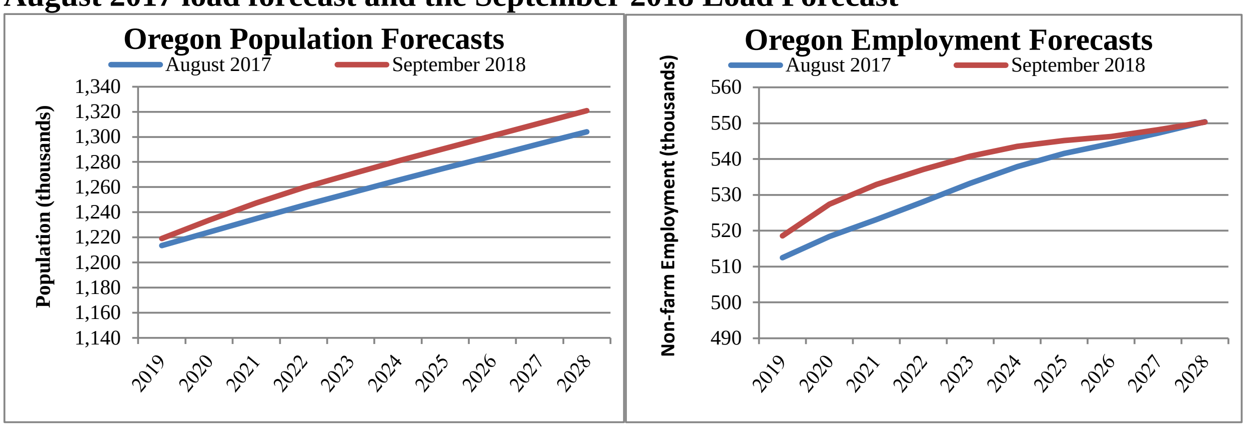
Figure A.4 – IHS Global Insight Utah Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load Forecast



Oregon

PacifiCorp serves 25 of the 36 counties in Oregon, but provided only 26.6 percent of ultimate electric retail sales in the state of Oregon in 2017.[2] Figure A.5 shows the change in population and employment forecasts for the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the Oregon forecast of population and employment have both increased slightly. Relative to the load forecast prepared for the 2017 IRP Update, the Oregon 2028 retail load forecast has increased approximately 5.73 percent.

Figure A.5 – IHS Global Insight Oregon Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load Forecast



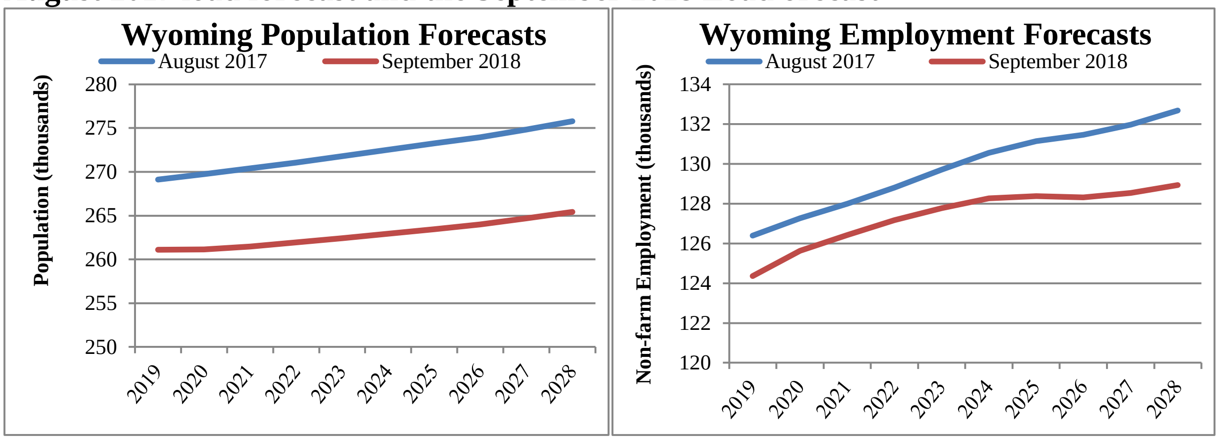
Wyoming

PacifiCorp serves 15 of the 23 counties in Wyoming, with Casper being the largest metropolitan area served by the company in the state. Industrial sales make up approximately 74 percent of PacifiCorp's Wyoming sales. Figure A.6 shows the change in population and employment forecasts for the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the Wyoming population forecast used in the 2019 IRP forecast has decreased relative to the 2017 IRP Update. Similarly, the employment forecast has also decreased. Relative to the load forecast

[2] Source: Oregon Public Utility Commission, 2017 Oregon Utility Statistics.

prepared for the 2017 IRP Update, the Wyoming 2028 retail load forecast decreased approximately 4.27 percent.

Figure A.6 – IHS Global Insight Wyoming Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load orecast

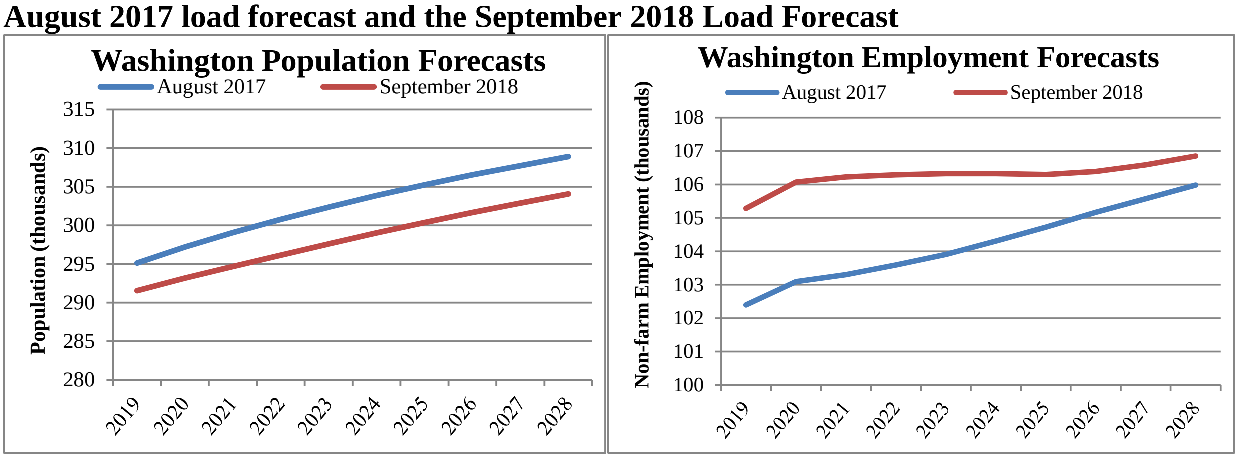


A risk to the Wyoming forecast is commodity prices, such as oil and natural gas, where volatility in prices and profitability can lead to swings in production and employment which translates to potential swings in the retail sales forecast.

Washington

PacifiCorp serves the following counties in Washington State: Benton, Columbia, Cowlitz, Garfield, Walla Walla, and Yakima. Yakima is the most populated county that the company serves in Washington State and has a large concentration of agriculture and food processing businesses. Residential and commercial sales are roughly equal in size each making up approximately 39 percent of PacifiCorp's Washington sales. Figure A.7 shows the change in population and employment forecasts for the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the population forecast is lower, while the employment forecast has increased. Relative to the load forecast prepared for the 2017 IRP Update, the Washington 2028 retail load forecast increased approximately 1.78 percent.

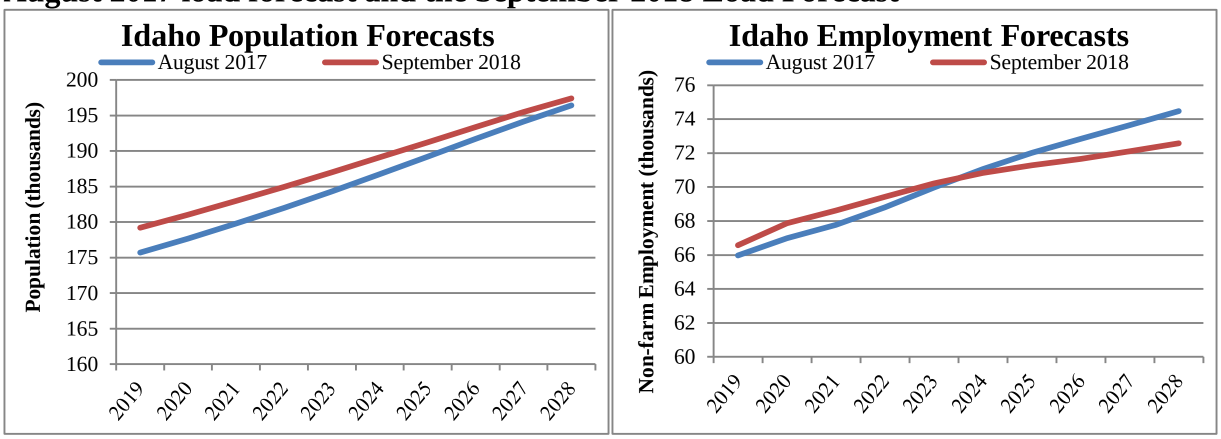
Figure A.7 – IHS Global Insight Washington Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load Forecast



Idaho

PacifiCorp serves 14 of the 44 counties in the state of Idaho, with the majority of the company's service territory in rural Idaho. Industrial sales make up approximately 50 percent of the company's Idaho sales. Figure A.8 shows the change in population and employment forecasts for the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the forecast for population has increased, while the employment forecast has increased over the 2019 to 2023 timeframe and declined over the 2024 to 2028 timeframe. Relative to the load forecast prepared for the 2017 IRP Update, the Idaho 2028 retail load forecast decreased approximately 1.32 percent.

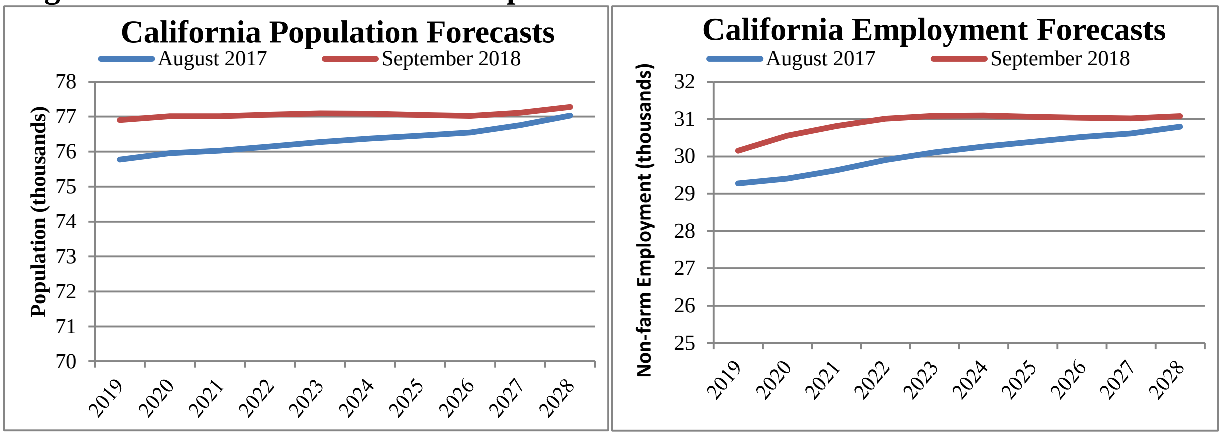
Figure A.8 – IHS Global Insight Washington Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load Forecast



California

The four northern California counties served by PacifiCorp are largely rural, which include Del Norte, Modoc, Shasta and Siskiyou Counties. Crescent City is the largest metropolitan area served by the company in California. Residential sales make up approximately 50 percent of the company's California sales. Figure A.9 shows the change in population and employment forecasts for the 2017 IRP Update relative to the 2019 IRP forecast. This figure illustrates that the population and employment forecasts have increased. Relative to the load forecast prepared for the 2017 IRP Update, the California 2028 retail load forecast increased 0.40 percent before energy efficiency (and decreased 0.85% after accounting for energy efficiency savings).

Figure A.9 – IHS Global Insight California Household and Employment forecasts from the August 2017 load forecast and the September 2018 Load Forecast

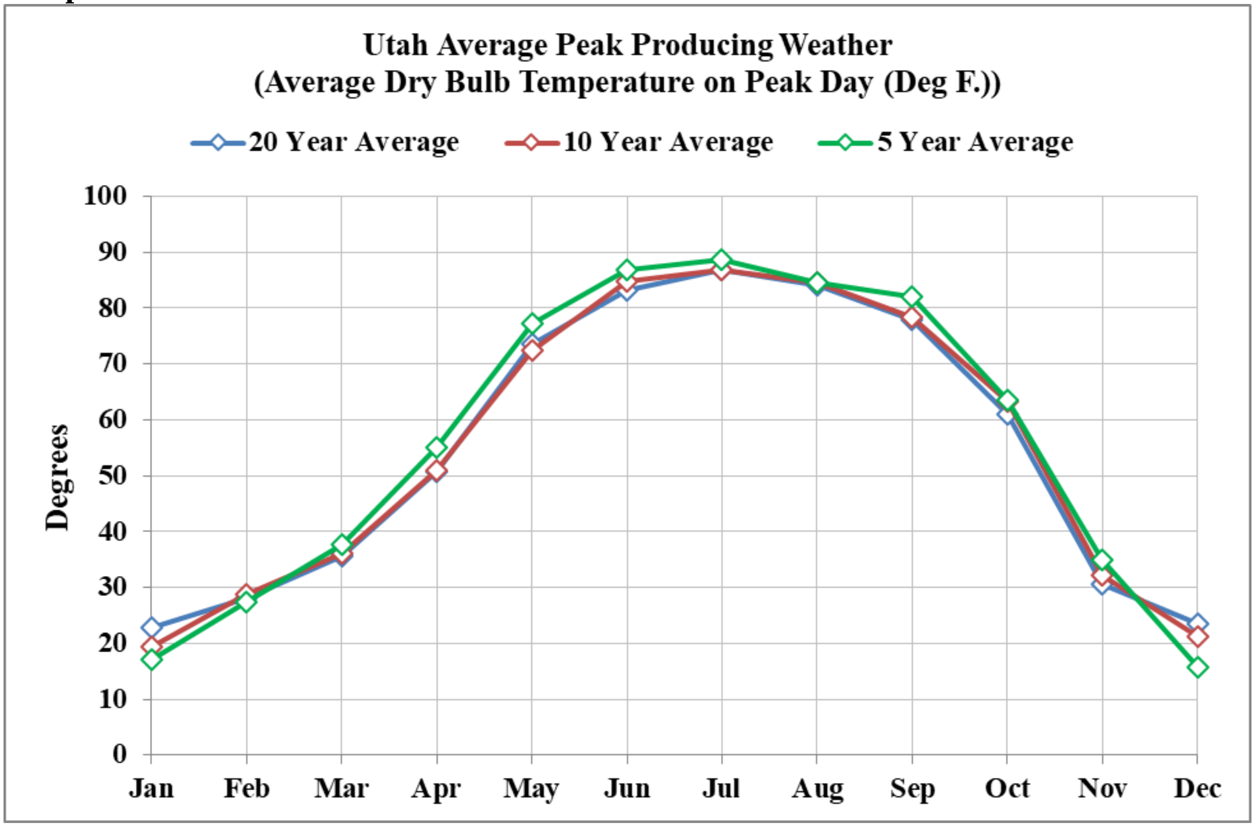


Weather

PacifiCorp's load forecast is based on normal weather defined by the 20-year time period of 1998-2017. The company updated its temperature spline models to the five-year time period of 2013-2017. PacifiCorp's spline models are used to model the commercial and residential class temperature sensitivity at varying temperatures.

PacifiCorp has reviewed the appropriateness of using the average weather from a shorter time period as its "normal" peak weather. Figure A.10 indicates that peak producing weather does not change significantly when comparing five, 10, or 20 year average weather.

Figure A.10 - Comparison of Utah 5, 10, and 20 Year Average Peak Producing Temperatures



Statistically Adjusted End-Use ("SAE")

PacifiCorp models sales per customer for the residential class using the SAE model, which combines the end-use modeling concepts with traditional regression analysis techniques. Major drivers of the SAE-based residential model are heating and cooling related variables, equipment shares, saturation levels and efficiency trends, and economic drivers such as household size, income and energy price. PacifiCorp uses ITRON for its load forecasting software and services, as well as SAE. To predict future changes in the efficiency of the various end uses for the residential class, an excel spreadsheet model obtained from ITRON was utilized; the model includes appliance efficiency trends based on appliance life as well as past and future efficiency standards. The model embeds all currently applicable laws and regulations regarding appliance efficiency, along with life cycle models of each appliance. The life cycle models, based on the decay and replacement rate are necessary to estimate how fast the existing stock of any given appliance turns over, i.e. newer more efficient equipment replacing older less efficient equipment. The underlying efficiency data is based on estimates of energy efficiency from the US Department of Energy's Energy Information Administration (EIA). The EIA estimates the efficiency of appliance stocks and the saturation of appliances at the national level and for individual Census Regions.

Individual Customer Forecast

PacifiCorp updated its load forecast for a select group of large industrial customers, self-generation facilities of large industrial customers, and data center forecasts within the respective jurisdictions.

Customer forecasts are provided by the customer to PacifiCorp through a regional business manager (RBM).

Actual Load Data

With the exception of the industrial class, PacifiCorp uses actual load data from January 2000 through February 2018. The historical data period used to develop the industrial monthly sales is from January 2000 through February 2018 in Utah, Wyoming, and Washington, January 2002 through February 2018 in Idaho, and January 2003 through February 2018 in California and January 2008 through February 2018 in Oregon.

The following tables are the annual actual retail sales, non-coincident peak, and coincident peak by state used in calculating the 2019 IRP retail sales forecast.

Table A.5 - Weather Normalized Jurisdictional Retail Sales 2000 through 2017

System Retail Sales - Megawatt-hours (MWh)*							
Year	California	Idaho	Oregon	Utah	Washington	Wyoming	**System**
2000	776,330	3,094,742	14,047,381	18,765,857	4,099,269	7,373,138	**48,156,718**
2001	778,256	2,987,391	13,529,960	18,490,759	4,020,032	7,680,903	**47,487,300**
2002	800,256	3,218,294	13,097,842	18,642,679	4,017,549	7,405,485	**47,182,104**
2003	819,413	3,243,349	13,071,848	19,279,071	4,067,427	7,471,935	**47,953,042**
2004	845,263	3,300,658	13,188,745	19,880,615	4,101,526	7,808,927	**49,125,734**
2005	835,878	3,232,797	13,199,197	20,253,628	4,211,933	8,011,258	**49,744,691**
2006	859,459	3,348,273	13,911,150	21,117,901	4,130,862	8,252,936	**51,620,581**
2007	874,813	3,384,194	14,023,385	21,983,724	4,076,966	8,481,524	**52,824,605**
2008	866,625	3,413,508	13,771,921	22,691,490	4,073,872	9,209,482	**54,026,899**
2009	828,967	2,965,022	13,128,912	22,157,832	4,048,793	9,258,055	**52,387,581**
2010	841,471	3,426,215	13,158,282	22,661,371	4,052,934	9,664,860	**53,805,133**
2011	803,462	3,472,522	13,029,055	23,457,892	4,018,089	9,765,559	**54,546,579**
2012	785,674	3,518,810	13,044,180	23,859,599	4,045,878	9,475,326	**54,729,467**
2013	775,001	3,549,834	13,081,879	23,839,238	4,059,599	9,551,554	**54,857,105**
2014	775,699	3,544,391	13,136,140	24,418,898	4,105,424	9,587,978	**55,568,531**
2015	747,798	3,468,932	13,093,004	24,117,031	4,102,238	9,377,276	**54,906,279**
2016	757,112	3,491,849	13,185,654	23,796,978	4,041,996	9,153,908	**54,427,497**
2017	760,943	3,574,912	13,164,078	23,707,035	4,080,132	9,433,527	**54,720,628**
Compound Annual Growth Rate							
2000-17	**-0.12%**	**0.85%**	**-0.38%**	**1.38%**	**-0.03%**	**1.46%**	**0.75%**

*System retail sales do not include sales for resale

Table A.6 - Non-Coincident Jurisdictional Peak 2000 through 2017

Non-Coincident Peak - Megawatts (MW)*							
Year	California	Idaho	Oregon	Utah	Washington	Wyoming	**System**
2000	176	686	2,603	3,684	785	1,062	**8,995**
2001	162	616	2,739	3,480	755	1,124	**8,876**
2002	174	713	2,639	3,773	771	1,113	**9,184**
2003	169	722	2,451	4,004	788	1,126	**9,260**
2004	193	708	2,524	3,862	920	1,111	**9,318**
2005	189	753	2,721	4,081	844	1,224	**9,811**
2006	180	723	2,724	4,314	822	1,208	**9,970**
2007	187	789	2,856	4,571	834	1,230	**10,466**
2008	187	759	2,921	4,479	923	1,339	**10,609**
2009	193	688	3,121	4,404	917	1,383	**10,705**
2010	176	777	2,552	4,448	893	1,366	**10,213**
2011	177	770	2,686	4,596	854	1,404	**10,486**
2012	159	800	2,550	4,732	797	1,338	**10,376**
2013	182	814	2,980	5,091	886	1,398	**11,351**
2014	161	818	2,598	5,024	871	1,360	**10,831**
2015	157	843	2,598	5,226	837	1,326	**10,986**
2016	155	848	2,584	5,018	819	1,300	**10,724**
2017	177	830	2,920	4,932	943	1,354	**11,156**
Compound Annual Growth Rate							
2000-17	**0.06%**	**1.13%**	**0.68%**	**1.73%**	**1.09%**	**1.44%**	**1.27%**

*Non-coincident peaks do not include sales for resale

Table A.7- Jurisdictional Contribution to Coincident Peak 2000 through 2017

Coincident Peak - Megawatts (MW)*							
Year	California	Idaho	Oregon	Utah	Washington	Wyoming	**System**
2000	154	523	2,347	3,684	756	979	**8,443**
2001	124	421	2,121	3,479	627	1,091	**7,863**
2002	162	689	2,138	3,721	758	1,043	**8,511**
2003	155	573	2,359	4,004	774	1,022	**8,887**
2004	120	603	2,200	3,831	740	1,094	**8,588**
2005	171	681	2,238	4,015	708	1,081	**8,895**
2006	156	561	2,684	3,972	816	1,094	**9,283**
2007	160	701	2,604	4,381	754	1,129	**9,730**
2008	171	682	2,521	4,145	728	1,208	**9,456**
2009	153	517	2,573	4,351	795	987	**9,375**
2010	144	527	2,442	4,294	757	1,208	**9,373**
2011	143	549	2,187	4,596	707	1,204	**9,387**
2012	156	782	2,163	4,731	749	1,225	**9,806**
2013	156	674	2,407	5,091	797	1,349	**10,474**
2014	150	630	2,345	5,024	819	1,294	**10,263**
2015	152	805	2,472	5,081	833	1,259	**10,601**
2016	139	575	2,462	4,940	817	1,201	**10,135**
2017	152	593	2,547	4,911	787	1,306	**10,296**
Compound Annual Growth Rate							
2000-17	**-0.08%**	**0.74%**	**0.48%**	**1.70%**	**0.24%**	**1.71%**	**1.17%**

*Coincident peaks do not include sales for resale

System Losses

Line loss factors are derived using the five-year average of the percent difference between the annual system load by jurisdiction and the retail sales by jurisdiction. System line losses were updated to reflect actual losses for the five-year period ending December 31, 2017.

Forecast Methodology Overview

Class 2 Demand-side Management Resources in the Load Forecast

PacifiCorp modeled Class 2 DSM as a resource option to be selected as part of a cost-effective portfolio resource mix using the company's capacity expansion optimization model, System Optimizer. The load forecast used for IRP portfolio development excluded forecasted load reductions from Class 2 DSM; System Optimizer then determines the amount of Class 2 DSM—expressed as supply curves that relate incremental DSM quantities with their costs—given the other resource options and inputs included in the model. The use of Class 2 DSM supply curves, along with the economic screening provided by System Optimizer, determines the cost-effective mix of Class 2 DSM for a given scenario.

Modeling overview

The load forecast is developed by forecasting the monthly sales by customer class for each jurisdiction. The residential sales forecast is developed as a use-per-customer forecast multiplied by the forecast number of customers.

The customer forecasts are based on a combination of regression analysis and exponential smoothing techniques using historical data from January 2000 to February 2018. For the residential class, PacifiCorp forecasts the number of customers using IHS Global Insight's forecast of each state's number of population as the major driver.

For the 2019 IRP, PacifiCorp improved its residential customer forecasting methodology by adopting a differenced model approach in the development of the residential customer forecast. Rather than directly forecasting the number of customers as has been done in previous years, the differenced model predicts the monthly change in number of customers. The changes are accumulated and added to the initial number of customers to generate the final customer forecast. PacifiCorp had observed that directly forecasted customers, as done in previous years, consistently produced an under forecast of residential customers. PacifiCorp performed a historical comparison of the forecasted results using both methods against actual customer counts and determined the differenced model produced a more accurate customer forecast. As such the model was used to forecast load for the 2019 IRP, and resulted in an increase in the overall residential customer projections.

PacifiCorp models sales per customer for the residential class using the SAE model discussed above, which combines the end-use modeling concepts with traditional regression analysis techniques.

For the commercial class, the company forecasts sales using regression analysis techniques with non-manufacturing employment and non-farm employment designated as the major economic drivers, in addition to weather-related variables. Monthly sales for the commercial class are forecast directly from historical sales volumes, not as a product of the use per customer and number of customers. The development of the forecast of monthly commercial sales involves an additional step; to reflect the addition of a large "lumpy" change in sales such as a new data center, monthly commercial sales are increased based on input from PacifiCorp's RBM's. The treatment of large commercial additions is similar to the methodology for large industrial customer sales, which is discussed below.

Monthly sales for irrigation and street lighting are forecast directly from historical sales volumes, not as a product of the use per customer and number of customers.

The majority of industrial sales are modeled using regression analysis with trend and economic variables. Manufacturing employment is used as the major economic driver in all states with exception of Utah, in which an Industrial Production Index is used. For a small number of the very largest industrial customers, PacifiCorp prepares individual forecasts based on input from the customer and information provided by the RBM's.

After PacifiCorp develops the forecasts of monthly energy sales by customer class, a forecast of hourly loads is developed in two steps. First, monthly peak forecasts are developed for each state. The monthly peak model uses historical peak-producing weather for each state, and incorporates the impact of weather on peak loads through several weather variables that drive heating and cooling usage. The weather variables include the average temperature on the peak day and lagged average temperatures from up to two days before the day of the forecast. The peak forecast is based on average monthly historical peak-producing weather for the 20-year period, 1998 through 2017. Second, PacifiCorp develops hourly load forecasts for each state using hourly load models that include state-specific hourly load data, daily weather variables, the 20-year average temperatures as identified above, a typical annual weather pattern, and day-type variables such as weekends and holidays as inputs to the model. The hourly loads are adjusted to match the monthly peaks from the first step above. Hourly loads are then adjusted so the monthly sum of hourly loads equals monthly sales plus line losses.

After the hourly load forecasts are developed for each state, hourly loads are aggregated to the total system level. The system coincident peaks can then be identified, as well as the contribution of each jurisdiction to those monthly peaks.

Sales Forecast at the Customer Meter

This section provides total system and state-level forecasted retail sales summaries measured at the customer meter by customer class including load reduction projections from new energy efficiency measures from the Preferred Portfolio.

Table A.8 – System Annual Retail Sales Forecast 2019 through 2028, post-DSM

System Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	16,212,700	18,034,090	18,920,232	1,466,024	133,696	**54,766,743**
2020	15,854,942	18,459,331	18,954,765	1,462,213	133,807	**54,865,059**
2021	15,638,202	18,734,789	18,834,645	1,458,187	132,854	**54,798,677**
2022	15,616,831	18,954,503	18,818,871	1,454,137	132,066	**54,976,408**
2023	15,631,036	19,074,719	18,859,396	1,449,880	131,097	**55,146,128**
2024	15,713,571	19,209,491	18,950,500	1,444,465	130,381	**55,448,408**
2025	15,659,140	19,230,120	18,896,281	1,437,742	128,815	**55,352,098**
2026	15,674,375	19,326,384	17,955,352	1,430,140	127,588	**54,513,839**
2027	15,702,419	19,410,838	18,013,973	1,421,958	126,313	**54,675,500**
2028	15,792,344	19,488,236	18,053,413	1,413,928	125,383	**54,873,304**
Compound Annual Growth Rate						
2019-28	**-0.29%**	**0.87%**	**-0.52%**	**-0.40%**	**-0.71%**	**0.02%**

Residential

Over the 2019-2028 timeframe, the average annual growth of the residential class sales forecast decreased from -0.28 percent in the 2017 IRP Update to -0.29 percent in the 2019 IRP. The number of residential customers across PacifiCorp's system is expected to grow at an annual average rate of 1.33 percent, reaching approximately 1.9 million customers in 2028, with Rocky Mountain Power states adding 1.64 percent per year and Pacific Power states adding 0.84 percent per year.

Commercial

Average annual growth of the commercial class sales forecast increased from 0.18 percent annual average growth in the 2017 IRP Update to 0.87 percent expected average annual growth. The number of commercial customers across PacifiCorp's system is expected to grow at an annual average rate of 0.95 percent, reaching approximately 233,000 customers in 2028, with Rocky Mountain Power states adding 1.20 percent per year and Pacific Power states adding 0.61 percent per year.

Industrial

Average annual growth of the industrial class sales forecast decreased from -0.23 percent annual average growth in the 2017 IRP Update to -0.52 percent expected annual growth. A portion of the company's industrial load is in the extractive industry in Utah and Wyoming; therefore, changes in commodity prices can impact the company's load forecast.

State Summaries

Oregon

Table A.9 summarizes Oregon state forecasted retail sales growth by customer class.

Table A.9 – Forecasted Retail Sales Growth in Oregon, post-DSM

Oregon Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	5,633,553	5,434,085	1,793,918	327,801	39,963	**13,229,320**
2020	5,585,633	5,629,864	1,801,507	327,928	40,220	**13,385,151**
2021	5,556,225	5,790,809	1,794,568	327,934	40,180	**13,509,716**
2022	5,556,664	5,918,154	1,786,929	327,933	40,220	**13,629,900**
2023	5,560,848	5,902,220	1,782,399	327,944	40,250	**13,613,661**
2024	5,585,036	5,896,025	1,782,806	327,778	40,386	**13,632,030**
2025	5,562,845	5,865,984	1,778,446	327,419	40,289	**13,574,983**
2026	5,564,157	5,851,239	1,781,633	327,076	40,308	**13,564,414**
2027	5,571,868	5,840,305	1,784,666	326,715	40,326	**13,563,879**
2028	5,605,191	5,846,409	1,791,562	326,393	40,460	**13,610,015**
Compound Annual Growth Rate						
2019-28	**-0.06%**	**0.82%**	**-0.01%**	**-0.05%**	**0.14%**	**0.32%**

Washington

Table A.10 summarizes Washington state forecasted retail sales growth by customer class.

Table A.10 – Forecasted Retail Sales Growth in Washington, post-DSM

Washington Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	1,592,714	1,578,131	784,573	158,742	9,629	**4,123,789**
2020	1,570,960	1,592,676	786,855	158,600	9,645	**4,118,735**
2021	1,554,764	1,588,547	783,146	158,437	9,592	**4,094,486**
2022	1,548,303	1,585,273	778,282	158,162	9,546	**4,079,565**
2023	1,545,173	1,580,260	773,376	157,836	9,484	**4,066,130**
2024	1,548,861	1,578,084	772,198	157,483	9,442	**4,066,068**
2025	1,540,807	1,566,204	768,629	157,091	9,342	**4,042,072**
2026	1,538,798	1,560,228	768,325	156,638	9,270	**4,033,259**
2027	1,537,675	1,556,561	768,111	156,191	9,197	**4,027,735**
2028	1,543,009	1,559,989	769,585	155,719	9,154	**4,037,455**
Compound Annual Growth Rate						
2019-28	**-0.35%**	**-0.13%**	**-0.21%**	**-0.21%**	**-0.56%**	**-0.23%**

California

Table A.11 summarizes California state forecasted sales growth by customer class.

Table A.11 – Forecasted Retail Sales Growth in California, post-DSM

California Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	367,897	235,353	58,162	85,073	1,862	**748,349**
2020	361,826	233,214	67,127	84,597	1,862	**748,625**
2021	355,511	229,650	66,226	84,195	1,848	**737,430**
2022	352,031	226,864	65,636	83,848	1,836	**730,214**
2023	349,717	223,699	64,992	83,434	1,820	**723,662**
2024	348,835	220,828	64,281	82,916	1,808	**718,667**
2025	345,089	216,362	63,212	82,405	1,782	**708,850**
2026	341,104	212,623	62,272	81,891	1,760	**699,651**
2027	335,738	208,827	61,282	81,350	1,738	**688,935**
2028	331,144	205,609	60,463	80,790	1,718	**679,724**
Compound Annual Growth Rate						
2019-28	**-1.16%**	**-1.49%**	**0.43%**	**-0.57%**	**-0.90%**	**-1.06%**

Utah

Table A.12 summarizes Utah state forecasted sales growth by customer class.

Table A.12 – Forecasted Retail Sales Growth in Utah, post-DSM

Utah Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	6,958,632	8,924,202	7,530,762	227,083	68,050	**23,708,729**
2020	6,722,640	9,127,823	7,641,629	226,518	67,972	**23,786,583**
2021	6,585,633	9,255,377	7,650,500	225,843	67,339	**23,784,691**
2022	6,586,282	9,355,618	7,689,331	225,172	66,786	**23,923,189**
2023	6,610,009	9,503,731	7,719,130	224,471	66,122	**24,123,463**
2024	6,664,829	9,652,768	7,763,907	223,747	65,575	**24,370,827**
2025	6,659,418	9,744,139	7,768,559	222,910	64,592	**24,459,618**
2026	6,686,629	9,887,868	6,828,384	222,092	63,782	**23,688,755**
2027	6,722,653	10,010,002	6,850,869	221,261	62,940	**23,867,725**
2028	6,788,210	10,091,495	6,900,904	220,444	62,269	**24,063,321**
Compound Annual Growth Rate						
2019-28	**-0.28%**	**1.38%**	**-0.97%**	**-0.33%**	**-0.98%**	**0.17%**

Idaho

Table A.13 summarizes Idaho state forecasted sales growth by customer class.

Table A.13 – Forecasted Retail Sales Growth in Idaho, post-DSM

Idaho Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	708,653	507,405	1,784,522	642,926	2,590	**3,646,095**
2020	699,473	517,175	1,784,139	640,292	2,580	**3,643,660**
2021	695,588	520,131	1,781,940	637,612	2,548	**3,637,819**
2022	697,223	524,387	1,780,536	634,963	2,518	**3,639,627**
2023	699,948	527,991	1,778,654	632,234	2,481	**3,641,308**
2024	706,271	531,511	1,777,222	628,727	2,446	**3,646,179**
2025	706,162	529,386	1,773,991	624,315	2,393	**3,636,249**
2026	709,090	527,395	1,771,600	619,091	2,345	**3,629,521**
2027	710,493	525,432	1,769,234	613,336	2,294	**3,620,789**
2028	710,115	525,478	1,767,661	607,711	2,249	**3,613,214**
Compound Annual Growth Rate						
2019-28	**0.02%**	**0.39%**	**-0.11%**	**-0.62%**	**-1.55%**	**-0.10%**

Wyoming

Table A.14 summarizes Wyoming state forecasted sales growth by customer class.

Table A.14 – Forecasted Retail Sales Growth in Wyoming, post-DSM

Wyoming Retail Sales – Megawatt-hours (MWh)						
Year	Residential	Commercial	Industrial	Irrigation	Lighting	**Total**
2019	951,251	1,354,914	6,968,294	24,398	11,603	**9,310,460**
2020	914,411	1,358,579	6,873,509	24,277	11,528	**9,182,304**
2021	890,481	1,350,275	6,758,266	24,167	11,347	**9,034,535**
2022	876,329	1,344,207	6,718,156	24,060	11,161	**8,973,913**
2023	865,341	1,336,818	6,740,843	23,962	10,940	**8,977,905**
2024	859,738	1,330,275	6,790,086	23,814	10,724	**9,014,636**
2025	844,820	1,308,045	6,743,444	23,601	10,416	**8,930,325**
2026	834,596	1,287,030	6,743,137	23,352	10,123	**8,898,239**
2027	823,992	1,269,711	6,779,811	23,106	9,818	**8,906,437**
2028	814,676	1,259,257	6,763,239	22,872	9,532	**8,869,576**
Compound Annual Growth Rate						
2019-28	**-1.71%**	**-0.81%**	**-0.33%**	**-0.72%**	**-2.16%**	**-0.54%**

Alternative Load Forecast Scenarios

The purpose of providing alternative load forecast cases is to determine the resource type and timing impacts resulting from a change in the economy or system peaks as a result of higher than normal temperatures.

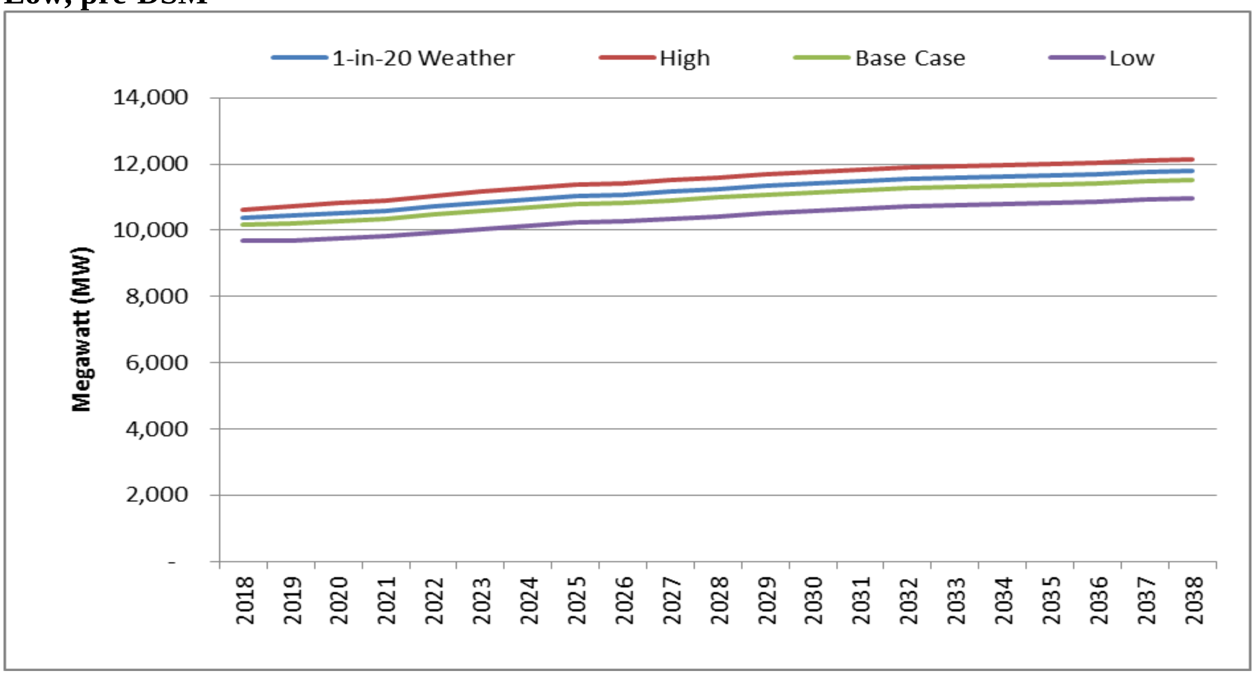
The September 2018 forecast is the baseline scenario. For the high and low load growth scenarios, optimistic and pessimistic economic driver assumptions from IHS Markit were applied to the economic drivers in PacifiCorp's load forecasting models. These growth assumptions were extended for the entire forecast horizon. Further, the high and low load growth scenarios also incorporate the standard error bands for the energy and the peak forecast to determine a 95 percent prediction interval around the base IRP forecast.

The 95 percent prediction interval is calculated at the system level and then allocated to each state and class based on their contribution to the variability of the system level forecast. The standard error bands for the jurisdictional peak forecasts were calculated in a similar manner. The final high load growth scenario includes the optimistic economic forecast plus the monthly energy adder and the monthly peak forecast with the peak adder. The final low load growth scenario includes the pessimistic economic forecast minus the monthly energy adder and monthly peak forecast minus the peak adder.

For the 1-in-20 year (5 percent probability) extreme weather scenario, PacifiCorp used 1-in-20 year peak weather for summer (July) months for each state. The 1-in-20 year peak weather is defined as the year for which the peak has the chance of occurring once in 20 years.

Figure A.11 shows the comparison of the above scenarios relative to the base case scenario.

Figure A.11 – Load Forecast Scenarios for 1-in-20 Weather, High, Base Case and Low, pre-DSM



APPENDIX B - IRP REGULATORY COMPLIANCE

Introduction

This appendix describes how PacifiCorp's 2019 Integrated Resource Plan (IRP) complies with (1) the various state commission IRP standards and guidelines, (2) specific analytical requirements stemming from acknowledgment orders for the company's 2017 Integrated Resource Plan (2017 IRP) and other ongoing IRP acknowledgement order requirements as applicable, and (3) state commission IRP requirements stemming from other regulatory proceedings.

Included in this appendix are the following tables:

- Table B.1 - Provides an overview and comparison of the rules in each state for which IRP submission is required.[1]
- Table B.2 - Provides a description of how PacifiCorp addressed the 2017 IRP acknowledgement order requirements and other commission directives.
- Table B.3 - Provides an explanation of how this plan addresses each of the items contained in the Oregon IRP guidelines.
- Table B.4 - Provides an explanation of how this plan addresses each of the items contained in the Public Service Commission of Utah IRP Standard and Guidelines issued in June 1992.
- Table B.5 - Provides an explanation of how this plan addresses each of the items contained in the Washington Utilities and Transportation Commission IRP guidelines issued in January 2006.
- Table B.6 - Provides an explanation of how this plan addresses each of the items contained in the Wyoming Public Service Commission IRP guidelines updated in March 2016.

General Compliance

PacifiCorp prepares the IRP on a biennial basis and files the IRP with state commissions. The preparation of the IRP is done in an open public process with consultation from all interested parties, including commissioners and commission staff, customers, and other stakeholders. This open process provides parties with a substantial opportunity to contribute information and ideas in the planning process, and also serves to inform all parties on the planning issues and approach. The public input process for this IRP, described in Volume I, Chapter 2 (Introduction), as well as Volume II, Appendix C (Public Input Process) fully complies with IRP standards and guidelines.

The IRP provides a framework and plan for future actions to ensure PacifiCorp continues to provide reliable and least-cost electric service to its customers. The IRP evaluates, over a twenty-year planning period, the future load of PacifiCorp customers and the resources required to meet this load.

To fill any gap between changes in loads and existing resources, while taking into consideration potential early retirement of existing coal units as an alternative to investments that achieve

[1] California Public Utilities Code Section 454.5 allows utility with less than 500,000 customers in the state to request an exemption from filing an IRP. However, PacifiCorp files its IRP and IRP supplements with the California Public Utilities Commission to address the company plan for compliance with the California RPS requirements.

compliance with environmental regulations, the IRP evaluates a broad range of available resource options, as required by state commission rules. These resource options include supply-side, demand-side, and transmission alternatives. The evaluation of the alternatives in the IRP, as detailed in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and Chapter 8 (Modeling and Portfolio Selection Results) meets this requirement and includes the impact to system costs, system operations, supply and transmission reliability, and the impacts of various risks, uncertainties and externality costs that could occur. To perform the analysis and evaluation, PacifiCorp employs a suite of models that simulate the complex operation of the PacifiCorp system and its integration within the Western interconnection. The models allow for a rigorous testing of a reasonably broad range of commercially feasible resource alternatives available to PacifiCorp on a consistent and comparable basis. The analytical process, including the risk and uncertainty analysis, fully complies with IRP standards and guidelines, and is described in detail in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach).

The IRP analysis is designed to define a resource plan that is least-cost, after consideration of risks and uncertainties. To test resource alternatives and identify a least-cost, risk adjusted plan, portfolio resource options were developed and tested against each other. This testing included examination of various tradeoffs among the portfolios, such as average cost versus risk, reliability, customer rate impacts, and average annual carbon dioxide (CO_2) emissions. This portfolio analysis and the results and conclusions drawn from the analysis are described in Volume I, Chapter 8 (Modeling and Portfolio Selection Results).

Consistent with the IRP standards and guidelines of Oregon, Utah, and Washington, this IRP includes an Action Plan in Volume I, Chapter 9 (Action Plan). The Action Plan details near-term actions that are necessary to ensure PacifiCorp continues to provide reliable and least-cost electric service after considering risk and uncertainty. The Action Plan also provides a progress report on action items contained in the 2017 IRP and 2017 IRP Update.

The 2019 IRP and related Action Plan are filed with each commission with a request for acknowledgment or acceptance, as applicable. Acknowledgment or acceptance means that a commission recognizes the IRP as meeting all regulatory requirements at the time of acknowledgment. In a case where a commission acknowledges the IRP in part or not at all, PacifiCorp may modify and seek to re-file an IRP that meets their acknowledgment standards or address any deficiencies in the next plan.

State commission acknowledgment orders or letters typically stress that an acknowledgment does not indicate approval or endorsement of IRP conclusions or analysis results. Similarly, an acknowledgment does not imply that favorable ratemaking treatment for resources proposed in the IRP will be given.

California

Public Utilities Code Section 454.52, mandates that the California Public Utilities Commission (CPUC) adopt a process for load serving entities to file an IRP beginning in 2017. In February 2016, the CPUC opened a rulemaking to adopt an IRP process and address the scope of the IRP to be filed with the CPUC (Docket R.16.02.007).

Decision (D.) 18-02-018 instructed PacifiCorp to file an alternative IRP consisting of any IRP submitted to another public regulatory entity within the previous calendar year (Alternative Type

2 Load Serving Entity Plan). D. 18-02-018 also instructed PacifiCorp to provide an adequate description of treatment of disadvantaged communities, as well as a description of how planned future procurement is consistent with the 2030 Greenhouse Gas Benchmark.

On August 1, 2018, PacifiCorp resubmitted its 2017 IRP in compliance with D.18-02-018, and the CPUC approved PacifiCorp's resubmission in D.19-04-040 and deemed it to be in compliance.

On September 20, 2019 the CPUC issued a ruling in Docket R.16.02.007 setting forth proposed IRP filing requirements; CPUC Staff continues to recommend a nonstandard IRP filing plan for multi-jurisdictional utilities, including PacifiCorp. The company submitted comments in support of these filing requirements on October 14, 2019.

Idaho

The Idaho Public Utilities Commission's (Idaho PUC) Order No. 22299, issued in January 1989, specifies integrated resource planning requirements. This order mandates that PacifiCorp submit a Resource Management Report (RMR) on a biennial basis. The intent of the RMR is to describe the status of IRP efforts in a concise format, and cover the following areas:

> *Each utility's RMR should discuss any flexibilities and analyses considered during comprehensive resource planning, such as: (1) examination of load forecast uncertainties; (2) effects of known or potential changes to existing resources; (3) consideration of demand and supply side resource options; and (4) contingencies for upgrading, optioning and acquiring resources at optimum times (considering cost, availability, lead time, reliability, risk, etc.) as future events unfold.*

This IRP is submitted to the Idaho PUC as the Resource Management Report for 2019, and fully addresses the above report components.

Oregon

This IRP is submitted to the Oregon Public Utility Commission (OPUC) in compliance with its planning guidelines issued in January 2007 (Order No. 07-002). The Oregon PUC's IRP guidelines consist of substantive requirements (Guideline 1), procedural requirements (Guideline 2), plan filing, review, and updates (Guideline 3), plan components (Guideline 4), transmission (Guideline 5), conservation (Guideline 6), demand response (Guideline 7), environmental costs (Guideline 8, Order No. 08-339), direct access loads (Guideline 9), multi-state utilities (Guideline 10), reliability (Guideline 11), distributed generation (Guideline 12), resource acquisition (Guideline 13), and flexible resource capacity (Order No. 12-013[2]). Consistent with the earlier guidelines (Order 89-507), the Oregon PUC notes that acknowledgment does not guarantee favorable ratemaking treatment, only that the plan seems reasonable at the time acknowledgment is given. Table B.3 provides detail on how this plan addresses each of the requirements.

Utah

This IRP is submitted to the Public Service Commission of Utah in compliance with its 1992 Order on Standards and Guidelines for Integrated Resource Planning (Docket No. 90-2035-01, "Report

2 Public Utility Commission of Oregon, Order No. 12-013, Docket No. 1461, January 19, 2012.

and Order on Standards and Guidelines”). Table B.4 documents how PacifiCorp complies with each of these standards.

Washington

This IRP is submitted to the Washington Utilities and Transportation Commission (WUTC) in compliance with its rule requiring least cost planning (Washington Administrative Code 480-100-238) (as amended, January 2006). In addition to a least cost plan, the rule requires provision of a two-year action plan and a progress report that “relates the new plan to the previously filed plan.”

The rule requires PacifiCorp to submit a work plan for informal commission review not later than 12 months prior to the due date of the plan. The work plan is required to lay out the contents of the IRP, the resource assessment method, and timing and extent of public participation. PacifiCorp filed a work plan with the WUTC on March 28, 2018, in Docket UE-180259. Table B.5 provides detail on how this IRP addresses each of the rule requirements.

Wyoming

Wyoming Public Service Commission issued new rules that replaced the previous set of rules on March 21, 2016. Chapter 3, Section 33 outlines the requirements on filing IRPs for any utility serving Wyoming customers. The rule, shown below, went into effect in March 2016. Table B.6 provides detail on how this plan addresses the rule requirements.

> ***Section 33. Integrated Resource Plan (IRP).***
> *Each utility serving in Wyoming that files an IRP in another jurisdiction shall file that IRP with the Commission. The Commission may require any utility to file an IRP.*

Table B.1 – Integrated Resource Planning Standards and Guidelines Summary by State

Topic	Oregon	Utah	Washington	Idaho	Wyoming
Source	Order No. 07-002, *Investigation Into Integrated Resource Planning*, January 8, 2007, as amended by Order No. 07-047. Order No. 08-339, *Investigation into the Treatment of CO2 Risk in the Integrated Resource Planning Process*, June 30, 2008. Order No. 09-041, New Rule OAR 860-027-0400, implementing Guideline 3, "Plan Filing, Review, and Updates". Order No. 12-013, "Investigation of Matters related to Electric Vehicle Charging", January 19, 2012.	Docket 90-2035-01 *Standards and Guidelines for Integrated Resource Planning* June 18, 1992.	WAC 480-100-251 Least cost planning, May 19, 1987, and as amended from WAC 480-100-238 *Least Cost Planning Rulemaking*, January 9, 2006 (Docket # UE-030311)	Order 22299 *Electric Utility Conservation Standards and Practices* January, 1989.	Wyoming Electric, Gas and Water Utilities, Chapter 3, Section 33, March 21, 2016.
Filing Requirements	Least-cost plans must be filed with the Oregon PUC.	An IRP is to be submitted to commission.	Submit a least cost plan to the WUTC. Plan to be developed with consultation of WUTC staff, and with public involvement.	Submit Resource Management Report on planning status. Also file progress reports on conservation, low-income programs, lost opportunities and capability building.	Each utility serving in Wyoming that files and IRP in another jurisdiction, shall file the IRP with the commission.

Frequency	Plans filed biennially, within two years of its previous IRP acknowledgment order. An annual update to the most recently acknowledged IRP is required to be filed on or before the one-year anniversary of the acknowledgment order date. While informational only, utilities may request acknowledgment of proposed changes to the action plan.	File biennially.	File biennially.	RMR to be filed at least biennially. Conservation reports to be filed annually. Low income reports to be filed at least annually. Lost Opportunities reports to be filed at least annually. Capability building reports to be filed at least annually.	The commission may require any utility to file an IRP.
Commission Response	Least-cost plan (LCP) *acknowledged* if found to comply with standards and guidelines. A decision made in the LCP process does not guarantee favorable rate-making treatment. The OPUC may direct the utility to revise the IRP or conduct additional analysis before an acknowledgment order is issued. Note, however, that Rate Plan legislation allows pre-approval of near-term resource investments.	IRP acknowledged if found to comply with standards and guidelines. Prudence reviews of new resource acquisitions will occur during rate making proceedings.	The plan will be considered, with other available information, when evaluating the performance of the utility in rate proceedings. WUTC sends a letter discussing the report, making suggestions and requirements and acknowledges the report.	Report does not constitute pre-approval of proposed resource acquisitions. Idaho sends a short letter stating that they accept the filing and acknowledge the report as satisfying commission requirements.	Commission advisory staff reviews the IRP as directed by the Commission and drafts a memo to report its findings to the commission in an open meeting or technical conference.

Process	The public and other utilities are allowed significant involvement in the preparation of the plan, with opportunities to contribute and receive information. Order 07-002 requires that the utility present IRP results to the Oregon PUC at a public meeting prior to the deadline for written public comments. Commission staff and parties should complete their comments and recommendations within six months after IRP filing. Competitive secrets must be protected.	Planning process open to the public at all stages. IRP developed in consultation with the commission, its staff, with ample opportunity for public input.	In consultation with WUTC staff, develop and implement a public involvement plan. Involvement by the public in development of the plan is required. PacifiCorp is required to submit a work plan for informal commission review not later than 12 months prior to the due date of the plan. The work plan is to lay out the contents of the IRP, resource assessment method, and timing and extent of public participation.	Utilities to work with commission staff when reviewing and updating RMRs. Regular public workshops should be part of process.	The review may be conducted in accordance with guidelines set from time to time as conditions warrant. The Public Service Commission of Wyoming, in its Letter Order on PacifiCorp's 2008 IRP (Docket No. 2000-346-EA-09) adopted commission Staff's recommendation to expand the review process to include a technical conference, an expanded public comment period, and filing of reply comments.
Focus	20-year plan, with end-effects, and a short-term (two-year) action plan. The IRP process should result in the selection of that mix of options which yields, for society over the long run, the best combination of expected costs and variance of costs.	20-year plan, with short-term (four-year) action plan. Specific actions for the first two years and anticipated actions in the second two years to be detailed. The IRP process should result in the selection of the optimal set of resources given the expected combination of costs, risk and uncertainty.	20-year plan, with short-term (two-year) action plan. The plan describes mix of resources sufficient to meet current and future loads at "lowest reasonable" cost to utility and ratepayers. Resource cost, market volatility risks, demand-side resource uncertainty, resource dispatchability, ratepayer risks, policy impacts, and environmental risks, must be considered.	20-year plan to meet load obligations at least-cost, with equal consideration to demand side resources. Plan to address risks and uncertainties. Emphasis on clarity, understandability, resource capabilities and planning flexibility.	Identification of least-cost/least-risk resources and discussion of deviations from least-cost resources or resource combinations.

Elements	Basic elements include: • All resources evaluated on a consistent and comparable basis. • Risk and uncertainty must be considered. • The primary goal must be least cost, consistent with the long-run public interest. • The plan must be consistent with Oregon and federal energy policy. • External costs must be considered, and quantified where possible. OPUC specifies environmental adders (Order No. 93-695, Docket UM 424). • Multi-state utilities should plan their generation and transmission systems on an integrated-system basis. • Construction of resource portfolios over the range of identified risks and uncertainties. • Portfolio analysis shall include fuel transportation and	IRP will include: • Range of forecasts of future load growth • Evaluation of all present and future resources, including demand side, supply side and market, on a consistent and comparable basis. • Analysis of the role of competitive bidding • A plan for adapting to different paths as the future unfolds. • A cost effectiveness methodology. • An evaluation of the financial, competitive, reliability and operational risks associated with resource options, and how the action plan addresses these risks. • Definition of how risks are allocated between ratepayers and shareholders	The plan shall include: • A range of forecasts of future demand using methods that examine the effect of economic forces on the consumption of electricity and that address changes in the number, type and efficiency of electrical end-uses. • An assessment of commercially available conservation, including load management, as well as an assessment of currently employed and new policies and programs needed to obtain the conservation improvements. • Assessment of a wide range of conventional and commercially available nonconventional generating technologies • An assessment of transmission system capability and reliability. • A comparative evaluation of energy supply resources (including transmission and distribution) and improvements in conservation using	Discuss analyses considered including: • Load forecast uncertainties; • Known or potential changes to existing resources; • Equal consideration of demand and supply side resource options; • Contingencies for upgrading, optioning and acquiring resources at optimum times; • Report on existing resource stack, load forecast and additional resource menu.	Proposed Commission Staff guidelines issued July 2016 cover: • Sufficiency of the public comment process • Utility strategic goals, resource planning goals and preferred resource portfolio • Resource need over the near-term and long-term planning horizons • Types of resources considered • Changes in expected resource acquisitions and load growth from the previous IRP • Environmental impacts considered • Market purchase evaluation • Reserve margin analysis • Demand-side management and conservation options

	transmission requirements. • Plan includes conservation potential study, demand response resources, environmental costs, and distributed generation technologies. • Avoided cost filing required within 30 days of acknowledgment.		"lowest reasonable cost" criteria. • Integration of the demand forecasts and resource evaluations into a long-range (at least 10 years) plan. • All plans shall also include a progress report that relates the new plan to the previously filed plan.		

Table B.2 – Handling of 2017 IRP Acknowledgment and Other IRP Requirements

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
Idaho		
Case No. PAC-E-17-03, Order No. 34018, p. 14	Expect the company to consider public input meeting process concerns raised in the 2017 IRP as related to the Energy Vision 2020 projects and continue to evaluate all resource options and the best interest of customers when developing the 2019 IRP.	For the 2019 IRP, PacifiCorp expanded the public-input meeting process from seven to 18 public-input meetings and presented its preferred portfolio and draft action plan at the October 3-4, 2019 public-input meeting. See Volume II, Appendix C (Public Input Process).
Case No. PAC-E-17-03, Order No. 34018, p. 14	The company should let its modeling fully assess when a coal plant should be retired, and provide resource portfolios that are least-cost based on modeling, and not assumed coal plan retirement.	Recognizing limitations in modeling regarding endogenous transmission retirements, PacifiCorp conducted comprehensive coal studies as part of its 2019 IRP. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results) and Volume II, Appendix R (Coal Studies) in particular for more information.
Case No. PAC-E-17-03, Order No. 34018, p. 14	Expect the company to continue improving its forecasting methodologies by analyzing a broad and diverse range of measures to avoid disadvantageous or unfair forecasting treatment of certain resources over others, including coal and wind.	See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach).
Oregon		
Order No. 14-252, p. 3	Beginning in the third quarter of 2014, PacifiCorp will appear before the Commission to provide quarterly updates on coal plant compliance requirements, legal proceedings, pollution control investments, and other major capital expenditures on its coal plants or transmission projects. PacifiCorp may provide a written report and need not appear if there are no significant changes between the quarterly updates.	Order No. 14-288 modified the requirements, moving the date of the first meeting from the third quarter of 2014 to the fourth quarter of 2014. Order No. 16-071 further streamlined this requirement by requiring the company to continue to provide twice yearly updates on the status of demand-side management (DSM) IRP acquisition goals at public meetings and include in these updates information on future coal plant and transmission investment decisions. Also include information on 111(d) rule compliance analysis; Environmental/coal and transmission expenditures quarterly presentations were made at Commission special public meetings on October 28, 2014 and March 16, 2015. Quarterly presentations via written reports were provided on June 30, 2015 and October 1, 2015. The 2015 fourth quarter presentation was made at the Commission special public meeting on December 17, 2015. A biannual DSM update was provided at the Commission public meetings on March 10, 2015 and December 15, 2015 Biannual presentations for both Environmental/coal and transmission

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
		expenditures/111(d) and DSM were provided on August 30, 2016 and December 20, 2016. Please see Commission website for public meeting history and Docket RE 163 for presentations and written reports provided.
Order No. 14-252, p. 3	In future IRPs, PacifiCorp will provide: • Timelines and key decision points for expected pollution control options and transmission investments; and • Tables detailing major planned expenditures with estimated costs in each year for each plant or transmission project, under different modeled scenarios.	PacifiCorp has included two Regional Haze scenarios in the 2019 IRP. See Volume II, Appendix M (Case Study Fact Sheets) for discussion on specific Regional Haze assumptions. For modeling purposes PacifiCorp has included incremental transmission costs associated with specific resources. See Volume I, Chapter 6 (Resource Options) for discussion of these potential costs. Additional detail is provided on the data discs included with the 2019 IRP filing.
Order No. 14-252, p. 13	In the acknowledgement order the Commission provided the following recommendation: As part of the 2015, 2017, and 2019 IRPs, PacifiCorp will provide an updated version of the screening tool spreadsheet model that was provided to participants in the 2011 (docket LC 52) IRP Update.	The screening tool is no longer used to model competing retirement scenarios. In the 2019 IRP, PacifiCorp conducted comprehensive coal studies. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results) and Volume II, Appendix R (Coal Studies) in particular for more information.
Order No. 14-252, p. 16	In future IRPs, PacifiCorp will provide yearly Demand Response (Class 1) and Energy Efficiency (Class 2) DSM acquisition targets in both GWh and MW for each year in the planning period, by state.	See Volume II, Appendix D (Demand-Side Management Resources) for the breakdown by state and year for both energy and capacity selected for the preferred portfolio.
Order No. 16-071, p. 4	The Commission expects the company to update its Clean Power Plan modeling in its 2015 IRP update or its next IRP (depending on when Oregon's compliance plan is known) to correctly reflect the final rule and Oregon's implementation plan.	PacifiCorp's 2019 IRP notes that the Clean Power Plan rule is stayed and that no implementation plans or compliance measures impacted the 2019 IRP.
Order No. 16-071, p. 5	In addition to the action item 3a irrigation pilot program, the Oregon PUC directs PacifiCorp to design and present additional pilots.	PacifiCorp presented information on potential demand response pilot opportunities at the Oregon PUC's August 16, 2016 public input meeting and explained that the 2017 IRP would inform whether the company would propose additional pilot programs.
Order No. 16-071, Appendix A, p.1 (action item 3b)	Continue to provide twice yearly updates on the status of DSM IRP acquisition goals at public meetings. Include in these updates information on future coal plant and transmission investment decisions, as a streamlined continuation of Order No. 14-288.	PacifiCorp provided updates on the status of DSM acquisition goals to the Oregon PUC on October 5, 2018 and August 5, 2019. PacifiCorp did not conduct a sensitivity on accelerated DSM in the 2019 IRP.

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
	Also include information on 111 (d) rule compliance analysis; Provide more risk analysis on portfolios that include accelerated energy efficiency as a resource; Include annual incremental summer and winter peak demand capacity (MW) corresponding to 2015 through 2018 Energy Efficiency (Class 2) DSM annual energy savings targets; For the 2015 IRP Update, provide model run results of the preferred portfolio with base case DSM and with accelerated DSM for comparison purposes; Perform stochastic modeling on all portfolios with accelerated DSM.	See Volume I, Chapter 8 (Modeling Portfolio Selection Results) for the annual summer and winter peak demand capacity (MW) for Energy Efficiency DSM.
Order No. 16-071, Appendix A, p.2 (action item 5a) and Order No. 16-071, p. 9.	Continue permitting Energy Gateway Segments D, E, F, and H until PacifiCorp files its 2017 IRP. The Oregon PUC acknowledges this action item only to the extent of PacifiCorp's permitting actions. The Oregon PUC expects to see updated analysis in the next IRP or before the company makes significant commitments to these transmission lines.	See Chapter 4 (Transmission), Chapter 7 (Modeling and Portfolio Evaluation Approach), Chapter 8 (Modeling and Portfolio Selection Results), and Chapter 9 (Action Plan) for updated analysis on the company's Energy Gateway transmission segments. See also Volume II, Appendix M (Case Fact Sheets Overview) for additional detail regarding the Energy Gateway transmission segments studied in the 2019 IRP.
Order No. 16-071, Appendix A, p.2 (additional actions - modeling)	1. Include more robust analysis regarding the west BAA winter peak load/resource balance and portfolios to meet this peak load; 2. Provide quantitative justification for the planning reserve margin of 13 percent; 3. Utilize the Balancing Authority's Area Control Error (ACE) Limit (BAAL) NERC standard in forthcoming wind integration studies, and confirm and demonstrate that the study is based on implementation of the BAAL standard; 4. Use the same regional haze assumptions when directly comparing portfolios.	1. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results) including winter and summer peak load and resource tables. 2. See Volume II, Appendix I (Planning Reserve Margin Study). The study concludes with a planning criteria that meets one day in 10 year planning targets at the lowest reasonable cost. 3. The company's Flexible Reserve Study (Appendix H) incorporates the specific requirements of the BAAL standard (BAL-001-2). 4. Regional haze compliance is embedded in the portfolio-development process. Top performing portfolios reflected in PacifiCorp's 2019 IRP reflect consistent regional haze compliance requirements.

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
Order No. 18-138, Appendix A p. 19	PacifiCorp must: 1. Provide an updated economic analysis with the request for acknowledgement of the final shortlist from the 2017R RFP 2. Update its analysis of the Energy Vision 2020 projects as part of its 2017 IRP Update, including any changes resulting from the 2017R RFP or changes to critical assumptions, such as availability of tax credits corporate tax rate, then-current cost-and-performance data for repowered wind resources, cost-and-performance data from the 2017R RFP final shortlist, and cost assumptions for the transmission projects; and 3. Provide quarterly updates to the Oregon PUC and Staff as development of the projects chosen in the 2017R RFP and the transmission projects proceed (through the date the projects go into service).	1. RFP information was provided in the 2017 IRP Update, Chapter 7 (Energy Vision 2020 Update). 2. An update on Energy Vision 2020 was provided in the 2017 IRP Update, Chapter 7 (Energy Vision 2020 Update). 3. PacifiCorp has provided quarterly updates in Docket No. LC-70 starting July 11, 2018. Subsequent updates were provided on October 30, 2018, January 7, 2019, May 7, 2019 and August 2, 2019.
Order No. 18-138, Appendix A p. 20	PacifiCorp must provide the Dave Johnston early retirement transmission analysis to the Oregon PUC and parties in LC 67 once the third-party review and validation has been finalized.	See 2017 IRP Update Filing, Chapter 6 (Portfolio Development).
Order No. 18-138, Appendix A p. 20	1. PacifiCorp is to report back in its 2017 IRP Update as to the current and forecasted use of front office transactions through 2036 and any changes in assumptions impacting front office transaction use from the initial filing of LC 67 in April 2017. 2. PacifiCorp should repeat its study of trading hub liquidity and also the market reliance risk analysis of front office transactions prior to the 2019 IRP. 3. For the 2019 IRP, if a generating resource is included in the preferred portfolio with an associated action item, then PacifiCorp will report on the cost and risk tradeoffs between the preferred portfolio and alternatives that do not include a generating resource.	1. See 2017 IRP Update Filing, Chapter 5 (Modeling and Assumptions Update). 2. See 2019 IRP, Volume II, Appendix J (Western Resource Adequacy Evaluation) for an updated study. 3. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
Order No. 18-138, Appendix A p. 21 as modified by Order No. 18-420	1. PacifiCorp, in coordination with staff and the Energy Trust of Oregon (ETO) will conduct an analysis before the 2019 IRP that identifies and	1. PacifiCorp conducted an analysis in cooperation with Navigant and the Energy Trust of Oregon as part of the 2019 IRP analysis. The report with recommendations was presented at public-input

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
	compares the ongoing differences between ETO and PacifiCorp's near to long-term energy efficiency forecast with ETO's actual achieved savings. PacifiCorp will report on this analysis, including any recommendations to both organizations regarding forecast improvements, in the 2019 IRP. PacifiCorp will present the analysis as a public input IRP meeting. 2. Early in the public input process for the 2019 IRP, prior to finalizing energy efficiency supply curves, PacifiCorp will hold a DSM technical workshop to review and receive input regarding how the company models energy efficiency potential in the IRP and supporting studies such as the Conservation Potential Assessment.	meetings (see below) and is available on PacifiCorp's website. 2. PacifiCorp provided demand-side management workshops as part of its 2019 IRP public-input meetings on June 28-29, 2018 and July 12, 2019.
Order No. 18-138, Appendix A p. 21	PacifiCorp will perform 25 system optimizer (SO) runs, one for each coal unit and a base case. PacifiCorp will summarize the results providing a table of the difference in the PVRR resulting from the early retirement of each unit, an itemized list of coal unit retirement cost assumptions used in each SO run, and a list of coal units that would free up transmission along the path from the proposed Wyoming wind projects if retired. PacifiCorp is to provide this information by June 30, 2018. If there is a dispute about modeling in the meantime, PacifiCorp, staff and parties should first attempt to resolve it informally, but if that fails, staff may report back to the Oregon PUC at a public meeting before the 2019 IRP is filed. An Oregon PUC commissioner workshop will likely be scheduled to review this analysis once it is complete.	PacifiCorp provided the requested information in a public-input meeting presentation on June 28-29, 2018, and the presentation is available on the company's website. PacifiCorp presented an update on its coal studies at a special meeting at the Oregon PUC on December 18, 2018.
Order No. 18-138, Appendix A p. 21	PacifiCorp will continue to model the assumption that EPA regional haze litigation against the company is successful and that PacifiCorp will be required to comply with the current requirements of the State Implementation Plan (SIP) and Federal Implementation Plan (FIP).	PacifiCorp has included two Regional Haze scenarios in the 2019 IRP. See Volume II, Appendix M (Case Study Fact Sheets) for discussion on specific Regional Haze assumptions.
Order No. 18-138, Appendix A p. 21	In the IRP Update PacifiCorp will explain the reasons for the (sometimes) low correlation in the short-term forecast.	See 2017 IRP Update Filing, Chapter 5 (Modeling and Assumptions Update).

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
Order No. 18-138, Appendix A p. 22	In the IRP Update PacifiCorp will model natural gas and storage for meeting flexible reserve study needs.	See 2017 IRP Update Filing, Chapter 5 (Modeling and Assumptions Update).
Order No. 18-138, Appendix A p. 22	PacifiCorp will work with staff and parties to advance distributed energy resource forecasting and representation in the IRP, and define a proposal for opening a distribution system planning investigation.	In the 2019 IRP, PacifiCorp discussed distributed energy resources at its July 26-27, 2019 public-input meeting along with a workshop specific to energy storage.
Order No. 18-138, Appendix A p. 22	PacifiCorp will work with staff and parties to explore the use of AMI data in future IRPs.	AMI data will further enhance the granularity of load forecasting and PacifiCorp will continue to evolve in its IRP process as more AMI data becomes available.
Order No. 18-138, Appendix A p. 22	PacifiCorp, staff and parties should discuss a potential study of the capacity value of renewing QFs, and staff shall bring this issue to a public meeting before the 2017 IRP Update.	PacifiCorp discussed with Staff and parties over conference call and agreed to evaluate its 2019 IRP preferred portfolio load and resource balance with the assumption of QF renewal and provide that information subsequent to the filing of the 2019 IRP.
Utah		
Order, Docket No. 15-035-04, p.18	If PacifiCorp plans to use the System Benefit Tool type of transmission analytical tool in future IRPs, PacifiCorp should introduce and vet the tool in an IRP workshop setting prior to utilizing the tool.	The System Benefit Tool is not used in the 2019 IRP.
Order, Docket No. 15-035-04, p.19	Encourage PacifiCorp in future IRP processes, to provide a stronger demonstration of the reasonableness of the range of renewable resource costs analyzed.	PacifiCorp discussed its 2019 IRP supply-side resource table and inputs at the October 9, 2018 public-input meeting. The supply-side resource table was updated based on stakeholder feedback.
Order, Docket No. 15-035-04, p.20	Direct PacifiCorp to identify the amount of distributed generation in the baseload forecast in its load and resource table, as it does for existing DSM and curtailment.	See Volume I, Chapter 5 (Load and Resource Balance), which breaks out private generation in the same manner as DSM and interruptible load curtailment.
Order, Docket No. 15-035-04, p.21	Direct PacifiCorp to continue to evaluate the depth of the western wholesale market, and to use sensitivity cases and acquisition path analysis, including development of a contingency plan, to monitor the feasibility of long-term reliance on Front Office Transactions to meet near-term load growth.	See Volume II, Appendix J (Western Resource Adequacy Evaluation) for an evaluation of market depth, and also cases studied to assess impacts of higher market prices provided in Volume I, Chapter 8 (Modeling and Portfolio Selection Results). Also refer to acquisition path analysis for contingencies in Volume I, Chapter 9 (Action Plan).
Order, Docket No. 15-035-04, p.21	Recommend continued analysis of the planning reserve margin in future IRPs using results from both loss of load probability studies and analysis of the tradeoffs between reliability and cost.	See Volume II, Appendix I (Planning Reserve Margin Study). The study concludes with a planning criteria that meets one day in 10 year planning targets at the lowest reasonable cost.

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
Order, Docket No. 15-035-04, p.25	Analysis behind Near-Term and Long-Term Resource Acquisition Paths (Table 9.3 in the 2015 IRP) could be improved in terms of identifying potential exogenous changes that would cause a significant change in acquisition path. Encourage PacifiCorp in future IRPs to further define the critical contingencies it is monitoring and identify the magnitude of changes that would be required to potentially trigger movement to any of the different paths listed in the table.	See acquisition path analysis for contingencies in Volume I, Chapter 9 (Action Plan).
Order, Docket No. 15-035-04, p.31	Remind PacifiCorp of the requirement to future IRPs to present the Business Plan as a sensitivity case. If PacifiCorp has substantive objections to this requirement, PacifiCorp should file a motion for Commission action within 90 days of this order explaining the objection and requesting relief.	Please refer to the Sensitivity S-06- presented in Volume I, Chapter 8 (Modeling and Portfolio Selection Results) consistent with the Order in Docket No. 15-035-04.
Order, Docket No. 17-035-16, p.22	Encourage PacifiCorp and stakeholders to review recommendations of the DPU on process at the start of the 2019 IRP process.	PacifiCorp met with Utah stakeholders on August 9, 2018 and discussed recommendations of the Division of Public Utilities (DPU). PacifiCorp made best efforts to implement recommendations for timely materials and also shortened the lunch break and started earlier on the second day of public-input meetings.
Order, Docket No. 17-035-16, p.31	Encourage all parties to communicate in advance of the 2019 IRP about whether a training session on IRP capacity expansion and stochastic models would be appropriate and helpful. There is a distinction between requiring PacifiCorp to create opportunity for public involvement as required by the Guidelines, and requiring PacifiCorp to conduct analyses on behalf of parties.	PacifiCorp held a modeling workshop as part of its June 28-29, 2018 public-input meeting and provided information on its System Optimizer model and Planning and Risk model. PacifiCorp provided details on its models, functionality and planning assumptions throughout the public-input meeting process.
Order, Docket No. 17-035-16, p.35	To satisfy Guideline 3, any changes to the DSM modeling assumptions must be circulated during the IRP development process.	PacifiCorp provided a demand-side management workshop as part of a public-input meeting June 28-29, 2018. An additional workshop was held July 12, 2019. PacifiCorp discussed updates related to demand-side management modeling throughout its 2019 IRP process.
Order, Docket No. 17-035-16, p.37	PacifiCorp commits to conduct a workshop specific to energy storage as part of the 2019 IRP public input process prior to finalizing the supply-side resource table inputs for battery and energy storage.	PacifiCorp held an energy storage workshop August 30, 2018, and the presentation is available on the company’s website.
Order, Docket No. 17-035-16, p.43	Expect PacifiCorp and stakeholders to review the DPU’s recommendations on transmission modeling at the start of the 2019 IRP process.	PacifiCorp met with Utah stakeholders on August 9, 2018 and discussed recommendations of the Division of Public Utilities (DPU). PacifiCorp provided a transmission overview and update as

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
		part of a public-input meeting September 27-28, 2018.
Washington		
UE-140546, Acknowledgement Letter, p.1	Encourage the company to continue the practice of including data discs with the filing in future IRP filings.	Data discs have provided as part of the 2019 IRP filing.
UE-140546, Acknowledgement Letter, p.2	Encourage the company to continue to evaluate how its method of developing capacity value of renewable resources compares to the effective load carrying capability method on which it was based, to ensure that the company's model is yielding accurate results.	See Volume II, Appendix N (Capacity Contribution Study), analyzing updated hourly profiles and transmission availability impacts to determine effectiveness in meeting system load. The 2019 IRP includes winter peak (in addition to summer peak) in its assumptions, allowing enhanced insight into solar penetration concerns.
UE-140546, Acknowledgement Letter, p.4	The cost impacts in S-10 in the 2015 IRP were on a system basis and the commission would like to see them on a balancing authority area basis. Requests the analysis be redone in the 2017 IRP and that the company use inputs consistent with the staff MSP power flow data or explain why different inputs are more appropriate. Request that the company incorporate the balancing area analysis in all future IRPs.	PacifiCorp plans to incorporate this sensitivity as part of its 2019 IRP Update.
UE-140546, Acknowledgement Letter, p.8	Encourage the company to continue to integrate the EIM into its IRP model, in particular to develop modeling capability to capture how different resources with different generation profiles would interact with the EIM, based on the company's experience with the market.	PacifiCorp incorporated flexible ramping procurement diversity savings from the EIM in its Flexible Reserve Study. See Volume II, Appendix F (Flexible Reserve Study).
UE-160353, Acknowledgement Letter Attachment, p.4-6	Expect examination of Jim Bridger and Colstrip Units 3 & 4 pursuant to specific questions to be addressed in the 2019 IRP.	PacifiCorp plans to incorporate responses to these questions as part of its 2019 IRP Update pursuant to the Washington Utilities and Transportation Commission's July 3, 2019 letter.
UE-160353, Acknowledgement Letter Attachment, p.6-7	Balancing Area analysis in all future IRPs that includes a west control area and an east control area analysis with a robust description of the modeling interaction between the two discrete systems.	See Volume II, Appendix J (Western Resource Adequacy Evaluation).
UE-160353, Acknowledgement Letter Attachment, p.8	Expect the company to incorporate principles in the commission's policy statement on energy storage in the 2019 IRP.	See Volume II, Appendix Q (Energy Storage Potential Evaluation).
UE-160353, Acknowledgement Letter Attachment, p.8-9	Expect the company to provide a market reliance risk assessment in the 2019 IRP and expect the analysis will result in a quantified representation of risk that can be folded into the IRP analytical framework.	See Volume II, Appendix J (Western Resource Adequacy Evaluation). PacifiCorp's 2019 IRP also included analysis of the impact of higher market prices on select cases (FOT cases). See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and Chapter 8 (Modeling and Portfolio Selection Results).

Reference	IRP Requirement or Recommendation	How the Requirement or Recommendation is Addressed in the 2019 IRP
UE-160353, Acknowledgement Letter Attachment, p.9-10	In future IRPs, the company should more prominently display the Quick Reference Guides included in Appendix M of its 2017 IRP.	PacifiCorp expanded Volume II, Appendix M (Case Fact Sheets Overview) to include more portfolio specific materials that were included in public-input meeting presentations throughout the course of the 2019 IRP process. Discussion in Volume I of the 2019 IRP draws more direct references to Volume II, Appendix M (Case Fact Sheets Overview) for simplified navigation.
UE-160353, Acknowledgement Letter Attachment, p.10-11	In future IRPs, the company should incorporate the cost of risk of future greenhouse gas regulation in addition to known regulations in its preferred portfolio. The cost estimate should come from a comprehensive, peer-reviewed estimate of the monetary cost of climate change damages, produced by a reputable organization. WUTC suggests using the Interagency Working Group on Social Cost of Greenhouse Gases estimate with a three percent discount rate. The company should also continue to model other higher and lower cost estimates to understand how the resource portfolio changes based on these costs.	In the 2019 IRP, PacifiCorp assumed a CO_2 price starting in 2025 in its base case analysis. It also performed assessments of certain top performing portfolios under a low gas/no CO_2, a high gas/high CO_2, and a social cost of carbon price-policy scenario that was developed using estimates by the Interagency Working Group on Social Cost of Greenhouse Gases. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
UE-160353, Acknowledgement Letter Attachment, p.11	The company should develop a supply curve of emissions abatement and include this cost curve in the 2019 IRP. The analysis should identify all programs and technologies reasonably available in the company's service area, then use best available information to estimate the amount of emissions reductions each option might achieve, and at what cost.	PacifiCorp will use information from this analysis as part of its 2019 IRP Update.
Wyoming		
The Wyoming Public Service Commission accepted Rocky Mountain Power's 2017 Integrated Resource Plan (Docket No. 20000-512-EA-17) without further action on the matter pursuant to action taken at its open meeting on November 20, 2017 and by Letter Order issued January 29, 2019.		

Table B.3 – Oregon Public Utility Commission IRP Standard and Guidelines

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
Guideline 1. Substantive Requirements		
1.a.1	All resources must be evaluated on a consistent and comparable basis: All known resources for meeting the utility's load should be considered, including supply-side options which focus on the generation, purchase and transmission of power – or gas purchases, transportation, and storage – and	PacifiCorp considered a wide range of resources including renewables, demand-side management, energy storage, power purchases, thermal resources, and transmission. Volume I, Chapter 4 (Transmission Planning), Chapter 6 (Resource Options), and Chapter 7 (Modeling and Portfolio Evaluation Approach) document how PacifiCorp developed these resources

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
	demand-side options which focus on conservation and demand response.	and modeled them in its portfolio analysis. All these resources were established as resource options in the company's capacity expansion optimization model, System Optimizer, and selected by the model based on load requirements, relative economics, resource size, availability dates, and other factors.
1.a.2	All resources must be evaluated on a consistent and comparable basis: Utilities should compare different resource fuel types, technologies, lead times, in-service dates, durations and locations in portfolio risk modeling.	All portfolios developed with System Optimizer were subjected to Monte Carlo production cost simulation. These portfolios contained a variety of resource types with different fuel types (coal, gas, biomass, nuclear fuel, "no fuel" renewables), lead-times (ranging from front office transactions to nuclear plants), in-service dates, operational lives, and locations. See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach), Chapter 8 (Modeling and Portfolio Selection Results), and Volume II, Appendix K (Capacity Expansion Results Detail) and Appendix L (Stochastic Simulation Results).
1.a.3	All resources must be evaluated on a consistent and comparable basis: Consistent assumptions and methods should be used for evaluation of all resources.	PacifiCorp fully complies with this requirement. The company developed generic supply-side resource attributes based on a consistent characterization methodology. For demand-side resources, the company used the Applied Energy Group's supply curve data developed for this IRP for representation of DSM resources. The study was based on a consistently applied methodology for determining technical, market, and achievable DSM potentials. All portfolio resources were evaluated using the same sets of price and load forecast inputs. These inputs are documented in Volume I, Chapter 5 (Load and Resource Balance), Chapter 6 (Resource Alternatives), and Chapter 7 (Modeling and Portfolio Evaluation Approach) as well as Volume II, Appendix D (Demand-Side Management Resources).
1.a.4	All resources must be evaluated on a consistent and comparable basis: The after-tax marginal weighted-average cost of capital (WACC) should be used to discount all future resource costs.	PacifiCorp applied its nominal after-tax WACC of 6.92 percent to discount all cost streams.
1.b.1	Risk and uncertainty must be considered: At a minimum, utilities should address the following sources of risk and uncertainty: 1. Electric utilities: load requirements, hydroelectric generation, plant forced outages, fuel prices, electricity prices, and costs to comply with any regulation of greenhouse gas emissions.	Each of the sources of risk identified in this guideline is treated as a stochastic variable in Monte Carlo production cost simulation with the exception of CO_2 emission compliance costs, which are treated as a scenario risk and evaluated as part of a CO_2 price assumption and a no CO_2, a high CO_2, and a social cost of carbon price-policy scenario for specific studies. See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
1.b.2	Risk and uncertainty must be considered: Utilities should identify in their plans any additional sources of risk and uncertainty.	Resource risk mitigation is discussed in Volume I, Chapter 9 (Action Plan). Regulatory and financial risks associated with resource and transmission investments are highlighted in several areas in the IRP document, including Volume I, Chapter 3 (The

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
		Planning Environment), Chapter 4 (Transmission), Chapter 7 (Modeling and Portfolio Evaluation Approach), and Chapter 8 (Modeling and Portfolio Selection Results).
1.c	The primary goal must be the selection of a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers ("best cost/risk portfolio").	PacifiCorp evaluated cost/risk tradeoffs for each of the portfolios considered. See Volume I, Chapter 8 (Modeling and Portfolio Selection Results), Chapter 9 (Action Plan), and Volume II, Appendix K (Capacity Expansion Results Detail) and Appendix H (Stochastic Parameters) for the company's portfolio cost/risk analysis and determination of the preferred portfolio.
1.c.1	The planning horizon for analyzing resource choices should be at least 20 years and account for end effects. Utilities should consider all costs with a reasonable likelihood of being included in rates over the long term, which extends beyond the planning horizon and the life of the resource.	PacifiCorp used a 20-year study period (2019-2038) for portfolio modeling, and a real levelized revenue requirement methodology for treatment of end effects.
1.c.2	Utilities should use present value of revenue requirement (PVRR) as the key cost metric. The plan should include analysis of current and estimated future costs for all long-lived resources such as power plants, gas storage facilities, and pipelines, as well as all short-lived resources such as gas supply and short-term power purchases.	Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) provides a description of the PVRR methodology.
1.c.3.1	To address risk, the plan should include, at a minimum: 1. Two measures of PVRR risk: one that measures the variability of costs and one that measures the severity of bad outcomes.	PacifiCorp uses the standard deviation of stochastic production costs as the measure of cost variability. For the severity of bad outcomes, the company calculates several measures, including stochastic upper-tail mean PVRR (mean of highest three Monte Carlo iterations) and the 95th percentile stochastic production cost PVRR.
1.c.3.2	To address risk, the plan should include, at a minimum: 2. Discussion of the proposed use and impact on costs and risks of physical and financial hedging.	A discussion on hedging is provided in Volume I, Chapter 9 (Action Plan).
1.c.4	The utility should explain in its plan how its resource choices appropriately balance cost and risk.	Volume I, Chapter 8 (Modeling and Portfolio Selection Results) summarizes the results of PacifiCorp's cost/risk tradeoff analysis, and describes what criteria the company used to determine the best cost/risk portfolios and the preferred portfolio.
1.d	The plan must be consistent with the long-run public interest as expressed in Oregon and federal energy policies.	PacifiCorp considered both current and potential state and federal energy/pollutant emission policies in portfolio modeling. Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) describes the decision process used to derive portfolios, which includes consideration of state and federal resource policies and regulations that are summarized in Volume I, Chapter 3 (The Planning Environment). Volume I, Chapter 8 (Modeling and Portfolio Selection Results) provides the results. Volume I,

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
		Chapter 9 (Action Plan) presents an acquisition path analysis that describes resource strategies based on regulatory trigger events.
Guideline 2. Procedural Requirements		
2.a	The public, which includes other utilities, should be allowed significant involvement in the preparation of the IRP. Involvement includes opportunities to contribute information and ideas, as well as to receive information. Parties must have an opportunity to make relevant inquiries of the utility formulating the plan. Disputes about whether information requests are relevant or unreasonably burdensome, or whether a utility is being properly responsive, may be submitted to the Oregon PUC for resolution.	PacifiCorp fully complies with this requirement. Volume I, Chapter 2 (Introduction) provides an overview of the public process, all public-input meetings held for the 2019 IRP, which are documented in Volume II, Appendix C (Public Input Process). PacifiCorp also made use of a Stakeholder Feedback Form for stakeholders to provide comments and offer suggestions. Stakeholder Feedback Forms along with the public-input meeting presentations are available on PacifiCorp's webpage at: www.pacificorp.com/energy/integrated-resource-plan.html
2.b	While confidential information must be protected, the utility should make public, in its plan, any non-confidential information that is relevant to its resource evaluation and action plan. Confidential information may be protected through use of a protective order, through aggregation or shielding of data, or through any other mechanism approved by the Oregon PUC.	2019 IRP Volumes I and II provide non-confidential information used for portfolio evaluation, as well as other data requested by stakeholders. PacifiCorp also provided stakeholders with non-confidential information to support public meeting discussions via email and in response to Stakeholder Feedback Forms. Data discs will be available with public data. Additionally, data discs with confidential data will be provided to appropriate parties through use of protective order 18-216.
2.c	The utility must provide a draft IRP for public review and comment prior to filing a final plan with the Oregon PUC.	PacifiCorp distributed draft IRP materials for external review throughout the process prior to each of the public input meetings and solicited/and received feedback at various times when developing the 2019 IRP. The materials shared with stakeholders at these meetings, outlined in Volume I Chapter 2 (Introduction), is consistent with materials presented in Volumes I and II of the 2019 IRP report. PacifiCorp requested and responded to comments from stakeholders when establishing modeling assumptions and throughout its portfolio-development process and sensitivity definitions.
Guideline 3: Plan Filing, Review, and Updates		
3.a	A utility must file an IRP within two years of its previous IRP acknowledgment order. If the utility does not intend to take any significant resource action for at least two years after its next IRP is due, the utility may request an extension of its filing date from the Oregon PUC.	The 2019 IRP complies with this requirement.
3.b	The utility must present the results of its filed plan to the Oregon PUC at a public meeting prior to the deadline for written public comment.	This activity will be conducted subsequent to filing this IRP.

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
3.c	Commission staff and parties should complete their comments and recommendations within six months of IRP filing.	This activity will be conducted subsequent to filing this IRP.
3.d	The Commission will consider comments and recommendations on a utility's plan at a public meeting before issuing an order on acknowledgment. The Commission may provide the utility an opportunity to revise the IRP before issuing an acknowledgment order.	This activity will be conducted subsequent to filing this IRP.
3.e	The Commission may provide direction to a utility regarding any additional analyses or actions that the utility should undertake in its next IRP.	Not applicable.
3.f	(a) Each energy utility must submit an annual update on its most recently acknowledged IRP. The update is due on or before the acknowledgment order anniversary date. Once a utility anticipates a significant deviation from its acknowledged IRP, it must file an update with the Oregon PUC, unless the utility is within six months of filing its next IRP. The utility must summarize the update at an Oregon PUC public meeting. The utility may request acknowledgment of changes in proposed actions identified in an update.	Not applicable to this filing; this activity will be conducted subsequent to filing this IRP.
3.g	Unless the utility requests acknowledgment of changes in proposed actions, the annual update is an informational filing that: • Describes what actions the utility has taken to implement the plan; • Provides an assessment of what has changed since the acknowledgment order that affects the action plan to select best portfolio of resources, including changes in such factors as load, expiration of resource contracts, supply-side and demand-side resource acquisitions, resource costs, and transmission availability; and • Justifies any deviations from the acknowledged action plan.	Not applicable to this filing; this activity will be conducted subsequent to filing this IRP.
Guideline 4. Plan Components: At a minimum, the plan must include the following elements		
4.a	An explanation of how the utility met each of the substantive and procedural requirements.	The purpose of this table is to comply with this guideline.
4.b	Analysis of high and low load growth scenarios in addition to stochastic load risk analysis with an explanation of major assumptions.	PacifiCorp developed low, high, and extreme peak temperature (one-in-twenty probability) load growth forecasts for scenario analysis using the System Optimizer model. Stochastic variability of loads was also captured in the risk analysis. See Volume I, Chapters 5 (Load and Resource Balance) and Chapter 7 (Modeling and Portfolio Evaluation Approach), and Volume II, Appendix A (Load Forecast Detail) for load forecast information.

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
4.c	For electric utilities, a determination of the levels of peaking capacity and energy capability expected for each year of the plan, given existing resources; identification of capacity and energy needed to bridge the gap between expected loads and resources; modeling of all existing transmission rights, as well as future transmission additions associated with the resource portfolios tested.	See Chapter 5 (Resource Needs Assessment) for details on annual capacity and energy balances. Existing transmission rights are reflected in the IRP model topologies. Future transmission additions used in analyzing portfolios are summarized in Volume I, Chapter 4 (Transmission) and Chapter 7 (Modeling and Portfolio Evaluation Approach).
4.d	For gas utilities only.	Not applicable.
4.e	Identification and estimated costs of all supply-side and demand side resource options, taking into account anticipated advances in technology.	Volume I, Chapter 6 (Resource Options) identifies the resources included in this IRP, and provides their detailed cost and performance attributes. Additional information on energy efficiency resource characteristics is available in Volume II, Appendix D (Demand-Side Management Resources) referencing additional information on PacifiCorp's IRP website see footnote 3 of this Appendix B.
4.f	Analysis of measures the utility intends to take to provide reliable service, including cost-risk tradeoffs.	In addition to incorporating a 13 percent planning reserve margin for all portfolios evaluated, as supported by an updated Stochastic Loss of Load Study in Volume II, Appendix L (Stochastic Simulation Results), the company used several measures to evaluate relative portfolio supply reliability. These measures (Energy Not Served and Loss of Load Probability) are described in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach).
4.g	Identification of key assumptions about the future (e.g., fuel prices and environmental compliance costs) and alternative scenarios considered.	Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) describes the key assumptions and alternative scenarios used in this IRP. Volume II, Appendix M (Case Study Fact Sheets) includes summaries of assumptions used for each case definition analyzed in the 2019 IRP.
4.h	Construction of a representative set of resource portfolios to test various operating characteristics, resource types, fuels and sources, technologies, lead times, in-service dates, durations and general locations – system-wide or delivered to a specific portion of the system.	This IRP documents the development and results of portfolios designed to determine resource selection under a variety of input assumptions in Volume I, Chapters 7 (Modeling and Portfolio Evaluation Approach) and Chapter 8 (Modeling and Portfolio Selection Results).
4.i	Evaluation of the performance of the candidate portfolios over the range of identified risks and uncertainties.	Volume I, Chapter 8 (Modeling and Portfolio Selection Results) presents the stochastic portfolio modeling results, and describes portfolio attributes that explain relative differences in cost and risk performance.
4.j	Results of testing and rank ordering of the portfolios by cost and risk metric, and interpretation of those results.	Volume I, Chapter 8 (Modeling and Portfolio Selection Results) provides tables and charts with performance measure results, including rank ordering.
4.k	Analysis of the uncertainties associated with each portfolio evaluated.	See responses to 1.b.1 and 1.b.2 above.

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
4.l	Selection of a portfolio that represents the best combination of cost and risk for the utility and its customers.	See 1.c above.
4.m	Identification and explanation of any inconsistencies of the selected portfolio with any state and federal energy policies that may affect a utility's plan and any barriers to implementation.	This IRP is designed to avoid inconsistencies with state and federal energy policies therefore none are currently identified.
4.n	An action plan with resource activities the utility intends to undertake over the next two to four years to acquire the identified resources, regardless of whether the activity was acknowledged in a previous IRP, with the key attributes of each resource specified as in portfolio testing.	Volume I Chapter 9 (Action Plan) presents the 2019 IRP action plan.
Guideline 5: Transmission		
5	Portfolio analysis should include costs to the utility for the fuel transportation and electric transmission required for each resource being considered. In addition, utilities should consider fuel transportation and electric transmission facilities as resource options, taking into account their value for making additional purchases and sales, accessing less costly resources in remote locations, acquiring alternative fuel supplies, and improving reliability.	PacifiCorp evaluated four sensitivities on Energy Gateway transmission project configurations on a consistent and comparable basis with respect to other resources. Where new resources would require additional transmission facilities the associated costs were factored into the analysis. Fuel transportation costs were factored into resource costs.
Guideline 6: Conservation		
6.a	Each utility should ensure that a conservation potential study is conducted periodically for its entire service territory.	A multi-state demand-side management potential study was completed in 2018, and those results were incorporated into this plan.
6.b	To the extent that a utility controls the level of funding for conservation programs in its service territory, the utility should include in its action plan all best cost/risk portfolio conservation resources for meeting projected resource needs, specifying annual savings targets.	PacifiCorp's energy efficiency supply curves incorporate Oregon resource potential. Oregon potential estimates were provided by the Energy Trust of Oregon. See the demand-side resource section in Volume I, Chapter 6 (Resource Options), the results in Volume I, Chapter 8 (Modeling and Portfolio Selection Results), the targeted amounts in Volume I, Chapter 9 (Action Plan) and the implementation steps outlined in Volume II, Appendix D (DSM Resources).
6.c	To the extent that an outside party administers conservation programs in a utility's service territory at a level of funding that is beyond the utility's control, the utility should: 1. Determine the amount of conservation resources in the best cost/risk portfolio without regard to any limits on funding of conservation programs; and 2. Identify the preferred portfolio and action plan consistent with the outside party's projection of conservation acquisition.	See the response for 6.b above.

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
Guideline 7: Demand Response		
7	Plans should evaluate demand response resources, including voluntary rate programs, on par with other options for meeting energy, capacity, and transmission needs (for electric utilities) or gas supply and transportation needs (for natural gas utilities).	PacifiCorp evaluated demand response resources (Class 1 DSM) on a consistent basis with other resources.
Guideline 8: Environmental Costs		
8.a	Base case and other compliance scenarios: The utility should construct a base-case scenario to reflect what it considers to be the most likely regulatory compliance future for carbon dioxide (CO_2), nitrogen oxides, sulfur oxides, and mercury emissions. The utility should develop several compliance scenarios ranging from the present CO_2 regulatory level to the upper reaches of credible proposals by governing entities. Each compliance scenario should include a time profile of CO_2 compliance requirements. The utility should identify whether the basis of those requirements, or "costs," would be CO_2 taxes, a ban on certain types of resources, or CO_2 caps (with or without flexibility mechanisms such as an allowance for credit trading as a safety valve). The analysis should recognize significant and important upstream emissions that would likely have a significant impact on resource decisions. Each compliance scenario should maintain logical consistency, to the extent practicable, between the CO_2 regulatory requirements and other key inputs.	See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach). In the 2019 IRP, PacifiCorp modeled a price on CO_2 starting in 2025.
8.b	Testing alternative portfolios against the compliance scenarios: The utility should estimate, under each of the compliance scenarios, the present value revenue requirement (PVRR) costs and risk measures, over at least 20 years, for a set of reasonable alternative portfolios from which the preferred portfolio is selected. The utility should incorporate end-effect considerations in the analyses to allow for comparisons of portfolios containing resources with economic or physical lives that extend beyond the planning period. The utility should also modify projected lifetimes as necessary to be consistent with the compliance scenario under analysis. In addition, the utility should include, if material, sensitivity analyses on a range of reasonably possible regulatory futures for nitrogen oxides, sulfur oxides, and mercury to further inform the preferred portfolio selection.	Volume II, Appendix L (Stochastic Simulation Results) provides the stochastic mean PVRR versus upper tail mean less stochastic mean PVRR scatter plot diagrams that for a broad range of portfolios developed with a range of compliance scenarios as summarized in 8.a above. The company considers end-effects in its use of Real Levelized Revenue Requirement Analysis, as summarized in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and uses a 20-year planning horizon. Early retirement and gas conversion alternatives to coal unit environmental investments were considered in the development of all resource portfolios.
8.c	Trigger point analysis: The utility should identify at least one CO_2 compliance "turning	See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) for a description of initial

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
	point” scenario, which, if anticipated now, would lead to, or “trigger” the selection of a portfolio of resources that is substantially different from the preferred portfolio. The utility should develop a substitute portfolio appropriate for this trigger-point scenario and compare the substitute portfolio’s expected cost and risk performance to that of the preferred portfolio – under the base case and each of the above CO_2 compliance scenarios. The utility should provide its assessment of whether a CO_2 regulatory future that is equally or more stringent that the identified trigger point will be mandated.	portfolio-development definitions. Comparative analysis of these case results is included in Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
8.d	Oregon compliance portfolio: If none of the above portfolios is consistent with Oregon energy policies (including state goals for reducing greenhouse gas emissions) as those policies are applied to the utility, the utility should construct the best cost/risk portfolio that achieves that consistency, present its cost and risk parameters, and compare it to those in the preferred and alternative portfolios.	Several portfolios yield system emissions aligned with state goals for reducing greenhouse gas emissions. These cases are summarized in Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
Guideline 9: Direct Access Loads		
9	An electric utility’s load-resource balance should exclude customer loads that are effectively committed to service by an alternative electricity supplier.	Oregon Docket UE 267 established a long-term opt out option for eligible PacifiCorp customers. Going forward PacifiCorp will cease planning for customers who elect direct-access service on a long-term basis (i.e. five-year opt out customers).
Guideline 10: Multi-state Utilities		
10	Multi-state utilities should plan their generation and transmission systems, or gas supply and delivery, on an integrated system basis that achieves a best cost/risk portfolio for all their retail customers.	The 2019 IRP conforms to the multi-state planning approach as stated in Volume I, Chapter 2 under the section “The Role of PacifiCorp’s Integrated Resource Planning”. The company notes the challenges in complying with multi-state integrated planning given differing state energy policies and resource preferences.
Guideline 11: Reliability		
11	Electric utilities should analyze reliability within the risk modeling of the actual portfolios being considered. Loss of load probability, expected planning reserve margin, and expected and worst-case unserved energy should be determined by year for top-performing portfolios. Natural gas utilities should analyze, on an integrated basis, gas supply, transportation, and storage, along with demand-side resources, to reliably meet peak, swing, and base-load system requirements. Electric and natural gas utility plans should demonstrate that the utility’s chosen portfolio achieves its stated reliability, cost and risk objectives.	See the response to 1.c.3.1 above. Volume I, Chapter 8 (Modeling and Portfolio Selection Results) walks through the role of reliability, cost, and risk measures in determining the preferred portfolio. Scatter plots of portfolio cost versus risk at different CO_2 cost levels were used to inform the cost/risk tradeoff analysis.

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
Guideline 12: Distributed Generation		
12	Electric utilities should evaluate distributed generation technologies on par with other supply-side resources and should consider, and quantify where possible, the additional benefits of distributed generation.	PacifiCorp contracted with Navigant to provide estimates of expected private generation penetration. The study was incorporated in the analysis as a deduction to load. Sensitivities looked at both high and low penetration rates for private generation. The study is included in Volume II, Appendix O (Private Generation Study).
Guideline 13: Resource Acquisition		
13.a	An electric utility should, in its IRP: 1. Identify its proposed acquisition strategy for each resource in its action plan. 2. Assess the advantages and disadvantages of owning a resource instead of purchasing power from another party. 3. Identify any Benchmark Resources it plans to consider in competitive bidding.	Chapter 9 (Action Plan) outlines the procurement approaches for resources identified in the preferred portfolio. A discussion of the advantages and disadvantages of owning a resource instead of purchasing it is included in Chapter 9 (Action Plan). PacifiCorp has not at this time identified any specific benchmark resources it plans to consider in the competitive bidding process summarized in the 2019 IRP action plan.
13.b	For gas utilities only.	Not applicable.
Flexible Capacity Resources		
1	Forecast the Demand for Flexible Capacity: The electric utilities shall forecast the balancing reserves needed at different time intervals (e.g. ramping needed within 5 minutes) to respond to variation in load and intermittent renewable generation over the 20-year planning period.	See Volume II, Appendix F (Flexible Reserve Study).
2	Forecast the Supply of Flexible Capacity: The electric utilities shall forecast the balancing reserves available at different time intervals (e.g. ramping available within 5 minutes) from existing generating resources over the 20-year planning period.	See Volume II, Appendix F (Flexible Reserve Study).
3	Evaluate Flexible Resources on a Consistent and Comparable Basis: In planning to fill any gap between the demand and supply of flexible capacity, the electric utilities shall evaluate all resource options, including the use of EVs, on a consistent and comparable basis.	See Volume II, Appendix F (Flexible Reserve Study).

Table B.4 – Utah Public Service Commission IRP Standard and Guidelines

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
Procedural Issues		
1	The Commission has the legal authority to promulgate Standards and Guidelines for integrated resource planning.	Not addressed; this is a Public Service Commission of Utah responsibility.

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
2	Information Exchange is the most reasonable method for developing and implementing integrated resource planning in Utah.	Information exchange has been conducted throughout the IRP process.
3	Prudence reviews of new resource acquisitions will occur during ratemaking proceedings.	Not an IRP requirement as the Commission acknowledges that prudence reviews will occur during ratemaking proceedings, outside of the IRP process.
4	PacifiCorp's integrated resource planning process will be open to the public at all stages. The Commission, its staff, the Division, the Committee, appropriate Utah state agencies, and other interested parties can participate. The Commission will pursue a more active-directive role if deemed necessary, after formal review of the planning process.	PacifiCorp's public process is described in Volume I, Chapter 2 (Introduction). A description of public-input meetings is provided in Volume II, Appendix C (Public Input Process). Public-input meeting materials can also be found on PacifiCorp's website at: www.pacificorp.com/energy/integrated-resource-plan/public-input-process.html
5	Consideration of environmental externalities and attendant costs must be included in the integrated resource planning analysis.	PacifiCorp used a scenario analysis approach along with externality cost adders to model environmental externality costs. See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) for a description of the methodology employed, including how CO_2 cost uncertainty is factored into the determination of relative portfolio performance through a base case planning assumption and other price-policy scenarios.
6	The integrated resource plan must evaluate supply-side and demand-side resources on a consistent and comparable basis.	Supply, transmission, and demand-side resources were evaluated on a comparable basis using PacifiCorp's capacity expansion optimization model. Also see the response to number 4.b.ii below.
7	Avoided cost should be determined in a manner consistent with the company's Integrated Resource Plan.	Consistent with Utah rules, PacifiCorp determination of avoided costs in Utah will be handled in a manner consistent with the IRP, with the caveat that the costs may be updated if better information becomes available.
8	The planning standards and guidelines must meet the needs of the Utah service area, but since coordination with other jurisdictions is important, must not ignore the rules governing the planning process already in place in other jurisdictions.	This IRP was developed in consultation with parties from all state jurisdictions, and meets all formal state IRP guidelines.
9	The company's Strategic Business Plan must be directly related to its Integrated Resource Plan.	Volume I, Chapter 9 (Action Plan) describes the linkage between the 2019 IRP preferred portfolio and December 2018 business plan resources. Significant resource differences are highlighted. The business plan portfolio was run consistent with requirements outlined in the Order issued by the Utah Public Service Commission on September 16, 2016, Docket No. 15-035-04.
Standards and Guidelines		
1	Definition: Integrated resource planning is a utility planning process which evaluates all known resources on a consistent and comparable basis, in order to meet current and future customer electric energy services needs at the lowest total cost to the utility and its customers,	Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) outlines the portfolio performance evaluation and preferred portfolio selection process, while Chapter 8 (Modeling and Portfolio Selection Results) chronicles the modeling and preferred portfolio selection process. This IRP

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
	and in a manner consistent with the long-run public interest. The process should result in the selection of the optimal set of resources given the expected combination of costs, risk and uncertainty.	also addresses concerns expressed by Utah stakeholders and the Utah commission concerning comprehensiveness of resources considered, consistency in applying input assumptions for portfolio modeling, and explanation of PacifiCorp's decision process for selecting top-performing portfolios and the preferred portfolio.
2	The company will submit its Integrated Resource Plan biennially.	The company submitted its last IRP on April 4, 2017, and filed this IRP on October 18, 2019 meeting the requirement. PacifiCorp requested and was granted an extension of time to file the 2019 IRP in Docket No. 19-035-02.
3	IRP will be developed in consultation with the Commission, its staff, the Division of Public Utilities, the Committee of Consumer Services, appropriate Utah state agencies and interested parties. PacifiCorp will provide ample opportunity for public input and information exchange during the development of its Plan.	PacifiCorp's public process is described in Volume I, Chapter 2 (Introduction). A record of public meetings is provided in Volume II, Appendix C (Public Input Process).
4.a	PacifiCorp's integrated resource plans will include: a range of estimates or forecasts of load growth, including both capacity (kW) and energy (kWh) requirements.	PacifiCorp implemented a load forecast range for both capacity expansion optimization scenarios as well as for stochastic variability, covering both capacity and energy. Details concerning the load forecasts used in the 2019 IRP are provided in Volume I, Chapter 5 (Resource Needs Assessment) and Volume II, Appendix A (Load Forecast Details).
4.a.i	The forecasts will be made by jurisdiction and by general class and will differentiate energy and capacity requirements. The company will include in its forecasts all on-system loads and those off-system loads which they have a contractual obligation to fulfill. Non-firm off-system sales are uncertain and should not be explicitly incorporated into the load forecast that the utility then plans to meet. However, the Plan must have some analysis of the off-system sales market to assess the impacts such markets will have on risks associated with different acquisition strategies.	Load forecasts are differentiated by jurisdiction and differentiate energy and capacity requirements. See Volume I, Chapter 5 (Resource Needs Assessment) and Volume II, Appendix A (Load Forecast Details). Non-firm off-system sales are not incorporated into the load forecast. Off-system sales markets are included in IRP modeling and are used for system balancing purposes.
4.a.ii	Analyses of how various economic and demographic factors, including the prices of electricity and alternative energy sources, will affect the consumption of electric energy services, and how changes in the number, type and efficiency of end-uses will affect future loads.	Volume II, Appendix A (Load Forecast Details) documents how demographic and price factors are used in PacifiCorp's load forecasting methodology.
4.b	An evaluation of all present and future resources, including future market opportunities (both demand-side and supply-side), on a consistent and comparable basis.	Resources were evaluated on a consistent and comparable basis using the System Optimizer model and Planning and Risk production cost model using both supply side and demand side alternatives. See explanation in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and the results in Volume I, Chapter 8 (Modeling and Portfolio

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
		Selection Results). Resource options are summarized in Volume I, Chapter 6 (Resource Options).
4.b.i	An assessment of all technically feasible and cost-effective improvements in the efficient use of electricity, including load management and conservation.	PacifiCorp included supply curves for Demand Response (Class 1) DSM (dispatchable/schedulable load control) and Energy Efficiency (Class 2) DSM in its capacity expansion model. Details are provided in Volume I, Chapter 6 (Resource Options).
4.b.ii	An assessment of all technically feasible generating technologies including: renewable resources, cogeneration, power purchases from other sources, and the construction of thermal resources.	PacifiCorp considered a wide range of resources including renewables, cogeneration (combined heat and power), power purchases, thermal resources, energy storage, and Energy Gateway transmission configurations. Volume I, Chapters 6 (Resource Options) and 7 (Modeling and Portfolio Evaluation Approach) contain assumptions and describe the process under which PacifiCorp developed and assessed these technologies and resources.
4.b.iii	The resource assessments should include: life expectancy of the resources, the recognition of whether the resource is replacing/adding capacity or energy, dispatchability, lead-time requirements, flexibility, efficiency of the resource and opportunities for customer participation.	PacifiCorp captures and models these resource attributes in its IRP models. Resources are defined as providing capacity, energy, or both. The DSM supply curves used for portfolio modeling explicitly incorporate estimated rates of program and event participation. The private generation study, modeled as a reduction to load, also considered rates of participation. Replacement capacity is considered in the case of early coal unit retirements as evaluated in this IRP as an alternative to coal unit environmental investments. Dispatchability is accounted for in both IRP models used; however, the Planning and Risk model provides a more detailed representation of unit dispatch than System Optimizer, and includes modeling of unit commitment and reserves.
4.c	An analysis of the role of competitive bidding for demand-side and supply-side resource acquisitions	A description of the role of competitive bidding and other procurement methods is provided in Volume I, Chapter 9 (Action Plan).
4.d	A 20-year planning horizon.	This IRP uses a 20-year study horizon (2019-2038).
4.e	An action plan outlining the specific resource decisions intended to implement the integrated resource plan in a manner consistent with the company's strategic business plan. The action plan will span a four-year horizon and will describe specific actions to be taken in the first two years and outline actions anticipated in the last two years. The action plan will include a status report of the specific actions contained in the previous action plan.	The IRP action plan is provided in Volume I, Chapter 9 (Action Plan). A status report of the actions outlined in the previous action plan (2017 IRP Update) is provided in Volume I, Chapter 9 (Action Plan). In Volume I, Chapter 9 (Action Plan) Table 9.1 identifies actions anticipated in the next two years and in the next four years.
4.f	A plan of different resource acquisition paths for different economic circumstances with a decision mechanism to select among and modify these paths as the future unfolds.	Volume I, Chapter 9 (Action Plan) includes an acquisition path analysis that presents broad resource strategies based on regulatory trigger events, change in load growth, extension of federal renewable resource tax incentives and procurement delays.

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
4.g	An evaluation of the cost-effectiveness of the resource options from the perspectives of the utility and the different classes of ratepayers. In addition, a description of how social concerns might affect cost effectiveness estimates of resource options.	PacifiCorp provides resource-specific utility and total resource cost information in Volume I, Chapter 6 (Resource Options). The IRP document addresses the impact of social concerns on resource cost-effectiveness in the following ways: ● Top performing portfolios were evaluated using a range of CO_2 price-policy scenarios. ● A discussion of environmental policy status and impacts on utility resource planning is provided in Volume I, Chapter 3 (The Planning Environment). ● State and proposed federal public policy preferences for clean energy are considered for development of the preferred portfolio, which is documented in Volume I, Chapter 8 (Modeling and Portfolio Selection Results). ● Volume II, Appendix G (Plant Water Consumption) reports historical water consumption for PacifiCorp's thermal plants.
4.h	An evaluation of the financial, competitive, reliability, and operational risks associated with various resource options and how the action plan addresses these risks in the context of both the Business Plan and the 20-year Integrated Resource Plan. The company will identify who should bear such risk, the ratepayer or the stockholder.	The handling of resource risks is discussed in Volume I, Chapter 9 (Action Plan), and covers managing environmental risk for existing plants, risk management and hedging and treatment of customer and investment risk. Transmission expansion risks are discussed in Chapter 4 (Transmission). Resource capital cost uncertainty and technological risk is addressed in Volume I, Chapter 6 (Resource Options). For reliability risks, the stochastic simulation model incorporates stochastic volatility of forced outages for new thermal plants and hydro availability. These risks are factored into the comparative evaluation of portfolios and the selection of the preferred portfolio upon which the action plan is based. Identification of the classes of risk and how these risks are allocated to ratepayers and investors is discussed in Volume I, Chapter 9 (Action Plan).
4.i	Considerations permitting flexibility in the planning process so that the company can take advantage of opportunities and can prevent the premature foreclosure of options.	Flexibility in the planning and procurement processes is highlighted in Volume I, Chapter 9 (Action Plan), specifically, Table 9.1.
4.j	An analysis of tradeoffs; for example, between such conditions of service as reliability and dispatchability and the acquisition of lowest cost resources.	PacifiCorp examined the trade-off between portfolio cost and risk, taking into consideration a broad range of resource alternatives defined with varying levels of dispatchability. This trade-off analysis is documented in Volume I, Chapter 8 (Modeling and Portfolio Selection Results).
4.k	A range, rather than attempts at precise quantification, of estimated external costs which	PacifiCorp incorporated environmental externality costs for CO_2 and costs for complying with current

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
	may be intangible, in order to show how explicit consideration of them might affect selection of resource options. The company will attempt to quantify the magnitude of the externalities, for example, in terms of the amount of emissions released and dollar estimates of the costs of such externalities.	and proposed U.S. EPA regulatory requirements. For CO_2 externality costs, the company used scenarios with various compliance requirements to capture a reasonable range of cost impacts. These modeling assumptions are described in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach).
4.l	A narrative describing how current rate design is consistent with the company's integrated resource planning goals and how changes in rate design might facilitate integrated resource planning objectives.	See Volume I, Chapter 3 (The Planning Environment). The role of Class 3 DSM (price response programs) at PacifiCorp and how these resources are modeled in the IRP are described in Volume I, Chapter 6 (Resource Options).
5	PacifiCorp will submit its IRP for public comment, review and acknowledgment.	PacifiCorp distributed draft IRP materials for external review throughout the process prior to each of the public-input meetings and solicited/and received feedback at various times when developing the 2019 IRP. The materials shared with stakeholders at these meetings, outlined in Volume I Chapter 2 (Introduction), is consistent with materials presented in Volumes I and II of the 2019 IRP report. Public-input meetings materials can be located on PacifiCorp's website at: www.pacificorp.com/energy/integrated-resource-plan/public-input-process.html PacifiCorp requested and responded to comments from stakeholders in throughout its 2019 IRP process. The company also considered comments received via Stakeholder Feedback Forms that can be located on PacifiCorp's website at: www.pacificorp.com/energy/integrated-resource-plan/comments.html A total of 133 Stakeholder Feedback Forms were received and responded to during the 2019 IRP public-input process.
6	The public, state agencies and other interested parties will have the opportunity to make formal comment to the Commission on the adequacy of the Plan. The Commission will review the Plan for adherence to the principles stated herein, and will judge the merit and applicability of the public comment. If the Plan needs further work the Commission will return it to the company with comments and suggestions for change. This process should lead more quickly to the Commission's acknowledgment of an acceptable Integrated Resource Plan. The company will give an oral presentation of its report to the Commission and all interested public parties. Formal hearings on the acknowledgment of the Integrated Resource Plan might be appropriate but are not required.	Not addressed; this is a post-filing activity.
7	Acknowledgment of an acceptable Plan will not guarantee favorable ratemaking treatment of future resource acquisitions.	Not addressed; this is not a PacifiCorp activity.

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
8	The Integrated Resource Plan will be used in rate cases to evaluate the performance of the utility and to review avoided cost calculations.	Not addressed; this refers to a post-filing activity.

Table B.5 – Washington Utilities and Transportation Commission IRP Standard and Guidelines (RCW 19.280.030 and WAC 480-100-238)

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
Requirements prior to IRP Filing		
(4)	Work plan filed no later than 12 months before next IRP due date.	PacifiCorp filed the 2019 IRP work plan on July 17, 2019 in Docket No. UE-180259, given an anticipated IRP filing date of October 18, 2019. PacifiCorp was granted approval in Docket No. UE-180259 on July 26, 2019 to file the IRP October 18, 2019.
(4)	Work plan outlines content of IRP.	See pages 1-2 of the Work Plan document for a summarization of anticipated IRP contents.
(4)	Work plan outlines method for assessing potential resources. (See LRC analysis below)	See pages 3-5 of the Work Plan document for a summarization of anticipated resource analysis.
(5)	Work plan outlines timing and extent of public participation.	See pages 5-6 of the Work Plan. Table 1, page 6, document for the anticipated IRP schedule. PacifiCorp was granted approval in Docket No. UE-180259 on July 26, 2019 to file the 2019 IRP on October 18, 2019.
(4)	Integrated resource plan submitted within two years of previous plan.	The WUTC issued an Order on December 11, 2008, under Docket No. UE-070117, granting the company permission to file its IRP on March 31 of each odd numbered year. PacifiCorp filed the 2017 IRP on April 4, 2017. PacifiCorp was granted approval in Docket No. UE-180259 on July 26, 2019 to file the IRP October 18, 2019.
(5)	WUTC issues notice of public hearing after company files plan for review.	This obligation is not applicable to the company; this is a WUTC obligation.
(5)	WUTC holds public hearing.	This obligation is not applicable to the company; this is a WUTC obligation.
Requirements specific to IRP filing		
(2)(a)	Plan describes the mix of energy supply resources.	Volume I, Chapter 5 (Resource Needs Assessment) describes the mix of existing resources, while Volume I, Chapter 8 (Modeling and Portfolio Selection Results) describes the 2019 IRP preferred portfolio.
(2)(a)	Plan describes conservation supply.	See Volume I, Chapter 6 (Resource Options) for a description of how conservation supplies are represented and modeled, and Volume I, Chapter 8 (Modeling and Portfolio Selection Results) for conservation supply in the preferred portfolio. Additional information on energy efficiency resource characteristics is available on PacifiCorp's IRP website.
(2)(a)	Plan addresses supply in terms of current and future needs at the lowest reasonable cost to the utility and its ratepayers.	The 2019 IRP preferred portfolio was based on a resource needs assessment that accounted for forecasted load growth, expiration of existing power purchase contracts, resources under construction, contract, or reflected in the company's capital budget, as well as a capacity planning reserve margin. Details on PacifiCorp's findings of resource need are described in Volume I, Chapter 5 (Resource Needs Assessment).
(2)(b)	Plan uses lowest reasonable cost (LRC) analysis to select the mix of resources.	PacifiCorp uses portfolio performance measures based on the Present Value of Revenue Requirements (PVRR) methodology. See the section on portfolio performance measures in Volume I, Chapter

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
		7 (Modeling and Portfolio Evaluation Approach) and Volume I Chapter 8 (Modeling and Portfolio Selection Results).
(2)(b)	LRC analysis considers resource costs.	Volume I, Chapter 6 (Resource Options), provides detailed information on costs and other attributes for all resources analyzed for the IRP.
(2)(b)	LRC analysis considers market-volatility risks.	PacifiCorp employs Monte Carlo production cost simulation with a stochastic model to characterize market price and gas price volatility. Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) provides a summary of the modeling approach.
(2)(b)	LRC analysis considers demand side resource uncertainties.	PacifiCorp captured demand-side resource uncertainties through the development of numerous portfolios based on different sets of input assumptions.
(2)(b)	LRC analysis considers resource dispatchability.	PacifiCorp uses two IRP models that simulate the dispatch of existing and future resources based on such attributes as heat rate, availability, fuel cost, and variable O&M cost. The chronological production cost simulation model also incorporates unit commitment logic for handling start-up, shutdown, ramp rates, minimum up/down times, and run up rates, and reserve holding characteristics of individual generators.
(2)(b)	LRC analysis considers resource effect on system operation.	PacifiCorp's IRP models simulate the operation of its entire system, reflecting dispatch/unit commitment, forced/unforced outages, access to markets, and system reliability and transmission constraints.
(2)(b)	LRC analysis considers risks imposed on ratepayers.	PacifiCorp explicitly models risk associated with uncertain CO_2 regulatory regimes, wholesale electricity and natural gas price escalation and volatility, load growth uncertainty, resource reliability, renewable portfolio standard requirement uncertainty, plant construction cost escalation, and resource affordability. These risks and uncertainties are handled through stochastic modeling and scenarios depicting alternative futures. In addition to risk modeling, the IRP discusses a number of resource risk topics not addressed in the IRP system simulation models. For example, Volume I, Chapter 9 (Action Plan) covers the following topics: (1) managing carbon risk for existing plants, (2) assessment of owning vs. purchasing power, (3) purpose of hedging, (4) procurement delays and (5) treatment of customer and investor risks. Volume I, Chapter 4 (Transmission) covers similar risks associated with transmission system expansion.
(2)(b)	LRC analysis considers public policies regarding resource preference adopted by Washington state or federal government.	In Volume I, Chapter 7 (Modeling and Portfolio Evaluation) the IRP modeling incorporates resource expansion constraints tied to renewable portfolio standards (RPS) currently in place for Washington. I-937 conservation requirements are explicitly accounted for in developing Washington conservation resource costs.
(2)(b)	LRC analysis considers cost of risks associated with environmental effects including emissions of carbon dioxide.	See (2)(b) above.
(2)(c)	Plan defines conservation as any reduction in electric power consumption that results from increases in the efficiency of energy use, production, or distribution.	A description of how PacifiCorp classifies and defines energy conservation is provided in Volume I, Chapter 6 (Resource Options).

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
(3)(a)	Plan includes a range of forecasts of future demand.	PacifiCorp implemented a load forecast range. Details concerning the load forecasts used in the 2017 IRP (high, low, and extreme peak temperature) are provided in Volume II, Appendix A (Load Forecast Details).
(3)(a)	Plan develops forecasts using methods that examine the effect of economic forces on the consumption of electricity.	PacifiCorp's load forecast methodology employs econometric forecasting techniques that include such economic variables as household income, employment, and population. See Volume II, Appendix A (Load Forecast Details) for a description of the load forecasting methodology.
(3)(a)	Plan develops forecasts using methods that address changes in the number, type and efficiency of electrical end-uses.	Residential sector load forecasts use a statistically-adjusted end-use model that accounts for equipment saturation rates and efficiency. See Volume II, Appendix A (Load Forecast Details), for a description of the residential sector load forecasting methodology.
(3)(b)	Plan includes an assessment of commercially available conservation, including load management.	PacifiCorp updated the system-wide demand-side management potential study in the 2019 IRP, which served as the basis for developing DSM resource supply curves for resource portfolio modeling. The supply curves account for technical and achievable (market) potential, while the IRP capacity expansion model identifies a cost-effective mix of DSM resources based on these limits and other model inputs. The DSM potential study is included on the data disc, and available on PacifiCorp's IRP website at: www.pacificorp.com/energy/integrated-resource-plan/support.html.
(3)(b)	Plan includes an assessment of currently employed and new policies and programs needed to obtain the conservation improvements.	A description of the current status of DSM programs and on-going activities to implement current and new programs is provided in Volume I, Chapter 5 (Resource Needs Assessment).
(3)(c)	Plan includes an assessment of a wide range of conventional and commercially available nonconventional generating technologies.	PacifiCorp considered a wide range of resources including renewables, cogeneration (combined heat and power), customer standby generation, power purchases, thermal resources, energy storage, and transmission. Volume I, Chapters 6 (Resource Options) and Chapter 7 (Modeling and Portfolio Evaluation Approach) document how PacifiCorp developed and assessed these technologies.
(3)(d)	Plan includes an assessment of transmission system capability and reliability; to the extent such information can be provided consistent with applicable laws.	PacifiCorp modeled transmission system capability to serve its load obligations, factoring in updates to the representation of major load and generation centers, regional transmission congestion impacts, import/export availability, external market dynamics, and significant transmission expansion plans explained in Volume I, Chapter 4 (Transmission) and Chapter 7 (Modeling and Portfolio Evaluation Approach). System reliability given transmission capability was analyzed using stochastic production cost simulation and measures of insufficient energy and capacity for a load area (Energy Not Served and Unmet Capacity, respectively).
(3)(e)	Plan includes a comparative evaluation of energy supply resources (including transmission and distribution) and improvements in conservation using LRC.	PacifiCorp's capacity expansion optimization model (System Optimizer) is designed to compare alternative resources—including transmission expansion options—for the least-cost resource mix. System Optimizer was used to develop numerous resource portfolios for comparative evaluation on the basis of cost, risk, reliability, and other performance attributes. Potential energy savings associated with conservation voltage reduction are discussed in Volume I, Chapter 5 (Resource Needs Assessment).
(3)(f)	Plan includes integration of the demand forecasts and resource evaluations into a long range integrated resource plan describing	PacifiCorp integrates demand forecasts, resources, and system operations in the context of a system modeling framework described in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach). The portfolio evaluation covers a 20-year period (2019-

No.	Requirement	How the Standards and Guidelines are Addressed in the 2019 IRP
	the mix of resources that is designated to meet current and project future needs at the lowest reasonable cost to the utility and its ratepayers.	2038). PacifiCorp developed its preferred portfolio of resources judged to be least-cost after considering load requirements, risk, uncertainty, supply adequacy/reliability, and government resource policies in accordance with this rule.
(3)(g)	Plan includes a two-year action plan that implements the long range plan.	See Table 9.1 in Volume I, Chapter 9 (Action Plan), for PacifiCorp's 2019 IRP action plan.
(3)(h)	Plan includes a progress report on the implementation of the previously filed plan.	See Table 9.2 for a status report on action plan implementation from the 2017 IRP and 2017 IRP Update in Volume I, Chapter 9 (Action Plan).
Requirements from RCW 19.280.030 not discussed above		
(1)(e)	An assessment of methods, commercially available technologies, or facilities for integrating renewable resources, and addressing overgeneration events, if applicable to the utility's resource portfolio;	See Volume I, Chapter 6 (Resource Options) for discussion of resource options in the 2019 IRP. Also see Volume II, Appendix P (Renewable Resources Assessment).
(1)(f)	The integration of the demand forecasts and resource evaluations into a long-range assessment describing the mix of supply side generating resources and conservation and efficiency resources that will meet current and projected needs, including mitigating overgeneration events, at the lowest reasonable cost and risk to the utility and its ratepayers;	See Volume II, Appendix A (Load Forecast Details) for a discussion of the load forecasts, supply-side and demand-side resources are discussed in Volume I, Chapter 6 (Resource Options). Also included is a discussion of DSM in Volume II, Appendix D (DSM Resources) are included in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and Chapter 8 (Modeling and Portfolio Selection Results) discuss the modeling methodology and selection of the preferred portfolio using least cost/least risk metrics.

Table B.6 – Wyoming Public Service Commission Guidelines Regarding Electric IRP

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
A	The public comment process employed as part of the formulation of the utility's IRP, including a description, timing and weight given to the public process;	PacifiCorp's public process is described in Volume I, Chapter 2 (Introduction) and in Volume II, Appendix C (Public Input Process).
B	The utility's strategic goals and resource planning goals and preferred resource portfolio;	Volume I, Chapter 8 (Modeling and Portfolio Selection Results) documents the preferred resource portfolio and rationale for selection. Volume I, Chapter 9 (Action Plan) constitutes the IRP action plan and the descriptions of resource strategies and risk management.
C	The utility's illustration of resource need over the near-term and long-term planning horizons;	See Volume I, Chapter 5 (Resource Needs Assessment).
D	A study detailing the types of resources considered;	Volume, I Chapter 6 (Resource Options), presents the resource options used for resource portfolio modeling for this IRP.
F	Changes in expected resource acquisitions and load growth from that presented in the utility's previous IRP;	A comparison of resource changes relative to the 2017 IRP Update is presented in Volume I, Chapter 9 (Action Plan). A chart comparing the peak load forecasts for the 2017 IRP, 2017 IRP Update, and 2019 IRP is included in Volume II, Appendix A (Load Forecast Details).
G	The environmental impacts considered;	Portfolio comparisons for CO_2 and a broad range of environmental impacts are considered, including prospective early retirement and gas conversions of existing coal units as alternatives to environmental investments. See Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach) and Chapter 8 (Modeling and Portfolio

No.	Requirement	How the Guideline is Addressed in the 2019 IRP
		Selection) as well as Volume II, Appendix L (Stochastic Simulation Results).
H	Market purchases evaluation;	Modeling of firm market purchases (front office transactions) and spot market balancing transactions is included in the 2019 IRP.
I	Reserve Margin analysis; and	PacifiCorp's planning reserve margin study, which documents selection of a capacity planning reserve margin is in Volume I, Appendix I (Planning Reserve Margin Study).
J	Demand-side management and conservation options;	See Volume I, Chapter 6 (Resource Options) for a detailed discussion on DSM and energy efficiency resource options. Additional information on energy efficiency resource characteristics is available on the company's website.

APPENDIX C – PUBLIC INPUT PROCESS

A critical element of this Integrated Resource Plan (IRP) is the public-input process. PacifiCorp has pursued an open and collaborative approach involving the commissions, customers and other stakeholders in PacifiCorp's IRP prior to making resource planning decisions. Since these decisions can have significant economic and environmental consequences, conducting the IRP with transparency and full participation from interested and affected parties is essential.

Stakeholders have been involved in the development of the 2019 IRP from the beginning. The public-input meetings held beginning in June 2018 were the cornerstone of the direct public-input process. There were a total of 18 public-input meetings, with eight lasting two days, the remainder being single days. Meetings were held jointly in both Salt Lake City, Utah and Portland, Oregon via video conference, with expanded video conference locations in Denver, Colorado and Cheyenne, Wyoming. Three meetings were held via phone conference. For all meetings, attendees off-site were able to conference in via phone.

The IRP public-input process also included state-specific stakeholder dialogue sessions held in June and August of 2018. The goal of these sessions was to capture key IRP issues of most concern to each state, as well as discuss how to tackle these from a system planning perspective. PacifiCorp wanted to ensure stakeholders understood IRP planning principles. These meetings continued to enhance interaction with stakeholders in the planning cycle and provided a forum to directly address stakeholder concerns regarding equitable representation of state interests during public-input meetings.

PacifiCorp solicited agenda item recommendations from stakeholders in advance of the state meetings. There was additional open time to ensure participants had adequate opportunity for dialogue.

PacifiCorp's integrated resource plan website housed feedback form discussed earlier in Chapter 2 - Introduction. This standardized form allowed stakeholders opportunities to provide comments, questions, and suggestions. PacifiCorp also posted its response to the feedback forms at the same location. Feedback forms and PacifiCorp's responses can be found via the following link: (www.pacificorp.com/energy/integrated-resource-plan/comments.html).

Participant List

PacifiCorp's 2019 IRP was a robust process involving input from many parties throughout. Organizations actively participated in the development of material, modeling process, and public meetings. Participants included commissions, stakeholders, and industry experts. Among the organizations that were represented and actively involved in this collaborative effort were:

Commissions

- Idaho Public Utilities Commission
- Oregon Public Utilities Commission
- Public Service Commission of Utah
- Washington Utilities and Transportation Commission

- Wyoming Public Service Commission

Stakeholders and Industry Experts

- Alliance of Western Energy Consumers
- Applied Energy Group
- Avangrid
- Black & Veatch
- Breathe Utah
- Burns & McDonnell Engineering Company
- Cascade Natural Gas
- City of Kemmerer Wyoming
- Clarke Investments, LLC
- Enel Green Power
- Energy Trust of Oregon
- First Solar
- Gardner Energy
- Glenrock Energy
- Heal Utah
- Holladay United Church of Christ
- Idaho Conservation League
- Idaho Power Company
- Idaho Public Utility Commission Staff
- Individual Customers
- Industrial Customers of Northwest Utilities
- Intermountain Wind
- Lincoln County Commission
- Magnum Development
- National Grid Ventures
- Natural Resources Defense Council
- Navigant Consulting, Inc.
- Northwest Pipeline GP
- Oregon Department of Energy
- Oregon Department of Justice
- Oregon Public Utility Commission Staff
- Portland General Electric
- Power Quip
- Renewables Northwest
- Sierra Club
- Utah Clean Energy
- Utah Division of Public Utilities
- Utah Office of Consumer Services
- Utah Office of Energy Development
- Washington Office of Attorney General, Public Council Unit
- Western Resource Advocates
- Westmoreland

- Wyoming Coalition of Local Governments & Lincoln County
- Wyoming Department of Workforce Services
- Wyoming House District 18
- Wyoming Infrastructure Authority
- Wyoming Liberty Group
- Wyoming Office Of Consumer Advocate

PacifiCorp extends its gratitude for the time and energy participants have given to the IRP process. Their participation has contributed significantly to the quality of this plan and their continued participation will help PacifiCorp as it strives to improve its planning efforts going forward.

Public-Input Meetings

As mentioned above, PacifiCorp hosted 18 public-input meetings, as well as six state meetings during the public-input process. During the 2019 IRP public-input process presentations and discussions covered various issues regarding inputs, assumptions, risks, modeling techniques, and analytical results. Below are the agendas from the public-input meetings; the presentations cab be located at: www.pacificorp.com/energy/integrated-resource-plan.html.

General Meetings

June 28-29, 2018 – General Public Meeting

Day One (Confidential Discussion)
- Introductions
- Model Overview (System Optimizer / Planning and Risk)
- Unit-by-Unit Coal Study Results

Day Two (Public Discussion)
- 2017 IRP Update Highlights / 2019 IRP Topics and Timeline
- Demand-Side Management Workshop

July 26-27, 2018 – General Public Meeting

Day One
- Energy Storage Workshop
- Renewable Resource Schedules and Load Forecast
- Distribution System Planning
- Supply-Side Resource Study Efforts

Day Two
- Environmental Policy
- Renewable Portfolio Standards
- 2019 IRP Modeling Assumptions and Study Updates
  - Intra-Hour Dispatch Credit
  - Stochastic Parameters Update
  - Overview of Planning Reserve Margin and Capacity Contribution Studies

August 30-31, 2018 – General Public Meeting

Day One
- Private Generation Study
- Conservation Potential Assessment and Energy Efficiency Credits
- Portfolio Development Process / Initial Sensitivity Studies
- Flexible Reserve Study
- Process Improvement / Next Steps

Day 2
- Market Reliance Assessment
- Planning Reserve Margin Study / Capacity Contribution Study

September 26-27, 2018 – General Public Meeting

Day One
- Draft Supply-Side Resource Table
- Intra-Hour Flexible Resource Credit
- Environmental Policy / Price-Policy Scenarios
- Transmission Overview and Updates
- Stakeholder Feedback Form Recap

Day Two
- Flexible Reserve Study Cost Results
- Planning Reserve Margin / Capacity Contribution Results
- Portfolios Discussion / Coal Studies Next Steps
- Demand-Side Management Transmission and Distribution Credit / Conservation Potential Assessment

October 9, 2018 – General Public Meeting (Conference Call Only)
- Supply-Side Resource Table Levelized Costs
- Intra-Hour Flexible Resource Credits
- Updated CO_2 Assumption

November 1, 2018 – General Public Meeting
- Supply-Side Resource Table
- Modeling Improvements and Updates
- Update on Coal Analysis
- Stakeholder Feedback Form Recap

December 3-4, 2018 – General Public Meeting

Day One
- Coal Studies Discussion

Day Two
- Coal Studies Discussion (continued)
- Stakeholder Feedback Form Recap

January 24, 2019 – General Public Meeting
- Capacity-Contribution Values for Energy-Limited Resources
- Coal Studies Discussion
- Stakeholder Feedback Form Recap

February 21, 2019 – General Public Meeting (Conference Call Only)
- General Updates
- Summary of Oregon Energy Efficiency Analysis Results
- Stakeholder Feedback Form Recap

March 21, 2019 – General Public Meeting
- Coal Studies Modeling Improvements and Updates
- Modeling Next Steps
- Stakeholder Feedback Form Recap

April 25, 2019 – General Public Meeting
- Coal Studies Discussion
- Stakeholder Feedback Form Recap

May 20-21, 2019 – General Public Meeting

Day One
- Conservation Potential Assessment Cost Correction
- DSM Bundling Portfolio Methodology
- Updated Portfolio Matrix
- Portfolio Analysis Results Discussion

Day Two
- Portfolio Analysis Results Discussion (continued)
- Stakeholder Feedback Form Recap

June 20-21, 2019 – General Public Meeting

Day One
- Modeling Updates
- Portfolio Analysis Results

Day Two
- Portfolio Analysis Results
- Stakeholder Feedback Form Recap

July 12, 2019 – DSM Workshop
- Conservation Potential Assessment
- Demand-Side Management Portfolio Methodology

July 18, 2019 – General Public Meeting (Conference Call Only)
- General Updates
- Stakeholder Feedback Form Recap

September 5, 2019 – General Public Meeting
- Portfolio Analysis Results
- Stakeholder Feedback Form Recap

October 3-4, 2019 – General Public Meeting

Day One
- Preferred Portfolio and Action Plan
- Portfolio Development and Selection

Day Two
- Portfolio Development and Selection
- Sensitivities
- Stakeholder Feedback Form Recap

November 12, 2019 – General Public Meeting (Planned)
- Stakeholder Q&A
- Transmission Modeling Workshop

State-Specific Input Meetings

June 11, 2018 – Oregon State Stakeholder Meeting
June 12, 2018 – Washington State Stakeholder Meeting
June 18, 2018 – Idaho State Stakeholder Meeting
June 19, 2018 – Wyoming State Stakeholder Meeting
June 20, 2018 – Utah State Stakeholder Meeting
August 9, 2018 – Utah State Stakeholder Meeting

Stakeholder Comments

For the 2019 IRP, PacifiCorp offered a Stakeholder Feedback Form which provided stakeholders a direct opportunity to provide comments, questions, and suggestions outside opportunities for discussion at public-input meetings. PacifiCorp recognizes the importance of stakeholder feedback to the IRP public-input process. A blank form, as well as those submitted by stakeholders and PacifiCorp's response, can be located on the PacifiCorp website at the IRP comments webpage at: www.pacificorp.com/energy/integrated-resource-plan/comments.html.

During the 2019 IRP development process, PacifiCorp received 132 Stakeholder Feedback Forms with a combined 564 questions. The Stakeholder Feedback Form allowed the company to review and summarize issues by topic as well as identify specific recommendations that were provided. Information collected was used to inform the 2019 IRP development process, including feedback related to process improvements and input assumptions, as well as responding directly to stakeholder questions. Stakeholder Feedback Forms were received from the following stakeholders:

- City of Kemmerer, Wyoming
- Energy Strategies, LLC
- First Solar
- Gridflex Energy, LLC

- Idaho Conservation League
- Idaho Public Utility Commission Staff
- Individual Stakeholders
- Interwest Energy Alliance
- Key Capture Energy
- Lawrence Berkeley National Laboratory
- Lincoln County School District
- National Grid Ventures
- Northwest Energy Coalition
- Northwest Power and Conservation Council
- Oregon Citizens' Utility Board
- Oregon Public Utility Commission Staff
- Oyster Ridge BOCES
- Powder River Basin Resource Council
- Renewable Northwest
- Sierra Club
- Sound Geothermal Corporation
- South Lincoln EMS
- South Lincoln Medical Center
- Southwest Energy Efficiency Project
- Utah Association of Energy Users
- Utah Clean Energy
- Washington Utilities and Transportation Commission Staff
- Western Resource Advocates
- Wyoming Business Council
- Wyoming Coalition of Local Governments & Lincoln County
- Wyoming House District 18
- Wyoming Office of Consumer Advocate

Some topics of note addressed in the forms include:

- Capacity Factors
- Coal Analysis
- Coal Combustion Residuals
- Coal Studies
- Conservation Credit
- Conservation Potential Assessment
- Consultant Reports
- Demand Response
- Demand-Side Management
- Demand-Side Management Modeling
- Distribution System Planning
- Energy Efficiency
- Energy Storage
- Environmental Policy
- Flexible Reserve Study

- General Comments
- Inflation Assumption
- Initial Sensitivity Studies
- Intra-hour Dispatch Credits
- IRP Filing Date
- IRP Public-Input Meeting Process
- Legislation
- Levelized Cost Curves
- Load Forecasting
- Market Purchases
- Market Reliance Assessment
- Modeling Assumptions
- Modeling Improvements
- Planning Reserve Margin
- Portfolio Analysis
- Private Generation Study
- Reliability Assessment
- Renewable Energy Resources
- Sensitivity Studies
- Supply-side Resource Costs
- Supply-side Resource Table
- Transmission
- Unit Specific Questions

Contact Information

PacifiCorp's IRP website: www.pacificorp.com/energy/integrated-resource-plan.html.

PacifiCorp requests any informal request be sent to the following address or email.

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APPENDIX D – DEMAND-SIDE MANAGEMENT RESOURCES

Introduction

This appendix reviews the studies and reports used to support the demand-side management (DSM) resource information used in the modeling and analysis of the 2019 Integrated Resource Plan (IRP). In addition, it provides information on the economic DSM selections in the 2019 IRP's Preferred Portfolio, a summary of existing DSM program services and offerings, and an overview of the DSM planning process in each of PacifiCorp's service areas.

Conservation Potential Assessment (CPA) for 2019-2038

Since 1989, PacifiCorp has developed biennial IRPs to identify an optimal mix of resources that balance considerations of cost, risk, uncertainty, supply reliability/deliverability, and long-run public policy goals. The optimization process accounts for capital, energy, and ongoing operation costs as well as the risk profiles of various resource alternatives, including: traditional generation and market purchases, renewable generation, and DSM resources such as energy efficiency, and demand response or capacity-focused resources. Since the 2008 IRP, DSM resources have competed directly against supply-side options, allowing the IRP model to guide decisions regarding resource mixes, based on cost and risk.

The Conservation Potential Assessment (CPA) for 2019-2038,[1] conducted by Applied Energy Group (AEG) on behalf of PacifiCorp, primarily seeks to develop reliable estimates of the magnitude, timing, and costs of DSM resources likely available to PacifiCorp over the IRP's 20-year planning horizon. The study focuses on resources realistically achievable during the planning horizon, given normal market dynamics that may hinder resource acquisition. Study results were incorporated into PacifiCorp's 2019 IRP and will be used to inform subsequent DSM planning and program design efforts. This study serves as an update of similar studies completed since 2007.

For resource planning purposes, PacifiCorp classifies DSM resources into four classifications, differentiated by two primary characteristics: reliability and customer choice. These resources classifications can be defined as: demand response (Class 1 DSM) (e.g., a firm, capacity focused resource such as a load control), energy efficiency (Class 2 DSM) (e.g., a firm energy intensity resource such as conservation), Class 3 DSM (e.g., a non-firm, capacity focused such as pricing response or load shifting), and Class 4 DSM (e.g., a behavioral-based resource such as education and information).

From a system-planning perspective, demand response resources can be considered the most reliable, as they can be dispatched by the utility. In contrast, Class 4 DSM resources are the least reliable due to the resource's dependence on voluntary behavioral changes. With respect to customer choice, demand response and energy efficiency resources should be considered involuntary in that, once equipment and systems have been put in place, savings can be expected

[1] PacifiCorp's Demand-Side Resource Potential Assessment for 2017-2036, completed by AEG, can be found at: www.pacificorp.com/energy/integrated-resource-plan/support.html.

to occur over a certain period of time. Class 3 and Class 4 DSM activities involve greater customer choice and control. This assessment estimates potential from demand response, energy efficiency, and Class 3 DSM.

The CPA excludes an assessment of Oregon's energy efficiency resource potential, as this work is performed by the Energy Trust of Oregon, which provides energy efficiency potential in Oregon to PacifiCorp for resource planning purposes.

Current DSM Program Offerings by State

Currently, PacifiCorp offers a robust portfolio of DSM programs and initiatives, most of which are offered in multiple states, depending on size of the opportunity and the need. Programs are reassessed on a regular bases. PacifiCorp has the most up-to-date programs on its website.[2] Demand response and energy efficiency program services and offerings are available by state and sector. Energy efficiency services listed for Oregon, except for low income weatherization services, are provided in collaboration with the Energy Trust of Oregon.[3] Table D.1 provides an overview of the breadth of demand response and energy efficiency program services and offerings available by Sector and State.

PacifiCorp has numerous Class 3 DSM offerings currently available. They include metered time-of-day and time-of-use pricing plans (in all states, availability varies by customer class), residential seasonal inverted block rates (Idaho and Utah) and residential year-round inverted block rates (California, Oregon, Washington, and Wyoming). System-wide, approximately 17,500 customers were participating in metered time-of-day and time-of-use programs as of December 31, 2017.

All of PacifiCorp's residential customers not opting for Class 3 DSM time-of-use rates are currently subject to seasonal or year-round inverted block rate plans. Savings associated with these resources are captured within the company's load forecast and are thus captured in the integrated resource planning framework. PacifiCorp continues to evaluate Class 3 DSM programs for applicability to long-term resource planning.

PacifiCorp provides Class 4 DSM offerings. Educating customers regarding energy efficiency and load management opportunities is an important component of PacifiCorp's long-term resource acquisition plan. A variety of channels are used to educate customers including television, radio, newspapers, bill inserts and messages, newsletters, school education programs, and personal contact. Load reductions due to Class 4 DSM activity will show up in demand response and energy efficiency program results and non-program reductions in the load forecast over time. Table D.2 provides an overview of DSM related ***watt***smart Outreach and Communication activities (Class 4 DSM activities) by state.

[2] Programs for Rocky Mountain Power can be found at www.rockymountainpower.net/savings-energy-choices.htmland programs for Pacific Power can be found at www.pacificorp.com/environment/demand-side-management.html.
[3] Funds for low-income weatherization services are forwarded to Oregon Housing and Community Services.

Table D.1– Current Demand Response and Energy Efficiency Program Services and Offerings by Sector and State

Program Services & Offerings by Sector and State	California	Oregon	Washington	Idaho	Utah	Wyoming
Residential Sector						
Air Conditioner Direct Load Control	√	√	√	√	√	√
Lighting Incentives	√	√	√	√	√	√
New Appliance Incentives	√	√	√	√	√	√
Heating And Cooling Incentives	√	√	√	√	√	√
Weatherization Incentives - Windows, Insulation, Duct Sealing, etc.	√	√	√	√	√	√
New Homes	√	√	√	√	√	√
Low-Income Weatherization	√	√	√	√	√	√
Home Energy Reports			√	√	√	√
School Curriculum		√	√		√	
Energy Saving Kits	√	√	√	√	√	√
Financing Options With On-Bill Payments		√				
Trade Ally Outreach	√	√	√	√	√	√

Program Services & Offerings by Sector and State	California	Oregon	Washington	Idaho	Utah	Wyoming
Non-Residential Sector						
Air Conditioner Direct Load Control		√		√	√	
Irrigation Load Control		√		√	√	
Standard Incentives	√	√	√	√	√	√
Energy Engineering Services	√	√	√	√	√	√
Billing Credit Incentive (offset to DSM charge)		√			√	√
Energy Management	√	√	√	√	√	√
Energy Profiler Online	√	√	√	√	√	√
Business Solutions Toolkit	√	√	√	√	√	√
Trade Ally Outreach	√	√	√	√	√	√
Small Business Lighting	√	√	√	√	√	√
Lighting Instant Incentives	√	√	√	√	√	√
Small to Mid-Sized Business Facilitation	√	√	√	√	√	√
DSM Project Managers Partner With Customer Account Managers	√	√	√	√	√	√

Table D.2 – Current wattsmart Outreach and Communications Activities

Wattsmart Outreach & Communications (incremental to program specific advertising)	California	Oregon	Washington	Idaho	Utah	Wyoming
Advertising		√	√	√	√	√
Sponsorships		√			√	

Wattsmart Outreach & Communications (incremental to program specific advertising)	California	Oregon	Washington	Idaho	Utah	Wyoming
Social Media	√	√	√	√	√	√
Public Relations	√	√	√		√	√
Business Advocacy (awards at customer meetings, sponsorships, chamber partnership, university partnership)	√	√	√	√	√	√
Wattsmart Workshops and Community Outreach	√	√	√	√	√	√
Be wattsmart, Begin at Home - in school energy education			√	√	√	√

State-Specific DSM Planning Processes

A summary of the DSM planning process in each state is provided below.

Utah, Wyoming and Idaho
The company's biennial IRP and associated action plan provides the foundation for DSM acquisition targets in each state. Where appropriate, the company maintains and uses external stakeholder groups and vendors to advise on a range of issues including annual goals for conservation programs, development of conservation potential assessments, development of multi-year DSM plans, program marketing, incentive levels, budgets, adaptive management and the development of new and pilot programs.

Washington
The company is one of three investor-owned utilities required to comply with the Energy Independence Act (also referred to as I-937) approved in November 2006. The Act requires utilities to pursue all conservation that is cost-effective, reliable, and feasible. Every two years, each utility must identify its 10-year conservation potential and two-year acquisition target based on its IRP and using methodologies that are consistent with those used by the Northwest Power and Conservation Council. Each utility must maintain and use an external conservation stakeholder group that advises on a wide range of issues including conservation programs, development of conservation potential assessments, program marketing, incentive levels, budgets, adaptive management and the development of new and pilot programs. PacifiCorp works with the conservation stakeholder group annually on its energy efficiency program design and planning.

California
On September 15, 2017, PacifiCorp filed Application 17-09-010 requesting authorization to continue offering its energy efficiency programs (through 2020). The Commission issued Decision 18-11-033 on December 6, 2018, approving the company's application to continue administering its programs through 2020. PacifiCorp expects to submit an application for the continuation of energy efficiency programs beyond 2020.

Oregon
Energy efficiency programs for Oregon customers are planned for and delivered by the Energy Trust of Oregon in collaboration with PacifiCorp. The Energy Trust's planning process is

comparable to PacifiCorp's other states, including establishing resource acquisition targets based on resource assessment and integrated resource planning, developing programs based on local market conditions, and coordinating with stakeholders and regulators to ensure efficient and cost-effective delivery of energy efficiency resources.

Preferred Portfolio DSM Resource Selections

The following tables show the economic DSM resource selections by state and year in the 2019 IRP preferred portfolio, P45CNW.

Table D.3 – Incremental Demand Response Resource Selections (2019 IRP Preferred Portfolio)

State/Product by Year	2019	2021	2023	2025	2026	2029	2030	2032	2035	2036	2037	2038	Total/Products (MW)
California-3rd Party Contracts												1.1	1.1
California-Cool/WH												1.5	1.5
California-Irrigate											4.8		4.8
California-Thermostat											5.8		5.8
Oregon-3rd Party Contracts												10.9	10.9
Oregon-Ancillary Services						7.5							7.5
Oregon-Irrigate											13.3		13.3
Washington-3rd Party Contracts												10.9	10.9
Washington-Ancillary Services						1.9							1.9
Washington-Cool/WH												7.7	7.7
Washington-Irrigate											8.3		8.3
Washington-Thermostat											16.6		16.6
Utah-3rd Party Contracts												76.7	76.7
Utah-Ancillary Services			8.3	5.3							3.2		16.7
Utah-Cool/WH	4.1	7.0	9.9		7.2	6.7		6.8	7.0			7.2	55.9
Utah-Irrigate												1.9	1.9
Utah-Thermostat						116.7	8.2		8.3			5.1	138.3
Idaho-Irrigate								5.2		3.7		1.8	10.6
Wyoming-3rd Party Contracts												37.3	37.3
Wyoming-Ancillary Services				3.0									3.0
Wyoming-Cool/WH												5.2	5.2
Wyoming-Irrigate											1.8		1.8
Wyoming-Thermostat											5.5	1.2	6.7
Total by Year	**4.1**	**7.0**	**18.1**	**8.2**	**7.2**	**132.7**	**8.2**	**12.0**	**15.3**	**3.7**	**48.7**	**166.0**	**431.2**

Table D.4 – Incremental Energy Efficiency Resource Selections (2019 IRP Preferred Portfolio)

Energy Efficiency Energy (MWh) Selected by State and Year										
State	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
CA	5,130	5,710	5,270	5,540	6,240	6,180	6,760	6,830	6,710	6,900
OR	182,370	168,410	165,580	177,040	170,830	175,640	163,960	158,100	152,370	144,500
WA	42,090	39,900	40,550	44,450	46,490	46,420	45,300	43,710	42,870	41,510
UT	255,470	254,270	254,120	254,590	260,140	256,810	252,620	244,500	244,770	236,870
ID	18,100	17,190	17,590	18,410	20,920	20,580	20,450	20,740	20,400	20,020
WY	59,320	50,960	54,960	71,250	79,200	83,290	84,430	91,700	91,270	88,540
Total System	562,480	536,440	538,070	571,280	583,820	588,920	573,520	565,580	558,390	538,340

Energy Efficiency Energy (MWh) Selected by State and Year										
State	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
CA	6,690	6,400	6,220	5,890	5,380	4,110	4,440	3,660	3,040	2,640
OR	130,550	122,100	118,120	113,420	98,860	99,240	96,100	95,190	87,690	84,090
WA	37,970	36,610	34,390	32,040	30,230	22,700	22,740	18,190	15,620	15,330
UT	216,320	213,380	200,900	198,880	184,760	135,510	122,290	93,920	80,230	87,710
ID	19,410	18,210	17,480	17,400	15,760	12,850	11,930	9,810	8,370	8,640
WY	81,230	75,380	66,490	61,490	56,140	43,140	40,520	35,180	25,690	25,880
Total System	492,170	472,080	443,600	429,120	391,130	317,550	298,020	255,950	220,640	224,290

For the 20-year assumed nameplate capacity contributions (MW impacts) by state and year associated with the Energy Efficiency resource selections above, see Table 8.18 – PacifiCorp's 2019 IRP Preferred Portfolio, in Volume I of the 2019 IRP.

APPENDIX E – SMART GRID

Introduction

Smart grid is the application of advanced communications and controls to the electric power system. As such, a wide array of applications can be defined under the smart grid umbrella. PacifiCorp has identified specific areas for research that include technologies such as dynamic line rating, phasor measurement units, distribution automation, advanced metering infrastructure (AMI), automated demand response and other advanced technologies. PacifiCorp has reviewed relevant smart grid technologies for transmission and distribution systems that provide local and system benefits. When considering these technologies, the communications network is often the most critical infrastructure decision. This network must have relevant speed, reliability, and security and be scalable to support the entire service territory and interoperable for many device types, manufacturers, and generations of technology.

PacifiCorp has focused on those technologies that present a positive benefit for customers and has implemented functions such as advanced metering, dynamic line rating, and distribution automation. This will optimize the electrical grid when and where it is economically feasible, operationally beneficial and in the best interest of customers. PacifiCorp is committed to consistently evaluating the value of emerging technologies for integration when they are found to be appropriate investments. The company is working with state commissions to improve reliability, energy efficiency, customer service, and integration of renewable resources by analyzing the total cost of ownership, performing thorough cost-benefit analyses, and reaching out to customers concerning smart grid applications and technologies. As technology advances and development continues, PacifiCorp is able to improve cost estimates and benefits of smart grid technologies that will assist in identifying the best suited technologies for implementation.

Transmission Network and Operation Enhancements

Dynamic Line Rating

Dynamic line rating is the application of sensors to transmission lines to indicate the real-time current-carrying capacity of the lines in relation to thermal restrictions. Transmission line ratings are typically based on line loading calculations given a set of worst-case weather assumptions, such as high ambient temperatures and very low wind speeds. Dynamic line rating allows an increase in current-carrying capacity when more favorable weather conditions are present and the transmission path is not constrained by other operating elements. The Standpipe-Platte (formally Miners-Platte) project was implemented in 2014 and has moved from pilot stage into full deployment. Standpipe-Platte is currently the only dynamic line rating application in PacifiCorp. The Standpipe-Platte project has delivered positive results as windy days are directly linked to increased wind power generation and increased transmission ratings. A dynamic line rating system is used to determine the resulting cooling effect of the wind on the line. The current carrying capacity is then updated to a new weather dependent line rating. The Standpipe-Platte 230 kilovolt (kV) transmission line is one of three lines in the TOT4A transmission corridor, and had been one of the limits of the corridor power transfer. As a result of this project, the TOT4A Western Electricity Coordinating Council (WECC) non-simultaneous path rating was increased.

Dynamic line rating will be considered for all future transmission needs as a means for increasing capacity in relation to traditional construction methods. Dynamic line rating is only applicable for thermal constraints and only provides additional site-dependent capacity during finite time periods, and it may or may not align with expected transmission needs of future projects. PacifiCorp will continue to look for opportunities to cost-effectively employ dynamic line rating systems, and the Standpipe-Platte dynamic line rating system will be redeployed with newer equipment in 2020.

Digital Fault Recorders / Phasor Measurement Unit Deployment

To meet compliance with the North American Electric Reliability Corporation (NERC) MOD-033-1 and PRC-002-2 standards, PacifiCorp has installed over 100 multifunctional digital fault recorders (DFR) which include phasor measurement unit (PMU) functionality. The installations are at key transmission and generation facilities throughout the six-state service territory, generally placed on WECC identified critical paths. PMUs provide sub-second data for voltage and current phasors, which can be used for MOD-033-1 event analysis and model verification. DFRs have a shorter recording time with higher sampling rate to validate dynamic disturbance modelling per PRC-002-2. The DFR/PMUs will deliver dynamic PMU data to a centralized phasor data concentrator (PDC) storage server where offline analysis can be performed by transmission operators, planners, and protection engineers. Installation of the communications and data transfer systems between the individual PMUs and the PDC is underway and planned for completion by the end of 2019. Additionally, transient DFR data will be downloaded manually at substations.

Transmission planners will use the phasor data quantities from actual system events to benchmark performance of steady-state and transient stability models of the interconnected transmission system and generating facilities. Using a combination of phasor data from the PMUs and analog quantities currently available through Supervisory Control and Data Acquisition System (SCADA), transmission planners can set up the system models to accurately depict the transmission system prior to, during, and following an event. Differences in simulated versus actual system performance will then be evaluated to allow for enhancements and corrections to the system model.

Model validation procedures are being evaluated, in conjunction with data and equipment availability to fulfill MOD-033-1. Creation of a documented process to validate data that includes the comparison of a planning power flow model to actual system behavior and the comparison of the planning dynamic model to actual system response is ongoing. PacifiCorp will continually evaluate potential benefits of PMU installation and intelligent monitoring as the industry considers PMU in special protection, remedial action scheme and other roles that support transmission grid operators. With the transitions at Peak Reliability, PacifiCorp will continue to work with the California Independent System Operator (CAISO)'s Reliability Coordinator West to share data as appropriate.

Distribution Automation and Reliability

Distribution Automation

Distribution automation encompasses a wide field of smart grid technology and applications that focus on using sensors and data collection on the distribution system, as well as automatically adjusting the system to optimize performance. Distribution automation can also provide improved outage management with decreased restoration times after failure, operational efficiency, and peak load management using distributed resources and predictive equipment failure analysis using complex data algorithms. PacifiCorp is working on distribution automation initiatives focused on improved system reliability through improved outage management and response.

In Oregon, PacifiCorp identified 40 circuits on which cost benefit analyses were performed. From this analysis two circuits in Lincoln City, Oregon were selected to have a fault location, isolation and service restoration (FLISR) system installed. The project is on track to be installed by the end of 2019. This pilot is intended to provide field validation of lab tested solutions for outage management and automated restoration, and will identify improvements to the operating systems and drive implementation of FLISR throughout the service territory.

Wildfire Mitigation

In response to concerns of wildfire danger to customers, PacifiCorp began developing communication systems and practices to improve system reliability in at risk areas. Selected substations in Siskiyou County, California and Wasatch County, Utah are preliminary sites that will have remote communication installed to allow dispatch operators to modify re-closer settings. Development of standards for re-closers to enable the remote communication have been completed and the pilot implementation will be provided to at risk substations by the conclusion of 2019. The ability to integrate legacy systems to various communication networks will allow PacifiCorp to improve its response to failures in remote locations.

Distribution Substation Metering

Substation monitoring and measurement of various electrical attributes were identified as a necessity due to the increasing complexity of distribution planning driven by growing levels of primarily solar generation as distributed energy resources. Enhanced measurements improve visibility into loading levels and generation hosting capacity as well as load shapes, customer usage patterns, and information about reliability and power quality events.

In 2017, an advanced substation metering project was initiated to provide an affordable option for gathering required substation and circuit data at locations where SCADA is unavailable and/or uneconomical. SCADA has been the preferred form of gathering load profile data from distribution circuits, however SCADA systems can be expensive to install and additional equipment is required to provide the data needed to perform distribution system and power quality analysis. When system data rather than data and control is important, SCADA is no longer the best option.

A preliminary wave of approximately 20 meter replacements with cellular communications were deployed in 2018, with 30 additional meters to be fully deployed by the end of 2019 at identified substations to fully investigate their capabilities. Specialized software will provide users a refined view the reliability and power quality information in addition to the standard substation and circuit data. The project will also evaluate if the metering solutions provide cost effective situational awareness and control.

Distributed Energy Resources

Energy Storage Systems

In 2017, PacifiCorp filed the Energy Storage Potential Evaluation and Energy Storage Project proposal with the Public Utilities Commission or Oregon. This filing was in alignment with PacifiCorp's strategy and vision regarding the expansion and integration of renewable technologies. The company proposed a utility-owned targeted energy storage system (ESS) pilot project. In 2019 PacifiCorp began project development and is progressing to build an ESS on a Hillview substation distribution circuit in Corvallis, Oregon. This is a 20.8 kV radial distribution circuit with a peak load of 20 megawatts (MW). The intent of this project is to integrate the ESS into the existing distribution system with the capability and flexibility to potentially advance to a future micro grid system.

PacifiCorp is installing a stationary battery system and photovoltaic (PV) solar array to test the effectiveness of using non-traditional methods to correct the voltage issues during peak loading conditions. The project location is on a distribution circuit out of the Panguitch substation located in Garfield County, Utah with an anticipated in-service date of November 2019. This project is intended to reduce the loading on the power transformer, improve voltage conditions, and mitigate costs associated with upgrading the upstream 69 kV transmission system under a traditional poles and wires build-out. The battery system is rated at one MW capacity and five megawatt-hours (MWh) of energy delivery, and the solar PV array is rated at 650 kilowatts (kW) of capacity.

PacifiCorp is partnering with Utah State University to demonstrate the ability to integrate solar PV, natural gas generation, energy storage, and electronic controls to create a customer managed microgrid. This microgrid is designed to operate autonomously and seamlessly connect and disconnect from the company's electric grid based on demand and supply. The microgrid system will be located at Utah State University's Electric Vehicle Roadway facility in Logan, Utah and is expected to be fully operational by the end of 2019.

Demand Response

In 2018, PacifiCorp transitioned to the automatic dispatch of the residential air conditioner (A/C) program in Utah, utilizing two-way communication devices to respond to frequency dispatch signals. Known as Cool Keeper this frequency dispatch innovation is a grid-scale solution using fast-acting residential demand response resources to support the bulk power system. Some utilities use generating resources to perform this function, but as higher levels of wind and solar resources are added, additional balancing resources are required. The Cool Keeper system provides over 200 MWs of operating reserves to the system through the control of more than 108,000 A/C units.

Dispatchable Customer Resources

PacifiCorp partnered with a developer in 2018 to make an innovative solar and battery solution possible at a 600 unit multi-family community in Utah. Known as Soleil Lofts, this project provides a unique opportunity for the company to implement an innovative solution using solar and battery storage integration along with demand response and advanced management of the grid through daily energy load shaping. The project will include the development of a company-owned utility data and dispatch portal with direct access to 621 Sonnen batteries, each rated at 8kW, for a total of 4.8 MWs of capacity and 12 MWh of energy within the project area. In addition to the cost savings with leveraging the Soleil community partnership, the project creates opportunity to develop and test new programs related demand response, load shaping and rate design.

Advanced Metering Infrastructure

Advanced metering infrastructure (AMI) is an integrated system of smart meters, communications networks, and data management systems that provide interval data available on a daily basis. This infrastructure can also provide advanced functionalities including remote connect/disconnect, outage detection and restoration signals, and support distribution automation schemes. In 2016, PacifiCorp identified economical AMI solutions for California and Oregon that delivered tangible benefits to customers while minimizing the impact on consumer rates. The California AMI project was completed in 2018 and the Oregon project is on schedule for completion before the end of 2019. The California project installed approximately 45,000 smart meters and constructed a field area network covering the 11,000 square mile California service area. The Oregon project will install approximately 608,000 smart meters and construct a field area network covering the 21,000 square mile Oregon service area.

A new information technology (IT) infrastructure for the AMI project was put in place prior to the start of field network and meter deployments. This IT solution included all required data acquisition, connect/disconnect, outage detection/restoration and related functions as well as an enhanced customer website that allows customers to view their hourly, daily, weekly, and monthly usage. The information provided through the enhanced website provides customers with more tools to better monitor and manage their energy usage.

In 2018, AMI projects were approved for Utah and Idaho, and work on these projects is underway and scheduled for completion by the end of 2021. The projects will be executed under one management structure with two strategies, and involves replacing nearly all Idaho meters with Itron Riva smart meters and constructing a field area network that will allow two-way meter communication. AMI functionality consistent with California and Oregon will be delivered in Idaho including capturing interval read data, remote connect and disconnect capability, outage management functionality and analytic data.

In Utah, a hybrid AMR/AMI system will be put in place, and approximately 172,000 Itron Riva smart meters will be installed in strategic locations. These meters will deliver full AMI functionality, consistent with Idaho. The field area network will be able to communicate with the new Riva meters and the approximately 790,000 remaining AMR meters that were installed beginning with the initial AMR deployment started in 2006. This hybrid solution will enable interval data and outage management capability for the AMR meters while allowing the investment to be better utilized. Over time, the AMR meters will be replaced with AMI meters as they fail, or new meters are connected, or in areas where customer or business benefits are identified.

Outage Management Improvements

PacifiCorp is in the process of upgrading its outage management software to incorporate smart meters outage notifications. These notifications, in concert with customer reported outages, will provide higher visibility into distribution systems to identify the most likely point of failure. With this information field operations will be able to locate and isolate the damaged sections and restore customers sooner, while providing better clarity to customers through the existing web-based outage map. The software upgrade will be completed in mid-2020.

In Utah, PacifiCorp has initiated a project to enhance the ability to receive outage notifications from intelligent line sensors, smart meters and existing AMR meters. The intelligent line sensors will be installed on distribution circuits that will provide service to critical facilities. For the purpose of this project, critical facilities have been defined as major emergency facility centers such as hospitals, trauma centers, police and fire dispatch centers, etc. The information provided by the line sensors will allow control center operators to target restoration at critical facilities during major outages sooner than is currently possible. Full implementation of the project is expected to be completed by December 2021, concurrent with the completion of the AMI project.

Future Smart Grid

PacifiCorp is continuing to evaluate smart grid technologies and pilot projects that can benefit customers. The company regularly develops smart grid reports to examine the quantifiable costs and benefits of individual components of the smart grid. While the net present value of implementing a comprehensive smart grid system throughout PacifiCorp is negative at this time, the company has implemented specific projects and programs that have positive benefits for customers and continue to explore pilot projects in other areas of interest. In order to reduce risks to the company, the grid, our customers and supporting systems, it is essential to identify affordable advanced technologies and implement industry best practices.

APPENDIX F – FLEXIBLE RESERVE STUDY

Introduction

This 2019 Flexible Reserve Study (FRS) estimates the regulation reserve required to maintain PacifiCorp's system reliability and comply with North American Electric Reliability Corporation (NERC) reliability standards as well as the incremental cost of this regulation reserve. The FRS also compares PacifiCorp's overall operating reserve requirements, including both regulation reserve and contingency reserve, to its flexible resource supply over the Integrated Resource Plan (IRP) study period.

PacifiCorp operates two Balancing Authority Areas (BAAs) in the Western Electricity Coordinating Council (WECC) NERC region, PacifiCorp East (PACE) and PacifiCorp West (PACW). The PACE and PACW BAAs are interconnected by a limited amount of transmission across a third-party transmission system and the two BAAs are each required to comply with NERC standards. PacifiCorp must provide sufficient regulation reserve to remain within NERC's balancing authority area control error (ACE) limit in compliance with BAL-001-2,[1] as well as the amount of contingency reserve required in order to comply with NERC standard BAL-002-WECC-2.[2] BAL-001-2 is a regulation reserve standard that became effective July 1, 2016, and BAL-002-WECC-2a is a contingency reserve standard that became effective January 24, 2017. Regulation reserve and contingency reserve are components of operating reserve, which NERC defines as "the capability above firm system demand required to provide for regulation, load forecasting error, equipment forced and scheduled outages and local area protection."[3]

Apart from disturbance events that are addressed through contingency reserve, regulation reserve is necessary to compensate for changes in load demand and generation output, so as to maintain ACE within mandatory parameters established by the BAL-001-2 standard. The FRS estimates the amount of regulation reserve required to manage variations in load, variable energy resources[4] (VERs), and resources that are not VERs ("Non-VERs") in each of PacifiCorp's BAAs. Load, wind, solar, and Non-VERs were each studied because PacifiCorp's data indicates that these components or customer classes place different regulation reserve burdens on PacifiCorp's system due to differences in the magnitude, frequency, and timing of their variations from forecasted levels.

The FRS is based on PacifiCorp operational data recorded from January 2017 through December 2017 for load, wind, solar, and Non-VERs. PacifiCorp's primary analysis, focuses on the

1 NERC Standard BAL-001-2, www.nerc.com/files/BAL-001-2.pdf, which became effective July 1, 2016. ACE is the difference between a BAA's scheduled and actual interchange, and reflects the difference between electrical generation and Load within that BAA.

2 NERC Standard BAL-002-WECC-2a, www.nerc.com/files/BAL-002-WECC-2a.pdf, which became effective January 24, 2017. BAL-002-WECC-2a clarified that non-traditional resources can qualify as spinning reserves if they meet technical and performance requirements.

3 NERC Glossary of Terms: www.nerc.com/files/glossary_of_terms.pdf, updated May 13, 2019.

4 VERs are resources that resources that: (1) are renewable; (2) cannot be stored by the facility owner or operator; and (3) have variability that is beyond the control of the facility owner or operator. *Integration of Variable Energy Resources*, Order No. 764, 139 FERC ¶ 61,246 at P 281 (2012) ("Order No. 764"); *order on reh'g*, Order No. 764-A, 141 FERC ¶ 61,232 (2012) ("Order No. 764-A"); *order on reh'g and clarification*, Order No. 764-B, 144 FERC ¶ 61,222 at P 210 (2013) ("Order No. 764-B").

variability of load, wind, solar, and Non-VERs during 2017. A supplemental analysis discusses how the total variability of the PacifiCorp system changes with varying levels of load, wind and solar capacity. The estimated regulation reserve amounts determined in this study represent the incremental capacity needed to ensure compliance with BAL-001-2 for a particular operating hour. The regulation reserve requirement covers variations in load, wind, solar, and Non-VERs, while implicitly accounting for the diversity between the different classes. An explicit adjustment is also made to account for diversity benefits realized as a result of PacifiCorp's participation in the Energy Imbalance Market (EIM) operated by the California Independent System Operator Corporation (CAISO).

The methodology in the FRS is similar to that employed in PacifiCorp's previous regulation reserve requirement analysis in the 2017 IRP, but has been enhanced in some key ways.[5] First, regulation reserve requirements are co-optimized in a quantile regression model. Second, actual hourly load schedules are employed as compared to the proxy schedules developed in the previous study. Third, the FRS uses actual solar schedules reflecting the widespread penetration of utility scale solar facilities that has occurred since the previous study. Fourth, the FRS reflects updated data based on actual operational experience, including the data and benefits from PacifiCorp's participation in the EIM.[6]

The FRS results produce an hourly forecast of the regulation reserve requirements for each of PacifiCorp's BAAs that is sufficient to ensure the reliability of the transmission system and compliance with NERC and WECC standards. This regulation reserve forecast covers the combined deviations of the load, wind, solar and Non-VERs on PacifiCorp's system and varies as a function of the wind and solar capacity on PacifiCorp's system, as well as forecasted levels of wind, solar and load.

The regulation reserve requirement methodologies produced by the FRS was applied in the Planning and Risk (PaR) production cost model to determine the cost of the reserve requirements associated with incremental wind and solar capacity. These integration costs are applied to potential wind and solar resource options in the System Optimizer (SO) model portfolio expansion model, which does not otherwise account for regulation reserve requirements. When a portfolio is studied in the PaR model, the regulation reserve requirements specific to that portfolio are calculated and included in the study inputs, such that the production cost of the requirements is incorporated in the reported results, so it is not necessary to add integration costs to the PaR results.

Overview

The FRS first estimates the regulation reserve necessary to maintain compliance with NERC Standard BAL-001-2 given a specified portfolio of wind and solar resources. The FRS next calculates the cost of holding regulation reserve for incremental wind and solar resources. Finally, the FRS compares PacifiCorp's overall operating reserve requirements over the IRP study period, including both regulation reserve and contingency reserve, to its flexible resource supply.

[5] 2017 Flexible Reserve Study, Appendix F in Volume II of PacifiCorp's 2017 IRP report: www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_VolumeII_2017_IRP_Final.pdf

[6] PacifiCorp presented the FRS for the 2019 IRP to the Technical Review Committee (TRC) that reviewed the FRS for the 2017 IRP. In light of the robust methodology developed for the 2017 IRP, and the relatively limited modifications for the 2019 IRP, TRC members indicated that continuing the formal review process was unnecessary.

The FRS estimates regulation reserve based on the specific requirements of NERC Standard BAL-001-2. It also incorporates the current timeline for EIM market processes, as well as EIM resource deviations and diversity benefits based on actual results. The FRS also includes adjustments to regulation reserve requirements to account for the changing portfolio of solar and wind resources on PacifiCorp's system and accounts for the diversity of using a single portfolio of regulation reserve resources to cover variations in load, wind, solar, and Non-VERs. A comparison of the results of the current analysis and that from the 2017 IRP is shown in Table F.1 and Table F.2.

Table F.1 - Portfolio Regulation Reserve Requirements

Case	Wind Capacity (MW)	Solar Capacity MW	Stand-alone Regulation Requirement (MW)	Portfolio Diversity Credit (%)	Regulation Requirement with Diversity (MW)
2017 Base Case	2,757	1,050	998	38%	617
2019 Base Case	2,750	1,021	994	47%	531

Table F.2 - 2019 FRS Flexible Resource Costs as Compared to 2017 Costs, $/MWh

	Wind 2017 FRS (2016$)	Solar 2017 FRS (2016$)	Wind 2019 FRS (2018$)	Solar 2019 FRS (2018$)
Study Period	2017	2017	2018-2036	2018-2036
Intra-hour Reserve	$0.43	$0.46	$1.11	$0.85
Inter-hour System Balancing	$0.14	$0.14	n/a	n/a
Total Flexible Resource Cost	$0.57	$0.60	$1.11	$0.85

In the 2017 FRS, PacifiCorp calculated an inter-hour system balancing integration cost reflecting sub-optimal gas plant commitment based on day-ahead load, wind, and solar forecasts, rather than actuals. However, gas plants are dispatched in EIM to meet regional demand, not just the PacifiCorp demand reflected in the PaR model, and quick-start gas plants can be committed within EIM. In light of the minimal impact of the calculated cost in the 2017 IRP, and possible interaction with EIM, the company opted not to include inter-hour system balancing integration costs in the 2019 IRP.

The 2019 FRS results are applied in the 2019 IRP portfolio development process as a cost for wind and solar generation resources. Once candidate resource portfolios are developed using the SO model, the PaR model is used to evaluate portfolio risks. The PaR model inputs include regulation reserve requirements specific to the resource portfolio developed using the SO model. As a result, the IRP risk analysis using PaR includes the impact of differences in regulation reserve requirements between portfolios.

Flexible Resource Requirements

PacifiCorp's flexible resource needs are the same as its operating reserve requirements over the planning horizon for maintaining reliability and compliance with the North American Electric Reliability Corporation (NERC) regional reliability standards. Operating reserve generally consists of three categories: (1) contingency reserve (i.e., spinning and supplemental reserve), (2) regulation reserve, and (3) frequency response reserve. Contingency reserve is capacity that PacifiCorp holds available to ensure compliance with the NERC regional reliability standard BAL-

002-WECC-2a.[7] Regulation reserve is capacity that PacifiCorp holds available to ensure compliance with the NERC Control Performance Criteria in BAL-001-2.[8] Frequency response reserve is capacity that PacifiCorp holds available to ensure compliance with NERC standard BAL-003-1.[9] Each type of operating reserve is further defined below.

Contingency Reserve

Purpose: Contingency reserve may be deployed when unexpected outages of a generator or a transmission line occur. Contingency reserve may not be deployed to manage other system fluctuations such as changes in load or wind generation output.

Volume: NERC regional reliability standard BAL-002-WECC-2a specifies that each BAA must hold as contingency reserve an amount of capacity equal to three percent of load and three percent of generation in that BAA.

Duration: Except within 60 minutes of a qualifying contingency event, a BAA must maintain the required level of contingency reserve at all times. Generally, this means that up to 60 minutes of generation are required to provide contingency reserve, though successive outage events may result in contingency reserves being deployed for longer periods. To restore contingency reserves, other resources must be deployed to replace any generating resources that experienced outages, typically either market purchases or generation from resources with slower ramp rates.

Ramp Rate: Only up capacity available within ten minutes can be counted as contingency reserve. In accordance with Requirement 2 of BAL-002-WECC-2a, at least half of a BAA's requirement must be met with "spinning" resources that are online and immediately responsive to system frequency deviations, while the remainder can come from "non-spinning" resources that do not respond immediately, though they must still be fully deployed in ten minutes.[10]

Regulation Reserve

Purpose: NERC standard BAL-001-2, which became effective July 1, 2016, does not specify a regulation reserve requirement based on a simple formula, but instead requires utilities to hold sufficient reserve to meet specified control performance standards. The primary requirement relates to area control error ("ACE"), which is the difference between a BAA's scheduled and actual interchange, and reflects the difference between electrical generation and load within that BAA. Requirement 2 of BAL-001-2 defines the compliance standard as follows:

> *Each Balancing Authority shall operate such that its clock-minute average of Reporting ACE does not exceed its clock-minute Balancing Authority ACE Limit (BAAL) for more than 30 consecutive clock-minutes…*

[7] NERC Standard BAL-002-WECC-2a – Contingency Reserve: www.nerc.com/files/BAL-002-WECC-2.pdf
[8] NERC Standard BAL-001-2 – Real Power Balancing Control Performance: www.nerc.com/files/BAL-001-2.pdf
[9] NERC Standard BAL-003-1 — Frequency Response and Frequency Bias Setting: www.nerc.com/pa/Stand/Reliability%20Standards/BAL-003-1.pdf
[10] Retirement of the minimum spinning reserve obligation in BAL-002-WECC-2a is being considered due to redundancy with frequency response obligations under BAL-003-1. More information is available online at: www.wecc.org/Standards/Pages/WECC-0115.aspx

In addition, Requirement 1 of BAL-001-2 specifies that PacifiCorp's Control Performance Standard 1 ("CPS1") score must be greater than equal to 100 percent for each preceding 12 consecutive calendar month period, evaluated monthly. The CPS1 score compares PacifiCorp's ACE with interconnection frequency during each clock minute. A higher score indicates PacifiCorp's ACE is helping interconnection frequency, while a lower score indicates it is hurting interconnection frequency. Because CPS1 is averaged and evaluated on a monthly basis, it does not require a response to each and every ACE event, but rather requires that PacifiCorp meet a minimum aggregate level of performance in each month. Regulation reserve is thus the capacity that PacifiCorp holds available to respond to changes in generation and load to manage ACE within the limits specified in BAL-001-2.

Volume: NERC standard BAL-001-2 does not specify a regulation reserve requirement based on a simple formula, but instead requires utilities to hold sufficient reserve to meet performance standards as discussed above. The 2019 FRS estimates the regulation reserve necessary to meet Requirement 2 by compensating for the combined deviations of the load, wind, solar and Non-VERs on PacifiCorp's system. These regulation reserve requirements are discussed in more detail later on in the study.

Ramp Rate: Because Requirement 2 includes a 30 minute time limit for compliance, ramping capability that can be deployed within 30 minutes contributes to meeting PacifiCorp's regulation reserve requirements. The reserve for CPS1 is not expected to be incremental to the need for compliance with Requirement 2, but may require that a subset of resources held for Requirement 2 be able to make frequent rapid changes to manage ACE relative to interconnection frequency.

Duration: PacifiCorp is required to submit balanced load and resource schedules as part of its participation in EIM. PacifiCorp is also required to submit resources with up flexibility and down flexibility to cover uncertainty and expected ramps across the next hour. Because forecasts are submitted prior to the start of an hour, deviations can begin before an hour starts. As a result, a flexible resource might be called upon for the entire hour. In order to continue providing flexible capacity in the following hour, energy must be available in storage for that hour as well. The likelihood of actually deploying for two hours or more for reliability compliance (as opposed to economics) is expected to be small.

Frequency Response Reserve

Purpose: NERC standard BAL-003-1 specifies that each BAA must arrest frequency deviations and support the interconnection when frequency drops below the scheduled level. When a frequency drop occurs as a result of an event, PacifiCorp will deploy resources that increase the net interchange of its BAAs and the flow of generation to the rest of the interconnection.

Volume: When a frequency drop occurs, each BAA is expected to deploy resources that are at least equal to its Frequency Response Obligation. The incremental requirement is based on the size of the frequency drop and the BAA's Frequency Response Obligation, expressed in megawatt (MW)/0.1 Herts (Hz). To comply with the standard, a BAA's median measured frequency response during a sampling of under-frequency events must be equal to or greater than its Frequency Response Obligation. PacifiCorp's 2019 Frequency Response Obligation was 20.2 MW/0.1Hz for PACW, and 47.4 MW/0.1Hz for PACE. PacifiCorp's combined obligation amounts to 67.6 MW for a frequency drop of 0.1 Hz, or 202.8 MW for a frequency drop of 0.3 Hz.

The performance measurement for contingency reserve under the Disturbance Control Standard (BAL-002-3)[11], allows for recovery to the lesser of zero or the ACE value prior to the contingency event, so increasing ACE above zero during a frequency event reduces the additional deployment needed if a contingency event occurs. Because contingency, regulation, and frequency events are all relatively infrequent, they are unlikely to occur simultaneously. Because the frequency response standard is based on median performance during a year, overlapping requirements that reduced PacifiCorp's response during a limited number of frequency events would not impact compliance.

As a result, any available capacity not being used for generation is expected to contribute to meeting PacifiCorp's Frequency Response Obligation, up to the technical capability of each unit, including that designated as contingency or regulation reserves. Frequency response must occur very rapidly, and a generating unit's capability is limited based on the unit's size, governor controls, and available capacity, as well as the size of the frequency drop. As a result, while a few resources could hold a large amount of contingency or regulation reserve, frequency response may need to be spread over a larger number of resources. Additionally, only resources that have active and tuned governor controls as well as outer loop control logic will respond properly to frequency events.

Ramp Rate: Frequency response performance is measured over a period of seconds, amounting to under a minute. Compliance is based on the average response over the course of an event. As a result, a resource that immediately provides its full frequency response capability will provide the greatest contribution. That same resource will contribute a smaller amount if it instead ramps up to its full frequency response capability over the course of a minute or responds after a lag.

Duration: Frequency response events are less than one minute in duration.

Black Start Requirements

Black start service is the ability of a generating unit to start without an outside electrical supply and is necessary to help ensure the reliable restoration of the grid following a blackout. At this time, PACW grid restoration would occur in coordination with Bonneville Power Administration black start resources. The Gadsby combustion turbine resources are capable of supporting grid restoration in PACE. PacifiCorp has not identified any incremental needs for black start service during the IRP study period.

Ancillary Services Operational Distinctions

In actual operations, PacifiCorp identifies two types of flexible capacity as part of its participation in the EIM. The contingency reserve held on each resource is specifically identified and is not available for economic dispatch within the EIM. Any remaining flexible capacity on participating resources that is not designated as contingency reserve can be economically dispatched in EIM based on its operating cost (i.e. bid) and system requirements and can contribute to meeting regulation reserve obligations. Because of this distinction, resources must either be designated as contingency reserve or as regulation reserve. Contingency events are relatively rare while opportunities to deploy additional regulation reserve in EIM occur frequently. As a result,

[11] NERC Standard BAL-002-3 – Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event: www.nerc.com/pa/Stand/Reliability Standards/BAL-002-3.pdf

PacifiCorp typically schedules its lowest-cost flexible resources to serve its load, and blocks off capacity on its highest-cost flexible resources to meet its contingency obligations, subject to any ramping limitations at each resource. This leaves resources with moderate costs available for dispatch up by EIM, while lower-cost flexible resources remain available to be dispatched down by EIM.

Regulation Reserve Data Inputs

Overview

This section describes the data used to determine PacifiCorp's regulation reserve requirements. In order to estimate PacifiCorp's required regulation reserve amount, PacifiCorp must determine the difference between the expected load and resources and actual load and resources. The difference between load and resources is calculated every four seconds and is represented by the ACE. ACE must be maintained within the limits established by BAL-001-2, so PacifiCorp must estimate the amount of regulation reserve that is necessary in order to maintain ACE within these limits.

To estimate the amount of regulation reserve that will be required in the future, the FRS identifies the scheduled use of the system as compared to the actual use of the system during the study term. For the baseline determination of scheduled use for load and resources, the FRS used hourly base schedules. Hourly base schedules are the power production forecasts used for imbalance settlement in the EIM and represent the best information available concerning the upcoming hour.[12]

The deviation from scheduled use was derived from data provided through participation in the EIM. The deviations of generation resources in EIM were measured on a five-minute basis, so five-minute intervals are used throughout the regulation reserve analysis.

EIM base schedule and deviation data for each wind, solar and Non-VER transaction point were downloaded using the SettleCore application, which is populated with data provided by the CAISO. Since PacifiCorp's implementation of EIM on November 1, 2014, PacifiCorp requires certain operational forecast data from all of its transmission customers pursuant to the provisions of Attachment T to PacifiCorp's Federal Energy Regulatory Commission (FERC) approved Open Access Transmission Tariff (OATT). This includes EIM base schedule data (or forecasts) from all resources included in the EIM network model at transaction points. EIM base schedules are submitted by transmission customers with hourly granularity, and are settled using hourly data for load, and fifteen-minute and five-minute data for resources. A primary function of the EIM is to measure load and resource imbalance (or deviations) as the difference between the hourly base schedule and the actual metered values.

[12] The CAISO, as the market operator for the EIM, requests base schedules at 75 minutes (T-75) prior to the hour of delivery. PacifiCorp's transmission customers are required to submit base schedules by 77 minutes (T-77) prior to the hour of delivery – two minutes in advance of the EIM Entity deadline. This allows all transmission customer base schedules enough time to be submitted into the EIM systems before the overall deadline of T-75 for the entirety of PacifiCorp's two BAAs. The base schedules are due again to CAISO at 55 minutes (T-55) prior to the delivery hour and can be adjusted up until that time by the EIM Entity (i.e., PacifiCorp Grid Operations). PacifiCorp's transmission customers are required to submit updated, final base schedules no later than 57 minutes (T-57) prior to the delivery hour. Again, this allows all transmission customer base schedules enough time to be submitted into the EIM systems before the overall deadline of T-55 for the entirety of PacifiCorp's two BAAs. Base schedules may be finally adjusted again, by the EIM Entity only, at 40 minutes (T-40) prior to the delivery hour in response to CAISO sufficiency tests. T-40 is the base schedule time point used throughout this study

A summary of the data gathered for this analysis is listed below, and a more detailed description of each type of source data is contained in the following subsections.

Source data:

- Load data
  - Five-minute interval actual load
  - Hourly base schedules

- VER data
  - Five-minute interval actual generation
  - Hourly base schedules

- Non-VER data
  - Five-minute interval actual generation
  - Hourly base schedules

Load Data

The Load class represents the aggregate firm demand of end users of power from the electric system. While the requirements of individual users vary, there are diurnal and seasonal patterns in aggregated demand. The Load class can generally be described to include three components: (1) average load, which is the base load during a particular scheduling period; (2) the trend, or "ramp," during the hour and from hour-to-hour; and (3) the rapid fluctuations in load that depart from the underlying trend. The need for a system response to the second and third components is the function of regulation reserve in order to ensure reliability of the system.

The PACE BAA includes several large industrial loads with unique patterns of demand. Each of these loads is either interruptible at short notice or includes behind the meter generation. Due to their large size, abrupt changes in their demand are magnified for these customers in a manner which is not representative of the aggregated demand of the large number of small customers which make up the majority of PacifiCorp's loads.

In addition, interruptible loads can be curtailed if their deviations are contributing to a resource shortfall. Because of these unique characteristics, these loads are excluded from the FRS. This treatment is consistent with that used in the CAISO load forecast methodology (used for PACE and PACW operations), which also nets these interruptible customer loads out of the PACE BAA.

Actual average load data was collected separately for the PACE and PACW BAAs for each five-minute interval. Load data was downloaded from PacifiCorp's Ranger PI system and has not been adjusted for transmission and distribution losses.

Wind and Solar Data

The wind and solar classes include resources that: (1) are renewable; (2) cannot be stored by the facility owner or operator; and (3) have variability that is beyond the control of the facility owner or operator.[13] Wind and solar, in comparison to load, often have larger upward and downward

[13] Order No. 764 at P 281; Order No. 764-B at P 210.

fluctuations in output that impose significant and sometimes unforeseen challenges when attempting to maintain reliability. For example, as recognized by FERC in Order No. 764, "Increasing the relative amount of [VERs] on a system can increase operational uncertainty that the system operator must manage through operating criteria, practices, and procedures, *including the commitment of adequate reserves*."[14] The data included in the FRS for the wind and solar classes include all wind and solar resources in PacifiCorp's BAAs, which includes: (1) third-party resources (OATT or legacy contract transmission customers); (2) PacifiCorp-owned resources; and (3) other PacifiCorp-contracted resources, such as qualifying facilities, power purchases, and exchanges. In total, the FRS includes 2,750 megawatts of wind and 1,021 megawatts of solar.

Non-VER Data

The Non-VER class is a mix of thermal and hydroelectric resources and includes all resources which are not VERs, and which do not provide either contingency or regulation reserve. Non-VERs, in contrast to VERs, are often more stable and predictable. Non-VERs are thus easier to plan for and maintain within a reliable operating state. For example, in Order No. 764, FERC suggested that many of its rules were developed with Non-VERs in mind and that such generation "could be scheduled with relative precision."[15]The output of these resources is largely in the control of the resource operator, particularly when considered within the hourly timeframe of the FRS. The deviations by resources in the Non-VER class are thus significantly lower than the deviations by resources in the Wind class. The Non-VER class includes third-party resources (OATT or legacy transmission customers); many PacifiCorp-owned resources; and other PacifiCorp-contracted resources, such as qualifying facilities, power purchases, and exchanges. In total, the FRS includes 2,202 megawatts of Non-VERs.

In the FRS, resources that provide contingency or regulation reserve are considered a separate, dispatchable resource class. The dispatchable resource class compensates for deviations resulting from other users of the transmission system in all hours. While non-dispatchable resources may offset deviations in loads and other resources in some hours, they are not in the control of the system operator and contribute to the overall requirement in other hours. Because the dispatchable resource class is a net provider rather than a user of regulation reserve service, its stand-alone regulation reserve requirement is zero (or negative), and its share of the system regulation reserve requirement is also zero. The allocation of regulation reserve requirements and diversity benefits is discussed in more detail later on in the study.

Regulation Reserve Data Analysis and Adjustment

Overview

This section provides details on adjustments made to the data to align the ACE calculation with actual operations, and address data issues.

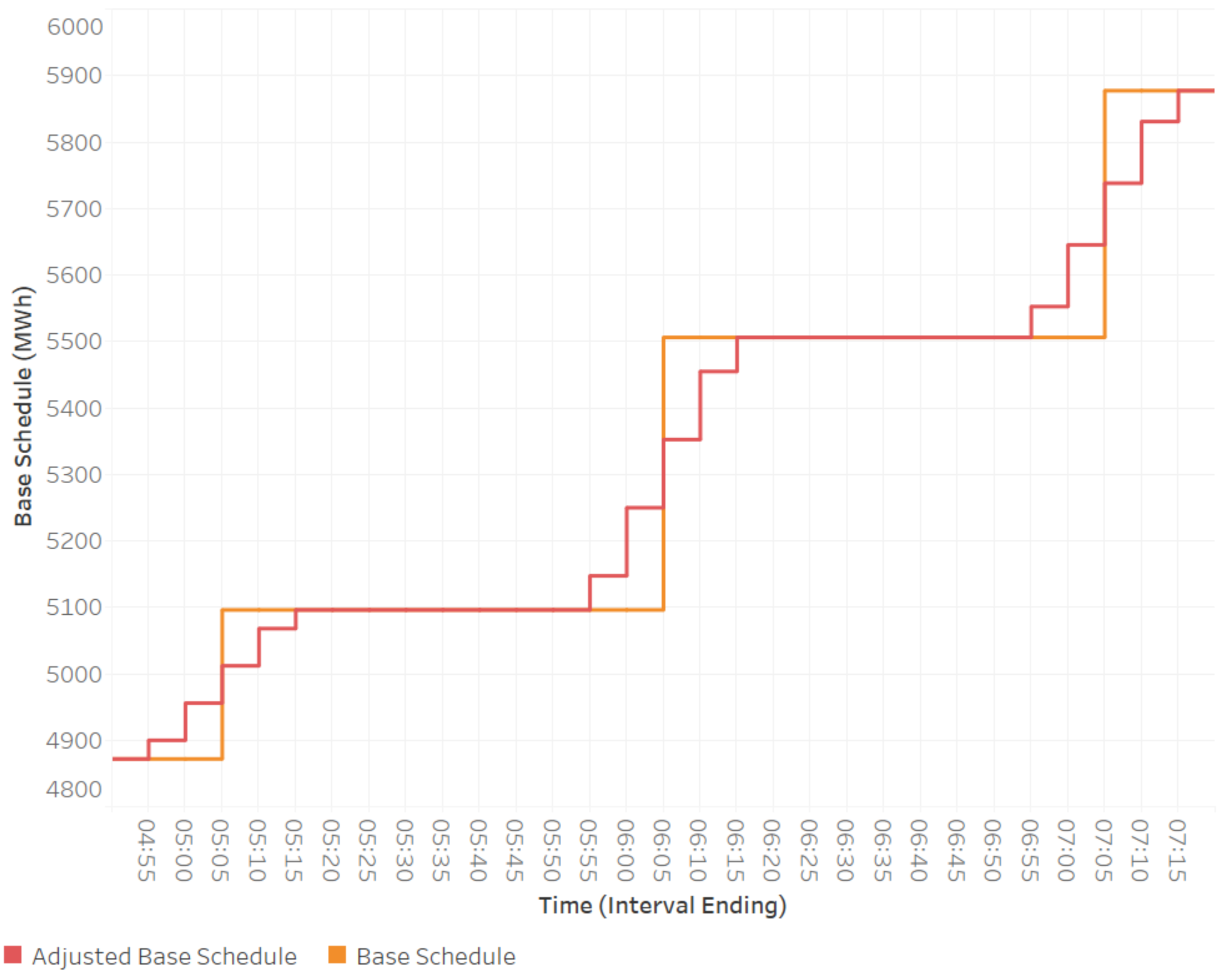
Base Schedule Ramping Adjustment

In actual operations, PacifiCorp's ACE calculation includes a linear ramp from the base schedule in one hour to the base schedule in the next hour, starting ten-minutes before the hour and

[14] Order No. 764 at P 20 (emphasis added).
[15] *Id.* at P 92.

continuing until ten-minutes past the hour. The hourly base schedules used in the study are adjusted to reflect this transition from one hour to the next. This adjustment step is important because, to the extent actual load or generation is transitioning to the levels expected in the next hour, the adjusted base schedules will result in reduced deviations during these intervals, potentially reducing the regulation reserve requirement. Figure F.1 below illustrates the hourly base schedule and the ramping adjustment. The same calculation applies to all base schedules: Load, Wind, Non-VERs, and the combined portfolio.

Figure F.1 - Base Schedule Ramping Adjustment



Data Corrections

The data extracted from PacifiCorp's systems for, wind, solar and Non-VERs was sourced from CAISO settlement quality data. This data has already been verified for inconsistencies as part of the settlement process and needs minimal cleaning as described below. Regarding five minute interval load data from the PI Ranger system, intervals were excluded from the FRS results if any five-minute interval suffered from at least one of the data anomalies that are described further below:

Load:

- Stuck meter/flat meter reading

- Telemetry spike/poor connection to meter

Wind, Solar, and Non-VERs:

- Generator trip events
- Curtailment events

Load in PacifiCorp's BAAs changes continuously. While a BAA could potentially maintain the exact same load levels in two five-minute intervals in a row, it is extremely unlikely for the exact same load level to persist over longer time frames. When PacifiCorp's energy management system (EMS) load telemetry fails, updated load values may not be logged, and the last available load measurement for the BAA will continue to be reported.

Similarly, rapid spikes in load either up or down are also unlikely to be a result of conditions which require deployment of regulation reserve, particularly when they are transient. Such events could be a result of a transmission or distribution outage, which would allow for the deployment of contingency reserve, and would not require deployment of regulation reserve. Load telemetry spike irregularities were identified by examining the intervals with the largest changes from one interval to the next, either up or down. Intervals with inexplicably large and rapid changes in load, particularly where the load reverts back within a short period, were assumed to have been covered through contingency reserve deployment or to reflect inaccurate load measurements. Because they don't reflect periods that require regulation reserve deployment, such intervals are excluded from the analysis.

As with Load, certain Wind and Non-VER deviations are more likely to be a result of conditions that allow for the deployment of contingency reserve, rather than regulation reserve. In particular, contingency reserve can be deployed to compensate for unexpected generator outages. For Non-VERs, these are relatively straightforward—namely, periods when generation drops to zero despite base schedules indicating otherwise. Certain Wind outages also qualify as contingency events. Notably, wind generators can be curtailed when wind speed exceeds the maximum rating of the equipment (sometimes referred to as "high speed cutout"). In such instances, generation is curtailed until wind speeds drop back into a safe operating range in order to protect the equipment. When wind speed oscillates above and below the cut-off point, generation may ramp down and up repeatedly. Because events which qualify for deployment of contingency reserve do not require deployment of regulation reserve they have been excluded from the analysis.

As the regulation reserve requirements are calculated using a rolling thirty-minute timeline, data from the prior hour is necessary during the first several five-minute intervals of the next hour. An error in one hour thus results in the need to remove the following hour. This is relevant to error adjustments for both Wind and Non-VERs.

After review of the data for each of the above anomaly types, and out of 105,120 five-minute intervals evaluated, only 1.1 percent and 0.52 percent of the total FRS term hours were removed from PACW and PACE, respectively. The system-wide error rate was 1.36 percent, slightly lower than the sum of the PACW and PACE rates due to coincident hours. While cleaning up or replacing anomalous hours could yield a more complete data set, determining the appropriate conditions in those hours would be difficult and subjective. By removing anomalies, the FRS sample is smaller but remains reflective of the range of conditions PacifiCorp actually experiences, including the impact on regulation reserve requirements of weather events experienced during the study period.

Regulation Reserve Requirement Methodology

Overview

This section presents the methodology used to determine the initial regulation reserve needed to manage the load and resource balance within PacifiCorp's BAAs. The five-minute interval load and resource deviation data described above informs a regulation reserve forecast methodology that achieves the following goals:

- Complies with NERC standard BAL-001-2;
- Minimizes regulation reserve held; and
- Uses data available at time of EIM base schedule submission at T-40.[16]

The components of the methodology are described below, and include:

- Operating Reserve: Reserve Categories;
- Calculation of Regulation Reserve Need;
- Balancing Authority ACE Limit: Allowed Deviations;
- Planning Reliability Target: Loss of Load Probability ("LOLP"); and
- Regulation Reserve Forecast: Amount Held.

Following the explanation below of the components of the methodology, the next section details the forecasted amount of regulation reserve for:

- Wind;
- Solar;
- Non-VERs; and
- Load.

Components of Operating Reserve Methodology

Operating Reserve: Reserve Categories
Operating reserve consists of three categories: (1) contingency reserve (i.e., spinning and supplemental reserve), (2) regulation reserve, and (3) frequency response reserve. These requirements must be met by resources that are incremental to those needed to meet firm system demand. The purpose of the FRS is to determine the regulation reserve requirement. The contingency reserve and frequency response requirements are defined formulaically by their respective reliability standards.

Of the three categories of reserve referenced above, the FRS is primarily focused on the requirements associated with regulation reserve. Contingency reserve may not be deployed to manage other system fluctuations such as changes in load or wind generation output. Because deviations caused by contingency events are covered by contingency reserve rather than regulation reserve, they are excluded from the determination of the regulation reserve requirements. Because frequency response reserve can overlap with that held for contingency and regulation reserve requirements it is similarly excluded from the determination of regulation reserve requirements.

[16] *See* footnote 12 above for explanation of PacifiCorp's use of the T-40 base schedule time point in the FRS.

The types of operating reserve and relationship between them are further defined in in the Flexible Resource Requirements section above.

Regulation reserve is capacity that PacifiCorp holds available to ensure compliance with the NERC Control Performance Criteria in BAL-001-2, which requires a BAA to carry regulation reserve incremental to contingency reserve to maintain reliability.[17] The regulation reserve requirement is not defined by a simple formula, but instead is the amount of reserve required by each BAA to meet specified control performance standards. Requirement two of BAL-001-2 defines the compliance standard as follows:

> *Each Balancing Authority shall operate such that its clock-minute average of Reporting ACE does not exceed its clock-minute Balancing Authority ACE Limit (BAAL) for more than 30 consecutive clock-minutes…*

PacifiCorp has been operating under BAL-001-2 since March 1, 2010, as part of a NERC Reliability-Based Control field trial in the Western Interconnection, so PacifiCorp has experience operating under the new standard, even though it did not become effective until July 1, 2016.

The three key elements in BAL-001-2 are: (1) the length of time (or "interval") used to measure compliance; (2) the percentage of intervals that a BAA must be within the limits set in the standard; and (3) the bandwidth of acceptable deviation used under each standard to determine whether an interval is considered out of compliance. These changes are discussed in further detail below.

The first element is the length of time used to measure compliance. Compliance under BAL-001-2 is measured over rolling thirty-minute intervals, with 60 overlapping periods per hour, some of which include parts of two clock-hours. In effect, this means that every minute of every hour is the beginning of a new, thirty-minute compliance interval under the new BAL-001-2 standard. If ACE is within the allowed limits at least once in a thirty-minute interval, that interval is in compliance, so only the minimum deviation in each rolling thirty-minute interval is considered in determining compliance. As a result PacifiCorp does not need to hold regulation reserve for deviations with duration less than 30 minutes.

The second element is the number of intervals where deviations are allowed to be outside the limits set in the standard. BAL-001-2 requires 100 percent compliance, so deviations must be maintained within the requirement set by the standard for all rolling thirty-minute intervals.

The third element is the bandwidth of acceptable deviation before an interval is considered out of compliance. Under BAL-001-2, the acceptable deviation for each BAA is dynamic, varying as a function of the frequency deviation for the entire interconnect. When interconnection frequency exceeds 60 Hz, the dynamic calculation does not require regulation resources to be deployed regardless of a BAA's ACE. As interconnection frequency drops further below 60 Hz, a BAA's permissible ACE shortfall is increasingly restrictive.

Planning Reliability Target: Loss of Load Probability

When conducting resource planning, it is common to use a reliability target that assumes a specified loss of load probability (LOLP). In effect, this is a plan to curtail firm load in rare

[17] NERC Standard BAL-001-2, www.nerc.com/files/BAL-001-2.pdf

circumstances, rather than acquiring resources for extremely unlikely events. The reliability target balances the cost of additional capacity against the benefit of incrementally more reliable operation. By planning to curtail firm load in the rare event of a regulation reserve shortage, PacifiCorp can maintain the required 100 percent compliance with the BAL-001-2 standard and the Balancing Authority ACE Limit. This balances the cost of holding additional regulation reserve against the likelihood of regulation reserve shortage events.

The 2019 FRS assumes that a regulation reserve forecasting methodology that results in 0.50 loss of load hours per year due to regulation reserve shortages is appropriate for planning and ratemaking purposes. This is in addition to any loss of load resulting from transmission or distribution outages, resource adequacy, or other causes. The FRS applies this reliability target as follows:

- If the regulation reserve available is greater than the regulation reserve need for an hour, the LOLP is zero for that hour.
- If the regulation reserve held is less than the amount needed, the LOLP is derived from the Balancing Authority ACE Limit probability distribution as illustrated below.

Balancing Authority ACE Limit: Allowed Deviations

Even if insufficient regulation reserve capability is available to compensate for a thirty-minute sustained deviation, a violation of BAL-001-2 does not occur unless the deviation also exceeds the Balancing Authority ACE Limit.

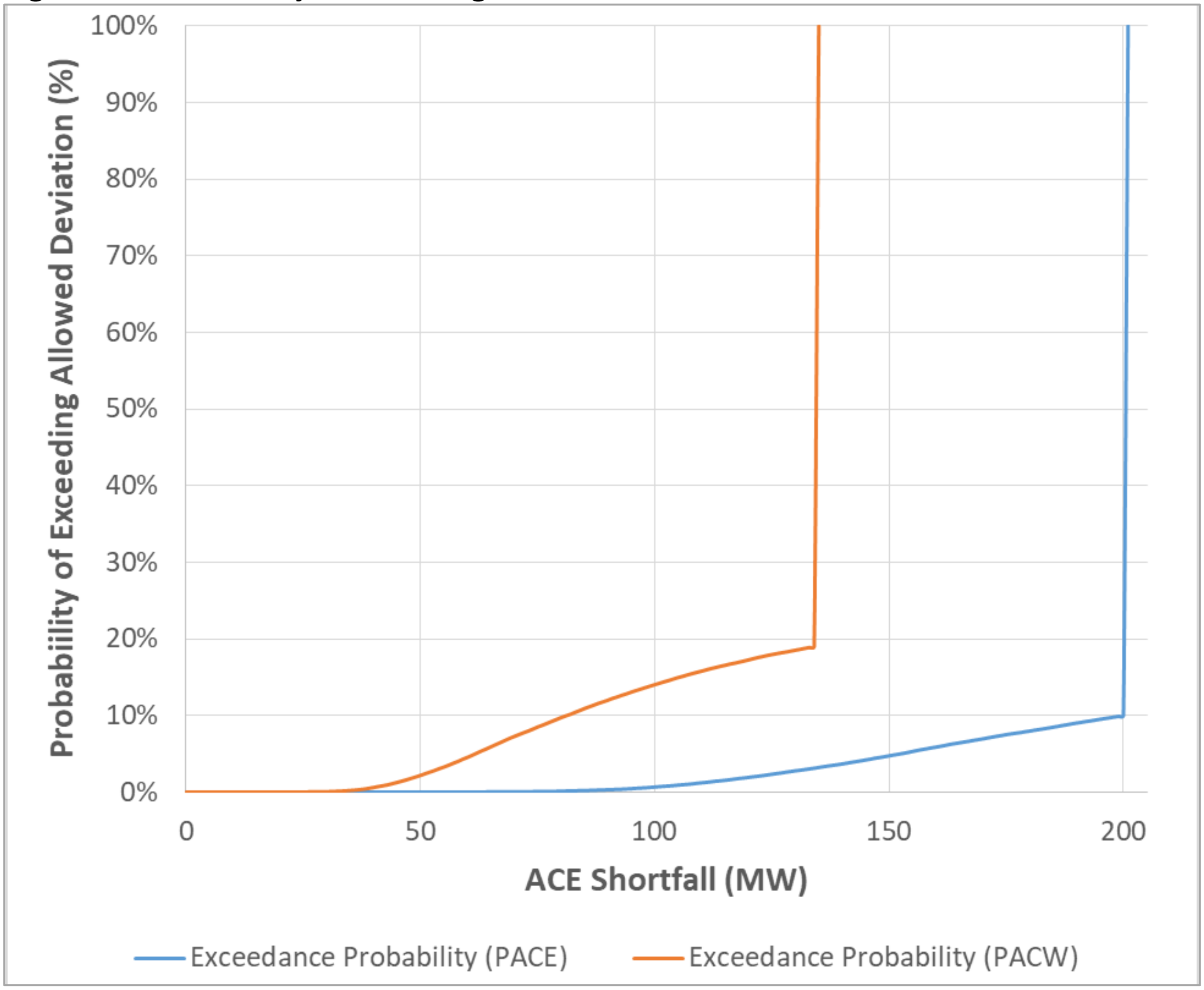
The Balancing Authority ACE Limit is specific to each BAA and is dynamic, varying as a function of interconnection frequency. When WECC frequency is close to 60 Hz, the Balancing Authority ACE Limit is large and large deviations in ACE are allowed. As WECC frequency drops further and further below 60 Hz, ACE deviations are increasingly restricted for BAAs that are contributing to the shortfall, *i.e.* those BAAs with higher loads than resources. A BAA commits a BAL-001-2 reliability violation if in any thirty-minute interval it doesn't have at least one minute when its ACE is within its Balancing Authority ACE Limit.

While the specific Balancing Authority ACE Limit for a given interval cannot be known in advance, the historical probability distribution of Balancing Authority ACE Limit values is known. Figure F.2 below shows the probability of exceeding the allowed deviation during a five-minute interval for a given level of ACE shortfall. For instance, a 43 MW ACE shortfall in PACW has a one percent chance of exceeding the Balancing Authority ACE Limit. WECC-wide frequency can change rapidly and without notice, and this causes large changes in the Balancing Authority ACE Limit over short time frames. Maintaining ACE within the Balancing Authority ACE Limit under those circumstances can require rapid deployment of large amounts of operating reserve. To limit the size and speed of resource deployment necessitated by variation in the Balancing Authority ACE Limit, PacifiCorp's operating practice caps permissible ACE at the lesser of the Balancing Authority ACE Limit or four times L_{10}. This also limits the occurrence of transmission flows that exceed path ratings as result of large variations in ACE.[18,19] This cap is reflected in Figure F.2.

[18] "Regional Industry Initiatives Assessment." NWPP MC Phase 3 Operations Integration Work Group. Dec. 31, 2014. Pg. 14. Available at: www.nwpp.org/documents/MC-Public/NWPP-MC-Phase-3-Regional-Industry-Initiatives-Assessment12-31-2014.pdf

[19] "NERC Reliability-Based Control Field Trial Draft Report." Western Electricity Coordinating Council. Mar. 25, 2015. Available at: www.wecc.biz/Reliability/RBC%20Field%20Trial%20Report%20Approved%203-25-2015.pdf

Figure F.2 - Probability of Exceeding Allowed Deviation



In 2017, PacifiCorp's deviations and Balancing Authority ACE Limits were uncorrelated, which indicates that PacifiCorp's contribution to WECC-wide frequency is small. PacifiCorp's deviations and Balancing Authority ACE Limits were also uncorrelated when periods with large deviations were examined in isolation. If PacifiCorp's large deviations made distinguishable contributions to the Balancing Authority ACE Limit, ACE shortfalls would be more likely to exceed the Balancing Authority ACE Limit during large deviations. Since this is not the case, the probability of exceeding the Balancing Authority ACE Limit is lower, and less regulation reserve is necessary to comply with the BAL-001-2 standard.

Regulation Reserve Forecast: Amount Held

In order to calculate the amount of regulation reserve required to be held while being compliant with BAL-001-2 – using a LOLP of 0.5 hours per year or less – a quantile regression methodology was used. The regression variables consist of:

- The combined deviation of load, wind, solar, and Non-VERs;
- Forecasted load as a percentage of peak load;
- Forecasted wind generation as a percentage of total system wind capacity;
- Forecasted solar generation as a percentage of total system solar capacity; and
- Forecasted Non-VER generation as a percentage of maximum Non-VER schedules.

The combined deviations of load, wind, solar and non-VERs (Combined Diversity Error) is calculated as [Load Error – Wind Error – Solar Error – Non VER Error] as illustrated below in Table F.3 for PACE.

Table F.3 - Combined Diversity Error Example

Trading Date	Trading Hour	Trading Interval	Load Error	Non VER Error	Wind Error	Solar Error	Combined Diversity Error
1/1/2017	3	5	49	-5	-21	0	75
1/1/2017	3	10	40	-6	-16	0	61
1/1/2017	3	15	36	-3	-14	0	53
1/1/2017	3	20	35	-6	-55	0	97
1/1/2017	3	25	34	-6	-48	0	87
1/1/2017	3	30	36	-4	-26	0	67
1/1/2017	3	35	36	-7	-41	0	84
1/1/2017	3	40	32	-8	-39	0	80
1/1/2017	3	45	30	-5	-39	0	74
1/1/2017	3	50	31	2	-37	0	66
1/1/2017	3	55	37	1	-37	0	73
1/1/2017	3	60	45	2	-32	0	75

The individual errors (load, wind, solar and non-VERs) are calculated as the difference between the actual meter data and the adjusted hourly base schedules as illustrated below for PACE wind in Table F.4.

Table F.4 – Wind Error Example

Trading Date	Trading Hour	Trading Interval	Adjusted Base Schedules	Actuals	Wind Error
1/1/2017	3	5	957	936	-21
1/1/2017	3	10	956	940	-16
1/1/2017	3	15	955	941	-14
1/1/2017	3	20	955	900	-55
1/1/2017	3	25	955	908	-48
1/1/2017	3	30	955	929	-26
1/1/2017	3	35	955	914	-41
1/1/2017	3	40	955	916	-39
1/1/2017	3	45	955	916	-39
1/1/2017	3	50	955	918	-37
1/1/2017	3	55	954	917	-37
1/1/2017	3	60	951	919	-32

An illustration of the combined diversity error and the forecasted levels of load as a percentage of peak load, the forecasted levels of wind as a percentage of total system capacity, the forecasted levels of solar as a percentage of total system capacity and the forecasted levels of Non-VERs as a percentage of peak schedule are illustrated below in Table F.5 for PACE.

Table F.5 – Regression Inputs Example

Trading Date	Trading Hour	Trading Interval	Combined Diversity Error	Wind Forecast	Solar Forecast	Load Forecast	Non VER Forecast
1/1/2017	3	5	72	50.5%	0%	56%	55%
1/1/2017	3	10	60	50.4%	0%	56%	55%
1/1/2017	3	15	53	50.3%	0%	56%	55%

1/1/2017	3	20	97	50.3%	0%	56%	55%
1/1/2017	3	25	87	50.3%	0%	56%	55%
1/1/2017	3	30	67	50.3%	0%	56%	55%
1/1/2017	3	35	84	50.3%	0%	56%	55%
1/1/2017	3	40	80	50.3%	0%	56%	55%
1/1/2017	3	45	74	50.3%	0%	56%	55%
1/1/2017	3	50	66	50.3%	0%	56%	55%
1/1/2017	3	55	68	50.3%	0%	56%	55%
1/1/2017	3	60	58	50.1%	0%	56%	55%

The Load Forecast, Wind Forecast, Solar Forecast and Non VER Forecast are calculated as a percentage of some measure of capacity or peak. The forecasted levels of PACE wind as a percentage of total system capacity is illustrated below in Table F.6.

Table F.6 – Wind Forecast Level Example

Trading Date	Trading Hour	Trading Interval	Adjusted Base Schedules	Capacity	Wind Forecast
1/1/2017	3	5	957	1898	50.5%
1/1/2017	3	10	956	1898	50.4%
1/1/2017	3	15	955	1898	50.3%
1/1/2017	3	20	955	1898	50.3%
1/1/2017	3	25	955	1898	50.3%
1/1/2017	3	30	955	1898	50.3%
1/1/2017	3	35	955	1898	50.3%
1/1/2017	3	40	955	1898	50.3%
1/1/2017	3	45	955	1898	50.3%
1/1/2017	3	50	955	1898	50.3%
1/1/2017	3	55	954	1898	50.3%
1/1/2017	3	60	951	1898	50.1%

Quantile regression is a type of regression analysis. Whereas the typical method of ordinary least squares results in estimates of the conditional mean (50th percentile) of the response variable given certain values of the predictor variables, quantile regression aims at estimating other specified percentiles of the response variable. For the 2019 FRS the response variable – Combined Diversity Error – was expressed as a function of four predictor variables – Wind Forecast, Solar Forecast, Load Forecast and Non VER Forecast. Each predictor variable contributes to the regression as a combination of linear, square, and cubic effects. Specifically:

$$\begin{gathered}
\text{Combined Diversity Error} \quad \text{varies as a function of:} \\
Wind\ Forecast \;+\; Wind\ Forecast^2 \;+\; Wind\ Forecast^3 \;+ \\
Solar\ Forecast \;+\; Solar\ Forecast^2 \;+\; Solar\ Forecast^3 \;+ \\
Load\ Forecast \;+\; Load\ Forecast^2 \;+\; Load\ Forecast^3 \;+ \\
Non\ VER\ Forecast \;+\; Non\ VER\ Forecast^2
\end{gathered}$$

The instances requiring the largest amounts of regulation reserve occur infrequently, and many hours have very low requirements. If periods when requirements are likely to be low can be distinguished from periods when requirements are likely to be high, less regulation reserve is necessary to achieve a given reliability target. The regulation reserve forecast is not intended to compensate for every potential deviation. Instead, when a shortfall occurs, the size of that shortfall determines the probability of exceeding the Balancing Authority ACE Limit and a reliability violation occurring. The forecast is adjusted to achieve a cumulative LOLP that corresponds to the annual reliability target.

2017 Regulation Reserve Forecast

Overview

The following forecasts are polynomial functions that cover a targeted percentile of all historical deviations. These forecasts are stand-alone forecasts - based on the difference between hour-ahead base schedules and actual meter data - expressing the errors as a function of the level of forecast. The stand-alone reserve requirement shown achieves the annual reliability target of 0.5 hours per year, after accounting for the dynamical Balancing Authority ACE Limit. The combined diversity error system requirements are discussed later on in the study.

Wind

Figure F.3 illustrates the relationship between the regulation reserve requirements for PACE wind during 2017 and the forecasted level of output, stated as a capacity factor (*i.e.*, a percentage of the nameplate wind capacity). Figure F.4 illustrates this relationship for PACW.

Figure F.3 - Wind Regulation Reserve Requirements by Forecast - PACE

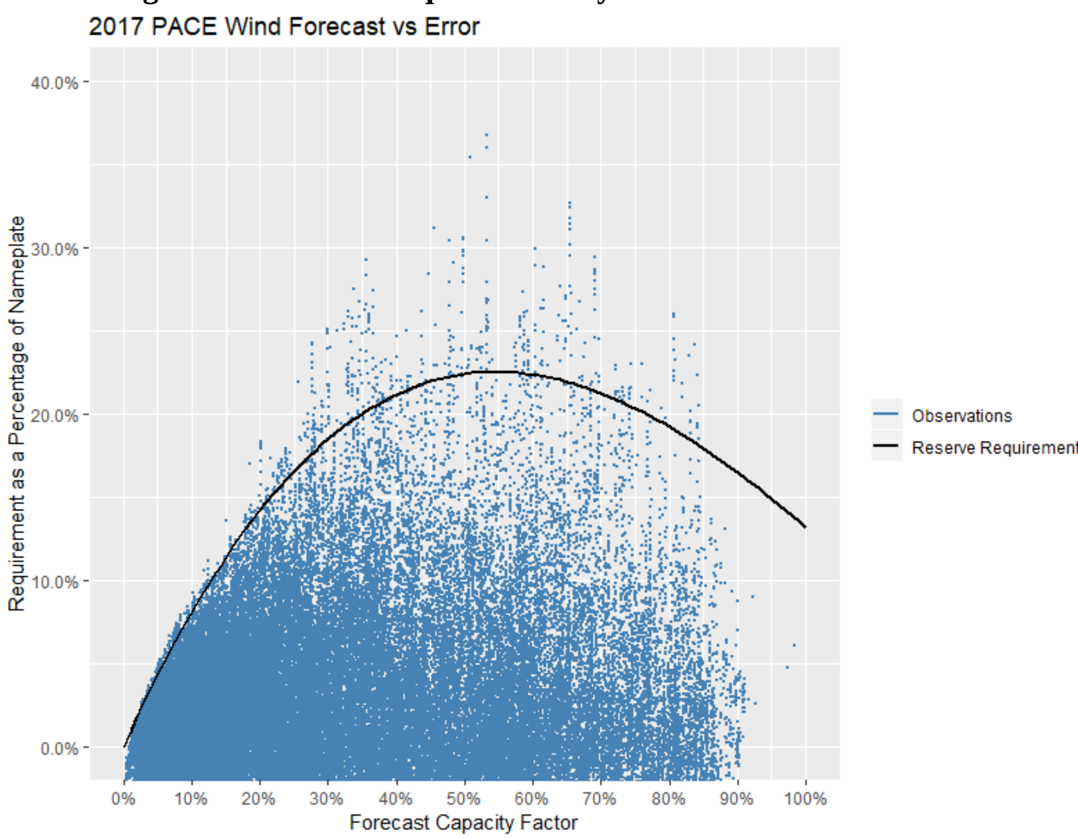
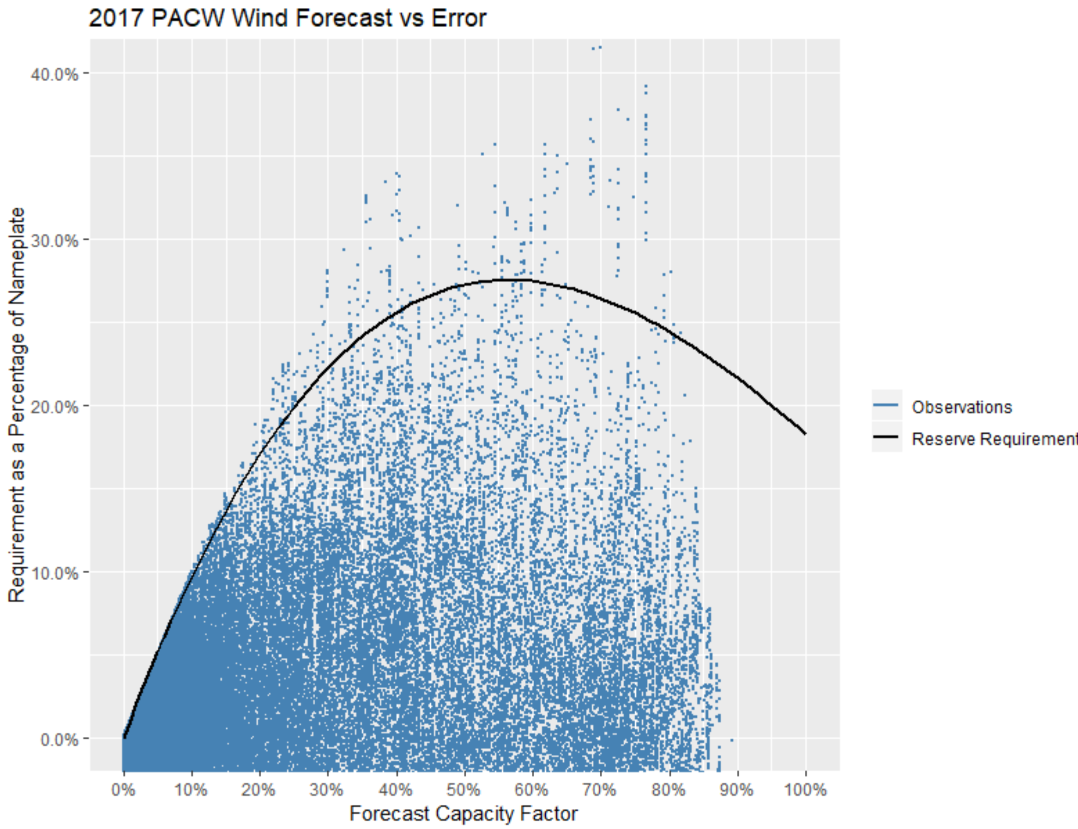


Figure F.4 - Wind Regulation Reserve Requirements by Forecast Capacity Factor-PACW



The forecast results in an average 2017 stand-alone regulation reserve requirement for wind of 434 MW for the PacifiCorp system, or approximately 15.8 percent of nameplate capacity.

Solar

Figure F.5 illustrates the relationship between the regulation reserve requirements for PACE solar during 2017 and the forecasted level of output, stated as a capacity factor (*i.e*., a percentage of the nameplate solar capacity). Figure F.6 illustrates this relationship for PACW.

Figure F.5 - Solar Regulation Reserve Requirements by Forecast Capacity Factor-PACE

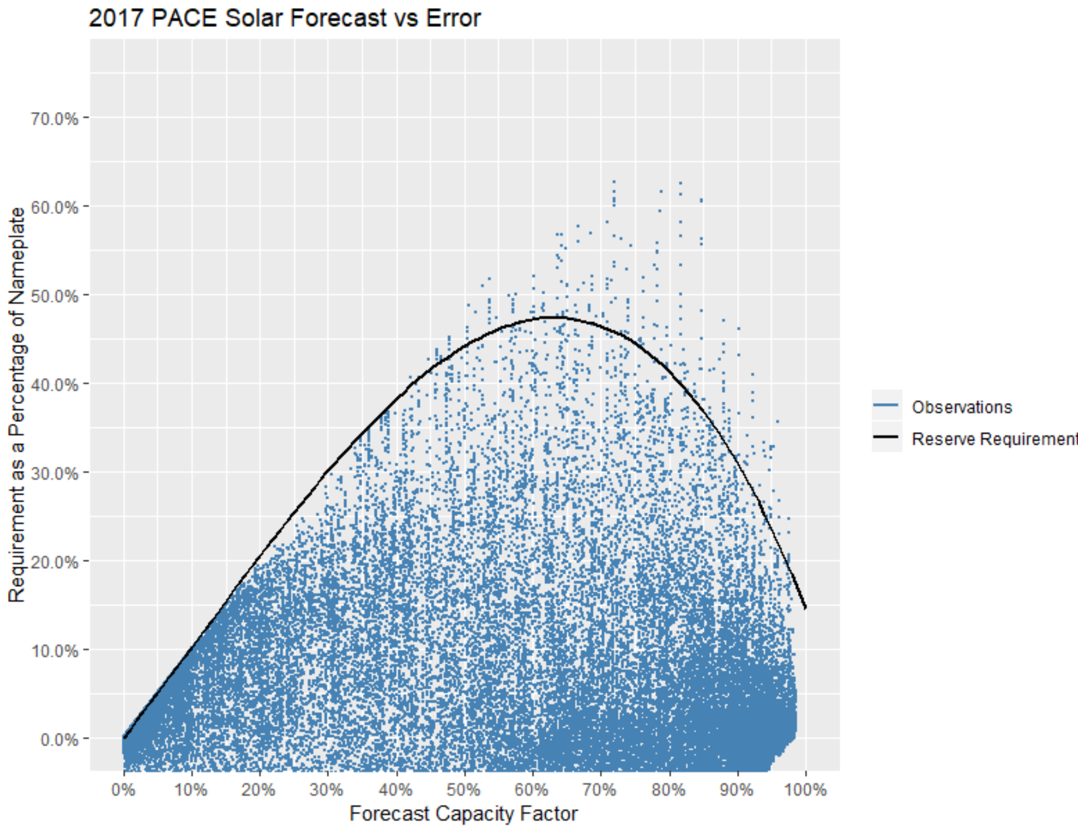
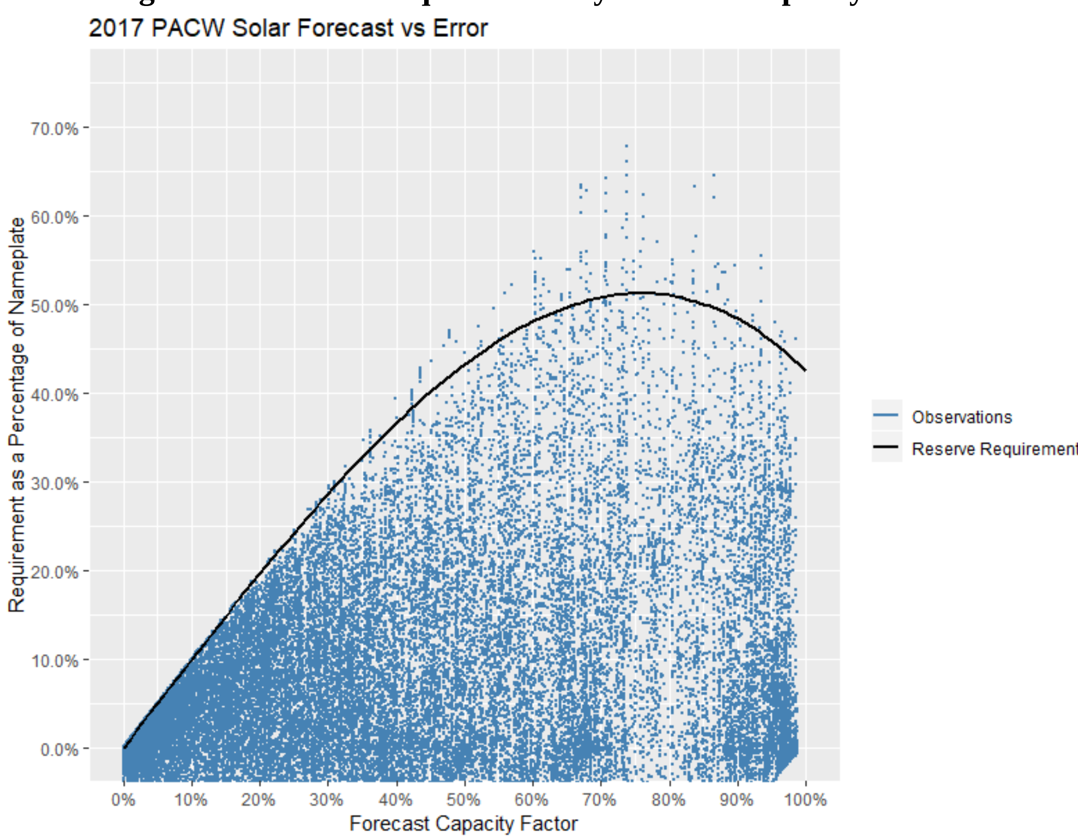


Figure F.6 - Solar Regulation Reserve Requirements by Forecast Capacity Factor-PACW



The forecast results in an average 2017 stand-alone regulation reserve requirement for solar of 145 MW for the PacifiCorp system, or approximately 14.8 percent of nameplate capacity.

Non-VERs

Figure F.7 below illustrates the regulation reserve requirements for PACE Non-VERs during 2017 as a function of the forecasted level of output, stated as a peak schedule factor (*i.e.*, a percentage of the peak Non-VER schedule observed for 2017). Figure F.8 illustrates this relationship for PACW.

Figure F.7 – Non-VER Regulation Reserve Requirements by Forecast Schedule Factor-PACE

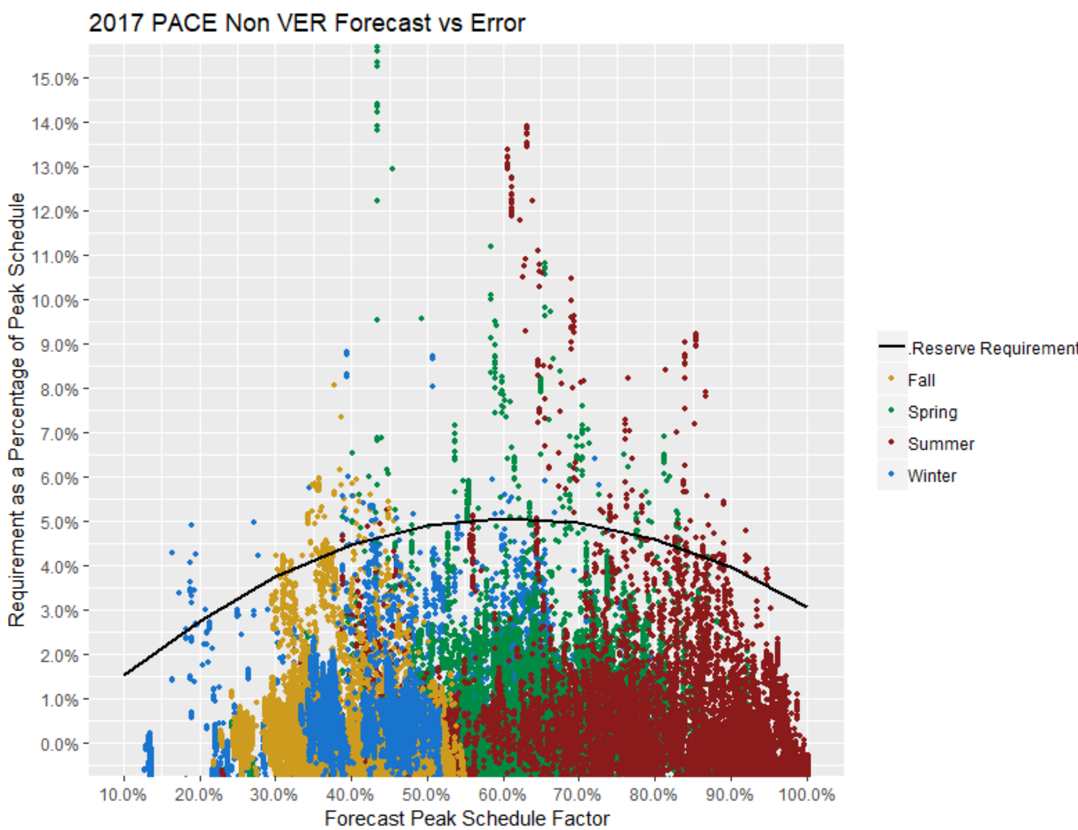
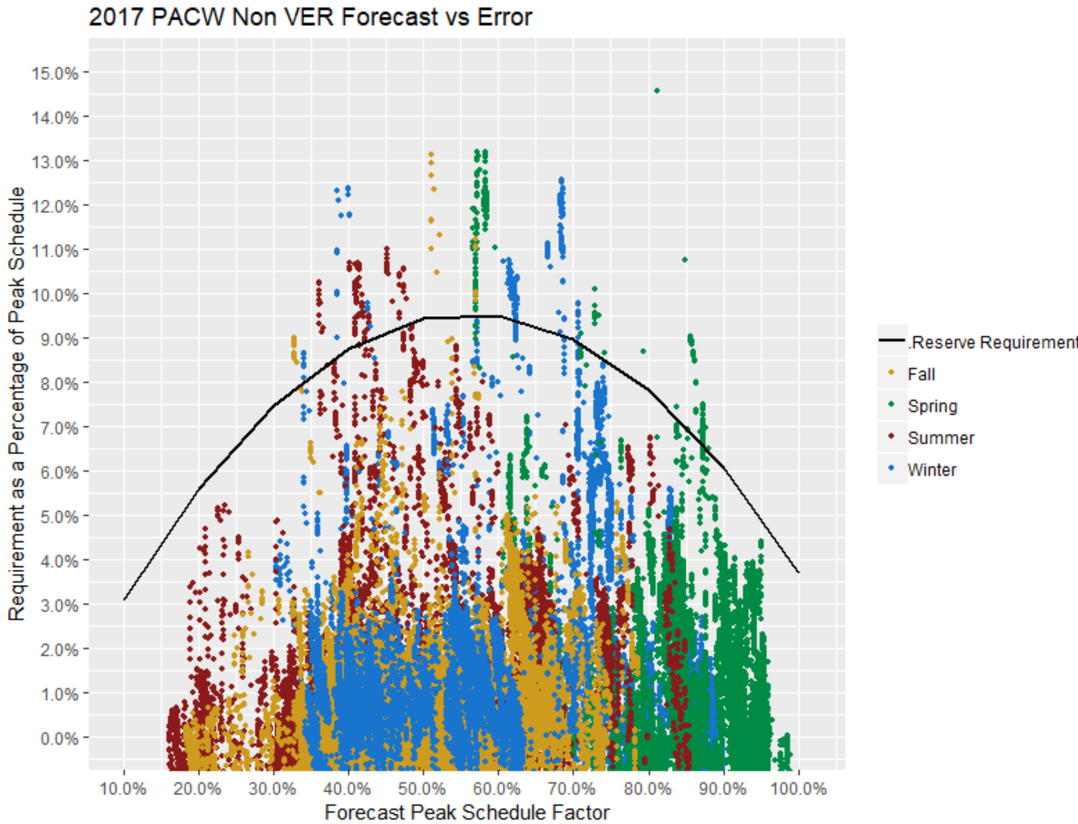


Figure F.8 – Non-VER Regulation Reserve Requirements by Forecast Schedule Factor-PACW



The forecast results in an average 2017 stand-alone regulation reserve requirement for non VERs of 110 MW for the PacifiCorp system, or approximately 5.7 percent of the peak schedule.

Load

Figure F.9 below illustrates the regulation reserve requirements for PACE load during 2017 as a function of the forecasted level of output, stated as a peak load factor (*i.e.*, a percentage of the peak load observed during 2017) for PACE. Figure F.10 illustrates this relationship for PACW.

Figure F.9 – Stand-alone Load Regulation Reserve Requirements-PACE

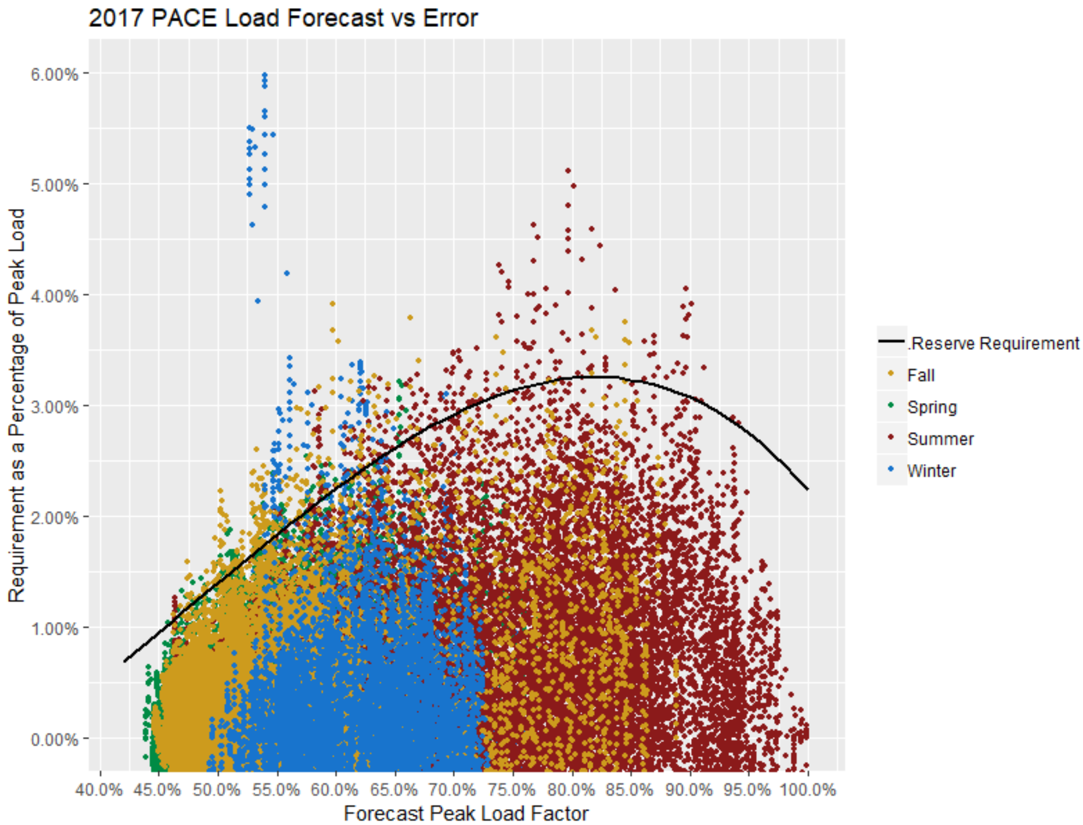
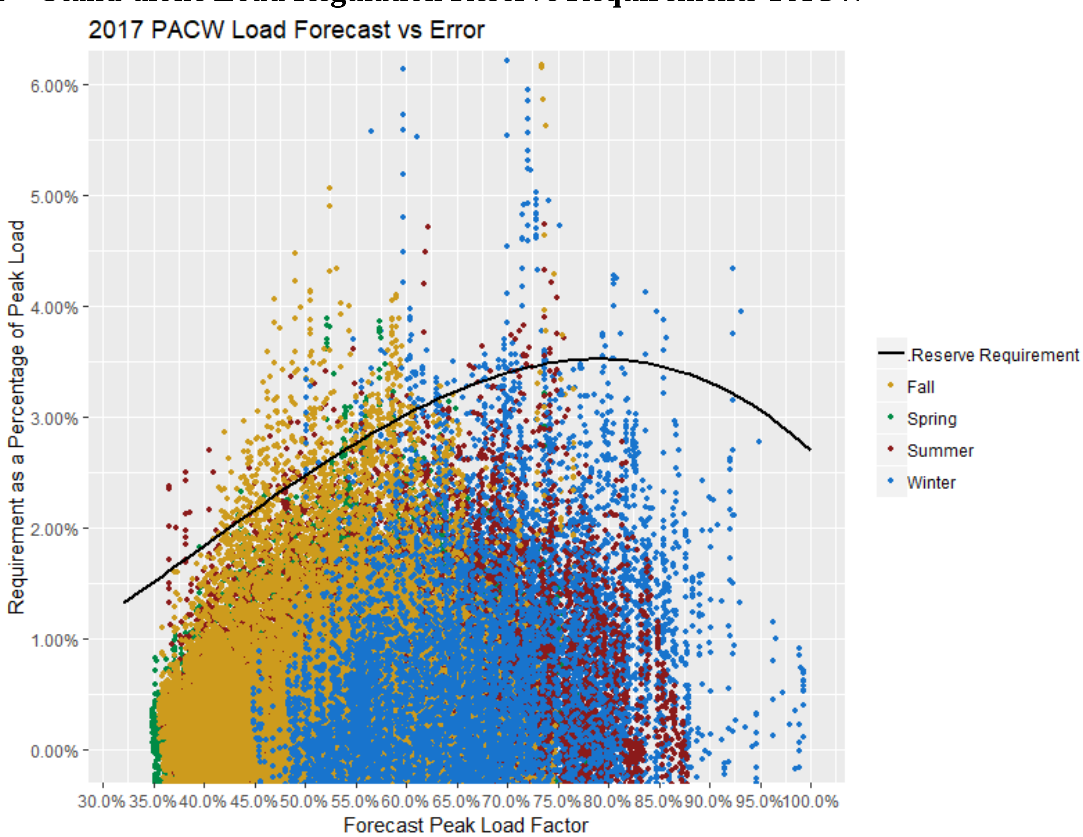


Figure F.10 – Stand-alone Load Regulation Reserve Requirements-PACW



The forecast results in an average 2017 stand-alone regulation reserve requirement for load of 305 MW for the PacifiCorp system, or approximately 3.0 percent of the peak load.

Portfolio Diversity and EIM Diversity Benefits

The EIM is a voluntary energy imbalance market service through the CAISO where market systems automatically balance supply and demand for electricity every fifteen and five minutes, dispatching least-cost resources every five minutes.

PacifiCorp and CAISO began full EIM operation on November 1, 2014. A number of additional participants have since joined the EIM, and more participants are scheduled to join in the next several years. PacifiCorp's participation in the EIM results in improved power production forecasting and optimized intra-hour resource dispatch. This brings important benefits including reduced energy dispatch costs through automatic dispatch, enhanced reliability with improved situational awareness, better integration of renewable energy resources, and reduced curtailment of renewable energy resources.

The EIM also has direct effects related to regulation reserve requirements. First, as a result of EIM participation, PacifiCorp has improved data used in the analysis contained in this FRS. The data and control provided by the EIM allow PacifiCorp to achieve the portfolio diversity benefits described in the first part of this section. Second, the EIM's intra-hour capabilities across the broader EIM footprint provide the opportunity to reduce the amount of regulation reserve necessary for PacifiCorp to hold, as further explained in the second part of this section.

Portfolio Diversity Benefit

The regulation reserve forecasts described above independently ensure that the probability of a reliability violation for each class remains within the reliability target; however, the largest deviations in each class tend not to occur simultaneously, and in some cases deviations will occur in offsetting directions. Because the deviations are not occurring at the same time, the regulation reserve held can cover the expected deviations for multiple classes at once and a reduced total quantity of reserve is sufficient to maintain the desired level of reliability. This reduction in the reserve requirement is the diversity benefit from holding a single pool of reserve to cover deviations in Solar, Wind, Non-VERs, and Load. As a result, the regulation reserve forecast for the portfolio can be reduced while still meeting the reliability target. For this reason the portfolio regulation requirements were calculated on the Combined Diversity Error.

As shown in Table F.7 below, PacifiCorp calculated the proportional reduction to the standalone requirements that could be applied such that the PacifiCorp system achieves the target determined through the quantile regression on the Combined Diversity Error. A total portfolio requirement of 635 MW was the result of this regression, a reduction of 36 percent. Applying this 36 percent reduction to each of the stand-alone regulation forecasts results in the diversity benefits shown in the second column. The last column shows the regulation requirements for each class after subtracting the portfolio diversity benefit.

Table F.7 - Results with PacifiCorp Portfolio Diversity

Scenario	Stand-alone Regulation Forecast (aMW)	Diversity Benefit (aMW)	Portfolio Regulation Forecast (aMW)
Non-VER	110	(40)	70
Load	305	(110)	195
VER - Wind	434	(157)	277
VER - Solar	145	(53)	93
Total	**994**	**(360)**	**635**

EIM Diversity Benefit

In addition to the direct benefits from EIM's increased system visibility and improved intra-hour operational performance described above, the participation of other entities in the broader EIM footprint provides the opportunity to further reduce the amount of regulation reserve PacifiCorp must hold.

By pooling variability in load, wind, and solar output, EIM entities reduce the quantity of reserve required to meet flexibility needs. The EIM also facilitates procurement of flexible ramping capacity in the fifteen-minute market to address variability that may occur in the five-minute market. Because variability across different BAAs may happen in opposite directions, the flexible ramping requirement for the entire EIM footprint can be less than the sum of individual BAA requirements. This difference is known as the "diversity benefit" in the EIM. This diversity benefit reflects offsetting variability and lower combined uncertainty. This flexibility reserve (uncertainty requirement) is in addition to the spinning and supplemental reserve carried against generation or transmission system contingencies under the NERC standards.

The CAISO calculates the EIM diversity benefit by first calculating an uncertainty requirement for each individual EIM BAA and then by comparing the sum of those requirements to the uncertainty requirement for the entire EIM area. The latter amount is expected to be less than the sum of the uncertainty requirements from the individual BAAs due to the portfolio diversification effect of forecasting a larger pool of load and resources using intra-hour scheduling and increased system visibility in the hypothetical, single-BAA EIM. Each EIM BAA is then credited with a share of the diversity benefit calculated by CAISO based on its share of the stand-alone requirement relative to the total stand-alone requirement.

The EIM does not relieve participants of their reliability responsibilities. EIM entities are required to have sufficient resources to serve their load on a standalone basis each hour before participating in the EIM. Thus, each EIM participant remains responsible for all reliability obligations. Despite these limitations, EIM imports from other participating BAAs can help balance PacifiCorp's loads and resources within an hour, reducing the size of reserve shortfalls and the likelihood of a Balancing Authority ACE Limit violation. While substantial EIM imports do occur in some hours, it is only appropriate to rely on PacifiCorp's diversity benefit associated with EIM participation, as these are derived from the structure of the EIM rather than resources contributed by other participants.

Table F.8 below provides a numeric example of uncertainty requirements and application of the calculated diversity benefit.

Table F.8 - EIM Diversity Benefit Application Example

Hour	CAISO req't. before benefit (MW)	NEVP req't. before benefit (MW)	PACE req't. before benefit (MW)	PACW req't. before benefit (MW)	Total req't. before benefit (MW)	Total req't. after benefit (MW)	Total diversity benefit (MW)	Diversity benefit ratio (MW)	PACE benefit (MW)	PACE req't. after benefit (MW)
1	550	110	165	100	925	583	342	37.0%	61	104
2	600	110	165	100	975	636	339	34.8%	57	108
3	650	110	165	110	1,035	689	346	33.4%	55	110
4	667	120	180	113	1,080	742	338	31.3%	56	124

While the diversity benefit is uncertain, that uncertainty is not significantly different from the uncertainty in the Balancing Authority ACE Limit described above. In the 2019 FRS, PacifiCorp has credited the regulation reserve forecast with a historical distribution of calculated EIM diversity benefits. While this FRS considers regulation reserve requirements in 2017, the CAISO identified an error in their calculation of uncertainty requirements in early 2018. CAISO's published uncertainty requirements and associated diversity benefits are now only valid for March 2018 forward. To capture these additional benefits for this analysis, PacifiCorp has applied the historical distribution of EIM diversity benefits from March 2018 through the beginning of this study in July 2018. Relatively small incremental EIM diversity benefits are expected going forward as additional entities participate in EIM; however, operational data on new participants was not available at the time the study was prepared.

The inclusion of EIM diversity benefits in the 2019 FRS reduces the probability of reserve shortfalls and, in doing so, reduces the overall regulation reserve requirement. This allows PacifiCorp's forecasted requirements to be reduced. As shown in Table F.9 below, the resulting regulation reserve requirement is 531 MW, a 47 percent reduction (including the portfolio diversity benefit) compared to the stand-alone requirement for each class. The average regulation reserve requirement is reduced by 104 MW relative to the PacifiCorp portfolio reserve requirement without the EIM diversity benefit. The portfolio regulation forecast is expected to achieve an LOLP of 0.5 hours per year, based on a quantile regression at a 99.35 percent exceedance level.

Table F.9 - 2017 Results with Portfolio Diversity and EIM Diversity Benefits

Scenario	Stand-alone Regulation Forecast (aMW)	Stand-alone Rate (%)	Portfolio Regulation Forecast w/EIM (aMW)	Portfolio Rate (%)	2017 Capacity (MW)	Rate Determinant
Non-VER	110	5.7%	59	3.1%	1,912	12 CP
Load	305	3.0%	163	1.6%	10,044	12 CP
VER - Wind	434	15.8%	232	8.4%	2,750	Nameplate
VER - Solar	145	14.8%	78	7.9%	983	Nameplate
Total	**994**		**531**			

Fast-Ramping Reserve Requirements

As previously discussed, Requirement 1 of BAL-001-2 specifies that PacifiCorp's CPS1 score must be greater than equal to 100 percent for each preceding 12 consecutive calendar month period, evaluated monthly. The CPS1 score compares PacifiCorp's ACE with interconnection frequency during each clock minute. A higher score indicates PacifiCorp's ACE is helping interconnection frequency, while a lower score indicates it is hurting interconnection frequency. Because CPS1 is averaged and evaluated on a monthly basis, it does not require a response to each and every ACE event, but rather requires that PacifiCorp meet a minimum aggregate level of performance in each month.

The 2017 Regulation Reserve Forecast described above is evaluating requirements for extreme deviations that are at least 30 minutes in duration, for compliance with Requirement 2 of BAL-001-2. In contrast, compliance with CPS1 requires reserve capability to compensate for the majority of over a minute to minute basis. These fast-ramping resources would be deployed frequently, and would also contribute to compliance with Requirement 2 of BAL-001-2, so they are a subset of the 2017 Regulation Reserve Forecast described above.

To evaluate CPS1 requirements, PacifiCorp compared the net load change for each five-minute interval in 2017 to the corresponding value for Requirement 2 compliance in that hour from the 2017 Regulation Reserve Forecast, after accounting for diversity (resulting in the 531 MW average requirement shown in Table F.9). Resources may deploy for Requirement 2 compliance over up to 30 minutes, so the average requirement of 531 MW would require ramping capability of at least 17.7 MW per minute (531 MW / 30 minutes).

Because CPS1 is averaged and evaluated on a monthly basis, it does not require a response to each and every ACE event, but rather requires that PacifiCorp meet a minimum aggregate level of performance in each month. Resources capable of ensuring compliance in 95 percent of intervals are expected to be sufficient to meet CPS 1, and given that ACE may deviate in either a positive or negative direction, the 97.5th percentile of incremental requirements was evaluated. This corresponds to 87 MW, or approximately 16.3 percent of the average Requirement 2 value. Because this value is for a five-minute interval, meeting it would require a ramping capability of at least 17.3 MW per minute (87 MW / 5 minutes). This value is actually slightly lower than the ramping capability for Requirement 2.

Note that resources must respond immediately to ensure compliance with Requirement 1, as performance is measured on a minute to minute basis. As a result, resources that respond after a delay, such as quick-start gas plants or certain interruptible loads, would not be suitable for Requirement 1 compliance, so these resources cannot be allocated the entire regulation reserve requirement. However, because Requirement 1 compliance is a small portion of the total regulation reserve requirement, these restrictions on resource type are unlikely to be a meaningful constraint.

In addition, CPS1 compliance is weighted toward performance during conditions when interconnection frequency deviations are large. The largest frequency deviations would also result in deployment of frequency response reserves, which are somewhat larger in magnitude, though they have a less stringent performance metric under BAL-003-1, based on median response during the largest events.

In light of the overlaps with BAL-001-2 Requirement 2 and BAL-003-1 described above, CPS1 compliance is not expected to result in an additional requirements beyond what is necessary to comply with those standards.

Incremental Regulation Reserve Requirements

The IRP portfolio optimization process contemplates the addition of new wind and solar capacity as part of its selection of future resources, as well as changes in peak load due to load growth and energy efficiency measures. As PacifiCorp's portfolio grows, the diversity of that portfolio is also expected to increase. As a result, incremental regulation reserve requirements are expected to be lower than the average requirement for a given portfolio.

The need to develop realistic deviation data for a period during which resources did not exist makes measuring an incremental diversity effect a difficult proposition. Instead, PacifiCorp's FRS evaluated the change in regulation reserve requirements associated with cumulatively stacking the individual wind and solar facilities throughout the two BAAs. Under this methodology as each MW of VERs is added to the system the rate of increase of the regulation reserve requirement is quantified and incorporated in the forecasted portfolio regulation results discussed later on in the study. Figure F.11 and Figure F.12 show this relationship between increased capacity and increasing reserve requirements for wind and solar by BAA.

Similarly for load the relationship between the daily peak load and the daily maximum error over the course of 2017 was observed for both BAAs and this relationship was extrapolated forward to develop a multiplier for the effect of peak load on the reserve requirements. A linear relationship between daily peak load and daily maximum error was observed for both BAAs as illustrated in Figure F.13 through Figure F.14.

Figure F.11 – Incremental Wind Capacity

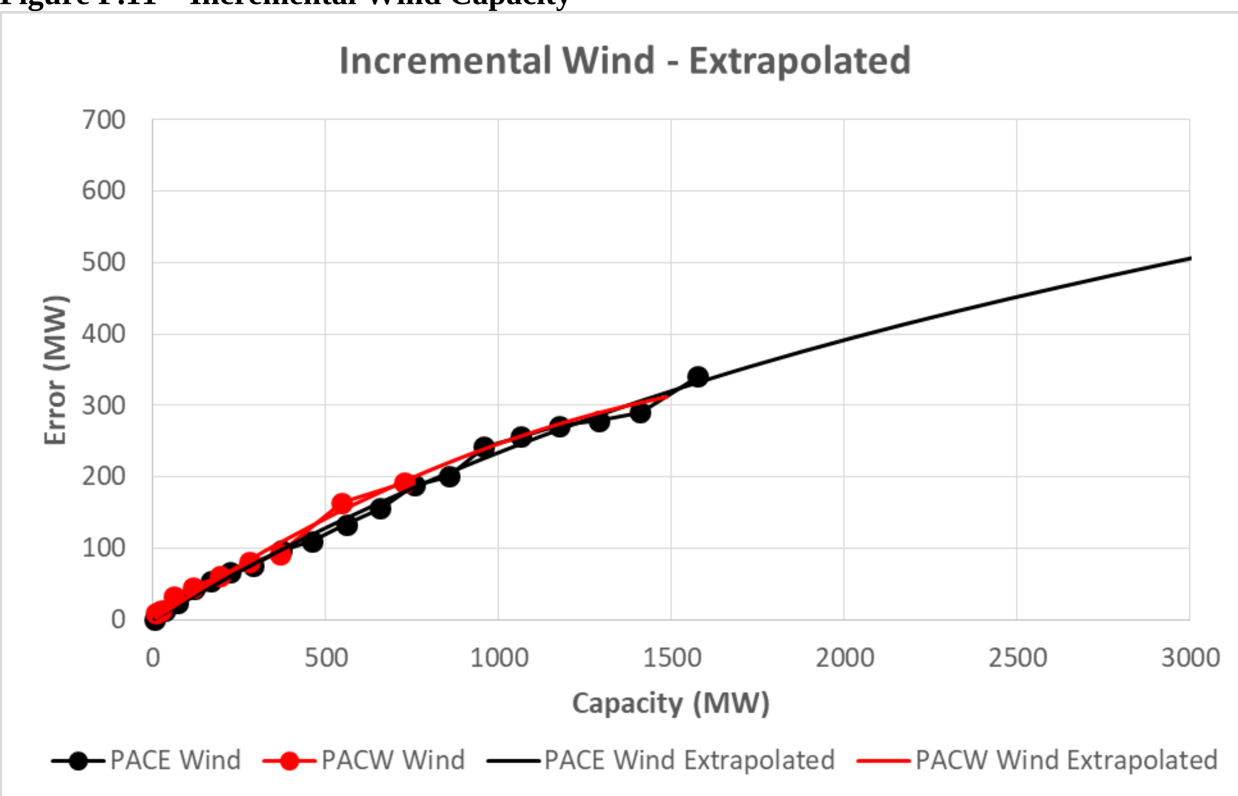


Figure F.12 – Incremental Solar Capacity

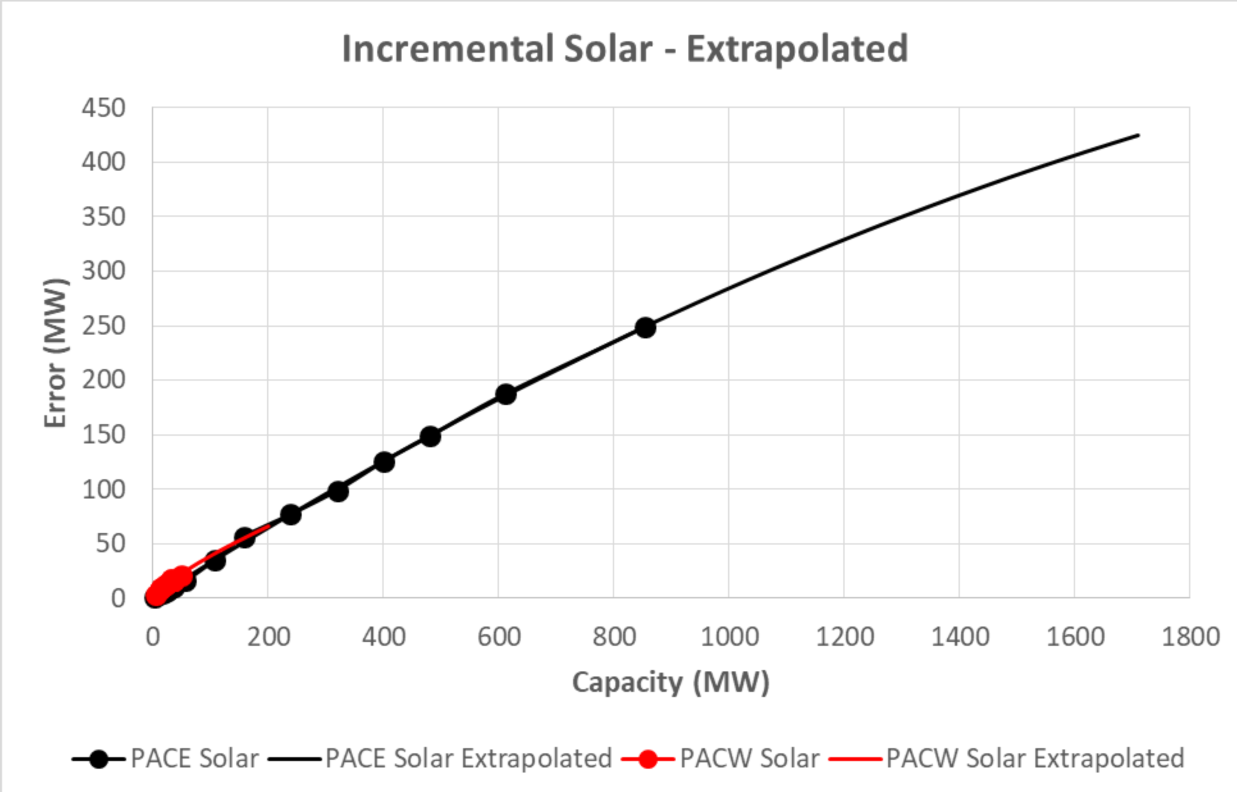


Figure F.13 – Increasing Peak Load-PACE

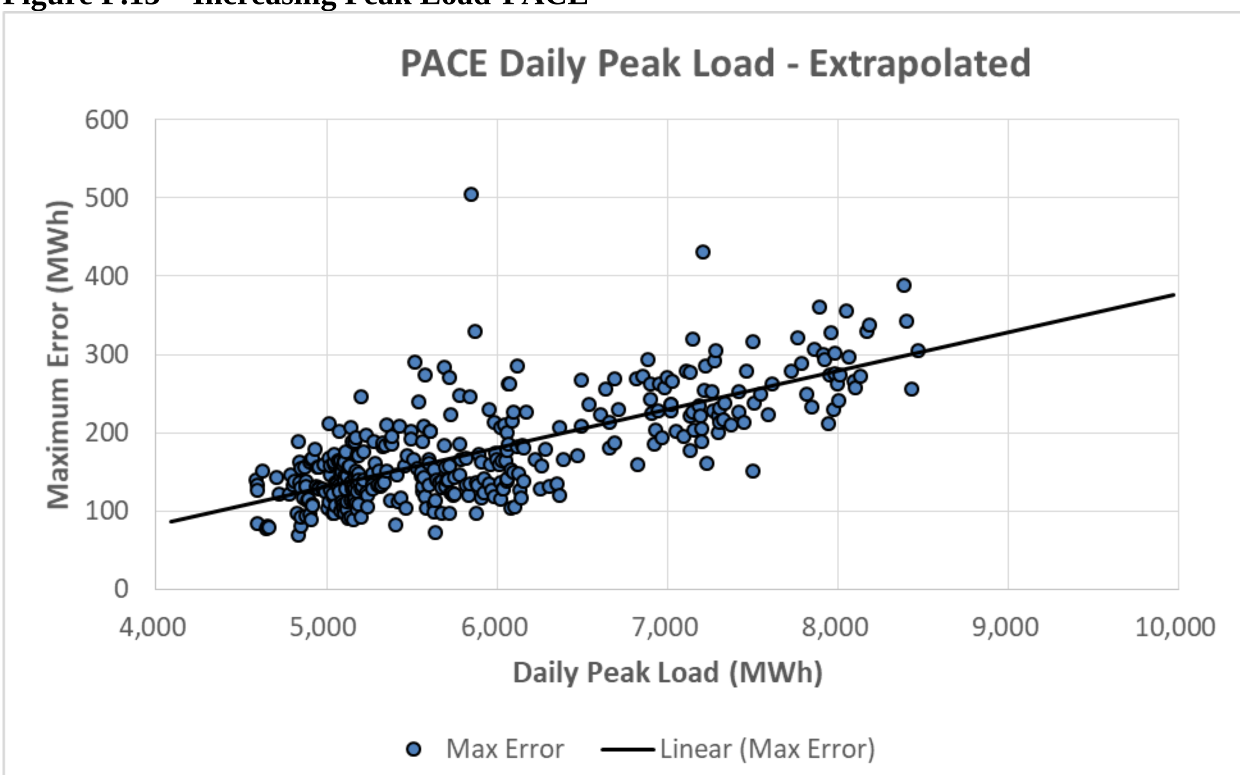
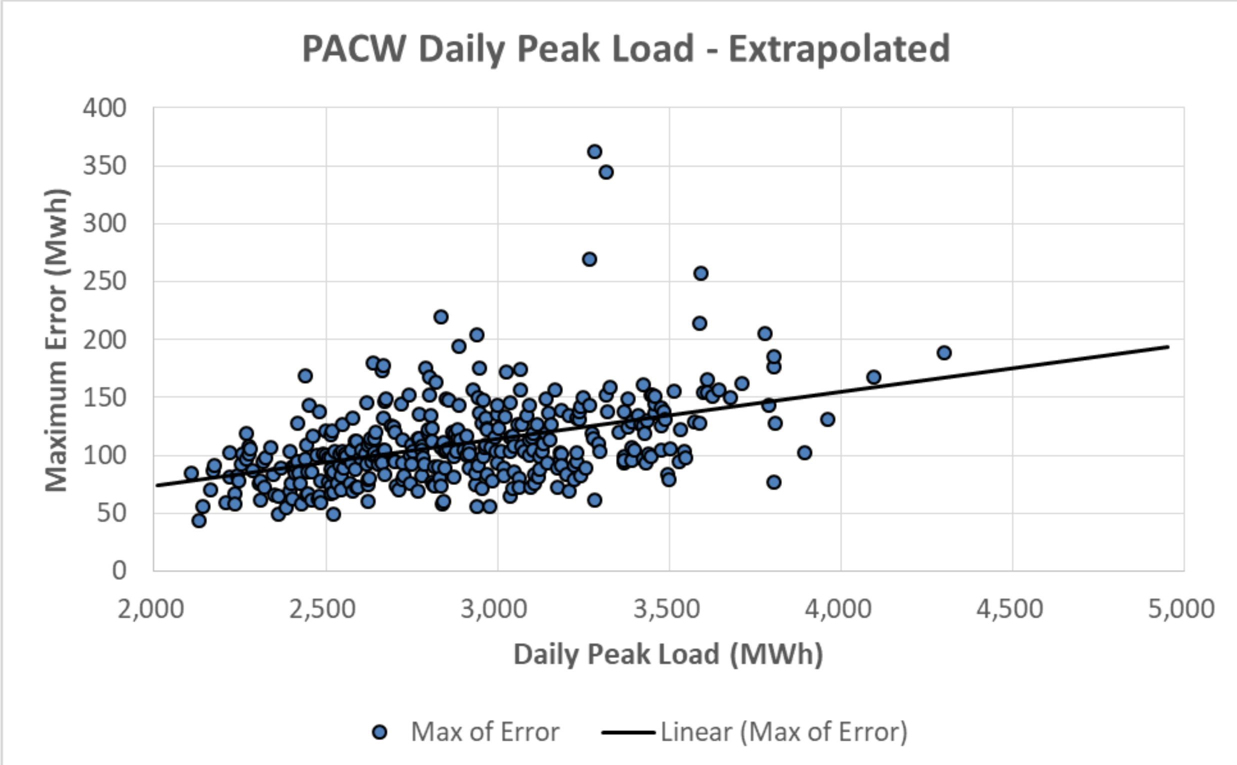


Figure F.14 – Increasing Peak Load-PACW



Portfolio Regulation Reserve Requirements

Overview

A single pool of regulation reserve is held to cover deviations by load, wind, solar, and non-dispatchable generation. Simultaneous large deviations by all classes are unlikely – as a result, this pool of regulation reserve can be smaller than what these classes would require on their own. The reduction in regulation reserve is a result of the diversity of the portfolio of requirements. The most important element in PacifiCorp's portfolio diversity estimate is the system diversity, including EIM benefits, associated with load, wind, solar and Non-VERs during 2017. This diversity reduced reserve requirements by 47 percent. This captures the majority of the regulation reserve requirements today and in likely future scenarios over the near term. However, as PacifiCorp's portfolio evolves over time, the regulation reserve requirements and diversity associated with that portfolio will vary. This section describes how incremental regulation reserve requirements for load, wind, and solar are combined to produce portfolio-specific requirements.

Results

Table F.10 presents the portfolio regulation requirement results for various scenarios. As the wind and solar capacity on PacifiCorp's system increases, regulation requirements increase, but those requirements are partially offset by the increasing diversity of the portfolio. The 2019 base case regulation reserve requirements are 531 MW. By comparison, PacifiCorp's 2017 base case from the 2017 IRP identified regulation reserve requirements of 617 MW.

Table F.10 – Total Regulation Requirement, by Scenario

Case	Portfolio	Wind Capacity (MW)	Solar Capacity (MW)	Regulation Requirement with Diversity (MW)
2017 Base Case	2015 Actuals + Projected Solar	2,757	1,050	617
2019 Base Case	2017 Actuals	2,750	1,021	531
2019 Forecast	2030 Portfolio	3,196	2,201	672
2019 Incr. Wind	2030 Portfolio + 500 MW Wind	3,696	2,201	722
2019 Incr. Solar	2030 Portfolio + 500 MW Solar	3,196	2,701	698

Table F.11 presents a comparison of the regulation reserve requirement results in the current study and the prior study.

Table F.11 - Portfolio Regulation Requirements, Percent of Nameplate/Peak Capacity

Study	Load	Wind	Non-VER	Solar	Notes
2017 FRS Base Case	2.8%	8.9%	2.4%	4.6%	2015 portfolio
2019 FRS Base Case	1.6%	8.4%	3.1%	7.9%	2017 portfolio
Sensitivities:					
Without diversity	3.0%	15.8%	5.7%	14.8%	2017 portfolio
Incremental Wind		10.1%			2030 portfolio: +500 MW wind
Incremental Solar				5.1%	2030 portfolio: +500 MW solar

The 2019 FRS calculates the regulation reserve requirement for the entire portfolio implicitly accounting for diversity among components at various penetration levels. This allows incremental requirements for load, wind and solar to be aligned with the new resource additions being contemplated in the IRP. The incremental requirements for wind are slightly higher than the average requirements for wind when diversity is included, but still well below the stand-alone requirements for wind without diversity. On the other hand, the incremental requirements for solar are less than the average requirements for solar even when diversity is included. These outcomes are reasonable since solar capacity is smaller than wind capacity in the evaluated portfolio, so incremental solar capacity makes the portfolio relatively more diverse.

For the first time, the 2019 FRS accounts for the incremental impact of changes in forecasted load on regulation reserve requirements. For instance, energy efficiency selections (which reduce load), also reduce reserve requirements. The impact of these changes is accounted for within the results reported by the PaR model.

Regulation Reserve Cost

A series of PaR scenarios were prepared to isolate the regulation reserve cost associated with incremental wind and solar capacity additions as discussed below. All studies reflect regulation reserve requirements on an hourly basis.

1. **Base Case**
   The base case portfolio is the same as that used to set the planning reserve margin for the 2019 IRP, as discussed in Appendix I. This case incorporates assumptions consistent with the 2017 IRP Update, updated to reflect current inputs as of August 2018 and without any wind or solar resources additions beyond those that had already been committed at that time. This case was evaluated over the study period 2018-2036.

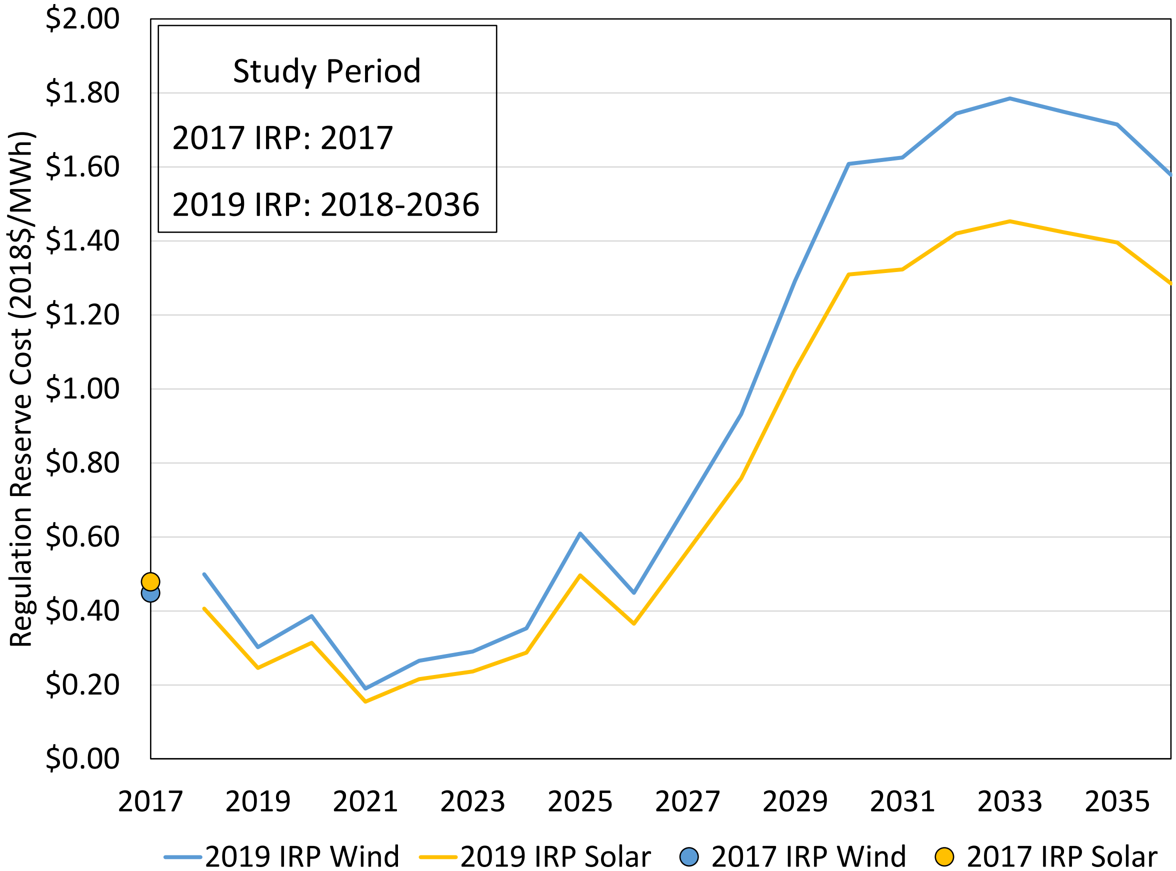
2. **Wind Reserve Case**
   The wind reserve case adds the incremental regulation reserve requirement associated with 500 MW of proxy wind resource additions. Wind capacity increases by 100 MW at each of five locations: Dave Johnston, Goshen, Utah South, Walla Walla, and Yakima. The addition of this wind capacity results increases regulation reserve requirements by an average of 50 MW. This case was evaluated for the study period 2030. Wind integration costs are equal to the increase in system cost in Study 2 relative to Study 1, divided by the incremental wind generation.

3. **Solar Reserve Case**
   The solar reserve case adds the incremental regulation reserve requirement associated with 500 MW of proxy solar resource additions. Solar capacity increases by 250 MW in Utah South and by 125 MW each in Southern Oregon and Yakima. The addition of this solar capacity results increases regulation reserve requirements by an average of 24 MW. This case was evaluated for the study period 2030. Solar integration costs are equal to the increase in system cost in Study 3 relative to Study 1, divided by the incremental solar generation.

4. **50 MW Reserve Case**
   This case includes an additional 50 MW reserve requirement in every hour. This case was evaluated over the study period 2018-2036 and was used to escalate the wind and solar results over time, relative to the 2030 values.

The incremental regulation reserve cost results for wind and solar are shown in Figure F.15. The comparable regulation reserve costs from the 2017 FRS are also shown. While regulation reserve costs in 2018 are comparable to the result in the prior study, the 2019 FRS demonstrates how these costs are expected to vary over time.

Figure F.15 – Incremental Wind and Solar Regulation Reserve Costs



The difference in regulation reserve costs for wind and solar reflects timing differences. Per MWh of generation, the wind reserve obligation is approximately 60 percent higher than the solar obligation; however, the solar obligation is higher during the summer when market prices and marginal reserve costs are typically higher. As a result, per MWh of generation, wind integration costs are only slightly higher than solar integration costs.

The 2019 FRS results are applied in the portfolio development process as an additional cost for proxy wind and solar generation resources available for selection within the SO model. Once the SO model has developed a candidate resource portfolio, the PaR model is used to evaluate portfolio risks. The PaR model inputs include regulation reserve requirements specific to the resource portfolio developed using the SO model, so the costs identified in the 2019 FRS are not applied in the PaR results. Instead, the IRP risk analysis using PaR specifically accounts for both differences in regulation reserve requirements and the resources available to meet those requirements in each portfolio.

When evaluated in PaR, a portfolio will be evaluated on its ability to meet operating reserve requirements, including regulation reserves, but as indicated previously, the SO model does not account for either reserve obligations or the reserve capability that resources can provide. While integration costs have previously been used to account for regulation reserve obligations, for the first time in the 2019 IRP an analogous credit has been applied to highly flexible resources that primarily provide operating reserves. This “operating reserve credit” has been applied to proxy storage, gas peaking units, and Class 1 DSM (interruptible load) that are available for selection within the SO model. While other resources, such as combined cycle gas plants and renewables, are also capable of providing operating reserves these resources primarily provide energy which the SO model is already accounting for. As a result, no operating reserve credits are applied to these other resources. For a resource that is available throughout the year, such as a gas peaking unit, the operating reserve credit amounts to $50/kw-year (2018$), based on the costs calculated in the 50 MW Reserve Case relative to the Base Case. For resources with limited availability, such as seasonal Class 1 DSM resources or storage combined with wind or solar, the credits are prorated to account for the periods when a resource provides operating reserves.

Flexible Resource Needs Assessment

Overview

In its Order No. 12013 issued on January 19, 2012 in Docket No. UM 1461 on "Investigation of matters related to Electric Vehicle Charging", the Oregon Public Utility Commission (OPUC) adopted the OPUC staff's proposed IRP guideline:

1. Forecast the Demand for Flexible Capacity: The electric utilities shall forecast the balancing reserves needed at different time intervals (e.g. ramping needed within 5 minutes) to respond to variation in load and intermittent renewable generation over the 20-year planning period;

2. Forecast the Supply of Flexible Capacity: The electric utilities shall forecast the balancing reserves available at different time intervals (e.g. ramping available within 5 minutes) from existing generating resources over the 20-year planning period; and

3. Evaluate Flexible Resources on a Consistent and Comparable Basis: In planning to fill any gap between the demand and supply of flexible capacity, the electric utilities shall evaluate all resource options including the use of electric vehicles (EVs), on a consistent and comparable basis.

In this section, PacifiCorp first identifies its flexible resource needs for the IRP study period of 2019 through 2038, and the calculation method used to estimate those requirements. PacifiCorp then identifies its supply of flexible capacity from its generation resources, in accordance with the Western Electricity Coordinating Council (WECC) operating reserve guidelines, demonstrating that PacifiCorp has sufficient flexible resources to meet its requirements.

Forecasted Reserve Requirements

Since contingency reserve and regulation reserve are separate and distinct components, PacifiCorp estimates the forward requirements for each separately. The contingency reserve requirements are derived from stochastic simulations run using the Planning and Risk (PaR) model. The regulating reserve requirements are part of the inputs to the PaR model, and are calculated by applying the methods developed in the Portfolio Regulation Reserve Requirements section. The contingency and regulation reserve requirements include three distinct components and are modeled separately in the 2019 IRP: 10-minute spinning reserve requirements, 10-minute non-spinning reserve requirements, and 30-minute regulation reserve requirements. The reserve requirements for PacifiCorp's two balancing authority areas are shown in Table F.12 below.

Table F.12 - Reserve Requirements (MW)

Year	East Requirement			West Requirement		
	Spin (10-minute)	Non-spin (10-minute)	Regulation (30-minute)	Spin (10-minute)	Non-spin (10-minute)	Regulation (30-minute)
2019	193	193	359	93	93	196
2020	194	194	377	94	94	207
2021	194	194	491	96	96	211
2022	196	196	493	97	97	198
2023	199	199	502	97	97	196
2024	202	202	593	98	98	283
2025	203	203	601	99	99	282
2026	203	203	592	99	99	280
2027	205	205	591	100	100	278
2028	207	207	597	101	101	275
2029	208	208	539	101	101	288
2030	210	210	651	102	102	286
2031	212	212	642	102	102	286
2032	214	214	644	102	102	282
2033	215	215	626	102	102	296
2034	216	216	620	102	102	296
2035	217	217	604	101	101	299
2036	219	219	601	101	101	308
2037	220	220	600	101	101	307
2038	221	221	560	101	101	301

Flexible Resource Supply Forecast

Requirements by NERC and the WECC dictate the types of resources that can be used to serve the reserve requirements.

- **10-minute spinning reserve** can only be provided by resources currently online and synchronized to the transmission grid;

- **10-minute non-spinning reserve** may be served by fast-start resources that are capable of being online and synchronized to the transmission grid within ten minutes. Interruptible load can only provide non-spinning reserve. Non-spinning reserve may be provided by resources that are capable of providing spinning reserve.

- **30-minute regulation reserve** can be provided by unused spinning or non-spinning reserve. Incremental 30-minute ramping capability beyond the 10-minute capability captured in the categories above also counts toward this requirement.

The resources that PacifiCorp employs to serve its reserve requirements include owned hydro resources that have storage, owned thermal resources, and purchased power contracts that provide reserve capability.

Hydro resources are generally deployed first to meet the spinning reserve requirements because of their flexibility and their ability to respond quickly. The amount of reserve that these resources can provide depends upon the difference between their expected capacities and their generation level at the time. The hydro resources that PacifiCorp may use to cover reserve requirements in the PacifiCorp West balancing authority area include its facilities on the Lewis River and the Klamath

River as well as contracted generation from the Mid-Columbia projects. In the PacifiCorp East balancing authority area, PacifiCorp may use facilities on the Bear River to provide spinning reserve.

Thermal resources are also used to meet the spinning reserve requirements when they are online. The amount of reserve provided by these resources is determined by their ability to ramp up within a 10-minute interval. For natural gas-fired thermal resources, the amount of reserve can be close to the differences between their nameplate capacities and their minimum generation levels. In the current IRP, PacifiCorp's reserve are served not only from existing coal- and gas-fired resources, but also from new gas-fired resources selected in the preferred portfolio.

Table F.13 lists the annual reserve capability from resources in PacifiCorp's East and West balancing authority areas.[20] All the resources included in the calculation are capable of providing all types of reserve. The non-spinning reserve resources under third party contracts are excluded in the calculations. The changes in the flexible resource supply reflect retirement of existing resources, addition of new preferred portfolio resources, and variation in hydro capability due to forecasted streamflow conditions, and expiration of contracts from the Mid-Columbia projects that are reflected in the preferred portfolio.

Table F.13 - Flexible Resource Supply Forecast (MW)

Year	East Supply (10-Minute)	West Supply (10-Minute)	East Supply (30-Minute)	West Supply (30-Minute)
2019	1,843	701	2528	965
2020	1,893	703	2528	967
2021	1,897	684	2472	948
2022	1,913	671	2488	935
2023	1,931	683	2387	947
2024	2,158	965	2613	1262
2025	2,166	963	2621	1260
2026	2,278	963	2734	1260
2027	2,228	964	2734	1261
2028	2,144	1,143	2650	1440
2029	2,268	1,645	2773	1876
2030	2,562	1,645	2987	1876
2031	2,592	1,645	3017	1876
2032	2,604	1,765	3029	1996
2033	2,604	1,884	3029	2016
2034	2,426	1,884	2789	2016
2035	2,441	1,884	2804	2016
2036	2,445	1,988	2808	2120
2037	3,104	2,240	3308	2372
2038	3,601	2,622	3804	2622

Figure F.16 and Figure F.17 graphically display the balances of reserve requirements and capability of spinning reserve resources in PacifiCorp's East and West balancing authority areas

[20] Frequency response capability is a subset of the 10-minute capability shown. Battery resources are capable of responding with their maximum output during a frequency event, and can provide an even greater response if they were charging at the start of an event. PacifiCorp has sufficient frequency response capability at present and by 2024 the battery capacity added in the preferred portfolio will exceed of PacifiCorp's current 202.8 MW frequency response obligation for a 0.3 Hz event. As a result, compliance with the frequency response obligation is not anticipated to require incremental supply.

respectively. The graphs demonstrate that PacifiCorp's system has sufficient resources to serve its reserve requirements throughout the IRP planning period.

Figure F.16 - Comparison of Reserve Requirements and Resources, East Balancing Authority Area (MW)

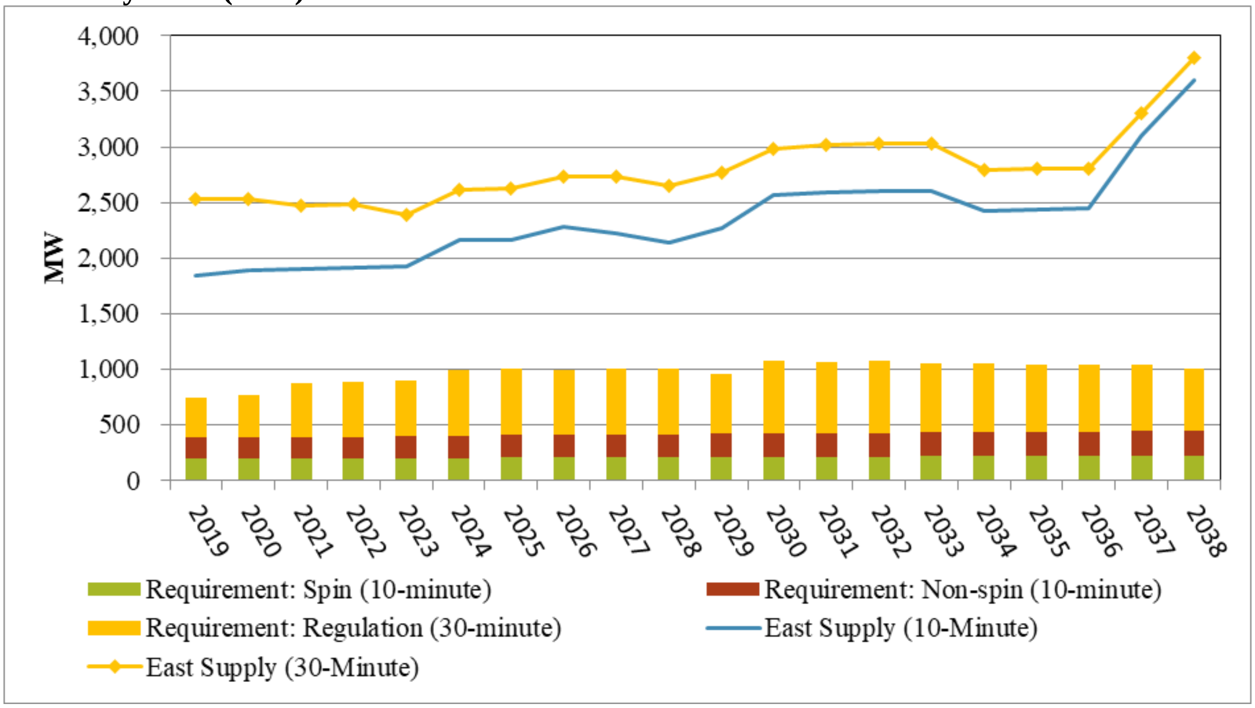
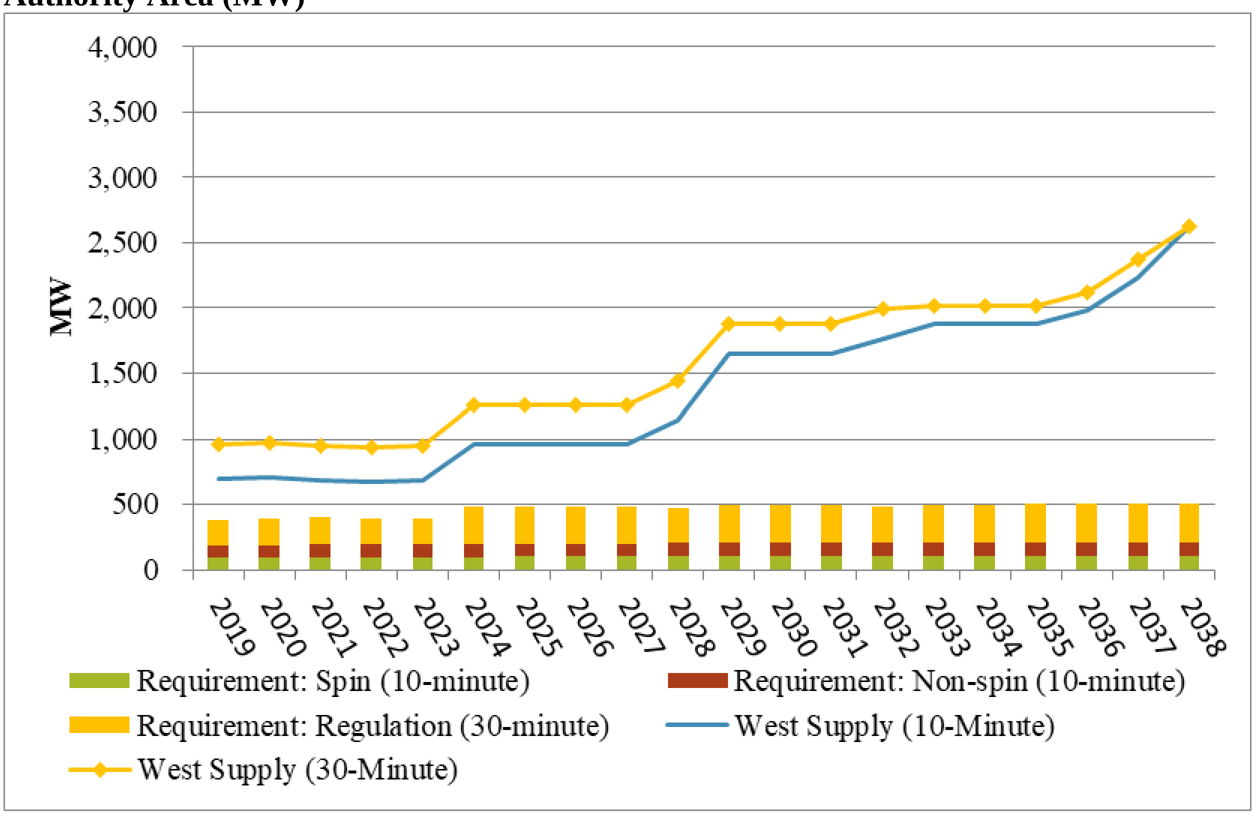


Figure F.17 - Comparison of Reserve Requirements and Resources, West Balancing Authority Area (MW)



Flexible Resource Supply Planning

In actual operations, PacifiCorp has been able to serve its reserve requirements and has not experienced any incidents where it was short of reserve. PacifiCorp manages its resources to meet its reserve obligation in the same manner as meeting its load obligation – through long term planning, market transactions, utilization of the transmission capability between the two balancing authority areas, and operational activities that are performed on an economic basis.

PacifiCorp and the California Independent System Operator Corporation implemented the energy imbalance market (EIM) on November 1, 2014, and participation by other utilities has expanded significantly with more participants scheduled for entry through 2022. By pooling variability in load and resource output, EIM entities reduce the quantity of reserve required to meet flexibility needs. Because variability across different BAAs may happen in opposite directions, the uncertainty requirement for the entire EIM footprint can be less than the sum of individual BAAs' requirements. This difference is known as the "diversity benefit" in the EIM. This diversity benefit reflects offsetting variability and lower combined uncertainty. PacifiCorp's regulation reserve forecast includes a credit to account for the diversity benefits associated with its participation in EIM.

As indicated in the OPUC order, electric vehicle technologies may be able to meet flexible resource needs at some point in the future. However, the electric vehicle technology and market have not developed sufficiently to provide data for the current study. Since this analysis shows no gap between forecasted demand and supply of flexible resources over the IRP planning horizon, this IRP does not evaluate whether electric vehicles could be used to meet future flexible resource needs.

APPENDIX G – PLANT WATER CONSUMPTION

The information provide in this appendix is for PacifiCorp owned plants. Total water consumption and generation includes all owners for jointly-owned facilities.

Table G.1 – Plant Water Consumption with Acre-Feet per Year

			Acre-Feet Per Year					MWhs Per Year				4-year Average	
Plant Name	**Zero Discharge**	**Cooling Media**	**2014**	**2015**	**2016**	**2017**	**4-year Average**	**2014**	**2015**	**2016**	**2017**	**Gals/ MWH**	**GPM/ MW**
Chehalis	Yes	Air	150	52	48	54	76	2,543,785	1,090,728	1,395,513	1,748,295	15	0.2
Currant Creek	Yes	Air	92	78	124	116	102	2,498,058	2,257,106	1,474,686	1,193,242	18	0.3
Dave Johnston	No	Water	9,474	9,736	8,864	8,231	9,076	5,183,347	5,140,970	5,088,504	4,519,908	594	9.9
Gadsby	No	Water	367	259	262	100	247	325,677	123,796	120,903	92,814	485	8.1
Hunter	Yes	Water	16,662	16,386	14,225	15,383	15,664	9,098,918	5,988,318	5,503,890	5,399,777	786	13.1
Huntington	Yes	Water	10,240	9,888	9,189	9,653	9,743	6,300,558	9,630,419	8,161,219	8,582,142	389	6.5
Jim Bridger	Yes	Water	23,936	22,493	18,000	19,047	20,869	14,016,315	13,439,341	11,688,747	11,642,810	536	8.9
Lake Side	No	Water	2,960	3,369	3,619	2,698	3,161	4,351,182	4,549,274	5,726,042	3,340,561	229	3.8
Naughton	No	Water	7,484	7,215	6,896	6,927	7,130	4,958,589	4,899,321	4,871,839	4,740,158	477	8.0
Wyodak	Yes	Air	332	228	329	332	305	2,625,183	2,565,603	2,056,439	2,565,053	41	0.7
TOTAL			**71,695**	**69,704**	**61,556**	**62,541**	**66,374**	**51,901,612**	**49,684,876**	**46,087,782**	**43,824,760**	**452**	**7.5**

* Gadsby includes a mix of both Rankine steam units and peaking gas turbines.
** Naughton Unit 3 was rerated in September 2015 from 330 megawatts (MW) to 280 MW. The averages remain as 4-year averages.

1 acre-foot of water is equivalent to 325,851 Gallons or 43,560 Cubic Feet.

Table G.2 – Plant Water Consumption by State (acre-feet)

UTAH PLANTS						
Plant Name	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Currant Creek	90	84	92	78	124	116
Gadsby	1,059	610	367	259	262	100
Hunter	18,266	17,001	16,662	16,386	14,225	15,383
Huntington	10,423	10,643	10,240	9,888	9,189	9,653
Lake Side	1,693	1,361	2,960	3,369	3,619	2,698
TOTAL	**31,531**	**29,699**	**30,320**	**29,980**	**27,419**	**27,950**

Percent of total water consumption = 42.3

WYOMING PLANTS						
Plant Name	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Dave Johnston	7,721	8,941	9,474	9,736	8,864	8,231
Jim Bridger	23,977	25,059	23,936	22,493	18,000	19,047
Naughton	8,745	9,622	7,484	7,215	6,896	6,927
Wyodak	322	319	332	228	329	332
TOTAL	**40,765**	**43,941**	**41,225**	**39,672**	**34,089**	**34,537**

Percent of total water consumption = 55.9

Table G.3 – Plant Water Consumption by Fuel Type (acre-feet)

COAL FIRED PLANTS						
Plant Name	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Dave Johnston	7,721	8,941	9,474	9,736	8,864	8,231
Hunter	18,266	17,001	16,662	16,386	14,225	15,383
Huntington	10,423	10,643	10,240	9,888	9,189	9,653
Jim Bridger	23,977	25,059	23,936	22,493	18,000	19,047
Naughton	8,745	9,622	7,484	7,215	6,896	6,927
Wyodak	322	319	332	228	329	332
TOTAL	**69,454**	**71,585**	**68,127**	**65,946**	**57,503**	**59,573**

Percent of total water consumption = 93.7

NATURAL GAS FIRED PLANTS						
Plant Name	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Currant Creek	90	84	92	78	124	116
Chehalis	55	86	150	52	48	54
Gadsby	1,059	610	367	259	262	100
Lake Side	1,693	1,361	2,960	3,369	3,619	2,698
TOTAL	**2,897**	**2,141**	**3,568**	**3,758**	**4,053**	**2,968**

Percent of total water consumption = 4.6

Table G.4 – Plant Water Consumption for Plants Located in the Upper Colorado River Basin (acre-feet)

Plant Name	2012	2013	2014	2015	2016	2017
Hunter	18,266	17,001	16,662	16,386	14,225	15,383
Huntington	10,423	10,643	10,240	9,888	9,189	9,653
Naughton	8,745	9,622	7,484	7,215	6,896	6,927
Jim Bridger	23,977	25,059	23,936	22,493	18,000	19,047
TOTAL	**61,411**	**62,325**	**58,322**	**55,982**	**48,310**	**51,010**

Percent of total water consumption = 82.0

APPENDIX H – STOCHASTIC PARAMETERS

Introduction

For this IRP, PacifiCorp updated and re-estimated the stochastic parameters provided in the 2017 IRP for use in the Planning and Risk (PaR) model runs.

PaR, as used by PacifiCorp, develops portfolio cost scenarios via computational finance in concert with production simulation. The model stochastically shocks the case-specific underlying electricity price forecast as well as the corresponding case-specific key drivers (e.g., natural gas, loads, and hydro) and dispatches accordingly. Using exogenously calculated parameters (i.e., volatilities, mean reversions, and correlations), PaR develops scenarios that bracket the uncertainty surrounding a driver; statistical sampling techniques are then employed to limit the number of representative scenarios to 50. The stochastic model used in PaR is a two-factor (short- and long-run) mean reverting model.

PacifiCorp used short-run stochastic parameters for this Integrated Resource Plan (IRP); long-run parameters were set to zero since PaR cannot re-optimize its capacity expansion plan. This inability to re-optimize or add capacity can create a problem when dispatching to meet extreme load and/or fuel price excursions, as often seen in long-term stochastic modeling. Such extreme out-year price and load excursions can influence portfolio costs disproportionately while not reflecting plausible outcome. Thus, since long-term volatility is the year-on-year growth rate, only the expected yearly price and/or load growth is simulated over the forecast horizon[1].

Key drivers that significantly affect the determination of prices tend to fall into two categories: loads and fuels. Targeting only key variables from each category simplifies the analysis while effectively capturing sensitivities on a larger number of individual variables. For instance, load uncertainty can encompass the sensitivities of weather, transmission availability, unit outages, and evolving end-uses. Depending on the region, fuel price uncertainty (especially natural gas) can encompass the sensitivities of weather, load growth, emissions, and hydro availability. The following sections summarize the development of stochastic process parameters and describe how these uncertain variables evolve over time.

Overview

Long-term planning demands specification of how important variables behave over time. For the case of PacifiCorp's long-term planning, important variables include natural gas and electricity prices, regional loads, and regional hydro generation. Modeling these variables involves not only a description of their expected value over time as with a traditional forecast, but also a description of the spread of possible future values. The following sections summarize the development of stochastic process parameters to describe how these uncertain variables evolve over time[2].

[1] Mean reversion is assumed to be zero in the long run.

[2] A stochastic or random process is the counterpart to a deterministic process. Instead of dealing with only one possible reality of how the variables might evolve over time, there is some indeterminacy in the future evolution described by probability distributions.

Volatility

The standard deviation[3](σ) is a measure of how widely values are dispersed from the average value:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \mu)^2}{(n-1)}}$$

where μ is the average value of the observations {x1, x2,…,xn}, and n is the number of observations.

Volatility (σ_T) incorporates a time component so a variable with constant volatility has a larger spread of possible outcomes two years in the future than one year in the future:

$$\sigma_T = \sigma\sqrt{T}$$

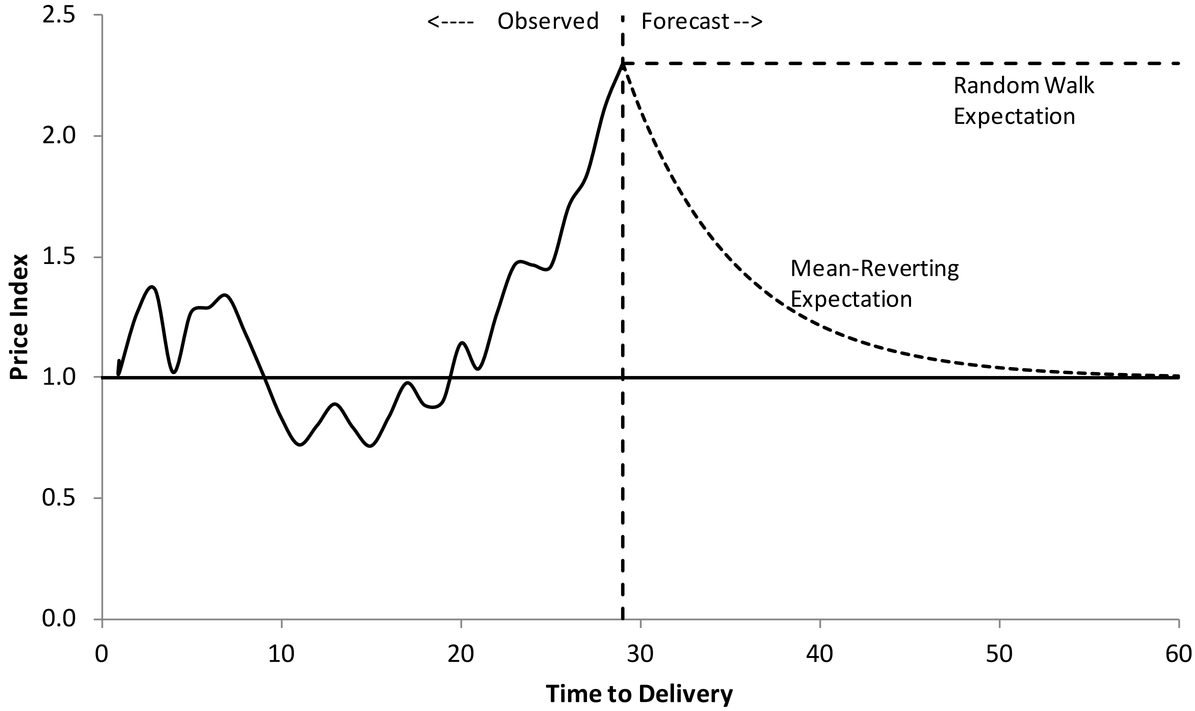
Volatilities are typically quoted on an annual basis but can be specified for any desired time period (T). Suppose the annual volatility of load is two percent. This implies that the standard deviation of the range of possible loads a year from now is two percent, while the standard deviation four years from now is four percent.

Mean Reversion

If volatility was constant over the forecast period, then the standard deviation would increase linearly with the square root of time. This is described as a "Random Walk" process and often provides a reasonable assumption for long-term uncertainty. However, for energy commodities as well as many other variables in the short-term, this is not typically the case. Excepting seasonal effects, the standard deviation increases less quickly with longer forecast time. This is called a mean reverting process - variable outcomes tend to revert back towards a long-term mean after experiencing a shock.

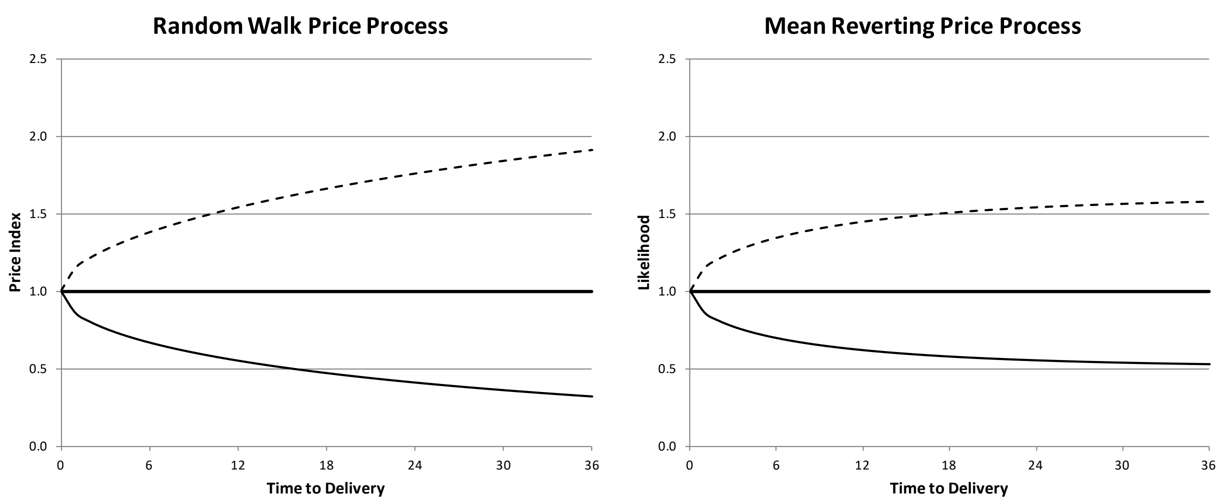
[3] "Standard Deviation" and "Variance" are standard statistical terms describing the spread of possible outcomes. The Variance equals the Standard Deviation squared.

Figure H.1 – Stochastic Processes



For a random walk process, the distribution of possible future outcomes continues to increase indefinitely, while for a mean reverting process, the distribution of possible outcomes reaches a steady-state. Actual observed outcomes will continue to vary within the distribution, but the distribution across all possible outcomes does not increase:

Figure H.2 – Random Walk Price Process and Mean Reverting Process



The volatility and mean reversion rate parameters combine to provide a compact description of the distribution of possible variable outcomes over time. The volatility describes the size of a typical shock or deviation for a particular variable and the mean reversion rate describes how quickly the variable moves back toward the long-run mean after experiencing a shock.

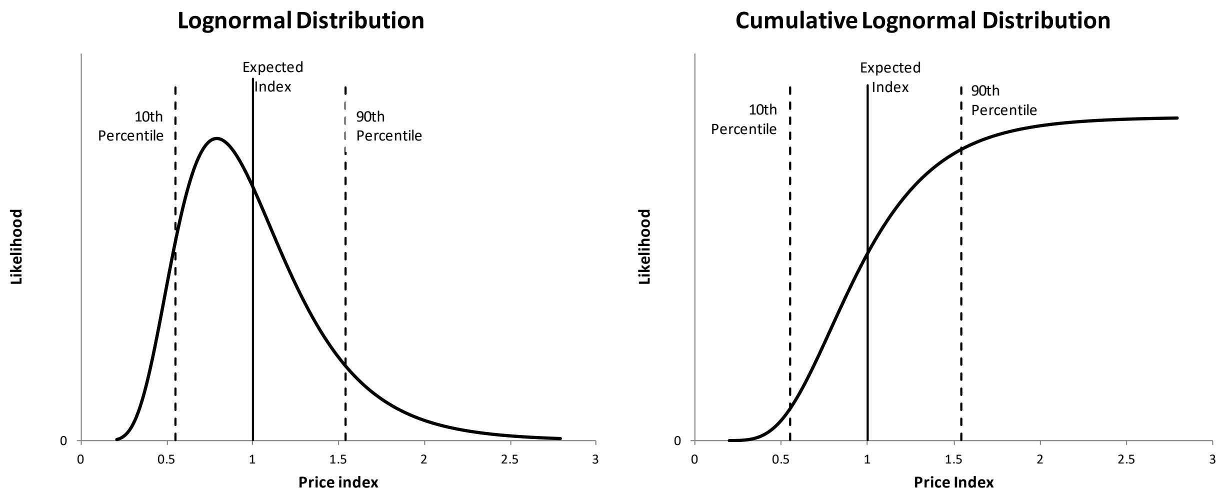
Estimating Short-term Process Parameters

Short-term uncertainty can best be described as a mean reverting process. The factors that drive uncertainty in the short-term are generally short-lived, decaying back to long-run average levels. Short-term uncertainty is mainly driven by weather (temperature, windiness, rainfall) but can also be driven by short-term economic factors, congestion, outages, etc. The process for estimating short-term uncertainty parameters is similar for most variables of interest. However, each of PacifiCorp's variables have characteristics that make their processes slightly different. The process for estimating short-term uncertainty parameters is described in detail below for the most straightforward variable – natural gas prices. Each of the other variables is then discussed in terms of how they differ from the standard natural gas price parameter estimation process.

Stochastic Process Description

The first step in developing process parameter estimates for any uncertain variable is to determine the form of the distribution and time step for uncertainty. In the case of natural gas, and for prices in general, the lognormal distribution is a good representation of possible future outcomes. A lognormal distribution is a continuous probability distribution of a random variable whose logarithm is normally distributed[4]. The lognormal distribution is often used to describe prices because it is bounded on the bottom by zero and has a long, asymmetric "tail" reflecting the possibility that prices could be significantly higher than the average:

Figure H.3 – Lognormal Distribution and Cumulative Lognormal Distribution



The time step for calculating uncertainty parameters depends on how quickly a variable can experience a significant change. Natural gas prices can change substantially from day-to-day and are reported on a daily basis, so the time step for analysis will be one day.

[4] A normal distribution is the most common continuous distribution represented by a bell-shaped curve that is symmetrical about the mean, or average, value.

All short-term parameters were calculated on a seasonal basis to reflect the different dynamics present during different seasons of the year. For instance, the volatility of gas prices is higher in the winter and lower in the spring and summer. Seasons were defined as follows:

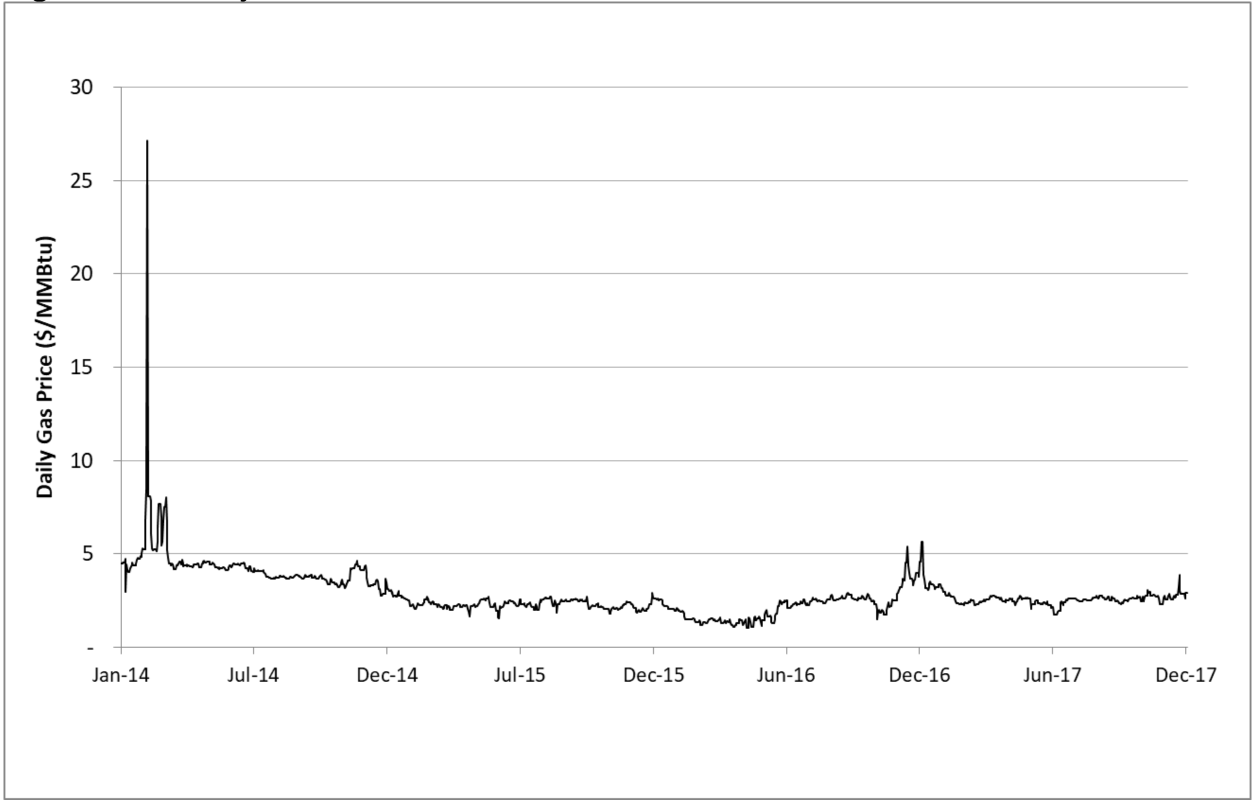
Table H.1 - Seasonal Definitions

Winter	December, January, and February
Spring	March, April, and May
Summer	June, July, and August
Fall	September, October, and November

Data Development

Basic Data Set:
The natural gas price data was organized into a consistent dataset with one natural gas price for each gas delivery point reported for each delivery day. The data was checked to make sure that there were no missing or duplicate dates. If no price is reported for a particular date, the date is included but left blank to maintain a consistent 24-hour time step between all observed prices. Four years of daily data from 2014 to 2017 was used for this short-term parameter analysis. The following chart shows the resulting data set for the Sumas gas basin:

Figure H.4 – Daily Gas Prices for SUMAS Basin, 2014-2017



Development of Price Index:
Uncertainty parameters are estimated by looking at the movement, or deviation, in prices from one day to the next. However, some of this movement is due to expected factors, not uncertainty. For instance, gas prices are expected to be higher during winter or as we move toward winter. This

expectation is already included in the gas price forecast and should not be considered a shock, or random event. In order to capture only the random or uncertain portion of price movements, a price index is developed that takes into account the expected portion of price movements. Three categories of price expectations are calculated:

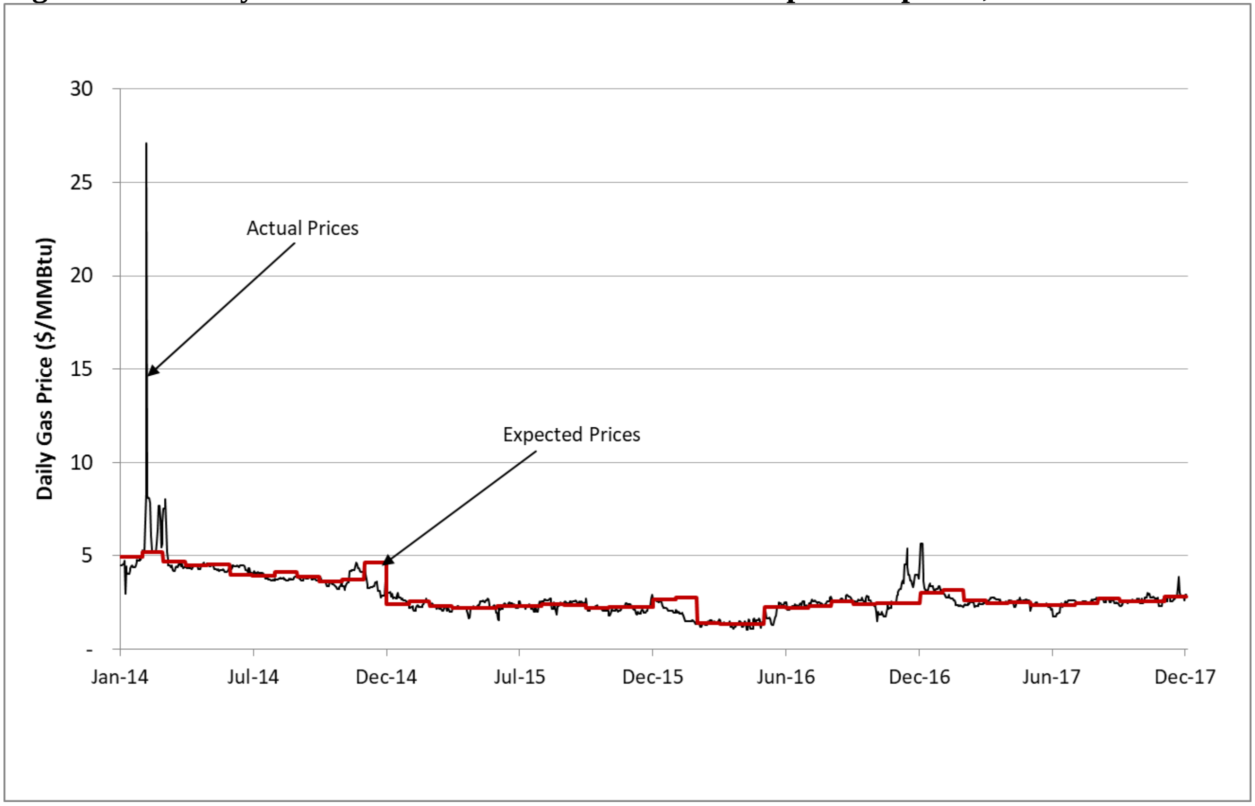
> Seasonal Average: The level of gas prices may be different from one year to the next. While this can be attributed to random movements or shocks in the gas markets, it is not a short-term event and should not be included in the short-term uncertainty process. In order to account for this possible difference in the level of gas prices, the average gas price for each season and year is calculated. For example, Sumas prices in the winter of 2014 average $4.92/MMBtu.
>
> Monthly Average: Within a season, there are different expected prices by month. For instance, within the fall season, November gas prices are expected to be much higher than September and October prices as winter is just around the corner. A monthly factor representing the ratio of monthly prices to the seasonal average price is calculated. For example, February prices in Sumas are 106 percent of the winter average price.
>
> Weekly Shape: Many variables exhibit a distinct shape across the week. For instance, loads and electricity prices are higher during the middle of the week and lower on the weekends. The expected shape of gas prices across the week was calculated and found to be insignificant (expected variation by weekday did not exceed two percent of the weekly average).

These three components – seasonal average, monthly shape, and weekly shape – combine to form an expected price for each day. For example, the expected price of gas in Sumas in February of 2014 was $5.22/MMBtu, the product of the seasonal average and the monthly shape factor

$$Expected\ Gas\ Price\ = Seasonal\ Avg.Price * Monthly\ Shape\ within\ the\ Season$$

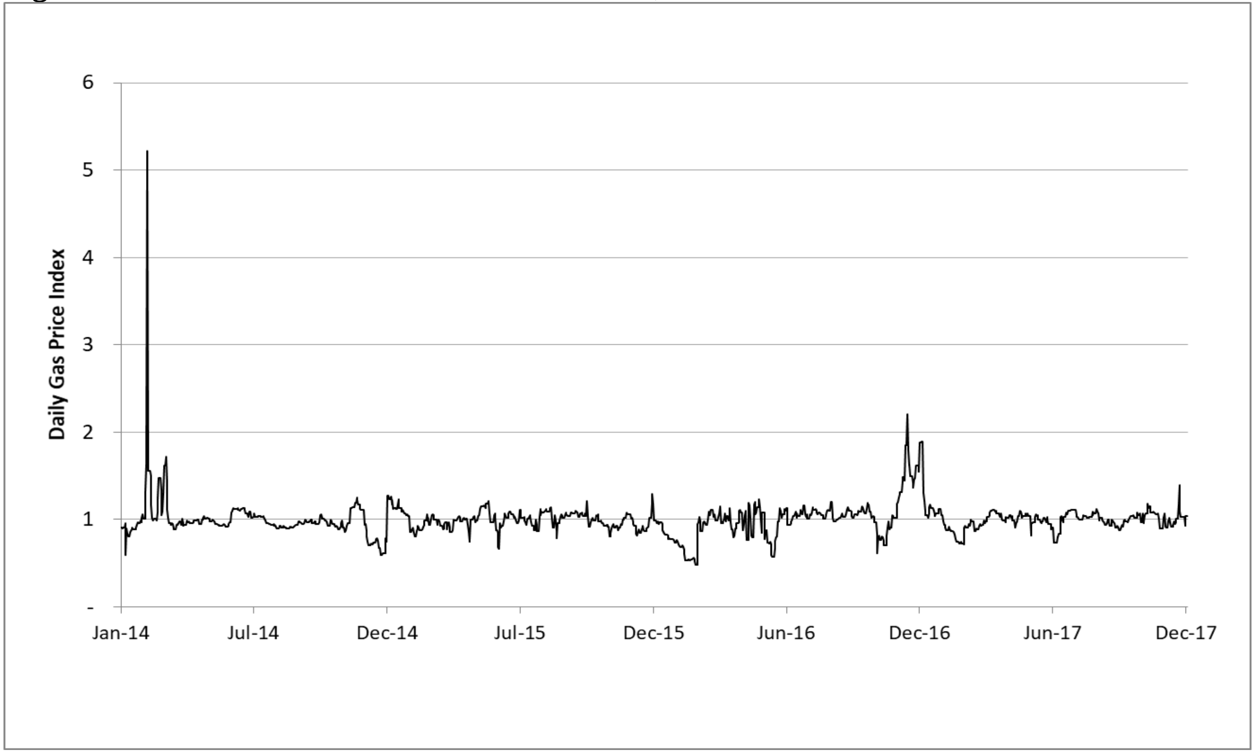
The following chart shows the comparison of the actual Sumas prices with the "expected" prices:

Figure H.5 – Daily Gas Prices for SUMAS Basin with "expected" prices, 2014-2017



Dividing the actual gas prices by the expected prices forms a price index that averages one. This index, illustrated by the chart below, captures only the random component of price movements—the portion not explained by expected seasonal, monthly, and weekly shape.

Figure H.6 – Gas Price Index for SUMAS Basin, 2014-2017



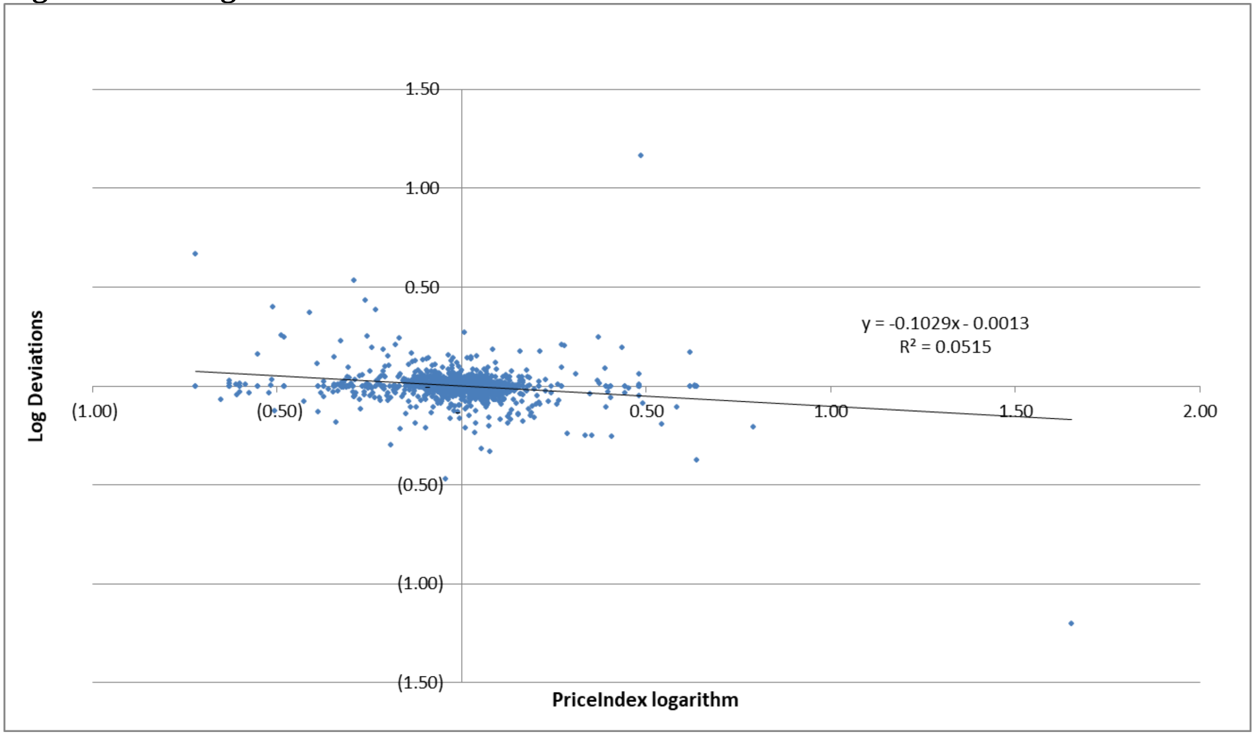
Parameter Estimation – Autoregressive Model

Uncertainty parameters are calculated for each variable by regressing the movement of each region’s price index compared to the previous day's index.

Step 1 - Calculate Log Deviation of Price Index
Since gas prices are lognormally distributed, the regression analysis is performed on the natural log of prices and their log deviations. The log deviations are simply the differences between the natural log of one day's price index and the natural log of the previous day's price index.

Step 2 - Perform Regression
The log deviations of price index are regressed against the previous day's logarithm of price index for each season as well as for the entire data set. The following chart shows the log of the price index versus the log deviations for Sumas gas for all seasons and the resulting regression equation:

Figure H.7 – Regression for SUMAS Gas Basin



Step 3 - Interpret the Results

The INTERCEPT of the regression represents the log of the long-run mean. So in this case, the intercept is approximately zero, implying that the long-run mean is equal to one. This is consistent with the way in which the price index is formulated.

The *SLOPE* of the regression is related to the auto correlation and mean reversion rate:

$$auto\ correlation = \emptyset = 1 + slope$$
$$Mean\ Reversion\ Rate\ \ \alpha = \ -\ln(\emptyset)$$

The autocorrelation measures how much of the price shock from the previous time period remains in the next time period. For instance, if the autocorrelation is 0.4 and gas prices yesterday experienced a 10 percent jump over the norm, today's expected price would be 4 percent higher than normal. In addition, today's gas price will experience a shock today that may result in prices higher or lower than this expectation. The mean reversion rate expresses the same thing in a different manner. The higher the mean reversion rate, the faster prices revert to the long-run mean.

The last component of the regression analysis is the *STANDARD ERROR* or *STEYX*. This measures the portion of the price movements not explained by mean reversion and is the estimate of the variable's volatility.

Both the mean reversion rate and volatility calculated with this process are daily parameters and can be applied directly to daily movements in gas prices.

Step 4 - Results

The natural gas price parameters derived through this process are reported in the table below.

Table H.2 - Uncertainty Parameters for Natural Gas

	Winter	Spring	Summer	Fall
KERN OPAL				
Daily Volatility	11.14%	3.90%	2.46%	3.62%
Daily Mean Reversion Rate	0.110	0.152	0.102	0.071
SUMAS				
Daily Volatility	12.00%	6.07%	4.87%	4.38%
Daily Mean Reversion Rate	0.092	0.265	0.105	0.107

Electricity Price Process

For the most part, electricity prices behave very similarly to natural gas prices. The lognormal distribution is generally a good assumption for electricity. While electricity prices do occasionally go below zero, this is not common enough to be worth using the Normal distribution assumption, and the distribution of electricity prices is often skewed upwards. In fact, even the lognormal assumption is sometimes inadequate for capturing the tail of the electricity price distribution. Similar to gas prices, electricity price can experience substantial change from one day to the next, so a daily time step should be used.

Basic Data Set:
The electricity price data was organized into a consistent dataset with one price for each region reported for each delivery day, similar to gas prices. The data covers the 2014 through 2017 time period. However, electricity prices are reported for "High Load Level" periods (16 hours for six days a week) and "Low Load Level" periods (eight hours for six days a week and 24 hours on Sunday & NERC holidays). In order to have a consistent price definition, a composite price, calculated based on 16 hours of peak and eight hours of off-peak prices, is used for Monday through Saturday. The Low Load Level price was used for Sundays since that already reflects the 24 hour price. Missing and duplicate data is handled in a fashion similar to gas prices. Illiquid delivery point prices are filled using liquid hub prices as reference. Mid-C is the most liquid market in PACW, so missing prices for COB are filled using the latest available spread between COB and Mid-C markets. Similarly, Four Corner prices are filled using Palo Verde prices.

Development of Price Index:
As with gas prices, an electricity price index was developed which accounts for the expected components of price movements. The "expected" electricity price incorporates all three possible adjustments: seasonal average, monthly shape and weekly shape. For instance, the expected price for January 2, 2014 in the Four Corners region was $43.12/megawatt hours (MWh). This price incorporates the 2014 winter average price of $39.14/MWh times the monthly shape factor for January of 102 percent and the weekday index for Thursday of 108 percent. The following chart shows the Four Corners actual and expected electricity prices over the analysis time period.

Figure H.8 – Daily Electricity Prices for Four Corners, 2014-2017

Electricity Price Uncertainty Parameters
Uncertainty parameters are calculated for each electric region, similar to the process for gas prices. The electricity price parameters derived through this process are reported in the table below.

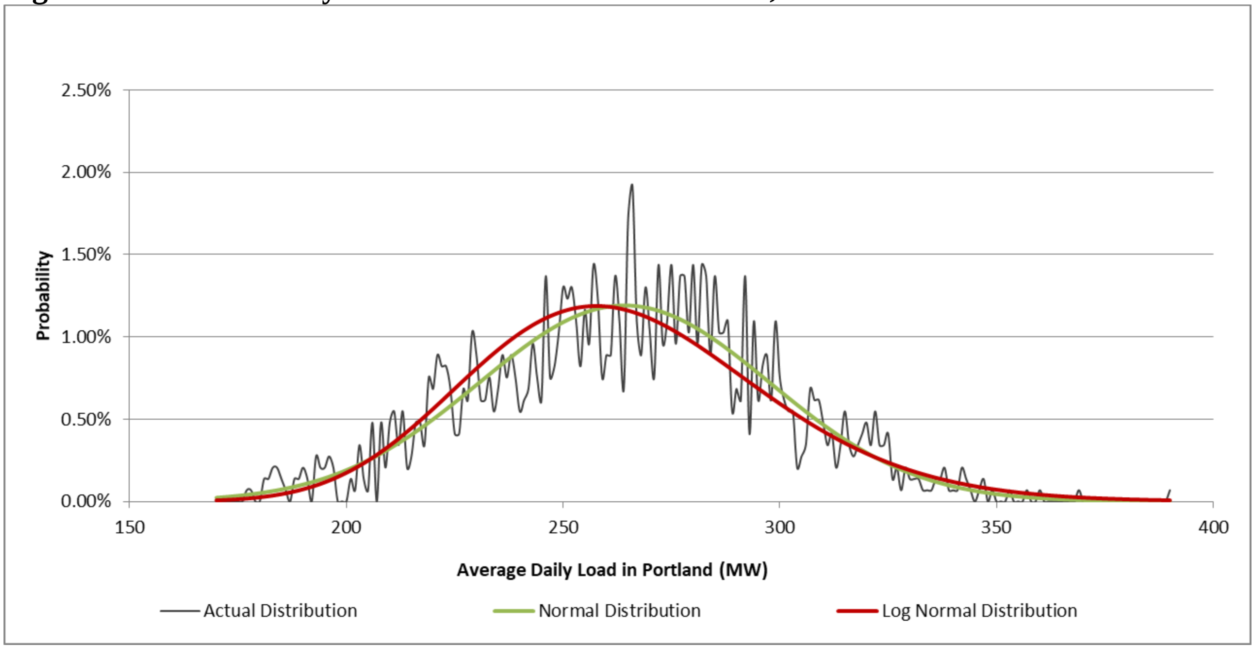
Table H.3 - Uncertainty Parameters for Electricity Regions

	Winter	Spring	Summer	Fall
Four Corners				
Daily Volatility	9.84%	10.41%	15.47%	10.13%
Daily Mean Reversion Rate	0.125	0.434	0.338	0.370
CA-OR Border				
Daily Volatility	13.44%	26.13%	29.97%	10.19%
Daily Mean Reversion Rate	0.119	0.551	0.463	0.257
Mid-Columbia				
Daily Volatility	16.55%	47.46%	21.28%	10.34%
Daily Mean Reversion Rate	0.140	0.551	0.271	0.279
Palo Verde				
Daily Volatility	9.22%	7.46%	14.08%	9.83%
Daily Mean Reversion Rate	0.110	0.211	0.220	0.415

Regional Load Process

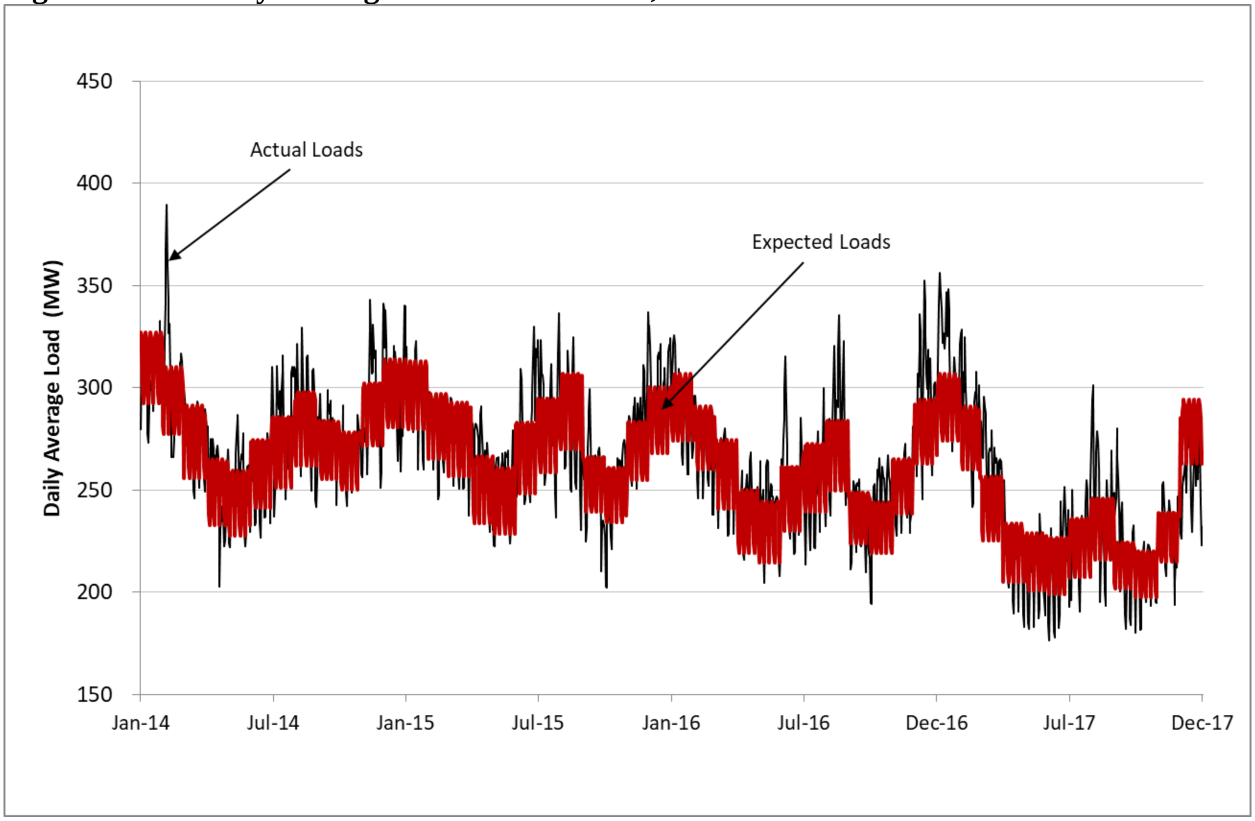
There are only two significant differences between the uncertainty analysis for regional loads and natural gas prices. The distribution of daily loads is somewhat better represented by a normal distribution rather than a lognormal distribution, and, similar to electricity prices, loads have a significant expected shape across the week. The chart below shows the distribution of historical load outcomes for the Portland area as well as normal and lognormal distribution functions representing load possibilities. Both distributions do a reasonable job of representing the spread of possible load outcomes, but the tail of the lognormal distribution implies the possibility of higher loads than is supported by the historical data.

Figure H.9 – Probability Distribution for Portland Load, 2014-2017



Development of Load Index:
As with electricity prices, a load index was developed which accounts for the expected components of load movements, incorporating all three possible adjustments. For instance, the expected load for January 2, 2014 in Portland was 324 megawatts (MW). This load incorporates the 2014 winter average load of 305 MW times the monthly shape factor for January of 103 percent and the weekday index for Thursday also of 103 percent. The following chart shows the Portland actual and expected loads over the analysis time period.

Figure H.10 – Daily Average Load for Portland, 2014-2017



Load Uncertainty Parameters:
Uncertainty parameters are calculated for each load region, similar to the process for gas and electricity prices. Since loads are modeled as normally, rather than log-normally distributed, deviations are simply calculated as the difference between the load index and the previous day's index.

The uncertainty parameters for regional loads derived through this process are reported in the table below.

Table H.4 - Uncertainty Parameters for Load Regions

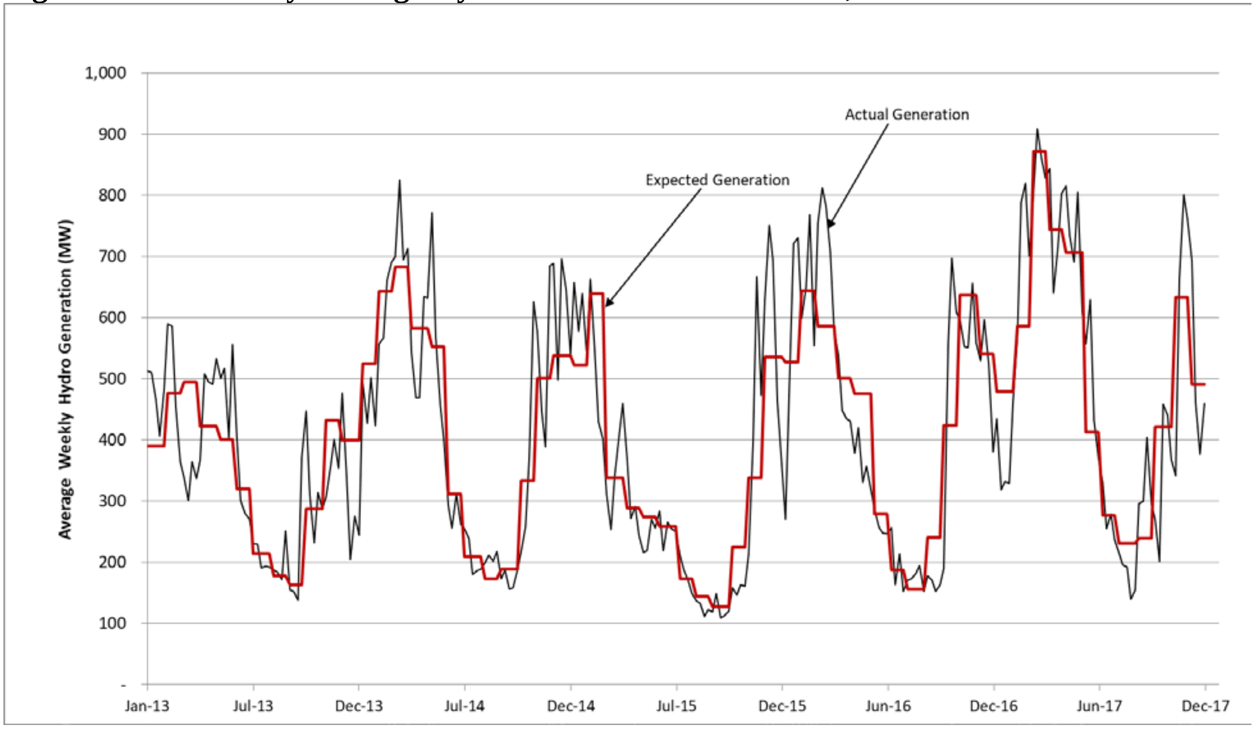
	Winter	Spring	Summer	Fall
California				
Daily Volatility	4.7%	4.2%	3.8%	4.9%
Daily Mean Reversion Rate	0.268	0.218	0.185	0.311
Idaho				
Daily Volatility	3.5%	6.5%	5.1%	4.2%
Daily Mean Reversion Rate	0.153	0.204	0.095	0.218
Portland				
Daily Volatility	3.9%	3.3%	5.0%	3.9%
Daily Mean Reversion Rate	0.177	0.241	0.280	0.242
Oregon Other				
Daily Volatility	4.2%	3.4%	4.2%	4.2%
Daily Mean Reversion Rate	0.182	0.379	0.195	0.253
Utah				
Daily Volatility	2.1%	2.8%	4.5%	3.5%
Daily Mean Reversion Rate	0.363	0.595	0.213	0.249
Washington				
Daily Volatility	5.3%	3.7%	5.0%	4.3%
Daily Mean Reversion Rate	0.181	0.341	0.157	0.203
Wyoming				
Daily Volatility	1.6%	1.8%	1.6%	1.7%
Daily Mean Reversion Rate	0.273	0.254	0.235	0.267

Hydro Generation Process

There are two differences between the uncertainty analysis for hydro generation and natural gas prices. Hydro generation varies on a slower time frame than other variables analyzed. As such, average hydro generation is calculated and analyzed on a weekly, rather than daily, basis. Generation is calculated as the average hourly generation across the 168 hours in a week. The hydro analysis covers the 2013 through 2017 time period.

Development of Hydro Index:
A hydro generation index was developed which accounts for the expected components of hydro movements, incorporating seasonal and monthly adjustments. For instance, the expected hydro generation for the week of January 1, 2013 through January 7, 2013 in the Western Region was 388 MW. This generation incorporates the 2013 winter average generation of 422 MW times the monthly shape factor for January of 92 percent. The following chart shows the western hydro actual and expected generation over the analysis time period.

Figure H.11 – Weekly Average Hydro Generation in the West, 2013-2017



Hydro Generation Uncertainty Parameters:
Uncertainty parameters are calculated for each hydro region, similar to the process for gas and electricity prices. The uncertainty parameters for hydro generation derived through this process are reported in the table below.

Table H.5 - Uncertainty Parameters for Hydro Generation

	Winter	Spring	Summer	Fall
Weekly Volatility	21.15%	16.17%	16.78%	30.08%
Weekly Mean Reversion Rate	0.63	0.50	1.51	0.86

Short-term Correlation Estimation

Correlation is a measure of how much the random component of variables tend to move together. After the uncertainty analysis has been performed, the process for estimating correlations is relatively straight-forward.

Step 1 - Calculate Residual Errors
Calculate the residual errors of the regression analysis for all of the variables. The residual error represents the random portion of the deviation not explained by mean reversion. It is calculated for each time period as the difference between the actual value and the value predicted by the linear regression equation:

$$Error = Actual\ Deviation - (Slope * Previous\ Deviation + Intercept)$$

All of the residual errors are compiled by delivery date.

Step 2 - Calculate Correlations

Correlate the residual errors of each pair of variables:

$$Correlation(X,Y) = \frac{\sum_i^n[(x_i - x_{avg.}) * (y_i - y_{avg.})]}{\sqrt{\sum_i^n(x_i - x_{avg.})^2 * \sum_i^n(y_i - y_{avg.})^2}}$$

There are a few things to note about the correlation calculations. First, correlation data must always be organized so that the same time period is being compared for both variables. For instance, weekly hydro deviations cannot be compared to daily gas price deviations. Thus, a daily regression analysis was performed for the hydro variables.

Also, note that what is being correlated are the residual errors of the regression – only the uncertain portion of the variable movements. Variables may exhibit similar expected shapes – both loads and electricity prices are higher during the week than on the weekend. This coincidence is captured in the expected weekly shapes input into the planning model. The correlation calculated here captures the extent to which the shocks experienced by two different variables tend to have similar direction and magnitude. The resulting short-term correlations by season are reported below.

Table H.6 - Short-term Winter Correlations

SHORT-TERM WINTER CORRELATIONS

	K-O	SUMAS	4C	COB	Mid-C	PV	CA	ID	Portland	OR Other	UT	WA	WY	Hydro
K-O	100%	89%	63%	35%	38%	66%	3%	14%	20%	13%	10%	24%	10%	5%
SUMAS	89%	100%	57%	40%	42%	61%	5%	17%	17%	14%	8%	22%	12%	6%
4C	63%	57%	100%	58%	57%	83%	10%	15%	27%	27%	20%	29%	12%	3%
COB	35%	40%	58%	100%	94%	61%	14%	19%	30%	37%	21%	43%	19%	6%
Mid-C	38%	42%	57%	94%	100%	59%	14%	21%	36%	40%	25%	46%	24%	2%
PV	66%	61%	83%	61%	59%	100%	10%	10%	24%	23%	17%	29%	12%	3%
CA	3%	5%	10%	14%	14%	10%	100%	24%	27%	66%	35%	32%	21%	-4%
ID	14%	17%	15%	19%	21%	10%	24%	100%	23%	30%	32%	31%	34%	-11%
Portland	20%	17%	27%	30%	36%	24%	27%	23%	100%	67%	48%	65%	30%	-4%
OR Other	13%	14%	27%	37%	40%	23%	66%	30%	67%	100%	49%	65%	29%	3%
UT	10%	8%	20%	21%	25%	17%	35%	32%	48%	49%	100%	49%	38%	-8%
WA	24%	22%	29%	43%	46%	29%	32%	31%	65%	65%	49%	100%	34%	15%
WY	10%	12%	12%	19%	24%	12%	21%	34%	30%	29%	38%	34%	100%	-2%
Hydro	5%	6%	3%	6%	2%	3%	-4%	-11%	-4%	3%	-8%	15%	-2%	100%

Deviation events that impact one part of PacifiCorp's system do not necessarily affect other parts of the system, due to its geographic diversity and transmission constraints. The correlation between these different deviations can be low if the deviations are caused by different drivers. An example from the winter season is the -11 percent correlation between the Southeast Idaho load area, which is driven by weather events in PacifiCorp's PACE balancing area, and Hydro, which is predominantly driven by weather events in PacifiCorp's PACW balancing area, the unit commitment stack and unplanned unit outages.

Table H.7 - Short-term Spring Correlations

SHORT-TERM SPRING CORRELATIONS

	K-O	SUMAS	4C	COB	Mid-C	PV	CA	ID	Portland	OR Other	UT	WA	WY	Hydro
K-O	100%	55%	20%	10%	7%	33%	7%	7%	2%	0%	7%	5%	1%	3%
SUMAS	55%	100%	6%	8%	7%	13%	10%	2%	4%	3%	-5%	8%	3%	2%
4C	20%	6%	100%	34%	36%	62%	0%	7%	7%	6%	15%	12%	11%	-9%
COB	10%	8%	34%	100%	86%	39%	13%	-3%	24%	21%	8%	31%	13%	0%
Mid-C	7%	7%	36%	86%	100%	31%	13%	1%	26%	21%	11%	29%	15%	0%
PV	33%	13%	62%	39%	31%	100%	3%	16%	17%	14%	24%	24%	15%	-3%
CA	7%	10%	0%	13%	13%	3%	100%	18%	20%	55%	17%	33%	9%	-1%
ID	7%	2%	7%	-3%	1%	16%	18%	100%	6%	20%	43%	20%	17%	-17%
Portland	2%	4%	7%	24%	26%	17%	20%	6%	100%	63%	22%	57%	27%	11%
OR Other	0%	3%	6%	21%	21%	14%	55%	20%	63%	100%	31%	65%	23%	10%
UT	7%	-5%	15%	8%	11%	24%	17%	43%	22%	31%	100%	25%	30%	-11%
WA	5%	8%	12%	31%	29%	24%	33%	20%	57%	65%	25%	100%	24%	18%
WY	1%	3%	11%	13%	15%	15%	9%	17%	27%	23%	30%	24%	100%	-1%
Hydro	3%	2%	-9%	0%	0%	-3%	-1%	-17%	11%	10%	-11%	18%	-1%	100%

Similarly, the spring season shows a very low correlation of nine percent between the Northern California and Wyoming loads, which are driven by different local weather deviations and different customer types. Wyoming loads are mostly driven by large industrial customers, whose loads are relatively flat across the year.

Table H.8 - Short-term Summer Correlations

SHORT-TERM SUMMER CORRELATIONS

	K-O	SUMAS	4C	COB	Mid-C	PV	CA	ID	Portland	OR Other	UT	WA	WY	Hydro
K-O	100%	45%	5%	0%	2%	0%	0%	5%	-3%	-3%	8%	4%	-4%	-1%
SUMAS	45%	100%	5%	5%	10%	1%	-1%	-5%	3%	0%	-4%	5%	-7%	0%
4C	5%	5%	100%	27%	29%	52%	21%	11%	17%	17%	21%	18%	13%	-4%
COB	0%	5%	27%	100%	85%	44%	15%	16%	32%	28%	9%	28%	8%	7%
Mid-C	2%	10%	29%	85%	100%	51%	22%	16%	48%	45%	15%	38%	4%	4%
PV	0%	1%	52%	44%	51%	100%	22%	16%	28%	25%	25%	20%	16%	5%
CA	0%	-1%	21%	15%	22%	22%	100%	39%	33%	55%	30%	47%	14%	-3%
ID	5%	-5%	11%	16%	16%	16%	39%	100%	18%	27%	47%	26%	22%	5%
Portland	-3%	3%	17%	32%	48%	28%	33%	18%	100%	80%	11%	68%	-5%	16%
OR Other	-3%	0%	17%	28%	45%	25%	55%	27%	80%	100%	20%	78%	1%	9%
UT	8%	-4%	21%	9%	15%	25%	30%	47%	11%	20%	100%	24%	48%	-7%
WA	4%	5%	18%	28%	38%	20%	47%	26%	68%	78%	24%	100%	4%	9%
WY	-4%	-7%	13%	8%	4%	16%	14%	22%	-5%	1%	48%	4%	100%	-11%
Hydro	-1%	0%	-4%	7%	4%	5%	-3%	5%	16%	9%	-7%	9%	-11%	100%

In the summer season, zero correlation has been observed between the deviations of Kern-Opal gas prices and Palo Verde power prices. Palo Verde prices are driven by a resource mix of southwest nuclear operations and gas unit dispatch based off SoCal gas prices. The operations of gas storage facilities and physical planned and unplanned maintenance of Kern-Opal and SoCal pipelines are independent of each other.

Table H.9 - Short-term Fall Correlations

SHORT-TERM FALL CORRELATIONS

	K-O	SUMAS	4C	COB	Mid-C	PV	CA	ID	Portland	OR Other	UT	WA	WY	Hydro
K-O	100%	73%	14%	15%	12%	13%	15%	6%	11%	19%	11%	17%	7%	2%
SUMAS	73%	100%	10%	13%	13%	7%	28%	10%	25%	33%	24%	32%	22%	4%
4C	14%	10%	100%	36%	22%	53%	19%	10%	23%	20%	21%	21%	4%	-4%
COB	15%	13%	36%	100%	78%	63%	9%	2%	24%	16%	24%	19%	3%	-2%
Mid-C	12%	13%	22%	78%	100%	44%	10%	8%	22%	18%	19%	22%	3%	-4%
PV	13%	7%	53%	63%	44%	100%	9%	9%	16%	7%	20%	9%	-5%	1%
CA	15%	28%	19%	9%	10%	9%	100%	29%	47%	70%	34%	54%	38%	-5%
ID	6%	10%	10%	2%	8%	9%	29%	100%	19%	25%	41%	25%	24%	-12%
Portland	11%	25%	23%	24%	22%	16%	47%	19%	100%	78%	45%	73%	39%	12%
OR Other	19%	33%	20%	16%	18%	7%	70%	25%	78%	100%	45%	83%	47%	7%
UT	11%	24%	21%	24%	19%	20%	34%	41%	45%	45%	100%	44%	44%	-1%
WA	17%	32%	21%	19%	22%	9%	54%	25%	73%	83%	44%	100%	42%	9%
WY	7%	22%	4%	3%	3%	-5%	38%	24%	39%	47%	44%	42%	100%	4%
Hydro	2%	4%	-4%	-2%	-4%	1%	-5%	-12%	12%	7%	-1%	9%	4%	100%

In the fall, a very low correlation of three percent has been observed between Mid-C market price deviations and Wyoming load deviations. Market deviations are due to deviations in northwest weather patterns and resource mix while Wyoming loads are mostly dictated by planned or unplanned outages of industrial customer class.

APPENDIX I - PLANNING RESERVE MARGIN STUDY

Introduction

The planning reserve margin (PRM), measured as a percentage of coincident system peak load, is a parameter used in resource planning to ensure there are adequate resources to meet forecasted load over time. PacifiCorp selects a PRM for use in its resource planning by studying the relationship between cost and reliability among eight different PRM levels, accounting for variability and uncertainty in load and generation resources.[1] Costs include capital and run-rate fixed costs for new resources required to achieve eight different PRM levels, ranging from 11 to 18 percent, along with system production costs (fuel and non-fuel variable operating costs, contract costs, and market purchases). In analyzing reliability, PacifiCorp performed a stochastic loss of load study using the Planning and Risk (PaR) production cost simulation model to calculate the following reliability metrics for each PRM level:

- Expected Unserved Energy (EUE): Measured in gigawatt-hours (GWh), EUE reports the expected (mean) amount of load that exceeds available resources over the course of a given year. EUE measures the magnitude of reliability events, but does not measure frequency or duration.
- Loss of Load Hours (LOLH): LOLH is a count of the expected (mean) number of hours in which load exceeds available resources over the course of a given year. A LOLH of 2.4 hours per year equates to one day in 10 years, a common reliability target in the industry. LOLH measures the duration of reliability events, but does not measure frequency or magnitude.
- Loss of Load Events (LOLE): LOLE is a count of the expected (mean) number of reliability events over the course of a given year. An LOLE of 0.1 events per year equates to one event in 10 years, a common reliability target in the industry. LOLE measures the frequency of reliability events, but does not measure magnitude or duration.

PacifiCorp's loss of load study results reflect its participation in the Northwest Power Pool (NWPP) reserve sharing agreement. This agreement allows a participant to receive energy from other participants within the first hour of a contingency event, defined as an event when there is an unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. PacifiCorp's participation in the NWPP reserve sharing agreement improves reliability at a given PRM level. Upon evaluating the relationship between cost and reliability in its PRM study, PacifiCorp will continue to use a 13 percent target PRM in its resource planning.

Objective

The purpose of the PRM is to ensure that Integrated Resource Plan (IRP) portfolios a) meet customer load b) while maintaining operating reserves, c) meeting a one day in ten year reliability target, d) at a low reasonable cost. The 2019 IRP PRM selection is made by analyzing:

[1] Costs and reliability metrics are calculated for eight different PRM levels, ranging from 11 to 18 percent. Comparative analysis among each PRM is performed for seven different PRM levels by comparing the cost and reliability results from PRM levels ranging between 11 and 18 percent to those from the 10 percent PRM.

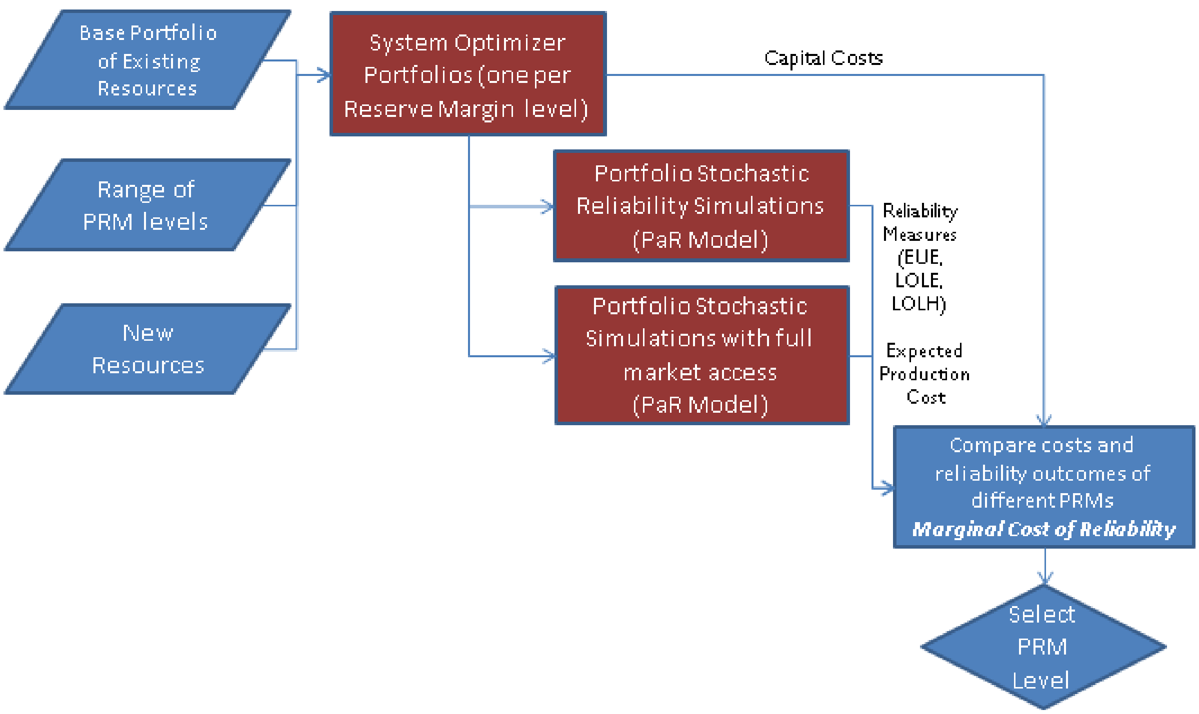
- Relationships between reliability modeling and production cost modeling results
- PRM cases range from 11 to 18 percent in the target year (2030)
- Bookend cases will be run for years 2022 and 2036

The target year of 2030 is selected based on a preliminary assessment aligned with significant assumed retirements; bookend years were developed as a check on this assumption.

Methodology

Figure I.1 shows the workflow used in PacifiCorp's PRM study. The four basic modeling steps in the workflow include: (1) using the System Optimizer (SO) model, produce resource portfolios among seven different PRM levels ranging between 11 and 18 percent; (2) using PaR, produce reliability metrics for each resource portfolio; (3) using PaR, produce system stochastic variable production costs with full market access for each resource portfolio; (4) produce the marginal cost of reliability using outcomes of different PRM levels, (5) select PRM level.

Figure I.1 - Workflow for Planning Reserve Margin Study



Development of Resource Portfolios

The SO model is used to produce resource portfolios assuming PRM levels ranging between 11 and 18 percent. The SO model optimizes expansion resources over a 20-year planning horizon to meet peak load inclusive of the PRM applicable to each case.

Consistent with the 2017 IRP, as the PRM level increases additional resources are added to the portfolio. Resource options used in this step of the workflow include demand-side management (DSM), gas-fired combined cycle combustion turbines (CCCT), gas-fired simple cycle combustion turbines (SCCT), renewable resources and front office transactions (FOTs).

Updated Assumptions

Front Office Transactions (FOT)
FOTs are considered as a resource expansion option in this phase of the workflow. FOTs are proxy resources used in the IRP portfolio development process that represent firm forward short-term market purchases for summer and winter on-peak delivery, which coincides with the time of year and time of day in which PacifiCorp observes its coincident system peak load.

These proxy resources are a reasonable representation of firm market purchases when performing comparative analysis of different resource portfolios to arrive at a preferred portfolio in the IRP.

The front office transaction reserve credit, previously calculated at six percent of load, has been lowered to three percent, reflecting the three percent of load/three percent of generation requirement which is new this IRP cycle.

Market Purchases
The SO model planning limit for FOT selection as a capacity resource in the 2019 IRP is 1,425 megawatt (MW) in both summer and winter. In past IRPs, PaR has allowed for market balancing purchases up to transmission limits for the purpose of valuing portfolios in all months of the year. As a consequence, in the 2017 IRP, all PRM levels met PaR loss of load hour (LOLH) requirements, relying on market purchases.

In the 2019 IRP, PaR market purchases are restricted to FOT limits in all months of the PRM models. This change makes PaR reliability measures consistent with market reliance assumptions, and allows the impact of market purchase reliance to be assessed in reliability analysis.

Planning Capacity Factor (PCF)
The planning capacity factor for DSM, solar and natural gas resources has been updated for the 2019 IRP Planning Reserve Margin Study, based on updated analysis and the latest information.

<u>Demand Response (Class 1 DSM)</u>
Demand Response contracts define limits on the number of interruptible hours per day and hours per year reduce capacity contribution. In order to represent these limitations accurately, the capacity factor (CF) approximation method has been applied to each demand response program. PCF is consequently reduced by a weighted average of 11 percent, ranging from -2 to -22 percent by program. Also, in alignment with actual practice, summer demand response availability has been expanded to June through September and winter, and winter demand response has been expanded to October through December.

<u>Energy Efficiency (Class 2 DSM)</u>
Similar to demand response, energy efficiency has limitations on hours per day and hours per year, restricting capacity contribution. Taking these limitations into account reduces energy efficiency PCF by a weighted average of 15 percent, ranging from -24 to +13 percent by bundle.

<u>Solar</u>
In response to rapid increases in solar penetration, PacifiCorp assessed a 2030 solar resource PCF, measured relative to a case with no solar. East solar has an overall effective capacity contribution of 29.3 percent, down from 37.9 percent for fixed and 59.7 percent for tracking. West solar has an

overall effective capacity contribution of 35.6 percent, down from 53.9 percent for fixed and 64.8 percent for tracking.

Natural Gas

Past IRPs have relied on monthly average temperature impacts. The 2019 IRP uses a summer peak temperature to improve PCF consistency with peak capacity needs.

Upfront capital and run-rate fixed costs from each portfolio are recorded and used later in the workflow where the relationship between cost and reliability is analyzed. Resources from each portfolio are used in the subsequent workflow steps where reliability metrics and production costs are produced in PaR.

Development of Reliability Metrics

The PaR model is used to produce reliability metrics for each of the resource portfolios developed assuming PRM levels ranging between 11 and 18 percent. PaR is a production cost simulation model, configured to represent PacifiCorp's integrated system that uses Monte Carlo random sampling of stochastic variables to produce a distribution of system operation. For this step in the workflow, reliability metrics are produced from a 500-iteration PaR simulation with Monte Carlo draws of stochastic variables that affect system reliability—load, hydro generation, and thermal unit outages. As discussed above, system balancing hourly purchases are enabled to capture the contribution of firm market purchases to system reliability. The PaR reliability studies are used to report instances where load exceeds available resources, including system balancing hourly purchases. Reported EUE measures the stochastic mean volume of instances where load exceeds available resources, and is measured in GWh. EUE measures the magnitude of reliability events. Reported LOLH is a count of the stochastic mean hours in which load exceeds available resources. LOLH measures the duration of reliability events. Reported LOLE is a count of the stochastic mean events in which load exceeds available resources. LOLE is a measure of the frequency of reliability events.

Each of the reliability metrics described above is adjusted to account for PacifiCorp's participation in the NWPP reserve sharing agreement, which allows a participant to receive energy from other participants within the first hour of a contingency event. PacifiCorp accounts for the NWPP reserve sharing agreement by assuming the first hour of any event is covered and removed in the tabulation of EUE, LOLH and LOLE measures. NWPP participation reduces each of these measures by roughly half.

For PaR, the contribution of firm market purchases are removed and instead include system balancing hourly purchases that cover the firm market purchases, limited by transmission and market depth limits, for the reliability metrics.

Development of System Variable Production Costs

In addition to using PaR to develop reliability metrics, PaR is also used to produce system variable production operating costs for each of the resource portfolios developed assuming PRM levels ranging between 11 and 18 percent. For PaR's system variable production cost runs, its Monte Carlo sampling of stochastic variables is expanded to include natural gas and wholesale market prices in addition to load, hydro generation, and thermal unit outages. At this step, the stochastic treatment of market prices is key given its influence on the economic dispatch of system resources, cost of system balancing purchases, and revenues from system balancing sales. In this step, full market access is included for the simulation. The stochastic mean of system variable costs is added to the upfront capital and run-rate fixed costs from each portfolio so that total portfolio costs are captured for each PRM level.

Selection of the Planning Reserve Margin

Using the incremental cost of reliability analysis, guided by additional measures detailed below, the PRM level is selected for use in the 2019 IRP.

Results

Resource Portfolios

Table I.1 shows new resources added to the portfolio for the summer at PRM levels ranging between 11 and 18 percent. Each portfolio includes FOTs ranging from 1,312 MW to 1,416 MW. In the summer, FOTs don't vary much as all PRMs are relying on most of the FOT limit during the peak. Natural gas resource additions escalate from 1,264 MW of resource to 1,865 MW across the PRM studies as the margin increases. DSM resource additions range between 218 MW and 891 MW.

In the summer, each 1 percent PRM increases system capacity by roughly 100MW. At each odd-numbered PRM increase, the model adds an additional single-cycle gas resource, partially offset by a reduction in FOTs and interruptible load selections. This trade-off occurs because new gas resources are added in blocks indicative of a typical plant size (i.e. the model cannot add a two MW SCCT plant), and thus the additions in each separate resource category do not move uniformly with an increase in the PRM.

Table I.1 – Summer Expansion Resource Additions by PRM

PRM (%)	Capacity at Summer Peak (MW)					
	DSM					
	Energy Efficiency	Demand Response	FOT	Natural Gas	Geo-Thermal/ Other	Total
11	824	240	1,313	1,264	31	3,672
12	821	219	1,416	1,287	31	3,775
13	830	244	1,313	1,459	31	3,877
14	844	218	1,416	1,468	31	3,977
15	854	241	1,313	1,639	31	4,078
16	870	271	1,312	1,694	31	4,177
17	853	273	1,315	1,810	31	4,282
18	891	323	1,313	1,865	31	4,423

Table I.2 shows new resources added to the portfolio for the winter at PRM levels ranging between 11 and 18 percent. Winter additions are led by summer additions where summer DSM selection may contribute to winter depending on the attributes of bundle selections; while winter additions follow a general trend, variations are observed at the 16 and 18 percent PRM levels in particular.

In aggregate, the summer and winter additions result in a smooth progression of reliability measures (e.g., loss of load hours, loss of load events, and incremental cost of reliability) reported in the next section of this appendix.

Table I.2 – Winter Expansion Resource Additions by PRM

PRM (%)	Capacity at Winter Peak (MW)					
	DSM		FOT	Nat. Gas	Geo-Thermal/ Other	Total
	Energy Efficiency	Demand Response				
11	729	0	306	1,458	31	2,524
12	727	0	314	1,484	31	2,556
13	736	0	321	1,682	31	2,769
14	749	0	328	1,692	31	2,801
15	759	0	336	1,889	31	3,015
16	775	0	0	1,915	31	2,721
17	759	0	350	2,087	31	3,227
18	796	0	0	2,113	31	2,940

Reliability Metrics

Table I.3 shows EUE, LOLH, and LOLE reliability results before and after adjusting these reliability metrics for PacifiCorp's participation in the NWPP reserve sharing agreement. Each of the reliability metrics generally improve as the PRM increases and after accounting for benefits associated with PacifiCorp's participation in the NWPP reserve sharing agreement. After accounting for its participation in the NWPP reserve sharing agreement, all PRM levels meet a one day in ten year planning criteria (LOLH at or below 2.4), and PRM levels of between 17 and 18 percent meet a one event in ten year planning criteria (LOLE at or below 0.1).

Table I.3 - Simulated Reliability Metrics by PRM

Year	PRM (%)	Before NWPP Adjustment			After NWPP Adjustment		
		Simulated Energy Not Served (GWh)	LOLH (<2.4 target year) (Hour)	Loss of Load Episodes	EUE (GWh)	LOLH (Hour)	Modeled Loss of Load Episodes
2019 IRP							
2030	11	602	2.46	1.12	327	1.34	0.54
	12	1,038	3.75	1.45	637	2.30	0.78
	13	514	1.97	0.90	279	1.07	0.45
	14	377	1.64	0.79	196	0.85	0.37
	15	193	0.98	0.44	106	0.54	0.23
	16	157	0.87	0.38	88	0.49	0.18
	17	71	0.54	0.27	35	0.27	0.09
	18	107	0.41	0.19	56	0.21	0.08

The reliability metrics do not monotonically improve with each incremental increase in the PRM. This is influenced by the physical location of new resources within PacifiCorp's system at varying PRM levels and the ability of these resources to serve load in all load pockets when Monte Carlo sampling is applied to load, hydro generation, and thermal unit outages.

The 12 percent reports higher EUE, but is able to meet the 12 percent PRM with an efficiency that keeps the incremental cost of EUE in line with the rest of the PRM levels (refer to Table I.5 under System Costs, below). Absent the NWPP adjustment, the PRM 13 percent is the cross over point where the LOLH is below the 2.4 hour per year limit.

Considering that the reliability metrics are measuring very small magnitudes of change among the different PRM levels, the PaR outputs are fit to a logarithmic function to report the overall trend in reliability improvements as the PRM level increases. Table I.4 shows the fitted EUE LOLH, and LOLE results. Figure I.2, Figure I.3 and Figure I.4 show a plot of the fitted trend for EUE, LOLH, and LOLE, respectively, after accounting for PacifiCorp's participation in the NWPP reserve sharing agreement.

Table I.4 - Fitted Reliability Metrics by PRM

	Before NWPP Adjustment			**After NWPP Adjustment**		
PRM (%)	EUE (GWh)	LOLH (<2.4 target year) (Hour)	Modeled Loss of Load Episodes	EUE (GWh)	LOLH (Hour)	Modeled Loss of Load Episodes
11	504	1.92	0.78	878	3.36	1.44
12	353	1.38	0.58	619	2.43	1.05
13	265	1.06	0.46	467	1.88	0.82
14	202	0.84	0.37	360	1.50	0.66
15	154	0.66	0.31	276	1.20	0.53
16	114	0.52	0.25	208	0.95	0.43
17	81	0.40	0.21	151	0.74	0.35
18	52	0.29	0.17	101	0.56	0.27

Figure I.2 - Expected and Fitted Relationship of EUE to PRM

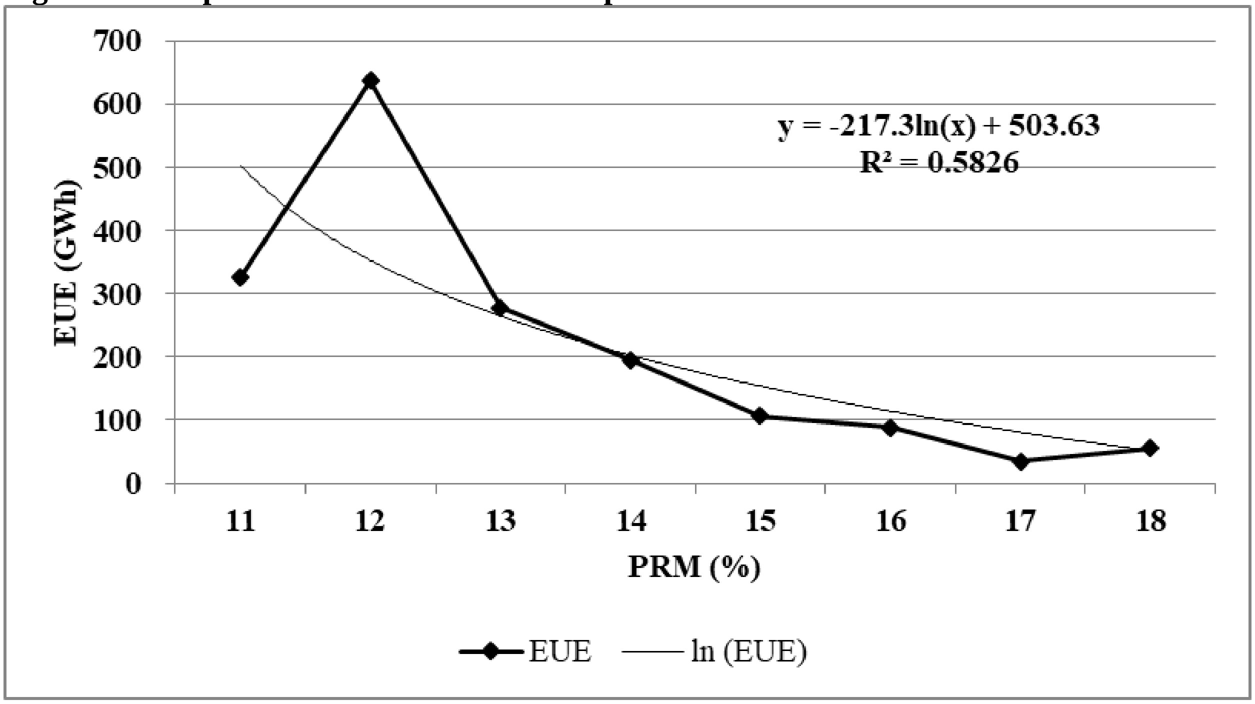


Figure I.3 - Expected and Fitted Relationship of LOLH to PRM

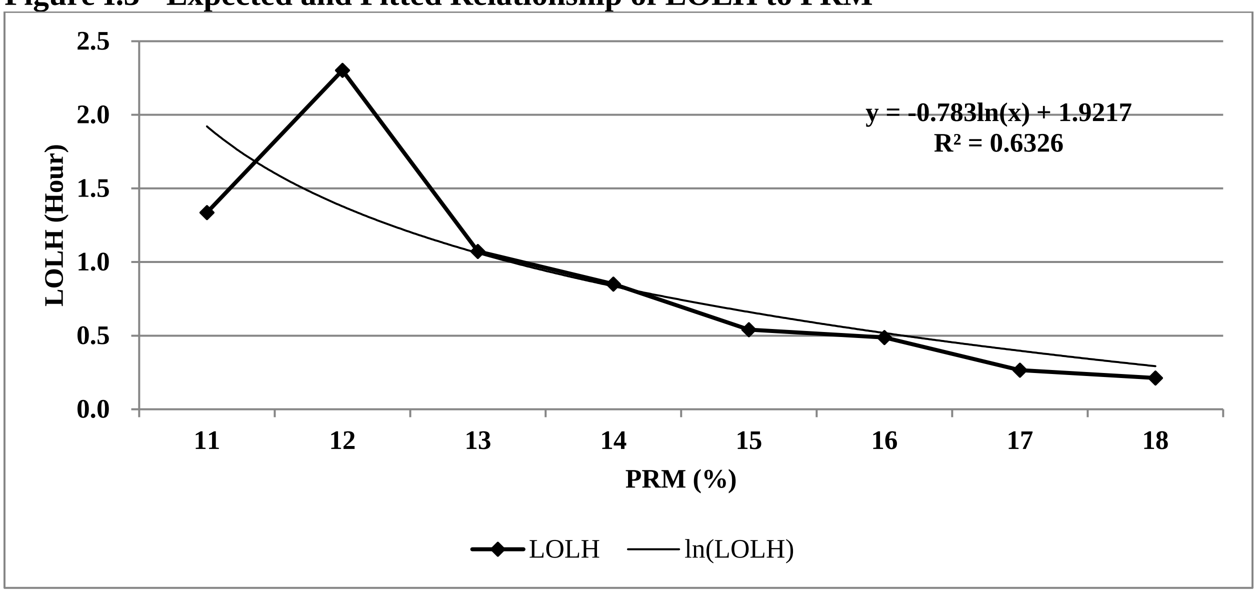
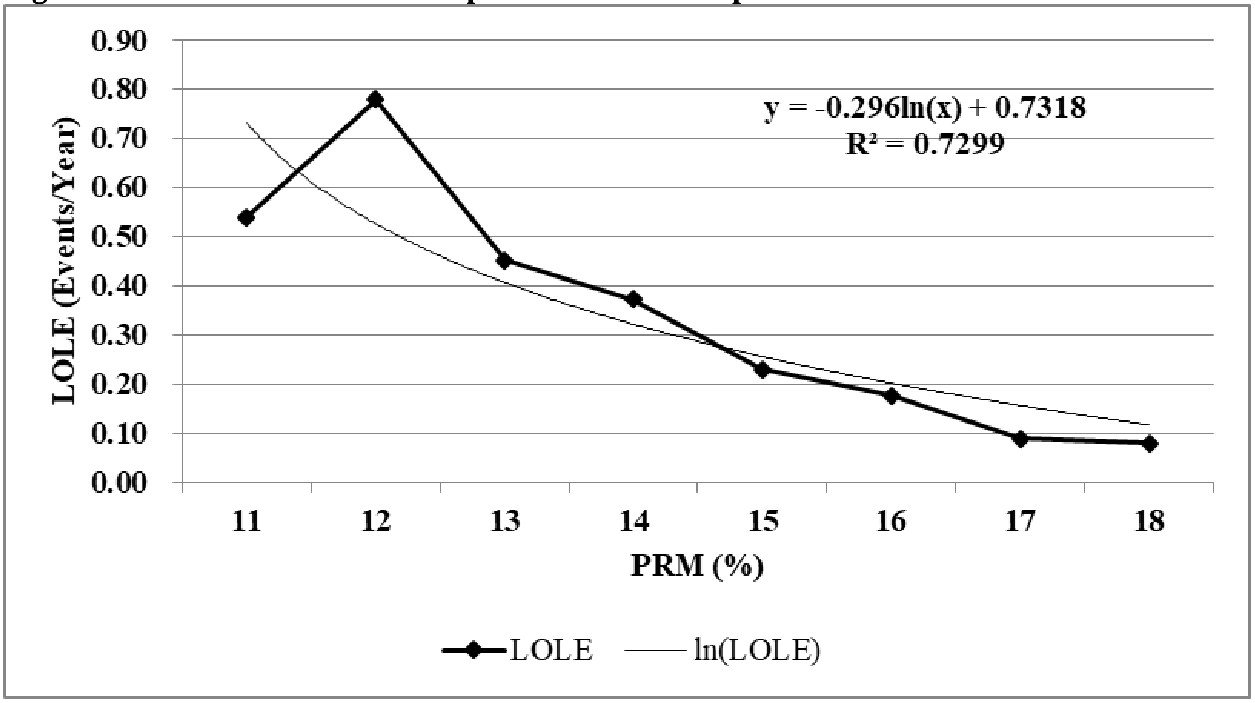


Figure I.4 - Simulated Relationship of Loss of Load Episode to PRM



System Costs

For the 2020 reference year, Table I.5 shows the stochastic mean of system variable production costs and the upfront capital and run-rate fixed costs, including the cost of new DSM resources, for each portfolio developed at PRM levels ranging between 11 and 18 percent. The fixed costs associated with these new resource additions drive total costs higher as PRM levels increase. DSM run-rate costs vary depending on resource additions for demand response and new resources where gas was added.

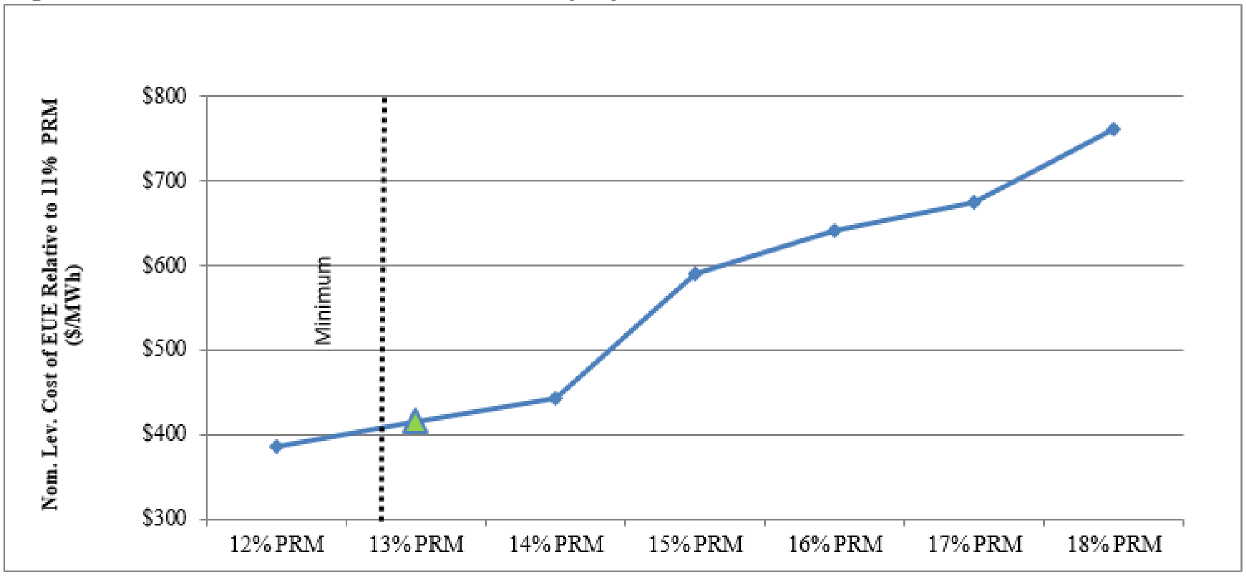
Table I.5 – System Variable, Up-front Capital, and Run-rate Fixed Costs by PRM

PRM (%)	System Production Costs ($m)	Energy Efficiency ($m)	Demand Response ($m)	Existing Resource Fixed Costs ($m)	New Resource Fixed Cost ($m)	Total ($m)
11	11,368	818	120	2,823	3,398	18,527
12	11,383	802	131	2,823	3,472	18,611
13	11,352	833	122	2,823	3,540	18,670
14	11,302	855	130	2,823	3,609	18,719
15	11,313	886	120	2,823	3,684	18,825
16	11,134	936	132	2,823	3,862	18,887
17	11,289	863	134	2,823	3,830	18,939
18	11,149	983	137	2,823	3,931	19,023

Incremental Cost of Reliability

Figure I.5 depicts the incremental cost of reliability, stated as the nominal levelized cost of EUE relative to 11 percent PRM, at PRM levels ranging between 12 and 18 percent. The incremental cost of reliability rises intuitively as PRM levels increase, and illustrates a significant step-change noted when the PRM hits 15 percent and onward.

Figure I.5 - Incremental Cost of Reliability by PRM



Conclusion

PacifiCorp will continue to use a 13 percent target PRM in its resource planning after evaluating the relationship between cost and reliability in the PRM study. A PRM below 13 percent would not sufficiently cover the need to carry short-term operating reserve needs (contingency and regulating margin) and longer-term uncertainties such as extended outages and changes in customer load.[2] A PRM above 15 percent improves reliability above a one event in ten year planning level, although with a 300 to 700 percent increase in the incremental cost per megawatt-hour of reduced EUE when compared to a 13 percent PRM. With these considerations, the selected 13 percent PRM level ensures PacifiCorp can reliably meet customer loads while maintaining operating reserves, with a planning criteria that meets one day in 10 year planning targets, at the lowest reasonable cost.

[2] PacifiCorp must hold approximately six percent of its resources in reserve to meet contingency reserve requirements and an estimated additional 4.5 percent to 5.5 percent of its resources in reserve, depending upon system conditions at the time of peak load, as regulating margin. This sums to 10.5 percent to 11.5 percent of operating reserves before even considering longer-term uncertainties such as extended outages (transmission or generation) and customer load growth.

APPENDIX J – WESTERN RESOURCE ADEQUACY EVALUATION

Introduction

The Public Service Commission of Utah, in its 2008 Integrated Resource Plan (IRP) Order, directed PacifiCorp to conduct two analyses pertaining to the company's ability to support reliance on market purchases:

> *Additionally, we direct the Company to include an analysis of the adequacy of the western power market to support the volumes of purchases on which the Company expects to rely. We concur with the Office [of Consumer Services], the WECC is a reasonable source for this evaluation. We direct the Company to identify whether customers or shareholders will be expected to bear the risks associated with its reliance on the wholesale market. Finally, we direct the Company to discuss methods to augment the Company's stochastic analysis of this issue in an IRP public input meeting for inclusion in the next IRP or IRP update.*[1]

In the past, PacifiCorp has fulfilled this requirement by evaluating the Western Electricity Coordinating Council (WECC) Power Supply Assessment (PSA) to glean trends and conclusions from the supporting analysis. While an updated PSA has not been published in time for this IRP, there is a published update available for the North American Electric Reliability Corporation (NERC) Long Term Reliability Assessment (LTRA). Past PSA reports were based on data publicly available in the NERC LTRA, and the latest available LTRA report[2] is used in lieu of the WECC PSA in this appendix. This evaluation, along with a discussion on risk allocation associated with reliance on market purchases, is provided below. As part of this evaluation, PacifCorp also reviewed the status of resource adequacy assessments prepared for the Pacific Northwest by the Pacific Northwest Resource Adequacy Forum.

NERC 2018 Long Term Reliability Assessment

The NERC LTRA, issued December 20, 2018, was developed based on data collected from seven regional entities, including WECC. NERC staff independently assesses collected data to develop the LTRA for the North American Bulk-Power System. The NERC LTRA assessment identifies trends and risks over a 10-year (2019-2028) study period. The 2018 LTRA concludes that the WECC, inclusive of four U.S. and two Canadian subregions, are expected to have sufficient generation capacity to exceed reserve requirements during the assessment period.

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[1] Public Service Commission of Utah, PacifiCorp 2008 Integrated Resource Plan, Report and Order, Docket No. 09-2035-01, p. 30.

[2] North American Electric Reliability Corporation 2018 Long Term Reliability Assessment, www.nerc.com/pa/RAPA/ra/Pages/default.aspx

Resources
The NERC LTRA organizes resources into two broad categories its 10 year WECC region reliability assessment:

Anticipated Resources:
- Existing generating capacity able to serve peak hour load with firm transmission)
- Capacity that is either under construction or has received approved planning requirements
- Firm net capacity transfers with firm contracts
- Less confirmed retirements

Prospective Resources:
- Existing capacity that may be available to serve peak hour load, but lacks certainty associated with firm transmission, peak availability, etc.
- Capacity additions that have been requested but not received approval
- Nonfirm net capacity transfers and transfers without firm contracts, but assessed to have a high probability of future implementation
- Less unconfirmed retirements

Planning Reserve Margin
The LTRA defines "planning reserve margin" as Resources less Demand, divided by Demand, shown as a percentile.

$$\left(\frac{\text{Resources - Demand}}{\text{Demand}} \right) \%$$

Resources in this calculation are reduced by expected operating limits due to fuel availability, transmission and environmental limitations. Comparing the *anticipated* resource-based reserve margin to the reference planning margin yields one of three risk determinations:

- Adequate: Anticipated Reserve Margin exceeds the Reference Margin Level
- Marginal: Anticipated Reserve Margin exceeds the Reference Margin Level but there are low expectations in meeting all forecast parameters; alternately, Anticipated Reserve Margin is below the Reference Margin Level but sufficient Tier 2 resources are projected to cover the shortall.
- Inadequate: Anticipated Reserve Margin is significantly less than Reference Margin Level and load interruption is likely.

WECC Subregions
Table J.1 presents the WECC subregions used for the NERC LTRA. In the data that follows, the two subregions in Canada are not considered.

Table J.1 – WECC Subregion Descriptions

Designation	Subregion	Country	Peaking Assumption
CAMX	California to Mexico	United States	Summer
NWPP	Northwest Power Pool	United States	Summer
RMRG	Rocky Mountain Reserve Group	United States	Summer
SRSG	Southwest Reserve Sharing Group	United States	Summer
AB	Alberta	Canada	Winter
BC	British Columbia	Canada	Winter

LTRA WECC Assessment

Table J.2 through J.4 represent the three types of reserve margins relevant to the WECC planning reserve margin calculation. In each table, the figures do not include WECC subregions outside of the United States.

Table J.2 – NERC LTRA Anticipated Reserve Margin

Anticipated Reserve Margin											
U.S. WECC Subregion	Peaking Assumption	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
NWPP	Summer	27.6%	25.9%	24.6%	22.8%	23.8%	23.6%	23.7%	23.7%	26.5%	22.0%
RMRG	Summer	33.7%	26.6%	24.9%	23.5%	21.1%	19.6%	18.0%	16.8%	15.5%	14.0%
SRSG	Summer	30.8%	29.4%	27.5%	24.0%	20.9%	18.8%	16.6%	15.0%	12.0%	10.5%
CAMX	Summer	23.3%	30.6%	24.3%	23.6%	24.5%	20.7%	20.4%	20.9%	20.7%	20.3%

Table J.3 – NERC LTRA Prospective Reserve Margin

Prospective Reserve Margin											
U.S. WECC Subregion	Peaking Assumption	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
NWPP	Summer	27.8%	26.1%	24.8%	22.9%	24.0%	23.8%	23.8%	23.9%	26.6%	22.2%
RMRG	Summer	33.7%	26.6%	24.9%	23.5%	21.5%	20.0%	18.4%	17.1%	15.8%	14.4%
SRSG	Summer	33.6%	32.4%	30.9%	27.5%	24.3%	22.1%	19.9%	18.2%	15.1%	13.6%
CA/MX	Summer	32.5%	43.3%	42.1%	42.9%	43.9%	40.2%	39.8%	40.4%	40.2%	39.7%

Table J.4 – NERC LTRA Reference Reserve Margin

Reference Planning Reserve Margin											
U.S. WECC Subregion	Peaking Assumption	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
NWPP	Summer	19.7%	19.7%	19.5%	19.6%	19.6%	19.5%	19.4%	19.4%	19.3%	19.1%
RMRG	Summer	16.8%	16.8%	16.5%	16.4%	16.1%	15.9%	15.7%	15.6%	15.4%	15.3%
SRSG	Summer	15.1%	15.1%	14.9%	14.6%	14.5%	14.3%	14.2%	14.0%	13.9%	13.8%
CAMX	Summer	12.4%	12.3%	12.1%	12.1%	12.0%	12.1%	12.0%	12.0%	12.0%	12.0%

Using this data, a reserve margin position can be calculated to show project shortfalls, both with and without the inclusion of prospective resource additions. Table J.5 reports the reserve margin differential based on Anticipated resources, whereas Table J.6 reportes the reserve margin differential assuming Prospetive resources are achieved during the study period. In either table, a positive percentage represents a margin of overage where WECC is expected to have resources above the Reference Margin target; a negative number (highlighted for emphasis) represents a year where a given subregion is at risk of falling below the Referene Margin.

Based on this evaluation, potential shortfalls in Planning Reserve Margin are small and 8-9 years distant.

Table J.5 –Planning Reserve Margin Shortfalls by Subregion with Anticipated Resources

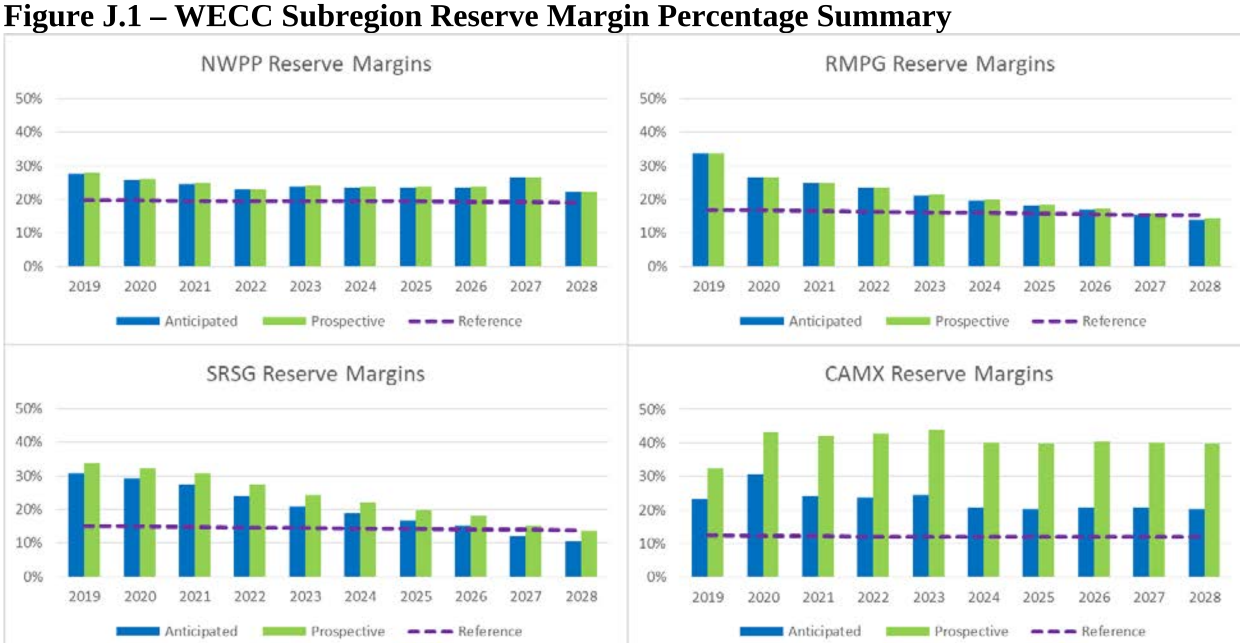
Shortfalls Assuming Anticipated Reserve Margin											
U.S. WECC Subregion	**Peaking Assumption**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
NWPP	Summer	7.9%	6.2%	5.1%	3.2%	4.3%	4.2%	4.3%	4.3%	7.2%	2.9%
RMRG	Summer	16.9%	9.8%	8.4%	7.1%	5.1%	3.7%	2.3%	1.2%	0.1%	**-1.2%**
SRSG	Summer	15.7%	14.3%	12.6%	9.4%	6.4%	4.5%	2.5%	1.0%	**-2.0%**	**-3.3%**
CA/MX	Summer	10.9%	18.3%	12.2%	11.6%	12.5%	8.6%	8.4%	8.9%	8.7%	8.2%

Table J.6 -- Planning Reserve Margin Shortfalls by Subregion with Prospective Resources

Shortfalls Assuming Prospective Reserve Margin											
U.S. WECC Subregion	**Peaking Assumption**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
NWPP	Summer	8.1%	6.4%	5.3%	3.3%	4.5%	4.3%	4.4%	4.5%	7.4%	3.1%
RMRG	Summer	16.9%	9.8%	8.4%	7.1%	5.4%	4.0%	2.6%	1.5%	0.4%	**-0.9%**
SRSG	Summer	18.5%	17.3%	16.0%	12.8%	9.8%	7.8%	5.7%	4.2%	1.2%	**-0.2%**
CA/MX	Summer	20.2%	31.0%	30.0%	30.8%	31.9%	28.1%	27.8%	28.4%	28.2%	27.7%

Figure J.1 graphically illustrates the relative margins for each subregion.

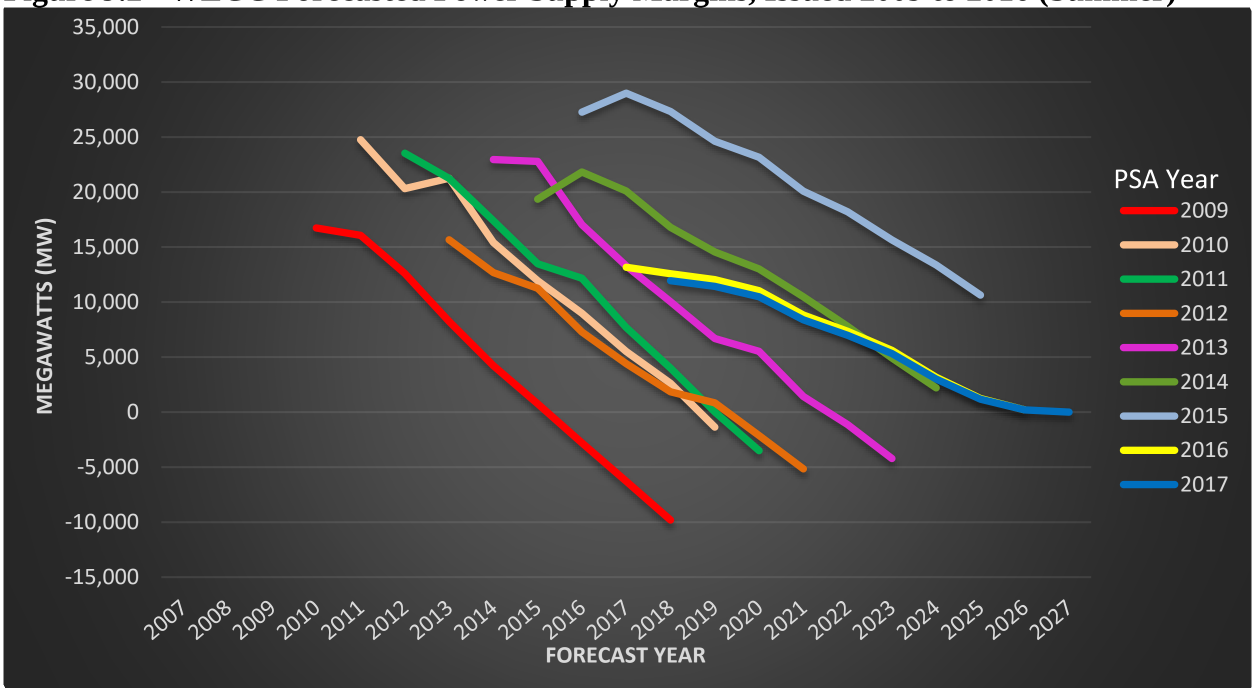
Figure J.1 – WECC Subregion Reserve Margin Percentage Summary



Prior Measures

PacifiCorp's past assessents, relying on caluclations incorporated into the WECC PSA, have reporting a rolling succession of power supply margins, where each year there is a downward trend in reserve margins extending into the future. Figure J.2 presents this trend based on past WECC PSA reports. The rolling nature of each year's outcome tells us that while declining reserve margins are important, in reality the trend line is rarely followed from one year to the next – rather the trend line tends to be pushed forward like a wave, where the future shortage is not allowed to materialize because of cumulative actions taken within the WECC in recognition of future need.

Figure J.2 - WECC Forecasted Power Supply Margins, Issued 2009 to 2016 (Summer)



Note: WECC Power Supply Assessments include Class 1 Planned Resources Only

Pacific Northwest Resource Adequacy Forum's Adequacy Assessment

As in the 2017 IRP, the Pacific Northwest Resource Adequacy Forum (later replaced by the Resource Adequacy Advisory Committee) issued resource adequacy standards in April 2008, which were subsequently adopted by the Northwest Power and Conservation Council. The standard calls for assessments three and five years out, conducted every year, and including only existing resources and planned resources that are already sited and licensed. The Resource Adequacy Advisory Committee issued a Pacific Northwest Power Supply Adequacy Assessment for 2021 on August 10, 2016[3]. This assessment concluded that power supply is expected to be adequate through 2021 primarily focused on winter season. Consistent with the prior year filing, the updated forecasts indicate Pacific Northwest energy and capacity surplus will become a deficit around years 2021 and 2022, primarily focused on winter and spring season.

[3] Pacific Northwest Power Supply Adequacy Assessment for 2021, at: www.nwcouncil.org/media/7150504/2021-adequacy-assessment-final-aug_9_2016.pdf

Customer versus Shareholder Risk Allocation

Market purchase costs are reflected in rates. Consequently, customers bear the price risk of PacifiCorp's reliance on a given level of market purchases. However, customers also bear the cost impact of the company's decision to build or acquire resources if those resources exceed market alternatives and result in an increase in rates. These offsetting risks stress the need for robust IRP analysis, efficient RFPs and ability to capture opportunistic procurement opportunities when they arise.

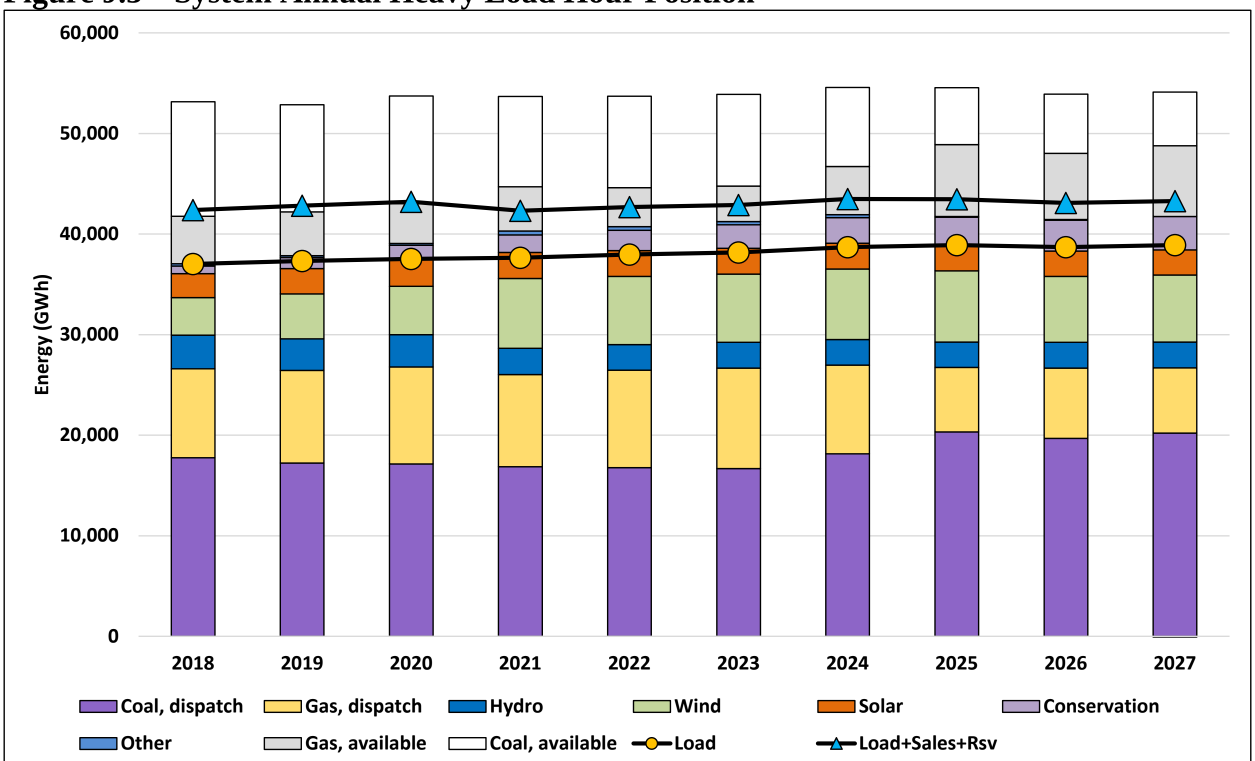
PacifiCorp's Energy Position

Figure J.3 to Figure J.5 illustrates PacifiCorp's energy position developed from the 2017 IRP Update, progress from annual to hourly views of system position:

- System Annual Heavy Load Hour (HLH) position
- July Monthly Heavy Load Hour position
- Sample July Peak Day Position

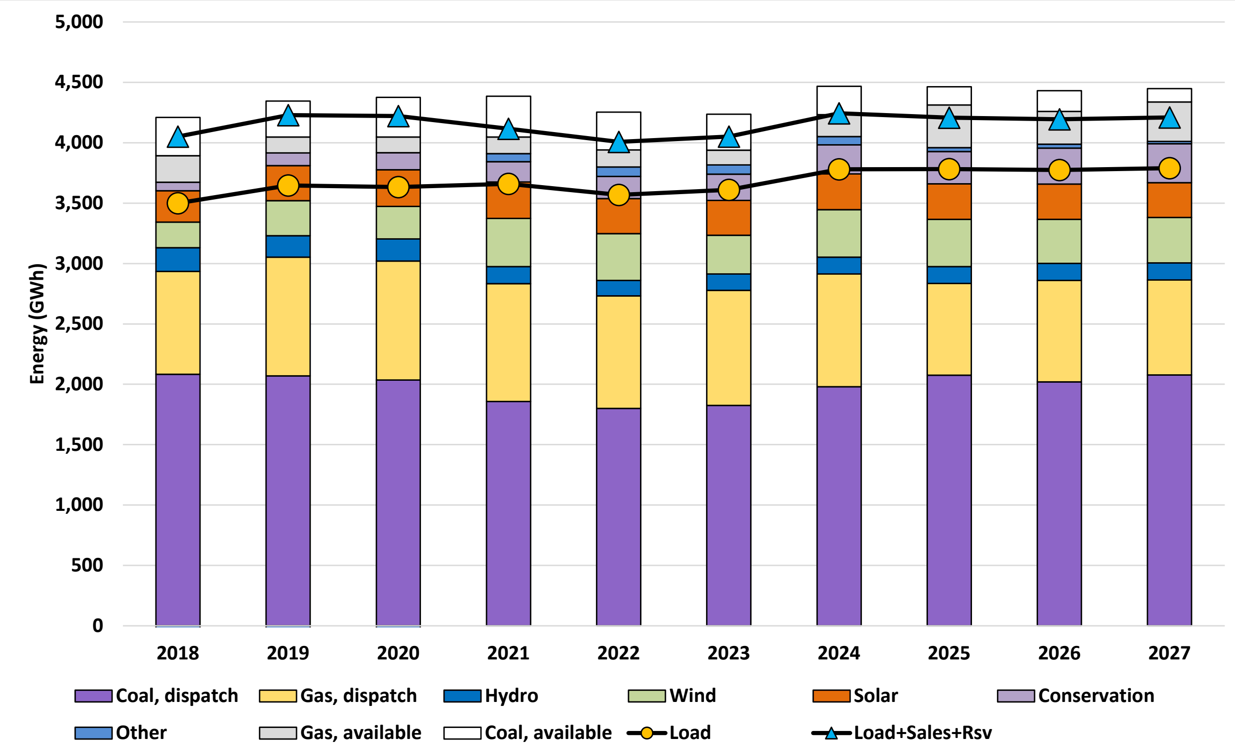
The energy position is compared to a load target, where load includes projected sales and reserve requirement. The gap between energy and load are met by market energy, however in many cases could have been met by other system resources.

Figure J.3 – System Annual Heavy Load Hour Position



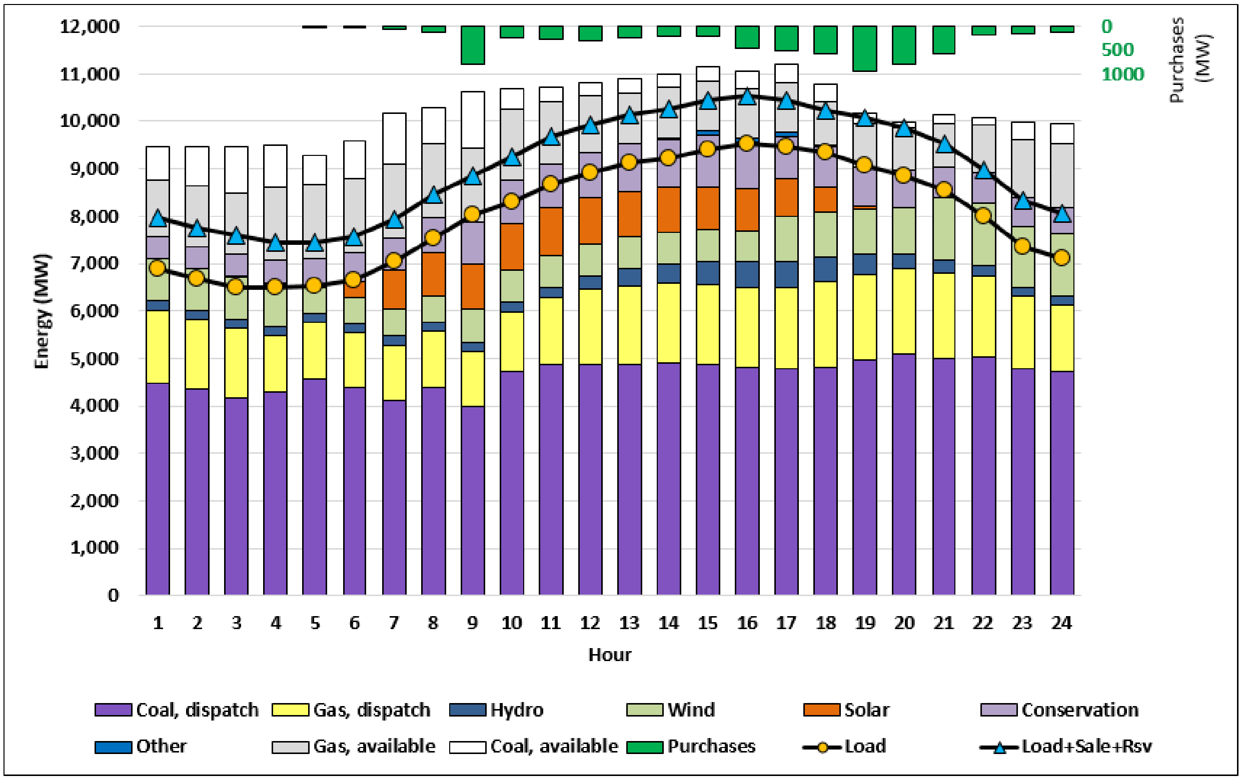
The annual position during heavy load hour with existing and planned resources, demonstrated system position without market purchases. The top blocks on each bar represents available undispatched capacity. The gap between energy position and load-plus-sales-plus-reserves could be met by market purchases, increased dispatch, reduction in sales, or a combination actions.

Figure J.4 – July Monthly HLH Position



The peak heavy load hour is the month of July, the system runs tighter compared to the annual basis. There is less undispatched thermal capacity available to meet load-plus-sales-plus-reserves than in the system annual HLH view. However, undispatched capacity still exceeds requirements on a monthly level. The gap between energy position and load-plus-sales-plus-reserves could be met by market purchases, increased dispatch, reduction in sales, or a combination of the three. The model makes this decision on the basis of economics and prevailing transmission constraints in a given hour.

Figure J.5 – Sample July Peak Day Position



The peak heavy load hour day runs tighter again compared to both annual and month view. The hourly variations and purchase drivers are captured in the sample day that cannot be seen in either annual or month peak HLH in Figure J.4 and Figure J.5. On an energy basis, the gap between energy and load-plus-sales is highest in hour 19 and 20. This is generally consistent with the highest solar shoulder hour, or twilight peak, where solar is fading and other generation is ramping up to meet the gap.

Market Purchases

As described in Volume I, Chapter 6 (Resource Options), PacifiCorp, other utilities, and power marketers who own and operate generation engage in market purchases and sales of electricity on an ongoing basis to balance the system and maximize the economic efficiency of power system operations. In addition to reflecting spot market purchase activity and existing long-term purchase contracts in the IRP portfolio analysis, PacifiCorp models front office transactions (FOT). FOTs are proxy resources, assumed to be firm, that represent procurement activity made on an on-going forward basis to help PacifiCorp cover short positions.

Solicitations for FOTs can be made years, quarters or months in advance, however, most transactions made to balance PacifiCorp’s system are made on a balance of month, day-ahead, hour-ahead, or intra-hour basis. Annual transactions can be available three or more years in advance. Seasonal transactions are typically delivered during quarters and can be available from one to three years or more in advance. The terms, points of delivery, and products will all vary by individual market point.

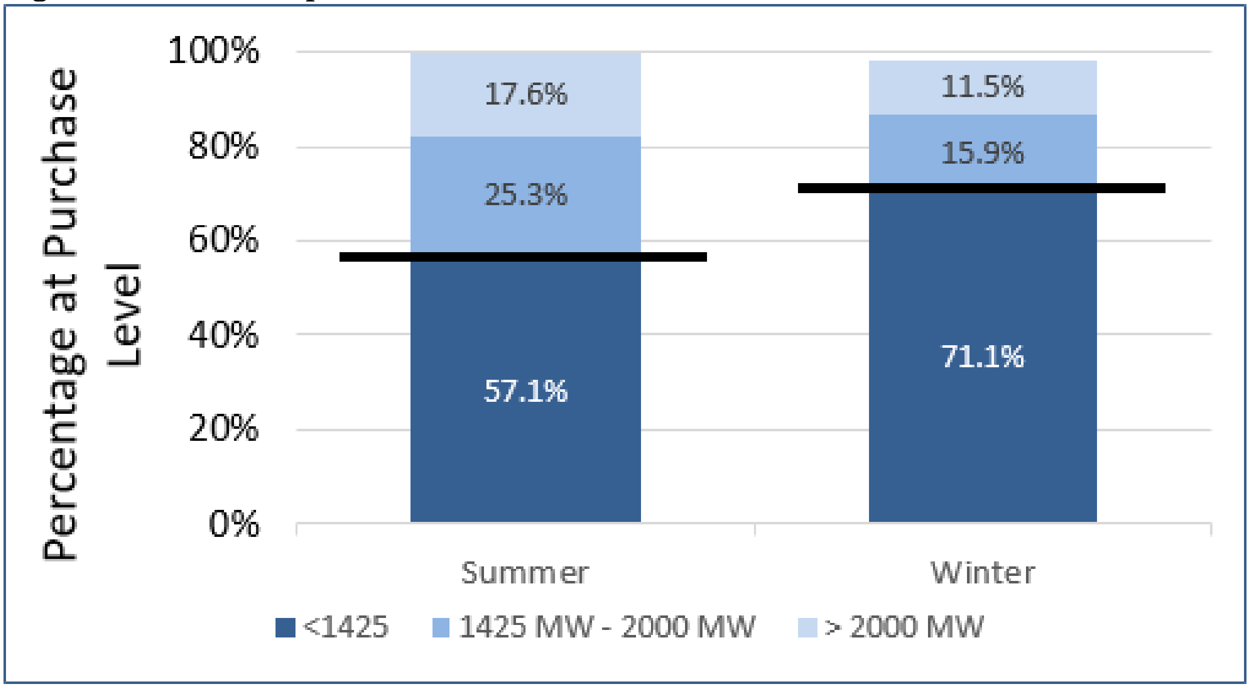
In developing FOT limits for the 2019 IRP, PacifiCorp reviewed the studies described in the sections above as part of its assessment of market reliance in addition to consideration of its active participation in wholesale power markets, its view of physical delivery constraints, and market liquidity and market depth.The 2019 IRP FOT limits is 1,425 MW, reduced from 1,575 MW in the 2017 IRP, due to a COB decrease of 150 MW, reflecting expired reservation and review of historical derates as shown in Table J.7.

Table J.7 – Maximum Available Front Office Transactions by Market Hub

Market Hub/Proxy FOT Product Type	Availability Limit (MW)			
	2019		2017	
	Summer (July)	Winter (December)	Summer (July)	Winter (December)
Mid-Columbia (Mid-C)				
Flat Annual or Heavy Load Hour	400	400	No Change	
Heavy Load Hour	375	375	No Change	
California Oregon Border (COB)				
Flat Annual or Heavy Load Hour	250	250	Reduced to 250 from 400	
Nevada Oregon Border (NOB)				
Heavy Load Hour	100	100	No Change	
Mona				
Heavy Load Hour	300	300	No Change	
Total	**1,425**	**1,425**	**1,575**	**1,575**

Figure J.6 shows PacifiCorp historical market purchases at three volume thresholds. The majority of actual purchases conform to IRP FOT planning limits. As PacifiCorp is a summer-peakingsystem higher volume purchases occurred more frequently in the summer than in the winter. This assessment showed that from 2009 to 2017, 27 percent of winter peak load hour purchases and 43 percent of summer peak load hour purchases were higher than the assumed IRP FOT planning limit of 1,425 MW.

Figure J.6 – PacifiCorp Market Purchases



Aligned with review of the regional studies discussed above, and the historical market purchases and transactions, PacifiCorp has selected a peak-season FOT limit of 1,425MW for the 2019 IRP. The company will continue to refine its assessments of market depth and liquidity for transactions, informed by actual operations, to quantify the risk associated with the level of market reliance. Several FOT studies are discussed and evaluated in Volume I, Chapter 7 (Modeling and Portfolio Evluation Approach) and Chapter 8 (Modeling and Portfolio Selection Results).

APPENDIX K – CAPACITY EXPANSION RESULTS DETAIL

Portfolio Case Build Tables

This section provides the System Optimizer portfolio build tables for each of the case scenarios as described in the portfolio development section of Chapter 7. There are thirty Initial Development cases, ten C-cases, seven CP-cases, six front office transactions (FOT) risk assessment cases, six Gateway & No Gas cases, eight sensitivity cases, three re-bundled demand-side management (DSM) cases, and five P-70 cases.

Table K.1 – Initial Development Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-01	Coal Study Benchmark	-	24,407	Base	Base	Med Gas, Med CO_2	Base	Segment F	2033
P-02	Regional Haze References/ Regional Haze Base	-	23,191	Base	Base	Med Gas, Med CO_2	Base	Segment F	2031
P-03	Regional Haze Intertemporal/ Regional Haze Base Intertemporal	-	21,951	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-04	Coal Study C-42/ Coal Study Base	-	21,720	Base	Base	Med Gas, Med CO_2	Base	Segment F	2028
P-06	Transition Case C-44a/Alternative Base	-	21,980	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-07	Transition Case C-44b	P-06	21,905	Base	Base	Med Gas, Med CO_2	Base	Segment F	2029
P-08	Naughton 3 Small GC (P-03 basis)	P-03	21,979	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-09	Naughton 3 Large GC (P-03 basis)	P-03	21,885	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-10	Economic Retirement 1*	P-04	21,723	Base	Base	Med Gas, Med CO_2	Base	Segment F	2029
P-11	Cholla 4 Retirement 2020	P-09	21,873	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-12	Economic Retirement 2*	P-06	21,854	Base	Base	Med Gas, Med CO_2	Base	Segment F	2029
P-13	Bridger 1&2 SCR	P-11	22,346	Base	Base	Med Gas, Med CO_2	Base	Segment F	2032
P-14	Naughton and Jim Bridger Retirement 2022 (P11 Basis)	P-09	21,696	Base	Base	Med Gas, Med CO_2	Base	Segment F	2028
P-15	Retire All Coal by 2030	P28	22,132	Base	Base	Med Gas, Med CO_2	Base	Segment F	2027
P-16	No CO_2	P04	18,634	Base	Base	Med Gas, No CO_2	Base	None	2028
P-17	High CO_2	P-15	22,070	Base	Base	Med Gas, High CO_2	Base	Segment F	2028
P-18	Social Cost of Carbon	P-15	30,022	Base	Base	Low Gas, SCC CO_2	Base	Segment F	2028
P-19	Low Gas	P-04	20,882	Base	Base	Low Gas, Med CO_2	Base	Segment F	2023
P-20	High Gas	P-07	22,746	Base	Base	High Gas, Med CO_2	Base	Segment F	2029
P-28	Early Coalstrip Retirement	P-11	21,805	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-30	Naughton 1 & 2 Retirement 2022 (P11 Basis)	P-11	21,708	Base	Base	Med Gas, Med CO_2	Base	Segment F	2029
P-31	Naughton 1 & 2 Retirement 2025 (P11 Basis)	P-11	21,652	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-32	Naughton 1 & 2 Retirement 2025 (P07 Basis-No Gadsby 2020)	P-07	21,763	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

P-33	Oregon Study (P11 – JB1 & 2 Retire 2022)	P-11	21,895	Base	Base	Med Gas, Med CO_2	Base	Segment F	2030
P-34	Oregon Study (P11 – JB1 & 2 Retire 2022, Gadsby Retire)	P-11	21,949	Base	Base	Med Gas, Med CO_2	Base	Segment F	2028
P-35	Jim Bridger 3 & 4 Retiring 2022 (P11 with JB3 and 4 retiring 2022)	P-11	21,732	Base	Base	Med Gas, Med CO_2	Base	Segment F	2029
P-45	P31 with JB 1 & 2 Retirement	P-31	21,593	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46	P31 with JB 2 & 4 Retirement	P-31	21,419	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53	P-31 with JB1-2 Retiring 2025, JB3 Retiring 2028, and JB4 Retiring 2032	P-31	21,438	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-54	P-31 with JB2 Retiring 2024	P-31	21,708	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.2 – C-Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-31C	P-11 with Naughton 1-2 Accelerated to 2025	P-31	21,639	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-36C	Economic Retirement 2* with Gateway Segment F (P12 with Gateway Segment F)	P-36	21,553	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-45C	P31 with JB 1 & 2 Retirement	P-45	21,431	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46C	P31 with JB 2 & 4 Retirement	P-46	21,422	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46J23C	Jim Bridger 3 & 4 Retirement 2023	P-46	21,385	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-47C	P45 GWS 2025-2028	P-47	21,467	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-48C	P45 and GWS 2023	P-48	21,482	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53C	P-31 with JB1-2 Retiring 2025, JB3 Retiring 2028, and JB4 Retiring 2032	P-53	21,450	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53J23C	Jim Bridger 1 & 2 Retirement 2023	P-53	21,394	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-54C	P-31 with JB2 Retiring 2024	P-54	21,591	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.3 – CP-Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-36CP	Economic Retirement 2* with Gateway Segment F (P12 with Gateway Segment F)	P-36	21,553	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-45CP	P31 with JB 1 & 2 Retirement	P-45	21,480	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46CP	P31 with JB 2 & 4 Retirement	P-46	21,460	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46J23CP	P46C with JB3-4 Retiring 2023	P-46	21,402	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-47CP	P45 GWS 2025-2028	P-47	21,469	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-48CP	P45 and GWS 2023	P-48	21,457	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53CP	P-31 with JB1-2 Retiring 2025, JB3 Retiring 2028, and JB4 Retiring 2032	P-53	21,479	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.4 – Preferred Portfolio Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-45CNW	P45CP No DJ Wind	P-45	21,624	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.5 – FOT Risk Assessment Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-45CP-FOT	P31 with JB 1 & 2 Retirement	P-45CP	21,977	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46CP-FOT	P31 with JB 2 & 4 Retirement	P-46CP	21,960	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-47CP-FOT	P45 GWS 2025-2028	P-47CP	21,942	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-48CP-FOT	P45 and GWS 2023	P-48CP	21,936	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53CP-FOT	P-31 with JB1-2 Retiring 2025, JB3 Retiring 2028, and JB4 Retiring 2032	P-53CP	21,979	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-45CNW-FOT	P45CP No DJ Wind	P-45CP	22,154	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.6 – Gateway & No Gas Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-29	P-45CNW, No New Gas Option	P-45CNW	21,798	Base	Base	Med Gas, Med CO2	Base	Segment F	-
P-29 PS	P-29 with Pumped Storage	P-29	21,970	Base	Base	Med Gas, Med CO2	Base	Segment F	-

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-22	P-45CNW, Energy Gateway Segment D.3	P-45CNW	21,886	Base	Base	Med Gas, Med CO2	Base	Add D.3	2030
P-23	P-45CNW, Energy Gateway Segment D.1 and F	P-45CNW	22,151	Base	Base	Med Gas, Med CO2	Base	Add Seg. F and D.1	2026
P-25	P-45CNW, Energy Gateway Segment D.3, E and H	P-45CNW	22,273	Base	Base	Med Gas, Med CO2	Base	Add Sub-seg. D.3 & Seg. E & H	2028
P-26	P-45CNW, Energy Gateway Segment H	P-45CNW	21,579	Base	Base	Med Gas, Med CO2	Base	Add Seg. H	2028

Table K.7 – Sensitivity Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
S-01	Low Load	P45CNW	20,617	Low	Base	Base	Base	Base	2030
S-02	High Load	P45CNW	22,602	High	Base	Base	Base	Base	2026
S-03	1 in 20 Load Growth	P45CNW	21,634	1 in 20	Base	Base	Base	Base	2026
S-04	Low Private Generation	P45CNW	21,758	Base	Low	Base	Base	Base	2029
S-05	High Private Generation	P45CNW	21,371	Base	High	Base	Base	Base	2030
S-06	Business Plan	P45CNW	21,695	Base	Base	Base	Base	Base	2028
S-07	No Customer Preference	P45CNW	21,609	Base	Base	Base	Base	Base	2030
S-08	All Customer Preference	P45CNW	21,636	Base	Base	Base	Base	Base	2030

Table K.8 – DSM Bundled Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-45DP	P31 with JB 1 & 2 Retirement	P-45	21,536	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-46DP	P31 with JB 2 & 4 Retirement	P-46	21,458	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-53DP	P-31 with JB1-2 Retiring 2025, JB3 Retiring 2028, and JB4 Retiring 2032	P-53	21,478	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.9 – P70 Case Study Reference Guide

Case	Description	Parent Case	SO PVRR ($m)	Load	Private Gen	CO_2 Policy	FOTs	Gateway	1st Year of New Thermal
P-70	P-01 with JB 1 2022 RET	P-01	22,326	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-71	P-01 with NTN 1 2022 RET	P-01	22,482	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-72	P-01 with Hayden 1 2022 RET	P-01	22,432	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-73	P-01 with Hunter 1 RET	P-01	22,455	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026
P-74	P-01 with Craig 1 2022 RET	P-01	22,447	Base	Base	Med Gas, Med CO_2	Base	Segment F	2026

Table K.10 – East Side Resource Name and Description

Resource List	Detailed Description
CCCT - DJohns - J 1x1	Combine Cycle Combustion Turbine J-Machine 1x1 with Duct Firing - Dave Johnston Brownfield
CCCT - Utah-S - J 1x1	Combine Cycle Combustion Turbine J-Machine 1x1 with Duct Firing - Utah South
CCCT - Utah-S - G 1x1	Combine Cycle Combustion Turbine G-Machine 1x1 with Duct Firing - Utah South
IC Aero UN	Inter-cooled Simple Cycle Combustion Turbine Aero - Utah North
SCCT Aero UN	Simple Cycle Combustion Turbine Aero - Utah North
SCCT Frame DJ	Simple Cycle Combustion Turbine Frame - Dave Johnston Brownfield
SCCT Frame UTN	Simple Cycle Combustion Turbine Frame - Utah North
SCCT Frame UTS	Simple Cycle Combustion Turbine Frame - Utah North
Battery Storage - Utah S	Battery Storage - Utah South
Battery Storage - WYSW	Battery Storage - Wyoming Southwest
Battery Storage - Idaho	Battery Storage - Idaho
CAES - East	Compressed Air Energy Storage
Wind, Djohnston	Wind, Wyoming After DJ Retirement
Wind, GO	Wind, Goshen Idaho
Wind, UT	Wind, Utah
Wind, WYAE	Wind, Wyoming Aeolus
Wind+Storage, GO	Wind + Battery, Goshen Idaho
Wind+Storage, UT	Wind + Battery, Utah
Wind+Storage, WYAE	Wind + Battery, Wyoming Aeolus
Utility Solar - PV - Utah-S	Utility Solar - Photovoltaic - Utah South
Utility Solar - PV - WYSW	Utility Solar - Photovoltaic - Wyoming Southwest
Utility Solar - PV - Utah-N	Utility Solar - Photovoltaic - Utah North
Utility Solar+Storage - PV - Utah-S	Utility Solar + Battery - Photovoltaic - Utah South
Utility Solar+Storage - PV - GO	Utility Solar + Battery - Photovoltaic - Goshen Idaho
Utility Solar+Storage - PV - Huntington	Utility Solar + Battery - Photovoltaic - Huntington Brownfield
Utility Solar+Storage - PV - Utah-N	Utility Solar + Battery - Photovoltaic - Utah North
Demand Response, ID-3rd Party Contracts	Curtailment - Idaho
Demand Response, ID-Smart APPl	Direct Load Control Smart Appliances - Idaho
Demand Response, ID-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Idaho
Demand Response, ID-Thermostat	Direct Load Control-Smart Thermostat-Residential - Idaho
Demand Response, ID-Space HT	Direct Load Control-Space Heating-Residential, Commercial & Industrial - Idaho

Demand Response, ID-Irrigate	Direct Load Control-Irrigation -Idaho
Demand Response, UT-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Utah
Demand Response, UT-3rd Party Contracts	Curtailment - Utah
Demand Response, UT-Elec Vehicle	Direct Load Control-Electric Vehicle Charging -Utah
Demand Response, UT-Smart APPl	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Utah
Demand Response, UT-Space HT	Direct Load Control-Space Heating-Residential, Commercial & Industrial - Utah
Demand Response, UT-Thermostat	Direct Load Control-Smart Thermostat-Residential - Utah
Demand Response, UT-ICE storage	Ice Energy Storage - Utah
Demand Response, UT-Irrigate	Direct Load Control-Irrigation -Utah
Demand Response, WY-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Wyoming
Demand Response, WY-Irrigate	Direct Load Control-Irrigation -Wyoming
Demand Response, WY-3rd Party Contracts	Curtailment - Wyoming
Demand Response, WY-Ancillary Services	Ancillary Services - Wyoming
Demand Response, WY-ICE storage	Ice Energy Storage - Wyoming
Demand Response, WY-Room AC	Direct Load Control-Air Conditioning - Wyoming
Demand Response, WY-Smart APPl	Direct Load Control Smart Appliances - Wyoming
Demand Response, WY-Thermostat	Direct Load Control-Smart Thermostat-Residential - Wyoming
Demand Response, WY-Space HT	Direct Load Control-Space Heating-Residential, Commercial & Industrial - Wyoming
Energy Efficiency, ID	Energy Efficiency - Idaho
Energy Efficiency, UT	Energy Efficiency - Utah
Energy Efficiency, WY	Energy Efficiency - Wyoming
FOT Mona - SMR	Front Office Transaction - Summer HLH Product - Mona

Table K.11 – West-Side Resource Name and Description

Resource List	Detailed Description
CCCT - SOregonCal - J 1x1	Combine Cycle Combustion Turbine J-Machine 1x1 with Duct Firing - Southern Oregon
CCCT - WillamValcc - G 1x1	Combine Cycle Combustion Turbine G-Machine 1x1 with Duct Firing - Willamette Valley, Oregon
CCCT - WillamValcc - J 1x1	Combine Cycle Combustion Turbine J-Machine 1x1 with Duct Firing - Willamette Valley, Oregon
CCCT - Yakima - G 1x1	Combine Cycle Combustion Turbine G-Machine 1x1 with Duct Firing - Yakima, Washington
IC Aero PO	Inter-cooled Simple Cycle Combustion Turbine Aero - Portland-North Coast, Oregon
IC Aero SO	Inter-cooled Simple Cycle Combustion Turbine Aero - Southern Oregon
IC Aero WV	Inter-cooled Simple Cycle Combustion Turbine Aero - Willamette Valley, Oregon
IC Aero WW	Inter-cooled Simple Cycle Combustion Turbine Aero - Walla Walla, Washington
SCCT Frame SO	Simple Cycle Combustion Turbine Frame - Southern Oregon
Battery Storage - S Oregon	Battery Storage – West
Battery Storage - Wilamette Valley	Battery Storage – West
Battery Storage - Portland NC	Battery Storage – West
Battery Storage - Walla Walla	Battery Storage – West
Battery Storage - Yakima	Battery Storage – West
Wind, SO	Wind, Southern Oregon
Wind, YK	Wind, Yakima, Washington
Wind+Storage, SO	Wind + Battery, Southern Oregon
Wind+Storage, YK	Wind + Battery, Yakima, Washington
Utility Solar - PV - S-Oregon	Utility Solar - Photovoltaic - Southern Oregon
Utility Solar - PV - Yakima	Utility Solar - Photovoltaic - Yakima, Washington
Utility Solar+Storage - PV - Jbridger	Utility Solar + Battery - Photovoltaic - Bridger Plant
Utility Solar+Storage - PV - S-Oregon	Utility Solar + Battery- Photovoltaic - Southern Oregon
Utility Solar+Storage - PV - Yakima	Utility Solar + Battery- Photovoltaic - Yakima, Washington
Geothermal, Greenfield - West	Geothermal, Greenfield - West
Demand Response, CA-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - California
Demand Response, CA-3rd Party Contracts	Curtailment - California
Demand Response, CA-Irrigate	Direct Load Control-Irrigation - California
Demand Response, CA-ICE storage	Ice Energy Storage - California
Demand Response, CA-Thermostat	Direct Load Control-Smart Thermostat-Residential - California
Demand Response, CA-Space HT	Direct Load Control-Space Heating-Residential, Commercial & Industrial - California
Demand Response, OR-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Oregon

Demand Response, OR-3rd Party Contracts	Curtailment - Oregon
Demand Response, OR-Irrigate	Direct Load Control-Irrigation -Oregon
Demand Response, OR-Thermostat	Direct Load Control-Smart Thermostat-Residential - Oregon
Demand Response, OR-Ancillary Services	Ancillary Services - Oregon
Demand Response, OR-Elec Vehicle	Direct Load Control-Electric Vehicle Charging - Oregon
Demand Response, OR-ICE storage	Ice Energy Storage - Oregon
Demand Response, OR-Thermostat	Direct Load Control-Smart Thermostat-Residential - Oregon
Demand Response, OR-Room AC	Direct Load Control-Air Conditioning - Oregon
Demand Response, OR-Smart APPl	Direct Load Control Smart Appliances - Oregon
Demand Response, WA-Cool/WH	Direct Load Control-Cooling & Water Heating-Residential, Commercial & Industrial - Washington
Demand Response, WA-3rd Party Contracts	Curtailment - Washington
Demand Response, WA-Irrigate	Direct Load Control-Irrigation -Washington
Demand Response, WA-Thermostat	Direct Load Control-Smart Thermostat-Residential - Washington
Demand Response, WA-Ancillary Services	Ancillary Services - Washington
Demand Response, WA-ICE storage	Ice Energy Storage - Washington
Demand Response, WA-Room AC	Direct Load Control-Air Conditioning - Washington
Demand Response, WA-Smart APPl	Direct Load Control Smart Appliances - Washington
Energy Efficiency, CA	Energy Efficiency - California
Energy Efficiency, OR	Energy Efficiency - Oregon
Energy Efficiency, WA	Energy Efficiency - Washington
FOT COB - SMR	Front Office Transaction - Summer HLH Product - California Oregon Border
FOT COB - WTR	Front Office Transaction - Winter HLH Product - California Oregon Border
FOT MidColumbia - SMR	Front Office Transaction - Summer HLH Product - Mid Columbia
FOT MidColumbia - SMR - 2	Front Office Transaction - Summer HLH Product - Mid Columbia
FOT MidColumbia - WTR	Front Office Transaction - Winter HLH Product - Mid Columbia
FOT MidColumbia - WTR2	Front Office Transaction - Winter HLH Product - Mid Columbia
FOT NOB - SMR	Front Office Transaction - Summer HLH Product - Nevada Oregon Border
FOT NOB - WTR	Front Office Transaction - Winter HLH Product - Nevada Oregon Border

Table K.12 - Initial Cases, Detailed Capacity Expansion Portfolios

		Capacity (MW)																				Resource Totals 1/	
	P-01	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	185	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	555	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	328	-	-	-	-	400	-	-	300	1,028
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	172	-	-	-	-	-	-	-	-	172
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	48	37	3	726	-	-	-	-	-	-	-	-	85	813
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	87
	Total Solar	-	-	146	59	67	215	-	-	48	37	3	726	500	-	-	-	-	400	-	909	572	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	-	-	6.8	130.0	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	67	69	75	68	67	68	65	62	54	53	50	50	49	36	34	26	24	26	667	1,069
	Energy Efficiency, WY	10	12	13	14	17	16	17	18	18	18	15	14	13	12	11	9	8	7	5	5	152	252
	Energy Efficiency Total	74	85	86	90	100	92	91	93	90	87	76	74	69	67	65	49	46	37	32	34	888	1,439
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	525.0	-	-	-	-	-	-	-	-	-	495	525	1,020
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	-	-	-	-	-	300.0	90.0	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	255.0	165.0	-	420.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	-	277	300	289	248	250	88	300	300	300	-	118
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	15
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	-	1,408
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	-	575	-	-	-	-	430	1,408	905	3,318
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, OR-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.4	-	-	61.4
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	7.5	-	-	-	189.4	2.0	-	200.7
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	39	42	46	34	36	35	39	37	33	31	30	29	26	26	26	26	25	24	383	657
	Energy Efficiency, WA	11	10	11	11	12	11	11	11	11	10	9	9	8	8	8	6	6	5	4	4	110	177
	Energy Efficiency Total	52	49	51	55	60	46	49	48	51	49	44	41	40	38	35	33	33	32	30	29	510	865
	Battery Storage - S-Oregon	-	-	-	-	15	-	-	-	-	135	-	-	-	-	-	-	-	-	-	75	150	225
	Battery Storage - Willamette Valley	-	-	-	-	75	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	90	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	45	120	165
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	621	684	716	218	279	255	313	1,069	1,014	1,075	1,075	1,075	1,075	1,075	1,014	1,038	1,048	1,075	611	834
	FOT West - Winter	151	131	269	304	314	247	254	257	307	321	311	341	307	374	314	234	212	211	-	-	256	243
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(1)	(62)	-	(148)	(3)	(764)	(93)	(506)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	134	299	203	431	3,178	149	148	190	1,117	750	1,941	609	689	608	82	95	469	2,091	3,483		
	Annual Additions, Short Term Resources	1,149	1,090	890	987	1,031	465	532	513	620	1,391	1,324	1,693	1,682	1,738	1,636	1,559	1,614	1,549	1,348	1,375		
	Total Annual Additions	1,279	1,224	1,189	1,191	1,462	3,643	681	661	810	2,508	2,074	3,634	2,290	2,427	2,244	1,641	1,709	2,018	3,439	4,858		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-02	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	185	-	370	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	185	-	370	-	-	-	370	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	294	326	-	-	-	-	-	-	-	-	-	294	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,091	-	-	-	-	-	-	-	-	-	1,091
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	294	326	1,091	-	-	-	-	-	-	-	-	2,214	3,631
	Utility Solar - PV - Utah-S	-	-	146	59	67	16	-	-	-	-	-	-	-	-	-	-	-	400	-	-	288	688
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	500	-	-	-	12	512
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	9
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	3	713	-	-	-	-	-	-	-	-	-	716
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	184	184
	Total Solar	-	-	146	59	67	312	-	-	-	-	3	722	-	-	-	-	500	400	-	909	584	3,118
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	-	-	8.3	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	124.9	-	6.8	5.2	-	7.0	-	165.4	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	65	54	53	52	50	49	36	32	26	25	26	662	1,065
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	149	249
	Energy Efficiency Total	74	83	85	88	91	92	92	94	91	90	76	74	71	68	65	49	45	37	33	35	879	1,431
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	285.0	-	-	-	-	-	-	-	-	-	495	285	780
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	285.0	105.0	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105.0	225.0	-	330.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	64	56	300	265	236	282	284	300	300	300	300	6	134
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	182	-	-	-	-	-	-	-	500	682
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,056	-	1,056
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	293	-	-	-	-	-	-	-	293
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	182	393	-	-	-	-	430	1,056	905	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	10.0	4.1	-	-	-	114.0	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	39	39	43	41	39	37	33	31	30	29	26	27	26	26	25	24	392	667
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	110	178
	Energy Efficiency Total	52	49	48	55	53	53	56	54	52	49	44	41	40	38	35	34	33	32	30	29	520	878
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	345	-	-	-	-	-	-	-	-	-	-	345	345
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135	135
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135	135
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	585	653	692	208	203	214	288	1,075	1,075	1,075	1,075	1,075	1,075	1,075	943	878	1,052	1,075	587	814
	FOT West - Winter	151	131	268	303	314	246	252	254	303	435	426	385	453	374	324	248	265	251	-	-	266	269
	Existing Plant Retirements/Conversions	-	(308)	(186)	(224)	(1)	(62)	-	(535)	(85)	(912)	(93)	(506)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	132	294	201	221	3,282	156	155	142	1,648	456	2,062	478	516	479	83	585	469	1,690	3,055		
	Annual Additions, Short Term Resources	1,149	1,090	853	957	1,006	453	455	468	591	1,574	1,556	1,760	1,793	1,685	1,681	1,607	1,508	1,429	1,352	1,375		
	Total Annual Additions	1,279	1,222	1,148	1,158	1,227	3,735	612	623	733	3,222	2,012	3,822	2,272	2,201	2,161	1,691	2,093	1,898	3,042	4,430		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-03	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	185	-	185	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	185	185	-	555	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,061	-	-	-	-	-	-	-	-	-	1,061
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,061	-	-	-	-	-	-	-	-	1,920	3,601
	Utility Solar - PV - Utah-S	-	-	146	59	67	20	-	-	-	-	-	-	-	-	-	-	-	400	-	-	292	692
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	8	-	-	-	-	-	500	-	-	-	-	-	-	-	-	8	508
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	-	-	39
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	897	12	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	-	720	-	-	-	-	-	-	-	-	37	756
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	144	144
	Total Solar	-	-	146	59	67	272	-	-	-	37	-	1,259	-	-	-	-	-	400	897	12	580	3,149
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	123.3	8.2	-	12.0	22.3	-	15.3	-	134.8	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	66	67	68	65	62	54	54	52	50	49	36	32	26	23	24	657	1,057
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	19	18	15	14	13	12	11	9	8	7	5	5	147	248
	Energy Efficiency Total	74	83	85	88	91	89	91	93	91	87	76	75	72	68	66	49	45	36	31	32	872	1,421
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	435.0	-	-	-	-	-	-	-	-	135	615	435	1,185
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	285.0	-	-	-	-	-	-	-	-	-	-	285.0	285.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	540.0	15.0	-	555.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	78	258	300	270	281	267	270	300	300	300	300	8	146
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	233
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	455	-	-	676
	Utility Solar - PV - S-Oregon	-	-	-	-	-	421	-	-	-	-	-	-	-	375	-	-	-	-	-	-	421	796
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	-	-	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	79	-	-	-	-	-	-	-	100	-	-	-	-	-	-	79	179
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	197	-	-	197
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	100	475	359	-	-	-	197	702	905	3,092
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	18.6	-	-	-	41.8	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	41	39	39	43	41	39	37	33	31	30	29	26	26	24	25	22	22	392	657
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	10	9	9	8	8	8	6	6	5	4	4	108	174
	Energy Efficiency Total	52	48	48	53	53	52	56	54	52	49	44	42	40	38	35	33	32	30	27	27	517	864
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15	15
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	165	-	-	-	-	-	-	-	-	-	-	165	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	581	640	673	179	175	181	254	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,044	979	1,075	1,075	572	817
	FOT West - Winter	151	131	268	303	314	225	232	233	283	415	405	369	421	426	129	51	68	67	-	-	256	225
	Existing Plant Retirements/Conversions	-	(308)	(186)	(224)	(1)	(62)	-	(535)	(85)	(912)	(444)	(506)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	294	199	221	3,238	155	154	142	1,298	1,236	2,629	396	593	1,300	82	92	467	2,493	1,424		
	Annual Additions, Short Term Resources	1,149	1,090	850	943	987	405	407	414	537	1,567	1,738	1,744	1,766	1,782	1,471	1,395	1,412	1,347	1,375	1,375		
	Total Annual Additions	1,279	1,222	1,144	1,143	1,207	3,643	562	568	679	2,865	2,975	4,373	2,162	2,375	2,771	1,477	1,503	1,813	3,868	2,799		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-04	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	232	388	-	-	-	-	-	-	-	-	-	232	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,088	-	-	-	-	-	-	-	-	-	1,088
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	232	388	1,088	-	-	-	-	-	-	-	-	2,152	3,628
	Utility Solar - PV - Utah-S	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	22	422
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	278	-	-	-	-	-	-	-	452	48	-	-	-	-	-	-	278	778
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	12
	Utility Solar - PV - Naughton	-	-	-	-	-	637	-	-	-	-	-	-	-	-	-	-	-	-	-	-	637	637
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	897	12	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	94	-	-	-	-	-	-	-	-	-	94
	Utility Solar+Storage - PV - Utah-N	-	-	136	64	7	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	806	806
	Total Solar	-	-	157	64	285	1,337	-	-	-	-	-	94	452	60	-	-	-	400	897	12	1,843	3,758
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	79.4	-	-	-	-	37.3	-	-	8.2	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	37.3
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	89.2	-	8.2	7.2	-	37.3	6.7	-	8.2	6.8	27.4	-	15.3	-	132.7	21.6	161.2	380.1
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	69	73	75	66	67	66	65	62	54	54	52	50	49	36	32	26	23	26	668	1,070
	Energy Efficiency, WY	10	12	13	15	18	16	16	18	19	18	15	14	13	12	11	9	8	7	5	5	154	254
	Energy Efficiency Total	74	85	88	95	100	89	91	91	91	87	76	74	71	67	65	49	45	36	31	35	891	1,441
	Battery Storage - Utah-N	-	-	-	-	240.0	-	-	-	-	60.0	-	-	-	-	-	-	-	-	240	435	300	975
	Battery Storage - WYSW	-	-	-	-	210.0	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	285.0	210.0	510.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270.0	120.0	-	390.0
	FOT East - Summer	-	-	-	-	295	-	-	-	-	300	282	293	245	292	293	295	300	300	300	300	60	175
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500	500
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	713	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	475	-	-	-	-	-	-	475
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	713	905	-	-	-	-	-	-	100	-	475	-	-	-	430	702	1,618	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8	-	-	-	-	-	-	26.8
	Demand Response, OR-Irrigate	-	-	-	-	9.2	-	-	-	-	4.1	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	11.3	-	-	-	-	-	-	-	-	-	5.3	-	-	-	-	-	11.3	16.6
	Demand Response Total	-	-	-	-	25.7	-	-	-	-	24.0	-	-	-	-	42.0	-	3.1	-	32.5	-	49.7	127.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	49	47	39	43	41	39	37	33	31	30	29	26	26	26	26	25	24	419	693
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	56	56	63	61	52	56	54	52	49	44	42	40	38	35	34	33	32	30	29	550	907
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	60	-	510
	Battery Storage - Willamette Valley	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	60	120
	Battery Storage - Portland NC	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	105	75	30	210
	Battery Storage - Walla Walla	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	195	375
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	958	559	589	1,075	903	995	969	1,027	1,075	1,075	1,075	1,075	1,075	1,075	1,075	953	889	1,075	1,075	915	980
	FOT West - Winter	151	131	265	299	309	274	280	281	328	340	361	360	385	336	29	-	-	-	-	-	266	206
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(1,065)	(62)	-	(148)	(3)	(764)	(93)	(149)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	317	222	2,114	4,304	155	152	142	860	514	1,297	672	172	866	83	318	469	2,633	2,014		
	Annual Additions, Short Term Resources	1,149	1,089	824	888	1,680	1,176	1,275	1,251	1,355	1,715	1,717	1,728	1,706	1,703	1,397	1,370	1,253	1,189	1,375	1,375		
	Total Annual Additions	1,279	1,230	1,140	1,110	3,794	5,480	1,430	1,403	1,497	2,575	2,232	3,025	2,378	1,875	2,263	1,453	1,570	1,658	4,008	3,389		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-05	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	620	-	1,100	-	-	-	-	-	-	-	-	2,540	3,640
	Utility Solar - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	-	400	-	-	-	429
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	300	-	-	-	-	-	-	-	-	471	-	-	-	-	-	-	300	771
	Utility Solar - PV - Naughton	-	-	-	-	425	212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	637	637
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	19
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	890	-	-	890
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	77	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	802	912	-	-	-	-	-	-	-	500	-	-	-	400	909	-	1,937	3,746
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	31.8	-	-	-	-	-	-	-	-	-	-	-	-	-	42.3	2.6	31.8	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	79.4	-	-	-	-	37.3	-	-	8.2	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	12.9	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	1.2	12.9	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	134.0	-	8.2	7.2	-	37.3	6.7	-	8.2	6.8	14.6	-	15.3	-	103.0	21.6	205.9	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	69	71	66	65	65	62	62	57	54	52	50	49	36	33	26	22	24	652	1,055
	Energy Efficiency, WY	10	12	13	14	16	16	16	17	18	18	16	14	13	12	11	9	8	7	5	5	149	250
	Energy Efficiency Total	74	85	86	90	95	89	89	88	86	87	80	74	71	67	65	49	46	36	30	32	870	1,421
	Battery Storage - Utah-N	-	-	-	-	240.0	-	-	-	-	-	45.0	-	-	-	-	-	-	-	285	435	240	1,005
	Battery Storage - WYSW	-	-	-	-	60.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	375.0	60.0	435.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	225.0	-	-	225.0
	FOT East - Summer	-	-	-	-	295	-	-	-	-	300	183	197	264	205	223	225	300	300	300	300	60	155
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	90
	Utility Solar - PV - Yakima	-	-	-	-	-	228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	228	228
	Utility Solar - PV - jbridger	-	-	-	-	275	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	275	288
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	330	438	768
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	385	-	-	-	-	-	500	885
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	177	-	-	-	-	-	-	-	-	-	-	-	-	430	-	177	607
	Total Solar	-	-	-	-	713	905	-	-	-	-	-	-	-	100	475	-	-	-	430	343	1,618	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	30.3	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	2.0	30.3	37.7
	Demand Response, OR-Irrigate	-	-	-	-	9.2	-	-	-	-	4.1	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	4.3	-	-	-	-	-	-	-	-	-	5.5	-	-	-	-	-	4.3	9.9
	Demand Response, WA-Irrigate	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	11.3	-	-	-	-	3.3	-	-	-	-	2.0	-	-	-	-	-	14.6	16.6
	Demand Response Total	-	-	-	-	60.3	-	-	-	-	27.3	-	-	-	-	13.0	-	3.1	-	33.6	2.0	87.6	139.3
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	42	47	39	36	41	39	37	33	31	30	29	26	27	26	26	24	24	405	679
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	10	10	9	9	8	8	6	6	5	4	4	112	180
	Energy Efficiency Total	52	55	55	55	61	52	50	54	52	49	45	42	40	38	35	34	33	32	29	29	534	891
	Battery Storage - S-Oregon	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	15	405
	Battery Storage - Willamette Valley	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	105	165
	Battery Storage - Portland NC	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	30	105	60	195
	Battery Storage - Walla Walla	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	105	270
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	955	777	806	1,075	808	899	873	931	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,011	1,075	1,075	920	994
	FOT West - Winter	151	131	265	299	307	113	118	119	166	178	198	198	196	175	114	57	-	-	-	-	185	139
	Existing Plant Retirements/Conversions	-	(308)	(810)	(224)	(1,065)	(62)	-	(148)	(3)	(764)	(93)	(149)	(350)	(114)	(320)	(156)	(117)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	140	316	209	2,555	3,879	147	150	138	1,190	176	1,216	120	712	603	83	97	468	2,907	1,568		
	Annual Additions, Short Term Resources	1,149	1,086	1,042	1,105	1,677	921	1,016	992	1,097	1,553	1,456	1,469	1,535	1,455	1,412	1,357	1,375	1,311	1,375	1,375		
	Total Annual Additions	1,279	1,226	1,358	1,314	4,231	4,800	1,163	1,142	1,234	2,743	1,632	2,685	1,655	2,167	2,015	1,440	1,472	1,780	4,282	2,943		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	Capacity (MW)																				Resource Totals 1/	
P-06	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East																						
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	370	-	-	-	-	-	-	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	345	275	-	-	-	-	-	-	-	-	-	345	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,083	17	-	-	-	-	-	-	-	-	1,100
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	-	1,920	-	-	-	345	275	1,083	17	-	-	-	-	-	-	-	2,265	3,640
Utility Solar - PV - Utah-S	-	-	146	59	-	27	-	-	-	-	-	-	-	-	-	-	-	400	-	-	232	632
Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	68	-	-	-	-	-	341	159	-	-	-	-	-	-	-	68	568
Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	8
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	901	-	-	901
Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	900	-	-	-	-	-	-	-	-	-	900
Total Solar	-	-	146	59	-	195	-	-	-	-	-	1,241	159	-	-	-	-	400	909	-	400	3,109
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	-	1.2
Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	-	-	7.0	-	144.9	21.6	161.2	361.7
Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
Energy Efficiency, UT	58	67	69	71	75	66	67	65	65	62	54	53	52	50	49	36	32	26	25	26	665	1,068
Energy Efficiency, WY	10	12	13	14	18	16	16	17	18	18	15	14	13	12	11	9	8	7	5	5	152	252
Energy Efficiency Total	74	85	88	93	100	89	91	89	89	87	76	74	71	67	65	49	45	37	33	35	886	1,437
Battery Storage - Utah-N	-	-	-	-	75.0	-	-	-	-	90.0	-	-	-	-	-	-	-	-	270	435	165	870
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	315.0	-	-	-	-	-	-	-	-	-	90.0	315.0	405.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	120.0	-	315.0
FOT East - Summer	-	-	-	-	-	-	-	-	-	300	300	300	300	300	266	269	300	300	300	300	30	162
West																						
Existing Plant Retirements and PPA Termination																						
JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	95	-	-	-	-	-	-	-	500	595
Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	49	405	454
Utility Solar - PV - jbridger	-	-	-	-	354	-	-	-	-	-	-	-	-	-	359	-	-	-	-	26	354	739
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	676	-	676
Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	162	218	-	-	-	-	-	-	-	380
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	381	-	381
Total Solar	-	-	-	-	354	905	-	-	-	-	-	-	357	218	359	-	-	-	-	1,132	1,259	3,325
Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.3	-	-	30.3
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	-	-	-	-	-	4.1
Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	3.1
Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	-	-	4.1	-	-	-	-	-	76.9	-	9.4	90.3
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
Energy Efficiency, OR	40	43	43	49	47	39	36	41	39	37	33	31	30	29	26	26	26	26	25	24	412	686
Energy Efficiency, WA	11	11	11	12	12	12	11	11	11	10	9	9	9	8	8	6	6	5	4	4	112	180
Energy Efficiency Total	52	56	56	63	61	52	49	54	52	49	44	41	40	38	35	33	33	32	30	29	542	899
Battery Storage - S-Oregon	-	-	-	-	120	-	-	-	-	90	-	-	-	-	-	-	-	-	315	(75)	210	450
Battery Storage - Willamette Valley	-	-	-	-	60	-	-	-	-	45	-	-	-	-	-	-	-	-	-	60	105	165
Battery Storage - Portland NC	-	-	-	-	15	-	-	-	-	60	-	-	-	-	-	-	-	-	60	-	75	135
Battery Storage - Walla Walla	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	135	315
Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
FOT West - Summer	998	719	608	662	1,029	480	573	562	620	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,049	984	1,075	1,075	733	898
FOT West - Winter	151	131	268	303	313	242	249	250	297	429	420	384	414	354	74	-	-	-	-	-	263	214
Existing Plant Retirements/Conversions	-	(61)	(810)	(224)	(352)	(62)	-	(230)	(3)	(912)	(93)	(753)	(350)	(114)	(676)	(156)	(36)	(280)	(2,260)	(745)		
Annual Additions, Long Term Resources	130	141	305	214	1,035	3,162	148	150	141	1,207	401	3,003	648	336	1,051	82	85	469	2,255	2,027		
Annual Additions, Short Term Resources	1,149	850	877	965	1,343	722	821	812	917	1,804	1,795	1,759	1,789	1,729	1,415	1,344	1,349	1,284	1,375	1,375		
Total Annual Additions	1,279	991	1,182	1,179	2,377	3,883	969	962	1,058	3,011	2,197	4,762	2,437	2,065	2,466	1,426	1,434	1,753	3,630	3,402		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-07	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	370	555	-	-	-	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,055	-	-	-	-	-	-	-	-	-	1,055
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,055	-	-	-	-	-	-	-	-	1,920	3,595
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	205	605
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	95	-	-	-	-	-	-	500	-	-	-	-	-	-	-	95	595
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	45
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	-	-	27
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	882	-	-	882
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	900	-	-	-	-	-	-	-	-	-	900
	Total Solar	-	-	146	59	-	195	-	-	-	-	-	900	545	-	-	-	-	400	909	-	400	3,155
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	20.5	-	15.3	-	136.6	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	73	75	68	67	65	63	62	54	54	52	50	49	36	32	26	25	26	665	1,069
	Energy Efficiency, WY	10	12	13	14	18	16	17	17	17	17	15	14	13	12	11	9	8	7	5	5	150	249
	Energy Efficiency Total	74	85	86	93	100	91	91	89	87	87	76	75	71	67	65	49	44	36	33	34	883	1,434
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	615	-	915
	Battery Storage - WYSW	-	-	-	-	150.0	-	-	-	-	300.0	-	-	-	-	-	-	-	-	-	105.0	450.0	555.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300.0	75.0	-	375.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	286	212	296	300	174	298	300	300	300	300	300	29	153
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	90	-	-	-	-	-	-	-	179	-	-	-	-	-	-	90	269
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	372	405	777
	Utility Solar - PV - jbridger	-	-	-	-	354	-	-	-	-	-	359	-	-	-	-	-	-	-	-	24	354	737
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	678	-	678
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	410	-	-	-	-	-	-	-	296	-	-	-	-	-	-	410	706
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	-	58
	Total Solar	-	-	-	-	354	905	-	-	-	-	359	-	-	575	-	-	-	-	-	1,132	1,259	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	10.7	-	-	-	76.9	-	9.4	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	49	47	39	40	41	39	37	33	31	30	29	26	27	26	26	25	24	417	692
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	8	8	8	6	6	5	4	4	112	180
	Energy Efficiency Total	52	56	55	62	61	52	54	54	52	49	44	42	40	38	35	34	33	32	30	29	547	905
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	225	-	105	330
	Battery Storage - Willamette Valley	-	-	-	-	75	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	105	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	105	60	165
	Battery Storage - Walla Walla	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	180	360
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	606	660	1,039	411	502	492	549	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,010	1,075	1,075	705	887
	FOT West - Winter	151	131	265	300	310	143	147	149	196	328	323	285	294	244	173	92	109	108	-	-	212	187
	Existing Plant Retirements/Conversions	-	(61)	(810)	(224)	(352)	(62)	-	(230)	(3)	(912)	(449)	(753)	(350)	(114)	(320)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	303	214	1,034	3,164	153	150	138	757	1,516	2,634	656	693	132	84	93	469	2,453	2,296		
	Annual Additions, Short Term Resources	1,149	850	871	960	1,349	555	650	641	745	1,689	1,610	1,656	1,669	1,493	1,545	1,467	1,484	1,418	1,375	1,375		
	Total Annual Additions	1,279	991	1,175	1,174	2,383	3,718	803	791	884	2,445	3,126	4,289	2,326	2,186	1,677	1,550	1,576	1,887	3,828	3,671		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-08	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	35	-	-	-	-	-	-	-	-	-	(35)	-	-	-	-	-	-	-	-	35	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	370	-	-	185	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	370	-	-	555	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	11	37	-	729	-	-	-	-	-	-	-	-	47	776
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124	124
	Total Solar	-	-	146	59	67	252	-	-	11	37	-	729	500	-	-	-	-	400	909	-	571	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	123.3	8.2	-	12.0	22.3	-	15.3	-	134.8	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	56	52	50	49	36	32	26	25	26	659	1,065
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	6	6	149	251
	Energy Efficiency Total	74	83	85	88	91	92	92	94	91	87	76	76	72	68	66	49	45	37	33	35	876	1,433
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	300.0	-	-	-	-	-	-	-	-	330	330	300	960
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	165.0	-	-	-	-	-	-	-	-	225.0	45.0	165.0	435.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	210.0	-	420.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	101	298	292	300	261	227	229	300	300	300	300	10	145
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	114	14	-	-	-	-	-	-	-	500	628
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	31	405	436
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	298	-	-	-	-	-	-	652
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	343	-	404
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	346	-	-	-	-	-	-	-	346
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	399	-	399
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	114	14	446	359	-	-	-	-	773	905	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	51.1	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	39	39	43	41	39	37	33	31	30	29	27	26	26	26	25	24	392	668
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	110	178
	Energy Efficiency Total	52	48	48	55	53	52	56	54	52	49	44	42	40	38	36	34	33	32	30	29	520	879
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	30	-	210	240
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	45	-	120	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	925	547	606	639	227	223	224	278	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,004	939	1,075	1,075	574	814
	FOT West - Winter	151	131	268	303	314	248	254	256	305	437	428	436	441	379	83	3	20	20	-	-	267	224
	Existing Plant Retirements/Conversions	-	(273)	(186)	(224)	(1)	(62)	-	(535)	(85)	(912)	(444)	(541)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	294	201	221	3,221	156	155	153	1,268	1,217	2,449	626	565	1,311	83	93	469	2,245	1,443		
	Annual Additions, Short Term Resources	1,149	1,056	816	909	953	475	477	480	583	1,613	1,801	1,804	1,816	1,715	1,385	1,307	1,324	1,259	1,375	1,375		
	Total Annual Additions	1,279	1,188	1,110	1,110	1,174	3,696	633	635	736	2,881	3,019	4,252	2,442	2,280	2,696	1,390	1,417	1,728	3,620	2,818		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-09	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	370	-	-	185	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	370	-	-	555	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,083	-	-	-	-	-	-	-	-	-	1,083
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,083	-	-	-	-	-	-	-	-	1,920	3,623
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	17
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	897	12	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	-	729	-	-	-	-	-	-	-	-	37	765
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	135
	Total Solar	-	-	146	59	67	263	-	-	-	37	-	729	517	-	-	-	-	400	897	12	571	3,126
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	124.9	-	12.0	22.3	-	15.3	-	134.8	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	54	52	50	49	36	32	26	25	26	659	1,063
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	19	18	15	14	13	12	11	9	8	7	5	5	147	248
	Energy Efficiency Total	74	83	85	88	91	92	91	93	91	87	76	74	71	68	66	49	45	37	33	35	874	1,427
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	405.0	-	-	-	-	-	-	-	-	60	225	405	690
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	45.0	-	-	-	-	-	-	-	-	-	300.0	45.0	345.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	225.0	60.0	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	131	294	300	290	269	271	300	300	300	300	-	138
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	482	-	-	-	-	-	-	-	276	-	-	-	-	-	-	482	758
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	-	-	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	18	-	-	-	-	-	-	-	199	-	-	-	-	-	-	18	217
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	100	475	359	-	-	430	-	702	905	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	51.1	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	32	37	36	39	39	36	41	39	37	33	31	30	29	26	26	26	25	25	23	375	646
	Energy Efficiency, WA	11	9	10	10	11	12	11	11	11	10	9	9	8	8	8	6	6	5	4	4	107	175
	Energy Efficiency Total	52	43	48	48	52	52	49	54	52	49	44	41	40	38	35	33	33	31	30	28	499	853
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	435	-	210	645
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	15	-	195	210
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	45	-	135	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	190	185	187	233	930	1,075	1,075	1,075	1,075	1,075	1,075	1,046	870	1,075	1,075	494	773
	FOT West - Winter	151	131	268	303	314	240	246	248	297	429	420	383	436	417	119	41	58	-	-	-	263	225
	Existing Plant Retirements/Conversions	-	(61)	(186)	(224)	(1)	(62)	-	(535)	(85)	(912)	(444)	(753)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	126	286	194	229	3,231	148	154	142	1,268	1,101	2,431	728	593	1,309	82	93	898	2,172	1,383		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	430	432	434	530	1,360	1,626	1,752	1,811	1,782	1,463	1,387	1,404	1,170	1,375	1,375		
	Total Annual Additions	1,279	977	1,048	1,000	1,041	3,661	580	589	672	2,627	2,727	4,184	2,539	2,375	2,772	1,470	1,497	2,068	3,547	2,758		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-10	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	-	-	-	185
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	-	-	185	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	185	185	-	-	185	-	-	-	-	-	-	555
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	536	84	-	-	-	-	-	-	-	-	-	536	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,090	-	-	-	-	-	-	-	-	-	1,090
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	536	84	1,090	-	-	-	-	-	-	-	-	2,456	3,630
	Utility Solar - PV - Utah-S	-	-	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	146	546
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	33	121	-	-	-	-	-	-	-	500	-	-	-	-	-	-	154	654
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	10
	Utility Solar - PV - Naughton	-	-	-	-	357	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	357	357
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	231	-	-	-	-	-	-	-	-	-	231
	Utility Solar+Storage - PV - Utah-N	-	-	-	64	5	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	669	669
	Total Solar	-	-	146	64	395	821	-	-	-	-	-	231	10	500	-	-	-	400	909	-	1,426	3,476
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	79.4	-	-	-	-	37.3	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	97.5	-	8.2	7.2	-	37.3	6.7	8.2	-	12.0	22.3	-	15.3	-	134.8	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	67	72	75	66	67	68	65	62	54	53	52	50	49	36	32	26	25	26	667	1,071
	Energy Efficiency, WY	10	12	13	14	18	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	153	253
	Energy Efficiency Total	74	85	86	93	100	90	91	93	91	87	76	74	71	68	65	49	45	37	33	35	890	1,441
	Battery Storage - Utah-N	-	-	-	-	270.0	-	-	-	-	15.0	-	-	-	-	-	-	-	-	255	405	285	945
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	210.0	-	-	-	-	-	-	-	-	195.0	-	210.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	240.0	-	435.0
	FOT East - Summer	-	-	-	-	295	-	-	-	-	300	150	230	300	231	298	300	300	300	300	300	60	165
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	288	-	-	-	-	-	-	-	-	62	-	-	-	-	-	288	350
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	141	-	-	-	405	546
	Utility Solar - PV - jbridger	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	713	761
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	654	-	654
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	212	-	-	-	-	-	-	-	-	413	-	-	-	-	-	212	625
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	267	22	-	-	-	289
	Total Solar	-	-	-	-	713	905	-	-	-	-	-	-	-	100	475	-	408	22	-	702	1,618	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	3.1	-	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	11.8	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	24.7	-	-	-	26.4	-	3.1	-	44.3	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	49	47	39	43	41	39	37	33	31	30	29	27	26	26	26	25	24	419	694
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	113	181
	Energy Efficiency Total	52	56	56	63	61	52	56	54	52	49	44	42	40	38	36	33	33	32	30	29	550	908
	Battery Storage - S-Oregon	-	-	-	-	165	-	-	-	-	45	-	-	-	-	-	-	-	-	105	15	210	330
	Battery Storage - Willamette Valley	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	30	60
	Battery Storage - Portland NC	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	60	105	45	210
	Battery Storage - Walla Walla	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	105	60	45	210
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	1,075	616	709	684	741	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,005	1,075	1,075	761	914
	FOT West - Winter	151	131	265	299	310	188	194	196	243	255	252	274	266	250	181	125	23	-	-	-	223	180
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1,065)	(62)	-	(148)	(3)	(764)	(93)	(396)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	295	219	2,026	3,788	156	155	142	989	420	1,630	121	718	810	82	505	490	2,509	1,642		
	Annual Additions, Short Term Resources	1,149	850	757	800	1,680	804	904	879	984	1,630	1,477	1,579	1,641	1,555	1,554	1,500	1,397	1,305	1,375	1,375		
	Total Annual Additions	1,279	990	1,052	1,019	3,707	4,592	1,059	1,034	1,126	2,619	1,897	3,209	1,762	2,274	2,364	1,583	1,902	1,795	3,884	3,017		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-11	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	185	-	185	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	185	185	-	555	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	33	33	554	-	-	-	-	-	-	-	-	33	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	33	33	1,650	-	-	-	-	-	-	-	-	1,953	3,636
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	897	12	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	-	729	-	-	-	-	-	-	-	-	37	765
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	135
	Total Solar	-	-	146	59	67	263	-	-	-	37	-	1,233	-	-	-	-	-	400	897	12	571	3,113
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	124.9	-	12.0	22.3	-	15.3	-	134.8	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	56	52	50	49	36	32	26	25	26	659	1,065
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	149	250
	Energy Efficiency Total	74	83	85	88	91	92	92	94	91	87	76	76	72	68	66	49	45	37	33	35	876	1,432
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	285	390	240	915
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	15.0	150.0	240.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	255.0	75.0	-	330.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	189	300	270	300	279	281	300	300	300	300	-	141
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	325	-	-	-	-	-	-	-	469	-	-	-	-	-	-	325	794
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	81	-	-	405	486
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	-	-	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	175	-	-	-	-	-	-	-	6	-	-	-	-	-	-	175	181
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	349	-	-	-	349
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	100	475	359	-	-	430	-	702	905	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	51.1	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	39	39	43	41	39	37	33	31	30	29	27	26	26	26	25	24	392	668
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	110	178
	Energy Efficiency Total	52	49	48	55	53	52	56	54	52	49	44	42	40	38	36	33	33	32	30	29	520	878
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	165	-	210	375
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	15	-	75	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	30	-	135	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	157	153	154	200	892	1,075	1,075	1,075	1,075	1,075	1,075	1,055	896	1,075	1,075	477	766
	FOT West - Winter	151	131	268	303	314	202	209	210	259	391	382	346	398	425	128	50	67	-	-	-	244	212
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(148)	(85)	(912)	(444)	(753)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	286	201	229	3,232	156	155	142	1,331	514	3,320	397	593	1,311	82	93	899	2,158	1,414		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	359	361	364	459	1,284	1,646	1,721	1,743	1,800	1,482	1,406	1,422	1,196	1,375	1,375		
	Total Annual Additions	1,279	982	1,048	1,007	1,041	3,591	517	519	602	2,615	2,159	5,041	2,139	2,394	2,793	1,488	1,516	2,095	3,533	2,789		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-12	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	185	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	185	555	185	-	-	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	-	31	-	-	-	-	-	91	-	-	-	-	-	400	-	-	236	727
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	64	-	-	-	-	-	400	9	-	-	-	-	-	-	-	64	473
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	715	-	-	715
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	312	-	-	-	-	-	-	-	-	-	312
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	588	-	-	-	-	-	-	-	-	-	-	-	-	-	-	588	588
	Total Solar	-	-	146	59	-	783	-	-	-	-	-	803	9	-	-	-	-	400	715	-	988	2,915
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	20.5	-	15.3	-	136.6	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	67	69	75	68	67	68	65	62	54	53	52	50	49	36	34	26	24	22	667	1,066
	Energy Efficiency, WY	10	12	13	14	18	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	154	254
	Energy Efficiency Total	74	85	86	90	100	92	92	94	91	87	76	74	71	67	65	49	46	37	32	30	891	1,438
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360	375	-	735
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	420.0	-	-	-	-	-	-	-	-	-	120.0	420.0	540.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	255.0	150.0	-	405.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	212	300	300	273	174	298	300	300	300	300	300	21	153
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	95	-	-	-	-	-	-	500	595
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	10	-	405	415
	Utility Solar - PV - jbridger	-	-	-	-	354	-	-	-	-	-	359	-	-	-	-	-	-	-	-	48	354	761
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	654	-	654
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	380	-	-	-	-	-	-	-	380
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420	-	-	420
	Total Solar	-	-	-	-	354	905	-	-	-	-	359	-	-	575	-	-	-	-	430	702	1,259	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	10.7	-	-	-	76.9	-	9.4	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	33
	Energy Efficiency, OR	40	43	43	47	47	39	43	41	39	37	33	31	30	29	26	26	24	25	22	21	417	682
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	8	8	8	6	6	5	4	4	113	179
	Energy Efficiency Total	52	56	56	60	61	52	56	54	52	49	44	42	40	38	35	33	31	30	27	26	548	895
	Battery Storage - S-Oregon	-	-	-	-	45	-	-	-	-	105	-	-	-	-	-	-	-	-	120	45	150	315
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	15	180	195
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	30	135	165
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	571	629	1,007	300	393	418	476	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	659	864
	FOT West - Winter	151	131	265	300	310	239	243	245	291	423	420	381	390	360	288	194	212	211	-	-	260	253
	Existing Plant Retirements/Conversions	-	(61)	(423)	(224)	(352)	(62)	-	(617)	(3)	(912)	(449)	(753)	(350)	(114)	(320)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	304	209	675	3,752	156	155	142	1,102	1,331	2,581	305	693	132	83	93	467	2,595	1,514		
	Annual Additions, Short Term Resources	1,149	850	836	929	1,318	539	636	663	767	1,711	1,795	1,756	1,738	1,609	1,661	1,569	1,586	1,521	1,375	1,375		
	Total Annual Additions	1,279	991	1,140	1,137	1,992	4,291	792	818	910	2,813	3,126	4,337	2,043	2,302	1,792	1,652	1,679	1,988	3,970	2,889		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-13	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	-	185	370	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	185	370	-	-	-	370	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,099	-	-	-	-	-	-	-	-	-	1,099
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,099	-	-	-	-	-	-	-	-	1,920	3,639
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	40	37	3	726	-	-	-	-	-	-	-	-	76	805
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95	95
	Total Solar	-	-	146	59	67	223	-	-	40	37	3	726	500	-	-	-	-	400	-	909	571	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	124.9	-	12.0	-	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	115
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	53	52	50	49	36	32	26	20	22	659	1,053
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	19	18	15	14	13	12	11	9	8	7	5	5	147	247
	Energy Efficiency Total	74	83	85	88	91	91	91	93	91	87	76	74	71	68	65	49	45	36	28	30	873	1,415
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	315.0	-	-	-	-	-	-	-	-	-	525	315	840
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	405.0	-	-	-	-	-	-	-	-	-	-	405.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300.0	-	300.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	-	300	289	165	219	221	300	300	300	300	-	120
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	403	-	-	-	-	-	-	-	500	903
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,056	-	1,056
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	-	-	-	-	-	-	72
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	503	72	-	-	-	-	430	1,056	905	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	128.0	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	32	37	42	39	39	36	41	39	37	33	31	30	29	26	26	26	26	22	21	381	649
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	10	9	9	8	8	8	6	6	5	4	4	108	175
	Energy Efficiency Total	52	43	48	54	53	52	50	54	52	49	44	41	40	38	35	33	33	32	27	26	507	857
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	345	15	360
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135	135
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135	135
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	182	177	179	225	946	889	1,075	1,075	1,075	1,075	1,075	996	931	1,052	1,075	492	762
	FOT West - Winter	151	131	268	303	314	243	249	251	300	432	423	387	476	451	386	299	316	301	-	-	264	284
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(148)	(85)	(912)	(93)	(753)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	126	286	200	229	3,191	149	154	182	1,403	750	2,074	1,114	375	470	82	93	468	1,583	3,212		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	425	427	430	526	1,378	1,312	1,762	1,839	1,691	1,680	1,595	1,611	1,532	1,352	1,375		
	Total Annual Additions	1,279	977	1,048	1,006	1,041	3,616	576	585	707	2,781	2,062	3,836	2,953	2,066	2,150	1,677	1,704	2,000	2,935	4,587		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-14	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	185	-	-	-	-	-	-	370
	SCCT Frame UTN	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	195
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	195	-	-	-	-	370	-	185	-	-	185	-	-	-	-	-	564	934
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	222	398	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	222	1,498	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	-	-	154	-	-	-	-	-	-	289	-	-	-	-	400	-	-	300	989
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	211	-	-	-	-	-	-	-	-	211
	Utility Solar - PV - Naughton	-	-	-	-	172	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172	172
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	901	8	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	-	64	42	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	706	706
	Total Solar	-	-	146	64	214	754	-	-	-	-	-	-	500	-	-	100	-	400	901	8	1,178	3,087
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	5.3	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	31.8	-	-	-	-	-	-	-	-	-	-	-	-	-	42.3	2.6	31.8	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	79.4	-	-	-	-	37.3	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	3.4	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	27.1	-	-	-	-	-	-	-	-	-	-	-	-	-	12.3	-	27.1	39.4
	Demand Response, WY-Thermostat	-	-	-	-	12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	12.9	14.1
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	178.0	-	8.2	7.2	-	37.3	6.7	8.2	-	12.0	-	-	15.3	-	69.0	21.6	241.7	374.6
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	70	119
	Energy Efficiency, UT	58	67	69	72	75	68	67	68	65	65	54	56	52	50	51	36	32	26	23	25	674	1,080
	Energy Efficiency, WY	10	10	13	14	15	16	16	18	19	18	14	14	13	12	11	9	8	7	5	5	149	248
	Energy Efficiency Total	74	83	88	93	98	92	91	93	91	90	75	77	71	68	68	49	45	36	31	34	893	1,447
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	150.0	-	-	-	-	-	-	-	15	480	45	150	690
	Battery Storage - WYSW	-	-	-	-	60.0	-	-	-	-	90.0	-	-	-	-	15.0	-	-	-	300.0	15.0	150.0	480.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	210.0	30.0	-	255.0
	FOT East - Summer	-	-	-	-	20	-	-	-	-	224	233	255	284	298	288	287	300	300	300	300	24	154
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	221	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	499	-	-	-	-	-	-	184	-	-	-	-	-	-	-	499	684
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	561	561
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	495	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	495	495
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	145	145	-	-	-	-	-	-	-	291
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	430
	Total Solar	-	-	-	-	1,056	904	-	-	-	-	-	-	330	245	-	-	-	-	-	430	1,960	2,965
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	15.9	-	-	-	-	-	-	-	-	-	-	-	-	-	7.4	-	15.9	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	30.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	30.3	32.3
	Demand Response, OR-Irrigate	-	-	-	-	9.2	-	-	-	-	4.1	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, OR-Thermostat	-	-	-	-	41.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	41.2	41.2
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	1.1	4.3	10.9
	Demand Response, WA-Irrigate	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	11.3
	Demand Response Total	-	-	-	-	117.5	-	-	-	-	24.0	-	-	-	-	-	-	-	-	26.4	3.0	141.5	170.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	49	47	46	43	41	39	37	33	31	30	30	27	26	25	26	24	23	426	699
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	113	181
	Energy Efficiency Total	52	56	55	63	61	59	56	54	52	49	44	42	40	40	36	33	32	32	29	28	557	913
	Battery Storage - S-Oregon	-	-	-	-	300	-	-	-	-	180	-	-	-	-	-	-	-	-	-	(75)	480	405
	Battery Storage - Willamette Valley	-	-	-	-	45	-	-	-	-	60	-	-	-	-	-	-	-	-	15	-	105	120
	Battery Storage - Portland NC	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-	15	120	75	210
	Battery Storage - Walla Walla	-	-	-	-	120	-	-	-	-	15	-	-	-	-	-	-	-	-	-	165	135	300
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	713	486	491	1,075	632	724	697	769	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,062	997	1,075	1,075	766	916
	FOT West - Winter	151	127	257	285	419	378	383	396	443	600	607	558	602	499	27	3	-	-	-	-	344	287
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1,767)	(62)	-	(148)	(85)	(912)	(93)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	139	297	220	2,623	3,729	156	154	142	1,065	349	1,809	941	365	541	182	92	483	2,298	824		
	Annual Additions, Short Term Resources	1,149	840	743	776	1,514	1,010	1,106	1,093	1,212	1,899	1,915	1,888	1,961	1,873	1,390	1,365	1,362	1,297	1,375	1,375		
	Total Annual Additions	1,279	979	1,040	996	4,138	4,739	1,262	1,248	1,354	2,964	2,264	3,697	2,902	2,238	1,932	1,547	1,454	1,781	3,673	2,199		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-15	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	-	-	-	-	(44)	(44)
	Hayden 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	-	-	-	-	-	(33)	(33)
	Hunter 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(418)	-	-	-	-	-	-	-	-	-	-	(418)
	Hunter 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(269)	-	-	-	-	-	-	-	-	-	(269)
	Hunter 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(471)	-	-	-	-	-	-	-	-	(471)
	Huntington 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(459)	-	-	-	-	-	-	-	-	-	-	(459)
	Huntington 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	-	-	-	-	-	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Wyodak (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(268)	-	-	-	-	-	-	-	-	(268)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - Utah-N - J 1x1	-	-	-	-	-	-	-	-	252	315	-	-	-	-	-	-	-	-	-	-	567	567
	Total CCCT	-	-	-	-	-	-	-	-	252	315	-	-	-	-	-	-	-	-	-	-	567	567
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	370
	SCCT Frame UTS	-	-	-	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	195
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	370	370	195	-	-	-	-	-	-	-	-	934
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	337	283	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,079	-	-	-	-	-	-	-	-	-	1,079
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	337	1,363	-	-	-	-	-	-	-	-	1,920	3,619
	Utility Solar - PV - Utah-S	-	-	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	146	546
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	154	-	-	-	-	-	-	306	-	-	-	-	-	-	-	154	459
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	21
	Utility Solar - PV - Naughton	-	-	-	-	111	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	267	267
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	265	450	-	-	-	-	-	-	-	-	-	715
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	33
	Utility Solar+Storage - PV - Utah-N	-	-	-	64	-	236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	300
	Total Solar	-	-	146	64	111	546	-	-	-	-	298	471	406	-	-	-	-	400	-	-	867	2,441
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	-	-	-	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	-	-	-	2.6	-	71.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	116.7	-	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	-	-	-	-	-	37.3
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	116.7	-	25.4	10.0	120.2	13.8	-	-	15.3	3.7	3.2	21.6	161.2	374.5
	Energy Efficiency, ID	6	7	7	7	8	8	7	7	7	7	7	7	6	6	6	5	4	4	3	3	71	121
	Energy Efficiency, UT	58	69	72	73	75	75	71	74	70	67	62	65	61	58	58	40	40	32	20	23	704	1,162
	Energy Efficiency, WY	10	12	13	14	17	17	17	18	19	18	16	15	13	12	11	9	8	7	5	5	155	258
	Energy Efficiency Total	74	87	92	94	100	99	96	99	96	92	85	87	81	76	75	53	53	43	28	31	929	1,541
	Battery Storage - Utah-N	-	-	-	-	-	105.0	-	435.0	-	-	360.0	120.0	30.0	-	330.0	-	-	-	-	-	540	1,380
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	180.0	-	150.0	-	285.0	60.0	30.0	-	-	-	-	-	180.0	705.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	330.0	-	-	60.0	-	-	-	-	-	-	390.0
	FOT East - Summer	-	-	-	-	-	-	-	71	246	235	300	300	300	300	300	300	300	300	300	300	55	178
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	CCCT - Jbridger - J 1x1	-	-	-	-	-	-	-	-	-	487	-	487	-	-	-	-	-	-	-	-	487	974
	Total CCCT	-	-	-	-	-	-	-	-	-	487	-	487	-	-	-	-	-	-	-	-	487	974
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	-	-	-	-	443
	Utility Solar - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
	Utility Solar - PV - jbridger	-	-	-	-	-	349	-	-	87	-	-	-	-	-	-	-	-	-	-	-	436	436
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	6
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	474	-	-	-	-	-	-	-	500	974
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	428	-	405	833
	Total Solar	-	-	-	-	-	1,254	-	-	87	-	6	-	474	-	100	-	-	-	430	-	1,341	2,351
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	5.5
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	11.3	-	3.3	-	-	-	-	-	-	-	2.0	-	11.3	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	49.7	-	8.7	-	-	-	-	-	-	-	44.0	-	49.7	102.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	51	50	49	49	48	43	43	39	37	33	31	30	29	26	26	24	25	22	23	447	714
	Energy Efficiency, WA	11	11	11	12	13	13	12	12	11	10	9	9	9	8	8	6	6	5	4	4	116	182
	Energy Efficiency Total	52	64	63	63	64	62	56	57	52	49	44	42	40	38	35	32	31	30	27	27	582	930
	Battery Storage - S-Oregon	-	-	-	-	45	75	-	-	-	-	-	-	-	-	-	-	-	-	-	(45)	120	75
	Battery Storage - Willamette Valley	-	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Portland NC	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Walla Walla	-	-	-	-	15	30.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Yakima	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	715	492	501	622	318	783	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,005	1,075	1,072	738	903
	FOT West - Winter	151	131	265	299	310	25	29	224	754	279	52	-	-	-	-	-	-	-	-	-	247	126
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(202)	(730)	(386)	(466)	(502)	(764)	(971)	(1,115)	(1,013)	(114)	(557)	(156)	(36)	(280)	(1,351)	(43)		
	Annual Additions, Long Term Resources	130	151	308	221	354	4,361	160	598	833	943	2,125	3,278	1,630	188	630	86	99	477	532	35		
	Annual Additions, Short Term Resources	877	846	757	800	932	344	812	1,370	2,076	1,589	1,427	1,375	1,375	1,375	1,375	1,375	1,374	1,305	1,375	1,372		
	Total Annual Additions	1,007	997	1,065	1,021	1,286	4,705	972	1,968	2,909	2,532	3,553	4,653	3,005	1,563	2,005	1,461	1,473	1,782	1,907	1,408		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-16	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	CCCT - Utah-N - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	-	-	189
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	189	-	-	189
	SCCT Frame UTN	-	-	-	-	195	-	-	-	-	-	-	-	-	-	389	-	-	-	-	-	195	584
	SCCT Frame UTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	389	-	-	389
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	195	-	-	-	-	370	-	-	-	-	389	-	-	-	389	-	564	1,342
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	157	436	27	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	85	782	233	-	-	-	-	-	-	-	1,100
	Total Wind	-	-	-	-	-	-	-	-	-	-	157	521	809	233	-	-	-	-	-	-	-	1,720
	Utility Solar - PV - Utah-S	-	-	146	59	-	95	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111	-	-	111
	Utility Solar - PV - Naughton	-	-	-	-	73	564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	637	637
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	306	-	306
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	603	-	603
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	106	22	-	-	-	-	-	-	-	128
	Total Solar	-	-	146	59	73	659	-	-	-	-	-	-	106	22	-	-	-	400	211	909	937	2,585
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	45.8	-	-	-	-	59.8	11.0	-	-	-	-	8.2	8.3	-	-	5.1	105.6	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	55.7	-	8.2	7.2	-	59.8	17.7	-	-	6.8	5.2	8.2	15.3	-	157.1	21.6	150.2	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	5	4	4	3	3	3	67	113
	Energy Efficiency, UT	58	67	67	69	75	66	65	63	59	57	52	51	48	48	47	34	31	25	22	25	646	1,028
	Energy Efficiency, WY	10	10	13	14	16	14	14	15	17	16	14	14	12	11	11	8	8	7	5	5	138	233
	Energy Efficiency Total	74	83	86	90	98	87	86	84	83	80	73	71	66	65	63	46	42	35	30	33	851	1,374
	Battery Storage - Utah-N	-	-	-	-	90.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(90)	90	-
	Battery Storage - WYSW	-	-	-	-	135.0	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	270.0	135.0	615.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	-	-	135.0
	FOT East - Summer	-	-	-	-	290	115	209	187	250	284	300	277	198	217	256	256	300	300	300	300	134	202
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	CCCT - Jbridger - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	974	-	974
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	974	-	974
	SCCT Frame SO	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	-	-	210	210
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	233
	Total SCCT	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	676	-	210	886
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-	-	120
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120	-	-	120
	Utility Solar - PV - S-Oregon	-	-	-	-	-	290	-	-	-	-	-	-	-	-	-	-	433	-	-	-	290	723
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82	-	82
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	-	42
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	-	-	77
	Total Solar	-	-	-	-	-	695	-	-	-	-	-	-	-	-	-	-	475	-	77	82	695	1,329
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	5.5
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	14.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	2.0	-	55.3	-	9.4	66.7
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	44	43	42	47	34	31	30	33	31	28	26	25	28	25	25	24	25	24	23	375	627
	Energy Efficiency, WA	11	10	11	12	12	11	11	11	11	10	9	9	8	8	7	6	6	5	4	4	109	175
	Energy Efficiency Total	52	56	56	56	61	46	44	43	45	43	39	37	35	37	34	32	32	30	28	27	501	834
	Battery Storage - S-Oregon	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	150	90	135	375
	Battery Storage - Willamette Valley	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Portland NC	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	-	-	45	60	45	150
	Battery Storage - Walla Walla	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	60	105	105	270
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	961	621	682	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,013	1,075	1,054	971	1,019
	FOT West - Winter	151	131	269	307	318	268	275	279	331	135	159	160	190	208	225	242	243	404	230	240	246	238
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(709)	(62)	-	(148)	(3)	(764)	(93)	(149)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,101)		
	Annual Additions, Long Term Resources	130	139	304	204	1,142	1,488	138	134	128	771	287	629	1,016	364	491	87	566	465	2,532	2,482		
	Annual Additions, Short Term Resources	1,149	1,092	890	989	1,684	1,458	1,559	1,541	1,655	1,495	1,534	1,512	1,463	1,499	1,556	1,572	1,618	1,717	1,605	1,594		
	Total Annual Additions	1,279	1,231	1,194	1,193	2,825	2,946	1,698	1,676	1,783	2,266	1,821	2,141	2,479	1,863	2,047	1,659	2,184	2,182	4,137	4,076		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-17	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	-	-	-	-	(44)	(44)
	Hayden 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	-	-	-	-	-	(33)	(33)
	Hunter 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(418)	-	-	-	-	-	-	-	-	-	-	(418)
	Hunter 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(269)	-	-	-	-	-	-	-	-	-	(269)
	Hunter 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(471)	-	-	-	-	-	-	-	-	(471)
	Huntington 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(459)	-	-	-	-	-	-	-	-	-	-	(459)
	Huntington 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	-	-	-	-	-	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Wyodak (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(268)	-	-	-	-	-	-	-	-	(268)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - Utah-N - J 1x1	-	-	-	-	-	-	-	-	-	504	63	-	-	-	-	-	-	-	-	-	504	567
	Total CCCT	-	-	-	-	-	-	-	-	-	504	63	-	-	-	-	-	-	-	-	-	504	567
	SCCT Frame DJ	-	-	-	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	195
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	370
	SCCT Frame UTN	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	195
	SCCT Frame UTS	-	-	-	-	-	-	-	-	-	-	389	-	-	-	-	-	-	-	-	-	-	389
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	185	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	195	-	-	-	-	-	574	370	379	-	-	-	-	-	-	-	195	1,518
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	16	396	14	-	-	-	-	-	-	-	-	16	425
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	103	-	-	-	-	-	-	-	-	-	103
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	-	195
	Total Wind	-	-	-	-	-	1,920	-	-	-	16	396	311	-	-	-	-	-	-	-	-	1,936	2,643
	Utility Solar - PV - Utah-S	-	-	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	146	546
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	154	-	-	-	-	111	-	-	-	-	-	-	-	-	-	154	265
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	803	-	-	-	-	-	-	-	-	-	803
	Utility Solar - PV - Naughton	-	-	-	-	111	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	267	267
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	459	256	-	-	-	-	-	-	-	-	-	715
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	33
	Utility Solar+Storage - PV - Utah-N	-	-	-	64	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	106	106
	Total Solar	-	-	146	64	111	351	-	-	-	-	603	1,158	-	-	-	-	-	400	-	-	673	2,834
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	-	-	-	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	5.7	-	-	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	116.7	-	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	2.1	-	-	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	-	1.2	18.7	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	116.7	18.7	6.7	8.2	121.9	13.8	-	-	23.0	3.7	3.2	21.6	179.9	382.2
	Energy Efficiency, ID	6	7	7	7	7	8	7	7	7	7	7	6	6	6	6	4	4	4	3	3	70	118
	Energy Efficiency, UT	58	69	69	69	75	72	71	72	65	62	57	56	52	50	49	38	35	28	20	22	682	1,087
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	15	15	13	12	11	9	8	7	5	5	143	244
	Energy Efficiency Total	74	85	87	88	97	96	95	97	90	86	79	77	71	68	65	51	47	38	28	30	895	1,449
	Battery Storage - Utah-N	-	-	-	-	-	-	-	225.0	330.0	-	-	-	-	-	-	-	-	-	15	-	555	570
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	405.0	-	-	420.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	30.0	45.0	-	195.0	-	15.0	-	345.0	105.0	-	735.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165.0	-	-	105.0	270.0	15.0	-	555.0
	FOT East - Summer	-	-	-	-	-	-	-	26	256	269	208	300	300	49	88	88	88	300	55	300	55	116
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	-	300	300	300	300	-	300	-	-	75
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	-	-	221
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	-	-	221
	Utility Solar - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-	42
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	66	-	-	-	-	-	-	-	-	-	-	-	66	66
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	349	-	-	51	949	-	-	-	-	-	-	-	-	-	-	1,349	1,349
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	206	248	21	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	388	-	405	793
	Total Solar	-	-	-	-	-	1,254	-	-	117	949	-	206	248	21	100	-	-	-	430	-	2,320	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	-	-	-	-	-	5.4	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	14.6	-	-	-	-	-	-	-	-	-	2.0	-	14.6	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	58.4	-	-	-	50.5	-	-	-	-	-	8.2	-	58.4	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	51	50	49	49	48	45	44	41	37	33	31	30	29	26	26	25	26	22	21	453	721
	Energy Efficiency, WA	11	10	11	12	13	13	12	12	11	10	9	9	8	8	7	6	6	5	4	4	116	183
	Energy Efficiency Total	52	63	63	63	64	63	59	59	54	49	44	42	40	38	35	34	33	32	27	26	588	938
	Battery Storage - S-Oregon	-	-	-	-	-	-	75	90	-	-	-	-	-	-	-	-	-	-	-	-	165	165
	Battery Storage - Willamette Valley	-	-	-	-	-	-	30	45	-	-	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Walla Walla	-	-	-	-	-	-	90	75	-	-	-	-	-	-	-	-	-	-	-	-	165	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	715	492	501	617	273	737	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,052	979	1,075	1,073	729	896
	FOT West - Winter	8	131	265	300	311	23	27	141	659	430	227	154	-	344	412	368	333	308	324	419	229	259
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(202)	(730)	(386)	(466)	(502)	(764)	(971)	(1,115)	(1,013)	(114)	(557)	(156)	(36)	(280)	(1,351)	(43)		
	Annual Additions, Long Term Resources	130	148	303	215	485	3,684	357	703	765	1,622	1,765	2,203	1,177	140	575	85	118	579	1,531	197		
	Annual Additions, Short Term Resources	734	846	757	801	928	296	764	1,241	1,989	1,774	1,511	1,529	1,375	1,768	1,875	1,831	1,773	1,587	1,755	1,792		
	Total Annual Additions	864	995	1,060	1,016	1,413	3,979	1,122	1,944	2,755	3,396	3,276	3,731	2,552	1,909	2,450	1,916	1,891	2,166	3,286	1,989		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-18	Capacity (MW) 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Resource Totals 1/ 10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	-	-	-	-	(44)	(44)
	Hayden 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	-	-	-	-	-	(33)	(33)
	Hunter 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(418)	-	-	-	-	-	-	-	-	-	-	(418)
	Hunter 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(269)	-	-	-	-	-	-	-	-	-	(269)
	Hunter 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(471)	-	-	-	-	-	-	-	-	(471)
	Huntington 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(459)	-	-	-	-	-	-	-	-	-	-	(459)
	Huntington 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	-	-	-	-	-	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Wyodak (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	(268)	-	-	-	-	-	-	-	-	(268)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	-	-	-	185
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	370	185	-	-	-	-	-	-	-	-	-	555
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	620	-	1,100	-	-	-	-	-	-	-	-	2,540	3,640
	Utility Solar - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	-	400
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	300	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	300	310
	Utility Solar - PV - Naughton	-	-	-	-	201	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	357	357
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	459	393	12	45	-	-	-	-	-	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	300	-	-	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	600	-	201	856	-	-	-	-	469	393	12	45	-	-	-	400	-	-	1,657	2,976
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	5.3	3.0	-	-	-	-	-	-	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	9.2	-	59.3	-	-	-	-	5.7	-	-	2.6	9.2	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	-	2.1	-	-	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	-	1.2	18.7	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	144.5	6.7	118.0	3.0	13.8	-	-	23.0	3.7	3.2	21.6	189.1	382.2
	Energy Efficiency, ID	6	7	7	8	8	8	8	8	8	8	7	7	6	6	6	5	4	4	3	3	76	128
	Energy Efficiency, UT	58	74	75	78	80	85	84	82	72	74	72	60	59	56	54	44	40	32	27	26	762	1,232
	Energy Efficiency, WY	10	14	15	16	18	19	19	19	19	18	16	15	13	12	12	9	9	7	6	6	165	270
	Energy Efficiency Total	74	95	97	102	106	112	111	108	98	100	95	82	79	75	72	59	53	43	35	35	1,003	1,630
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	390.0	-	-	-	-	-	-	-	-	-	-	-	390	390
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	300.0	540.0	-	345.0	15.0	15.0	-	645.0	-	-	1,860.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	45.0	15.0	-	75.0	60.0	255.0	-	75.0	-	-	-	120.0	45.0	60.0	690.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	255.0	135.0	-	-	-	-	-	180.0	15.0	-	585.0
	Geothermal, Greenfield - East	-	-	-	-	-	-	-	-	-	-	490	-	-	-	-	-	-	-	-	-	-	490
	FOT East - Summer	46	46	46	46	46	36	129	-	100	100	44	300	88	256	279	274	300	300	300	300	59	152
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	15
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	-	-	221	-	221	443
	Total SCCT	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	-	-	221	-	221	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	333	-	-	-	-	-	-	-	-	-	333
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	333	-	-	-	-	-	-	-	-	-	333
	Utility Solar - PV - jbridger	-	-	-	-	-	-	353	147	-	-	-	-	-	-	-	-	-	-	-	-	500	500
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	349	-	212	354	-	-	-	-	-	-	-	-	-	-	-	915	915
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	975	-	-	-	-	-	-	-	-	-	-	-	-	-	-	975	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	97	-	-	-	-	-	-	-	405	502
	Total Solar	-	-	-	-	-	1,729	353	359	354	-	-	-	97	-	-	-	-	-	-	-	2,795	2,893
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	1.1	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	35.7	-	-	-	-	-	-	-	-	-	-	35.7	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	-	-	-	-	9.9	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	14.6	-	-	-	-	-	-	-	-	2.0	-	14.6	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	99.7	-	7.7	-	-	-	-	-	-	8.2	-	99.7	115.5
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	21	36
	Energy Efficiency, OR	40	53	53	52	49	48	45	43	41	38	35	32	31	30	27	27	26	26	24	24	461	743
	Energy Efficiency, WA	11	12	12	12	13	13	13	12	12	11	10	10	9	8	8	6	6	5	4	4	122	193
	Energy Efficiency Total	52	67	67	66	64	64	60	58	54	52	47	44	42	40	37	35	34	32	29	29	604	972
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	180	180
	Battery Storage - Willamette Valley	-	-	-	-	-	15	-	45	-	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Yakima	-	-	-	-	-	60	-	45	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	680	658	654	783	811	467	193	620	969	1,075	1,075	1,064	902	1,075	1,053	1,041	989	918	1,075	1,028	691	857
	FOT West - Winter	224	14	-	-	-	-	-	-	273	100	-	-	-	-	169	499	91	-	-	-	61	68
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(202)	(730)	(386)	(466)	(502)	(764)	(971)	(1,115)	(1,013)	(114)	(557)	(156)	(36)	(280)	(1,351)	(43)		
	Annual Additions, Long Term Resources	130	162	779	168	381	4,755	533	968	912	1,237	1,553	2,877	1,164	173	529	108	125	479	1,242	145		
	Annual Additions, Short Term Resources	950	718	699	829	857	503	322	620	1,342	1,276	1,119	1,364	1,290	1,331	1,501	1,814	1,380	1,218	1,375	1,328		
	Total Annual Additions	1,080	880	1,478	997	1,238	5,258	855	1,588	2,253	2,512	2,671	4,241	2,455	1,504	2,030	1,922	1,505	1,696	2,617	1,474		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-19	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	CCCT - Utah-N - J 1x1	-	-	-	-	-	-	-	-	-	567	-	-	-	-	-	-	-	-	-	-	567	567
	Total CCCT	-	-	-	-	-	-	-	-	-	567	-	-	-	-	-	-	-	-	-	-	567	567
	SCCT Frame HTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	-	-	195
	SCCT Frame NTN	-	-	-	-	185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	185
	SCCT Frame UTN	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	195
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	379	-	-	-	-	-	-	-	-	-	-	-	-	-	564	-	379	944
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	-	529	91	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	-	-	1,062	-	-	-	-	-	-	-	1,062
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	529	91	1,062	-	-	-	-	-	-	1,920	3,602
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	95	-	-	325	400	-	-	205	1,026
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175	-	-	-	-	175
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	2	35	-	-	-	-	-	-	-	38
	Utility Solar - PV - Naughton	-	-	-	-	82	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	452	452
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	-	-	125
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	589	-	-	589
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	139	-	-	-	-	-	-	-	139
	Total Solar	-	-	146	59	82	370	-	-	-	-	-	-	2	269	-	100	500	400	714	-	657	2,643
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	79.4	-	-	-	37.3	-	-	-	8.2	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	37.3	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	12.9	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	1.2	12.9	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	102.1	-	8.2	7.2	37.3	-	6.7	-	8.2	12.0	-	-	15.3	-	92.5	73.3	174.1	382.2
	Energy Efficiency, ID	6	6	6	7	7	6	7	7	7	6	6	6	6	5	5	4	4	3	3	3	65	110
	Energy Efficiency, UT	58	67	67	68	69	60	60	63	59	53	52	51	48	46	44	32	31	23	20	22	623	991
	Energy Efficiency, WY	10	10	11	14	15	14	14	15	15	14	13	14	12	11	11	8	8	7	5	5	133	226
	Energy Efficiency Total	74	83	85	88	91	80	81	84	81	73	71	71	66	62	60	44	42	33	28	30	820	1,326
	Battery Storage - Utah-N	-	-	-	-	270.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	270	675
	Battery Storage - WYSW	-	-	-	-	210.0	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	360.0	210.0	600.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	150.0	-	285.0
	FOT East - Summer	-	-	-	-	295	76	176	156	186	213	263	243	300	300	268	271	300	300	300	300	110	197
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame SO	-	-	-	-	-	-	-	-	-	210	-	-	-	-	210	-	-	-	419	-	210	839
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	221	-	443
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	233
	Total SCCT	-	-	-	-	-	-	-	-	-	210	-	-	-	-	210	-	-	-	874	221	210	1,515
	Utility Solar - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	136	-	-	136
	Utility Solar - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172	-	172
	Utility Solar - PV - jbridger	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48	713	761
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	295	-	295
	Total Solar	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	136	515	713	1,364
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, OR-Irrigate	-	-	-	-	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.2	9.2
	Demand Response, WA-Irrigate	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	5.2
	Demand Response, WA-Thermostat	-	-	-	-	11.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	11.3
	Demand Response Total	-	-	-	-	25.7	-	-	-	9.4	-	-	-	-	-	-	-	-	-	-	-	35.1	35.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	16	30
	Energy Efficiency, OR	40	32	31	30	32	28	26	25	24	23	20	19	19	21	19	19	18	21	22	23	292	493
	Energy Efficiency, WA	11	9	9	10	10	9	9	9	9	8	8	8	8	7	7	5	6	4	4	4	95	156
	Energy Efficiency Total	52	43	42	42	44	39	37	36	35	33	30	29	28	30	28	26	25	26	27	27	402	679
	Battery Storage - S-Oregon	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(15)	15	-
	Battery Storage - Willamette Valley	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	90
	Battery Storage - Portland NC	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	90	225
	Battery Storage - Walla Walla	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	135	165
	Battery Storage - Yakima	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	90
	FOT West - Summer	998	961	826	878	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,014	1,075	1,061	1,011	1,039
	FOT West - Winter	151	132	270	308	323	305	260	269	225	-	-	-	-	-	-	-	-	-	-	-	224	112
	Existing Plant Retirements/Conversions	-	(308)	(810)	(224)	(1,065)	(62)	-	(148)	(3)	(764)	(93)	(149)	(350)	(114)	(320)	(156)	(117)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	126	288	188	2,338	2,408	126	128	162	883	108	628	196	1,436	297	170	583	459	2,601	1,931		
	Annual Additions, Short Term Resources	1,149	1,092	1,096	1,186	1,693	1,456	1,511	1,500	1,486	1,288	1,338	1,318	1,375	1,375	1,343	1,346	1,375	1,314	1,375	1,361		
	Total Annual Additions	1,279	1,219	1,385	1,374	4,031	3,864	1,637	1,627	1,648	2,171	1,446	1,946	1,571	2,811	1,640	1,516	1,958	1,773	3,976	3,293		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-20	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	-	185	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	185	555	-	185	-	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	620	-	1,100	-	-	-	-	-	-	-	-	2,540	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	-	95	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	295	-	-	-	-	-	-	-	-	-	-	295
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	605	-	-	-	-	-	-	-	-	-	-	-	-	-	-	605	605
	Total Solar	-	-	146	59	-	801	-	-	-	-	295	-	500	-	-	-	-	400	909	-	1,006	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	8	7	6	6	6	6	5	4	4	3	3	71	120
	Energy Efficiency, UT	58	67	67	69	75	72	71	68	68	67	57	56	52	50	50	38	34	28	28	30	683	1,106
	Energy Efficiency, WY	10	12	13	14	16	17	19	19	19	18	16	15	13	12	11	9	8	7	6	5	155	258
	Energy Efficiency Total	74	85	87	90	98	96	97	94	94	93	80	77	72	68	67	51	47	39	37	38	909	1,483
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	360.0	-	-	-	-	-	-	-	-	210	390	360	960
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	30.0	-	-	-	-	-	-	-	-	165.0	195.0	30.0	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	90.0	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	205	300	300	300	172	292	293	300	300	300	300	21	153
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	48
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	48
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	280	-	-	-	-	-	-	-	-	500	780
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	282	-	-	-	-	-	-	405	687
	Utility Solar - PV - jbridger	-	-	-	-	354	-	-	-	-	-	359	-	-	-	-	-	-	-	-	122	354	836
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	579	-	579
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	-	195
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Total Solar	-	-	-	-	354	905	-	-	-	-	359	575	-	282	100	-	-	-	-	702	1,259	3,277
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	-	-	-	-	5.3	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	43.9	-	-	5.8	-	-	-	-	87.7	2.0	-	139.3
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	49	47	46	43	41	41	38	33	31	31	30	27	27	26	27	25	24	430	710
	Energy Efficiency, WA	11	11	11	12	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	114	184
	Energy Efficiency Total	52	56	55	63	61	60	57	55	54	51	45	42	42	40	37	35	34	34	30	29	563	929
	Battery Storage - S-Oregon	-	-	-	-	225	-	-	-	-	15	-	-	-	-	-	-	-	-	150	135	240	525
	Battery Storage - Willamette Valley	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	150	210
	Battery Storage - Portland NC	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	30	180
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	45	15	120	180
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	717	600	654	1,028	351	440	427	483	1,075	1,075	1,060	1,075	1,074	1,075	1,075	1,066	1,000	1,075	1,075	677	871
	FOT West - Winter	151	127	261	295	303	228	230	229	276	407	427	364	393	376	357	278	309	267	-	-	251	264
	Existing Plant Retirements/Conversions	-	(61)	(810)	(224)	(352)	(62)	-	(230)	(3)	(912)	(449)	(753)	(350)	(114)	(320)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	304	211	1,033	3,782	162	156	148	1,289	1,131	2,357	613	640	204	86	96	472	2,428	1,828		
	Annual Additions, Short Term Resources	1,149	844	860	949	1,331	579	670	656	759	1,688	1,802	1,724	1,768	1,622	1,723	1,645	1,675	1,566	1,375	1,375		
	Total Annual Additions	1,279	985	1,164	1,160	2,363	4,361	832	812	907	2,977	2,933	4,081	2,381	2,263	1,927	1,731	1,771	2,038	3,803	3,203		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-28	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	370	-	-	185	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	370	-	-	555	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,083	-	-	-	-	-	-	-	-	-	1,083
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,083	-	-	-	-	-	-	-	-	1,920	3,623
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	17
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	-	44
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	865	-	-	865
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	-	729	-	-	-	-	-	-	-	-	37	765
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	135
	Total Solar	-	-	146	59	67	263	-	-	-	37	-	729	517	-	-	-	-	400	909	-	571	3,126
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	124.9	-	12.0	22.3	-	15.3	-	134.8	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	53	52	50	49	36	32	26	25	26	659	1,063
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	149	249
	Energy Efficiency Total	74	83	85	88	91	92	92	94	91	87	76	74	71	68	65	49	45	37	33	35	876	1,428
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	345.0	-	-	-	-	-	-	-	-	15	405	345	765
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	210.0	105.0	315.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	-	-	195.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	74	237	243	300	298	300	300	300	300	300	-	133
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	228	228
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	123	-	-	-	-	48	-	525
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	236	-	-	-	-	654	-	890
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	272	-	-	-	-	-	-	-	-	475	-	-	-	-	-	272	747
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	100	-	834	-	-	-	430	702	905	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	51.1	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	39	39	43	41	39	37	33	31	30	29	26	27	26	26	25	24	392	667
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	110	178
	Energy Efficiency Total	52	49	48	55	53	52	56	54	52	49	44	41	40	38	35	34	33	32	30	29	520	878
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	165	-	-	-	-	-	-	-	-	375	-	165	540
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	30	-	75	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	45	-	120	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	497	136	131	234	279	874	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	486	777
	FOT West - Winter	151	131	265	300	311	175	182	303	350	362	354	318	370	316	216	135	152	152	-	-	253	227
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(296)	(85)	(764)	(444)	(753)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	286	201	229	3,232	156	155	142	1,208	1,101	2,431	728	118	1,563	83	93	469	2,716	1,402		
	Annual Additions, Short Term Resources	1,149	850	757	801	807	311	313	537	629	1,236	1,503	1,630	1,688	1,691	1,588	1,510	1,527	1,462	1,375	1,375		
	Total Annual Additions	1,279	982	1,043	1,003	1,037	3,543	470	693	771	2,444	2,604	4,061	2,417	1,809	3,151	1,593	1,620	1,931	4,091	2,777		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-30	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	-	-	-	185
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	-	-	185	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	185	185	-	-	185	-	-	-	-	-	-	555
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	205	605
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	95	-	-	-	-	-	-	500	-	-	-	-	-	-	-	95	595
	Utility Solar - PV - Naughton	-	-	-	-	357	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	357	357
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	10
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	899	-	-	899
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	899	-	-	-	-	-	-	-	-	-	899
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
	Total Solar	-	-	146	59	357	196	-	-	-	-	-	899	500	-	-	-	-	400	909	-	758	3,466
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	5.7	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	90.8	-	15.3	-	66.3	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	67	69	75	68	67	68	65	62	54	53	52	50	49	36	32	26	21	25	667	1,065
	Energy Efficiency, WY	10	12	13	14	17	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	154	255
	Energy Efficiency Total	74	85	86	90	99	92	92	94	91	87	76	74	72	68	66	49	45	37	29	33	890	1,437
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	45.0	-	-	-	-	-	-	-	-	615	465	45	1,125
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	525.0	-	-	-	-	-	-	-	-	15.0	15.0	525.0	555.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360.0	150.0	-	510.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	212	231	290	300	289	298	300	300	300	300	300	21	156
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	405	-	-	-	-	-	-	500	905
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	48	-	761
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	654	-	654
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-	-	70
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	100	475	359	-	-	-	430	702	905	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	-	-	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	18.6	-	-	-	90.8	-	-	-	7.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	33
	Energy Efficiency, OR	40	43	43	42	47	39	43	41	39	37	33	31	30	29	26	26	25	25	22	21	412	677
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	8	8	8	6	6	5	4	4	113	179
	Energy Efficiency Total	52	56	56	55	61	52	56	54	52	49	44	42	40	38	35	33	32	30	27	26	543	890
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	120	75	120	315
	Battery Storage - Willamette Valley	-	-	-	-	15	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	90	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	45	30	75	150
	Battery Storage - Walla Walla	-	-	-	-	75	-	-	-	-	60	-	-	-	-	-	-	-	-	15	75	135	225
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	804	249	341	316	388	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	588	828
	FOT West - Winter	151	131	265	300	310	239	245	247	294	426	418	382	434	455	-	-	-	32	-	-	261	216
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(358)	(62)	-	(148)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	295	204	730	3,166	156	155	142	1,036	1,421	2,307	711	593	1,269	82	92	467	2,639	1,592		
	Annual Additions, Short Term Resources	1,149	850	757	801	1,114	487	586	562	682	1,713	1,724	1,746	1,809	1,819	1,373	1,375	1,374	1,342	1,375	1,375		
	Total Annual Additions	1,279	991	1,052	1,005	1,844	3,653	743	718	824	2,749	3,145	4,054	2,520	2,412	2,642	1,457	1,467	1,809	4,014	2,967		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-31	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	185	-	-	555	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,083	-	-	-	-	-	-	-	-	-	1,083
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,083	-	-	-	-	-	-	-	-	1,920	3,623
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	-	-	-	-	-	400	-	-	300	700
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	-	-	-	-	500
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	17
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	797	12	-	809
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	40	37	-	129	-	-	-	-	-	-	-	-	76	205
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	695	695
	Total Solar	-	-	146	59	67	823	-	-	40	37	-	129	517	-	-	-	-	400	897	12	1,171	3,126
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	20.5	-	15.3	-	136.6	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	66	67	68	65	62	54	53	52	50	51	36	32	25	22	26	657	1,059
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	19	18	15	14	13	12	11	9	8	7	5	5	147	248
	Energy Efficiency Total	74	83	85	88	91	89	91	93	91	87	76	74	72	68	68	49	45	36	30	35	872	1,423
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	225.0	-	-	-	-	-	-	-	-	105	435	225	765
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	165.0	105.0	270.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.0	-	-	-	135.0	-	-	210.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	25	206	289	300	277	298	300	300	300	300	300	3	145
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	374	-	-	-	-	-	-	-	239	-	-	-	-	-	-	374	614
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	-	-	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	126	-	-	-	-	-	-	-	236	-	-	-	-	-	-	126	361
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	354	-	-	575	359	-	-	-	430	702	905	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	18.6	-	-	-	41.8	-	-	-	76.9	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	34	37	37	39	39	43	41	39	37	33	31	30	29	27	27	26	26	25	24	384	660
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	10	9	9	9	8	8	6	6	5	4	4	108	176
	Energy Efficiency Total	52	45	48	49	53	52	56	54	52	49	44	42	40	38	36	34	33	32	30	29	510	869
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	120	-	-	-	-	90	-	-	-	360	-	120	570
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	150	-	-	-	-	15	-	-	-	-	-	150	165
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	45	-	120	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	154	150	151	203	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	494	781
	FOT West - Winter	151	131	265	300	310	209	215	217	264	396	391	352	361	377	310	226	243	243	-	-	246	248
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	128	286	195	229	3,790	155	339	182	998	1,236	1,520	629	693	1,260	83	93	468	2,688	1,399		
	Annual Additions, Short Term Resources	1,149	850	757	801	806	363	365	368	466	1,496	1,672	1,715	1,736	1,729	1,682	1,601	1,618	1,553	1,375	1,375		
	Total Annual Additions	1,279	979	1,043	996	1,036	4,153	520	707	648	2,493	2,908	3,235	2,365	2,422	2,943	1,684	1,711	2,020	4,063	2,774		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-32	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	185	-	-	185	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	126	494	-	-	-	-	-	-	-	-	-	126	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	984	-	-	-	-	-	-	-	-	-	984
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	126	494	984	-	-	-	-	-	-	-	-	2,046	3,524
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	205	605
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	95	-	-	-	-	-	-	500	-	-	-	-	-	-	-	95	595
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	53	63	-	-	-	-	-	-	-	-	116
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	802	-	-	-	-	-	-	-	-	-	802
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	98
	Total Solar	-	-	146	59	-	293	-	-	-	-	-	855	563	-	-	-	-	400	909	-	498	3,225
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-	-	2.1	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	18.4	-	15.3	-	138.7	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	67	69	75	68	67	68	65	62	54	53	52	50	49	36	32	26	23	26	667	1,070
	Energy Efficiency, WY	10	12	13	14	18	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	154	256
	Energy Efficiency Total	74	85	86	90	100	92	92	94	91	87	76	74	72	68	66	49	45	37	32	35	891	1,443
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	270.0	-	-	-	-	-	-	-	-	15	480	270	765
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	150.0	-	-	-	-	-	-	-	-	-	240.0	150.0	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	-	-	-	150.0	-	-	210.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	300	246	300	300	252	284	286	300	300	300	300	30	158
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	92	-	-	-	-	-	-	-	92
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	354	-	-	-	-	-	359	-	-	-	-	-	-	-	-	-	354	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	343	-	343
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	383	-	-	-	-	-	-	500	883
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	354	905	-	-	-	-	359	-	-	475	-	-	-	-	430	343	1,259	2,866
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	10.7	-	-	-	76.9	-	9.4	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	42	47	39	43	41	39	37	33	31	30	29	27	26	26	26	24	24	412	686
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	56	55	55	61	52	56	54	52	49	44	42	40	38	36	34	33	32	29	29	543	900
	Battery Storage - S-Oregon	-	-	-	-	60	-	-	-	-	120	-	-	-	-	15	-	-	-	315	45	180	555
	Battery Storage - Willamette Valley	-	-	-	-	30	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	105	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	60	-	-	-	-	45	-	-	-	-	45	60	150
	Battery Storage - Walla Walla	-	-	-	-	75	-	-	-	-	-	-	-	-	-	60	-	-	-	15	105	75	255
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	808	99	190	526	584	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,060	996	1,075	1,061	599	832
	FOT West - Winter	151	131	265	300	310	119	123	125	172	303	300	261	270	246	160	97	106	114	-	-	200	178
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(352)	(62)	-	(587)	(3)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	295	204	803	3,262	156	340	142	1,063	1,391	2,148	674	593	497	83	93	469	2,553	1,343		
	Annual Additions, Short Term Resources	1,149	850	757	801	1,118	218	313	651	755	1,678	1,621	1,636	1,645	1,573	1,518	1,458	1,466	1,410	1,375	1,361		
	Total Annual Additions	1,279	991	1,052	1,005	1,921	3,480	470	991	898	2,741	3,012	3,783	2,319	2,166	2,015	1,540	1,559	1,879	3,928	2,703		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-33	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	370	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,096	-	-	-	-	-	-	-	-	1,920	3,636
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	205	605
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	95	-	-	-	-	-	-	500	-	-	-	-	-	-	-	95	595
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	205	-	-	-	-	-	-	-	-	-	205
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	695	695
	Total Solar	-	-	146	59	-	890	-	-	-	-	-	205	504	-	-	-	-	400	909	-	1,095	3,113
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	20.5	-	15.3	-	136.6	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	69	73	75	68	67	68	65	62	54	53	52	50	49	36	32	26	25	26	672	1,076
	Energy Efficiency, WY	10	12	13	15	18	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	155	256
	Energy Efficiency Total	74	85	88	95	100	92	92	94	91	87	76	74	71	68	65	49	45	37	33	35	897	1,450
	Battery Storage - Utah-N	-	-	-	-	45.0	-	-	-	-	75.0	-	-	-	-	-	-	-	-	285	540	120	945
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	345.0	-	-	-	-	-	-	-	-	-	60.0	345.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	165.0	-	375.0
	FOT East - Summer	-	-	-	-	58	-	-	-	-	247	182	285	300	262	269	271	300	300	300	300	31	154
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	407	-	-	-	-	-	-	-	165	-	-	-	-	-	-	407	572
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	128	713	842
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	215	-	215
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	93	-	-	-	-	-	-	-	310	-	-	-	-	-	-	93	403
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	713	905	-	-	-	-	-	-	-	575	-	-	-	-	430	343	1,618	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	9.2	-	-	-	41.8	-	-	-	76.9	-	9.4	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	49	47	39	43	41	39	37	33	31	30	29	26	26	26	26	25	24	419	693
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	113	181
	Energy Efficiency Total	52	56	56	63	61	52	56	54	52	49	44	42	40	38	35	33	33	32	30	29	551	907
	Battery Storage - S-Oregon	-	-	-	-	105	-	-	-	-	45	-	-	-	-	-	-	-	-	75	45	150	270
	Battery Storage - Willamette Valley	-	-	-	-	90	-	-	-	-	30	-	-	-	-	-	-	-	-	-	15	120	135
	Battery Storage - Portland NC	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135	60	195
	Battery Storage - Walla Walla	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-	15	150	120	285
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	719	492	501	1,075	372	463	437	510	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,046	981	1,075	1,075	637	850
	FOT West - Winter	151	131	265	300	310	216	221	222	269	401	397	358	367	376	298	215	232	231	-	-	249	248
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(708)	(62)	-	(148)	(85)	(912)	(93)	(753)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	141	297	216	1,417	3,859	156	155	142	757	756	1,980	615	693	533	82	93	469	2,643	1,538		
	Annual Additions, Short Term Resources	877	850	757	801	1,444	588	684	660	779	1,723	1,655	1,718	1,742	1,713	1,642	1,561	1,578	1,513	1,375	1,375		
	Total Annual Additions	1,007	991	1,054	1,016	2,861	4,448	840	815	921	2,480	2,411	3,698	2,358	2,406	2,174	1,643	1,671	1,982	4,018	2,913		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-34	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	(238)	-	-	-	-	-	-	-	-	-	-	-	(119)	-	-	-	-	-	(238)	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	-	-	-	-	-	370	-	555	-	-	-	-	-	-	-	-	370	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	345	275	-	-	-	-	-	-	-	-	-	345	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	345	275	1,100	-	-	-	-	-	-	-	-	2,265	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	-	63	-	-	-	-	-	41	-	-	-	-	-	400	-	-	268	709
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	32	-	-	-	-	-	407	52	-	-	-	-	-	-	-	32	491
	Utility Solar - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	-	23
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	886	-	-	886
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	300
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600	600
	Total Solar	-	-	146	59	-	795	-	-	-	-	-	748	52	-	-	-	-	400	909	-	1,000	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	15.3	-	155.3	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	69	72	66	66	65	65	62	56	56	52	50	49	36	32	26	25	26	657	1,065
	Energy Efficiency, WY	10	12	13	14	16	16	16	17	18	17	15	15	13	12	11	9	8	7	5	5	149	250
	Energy Efficiency Total	74	85	86	90	95	89	90	88	89	87	77	77	72	68	65	49	45	37	33	35	875	1,432
	Battery Storage - Utah-N	-	-	-	-	135.0	-	-	-	-	45.0	-	-	-	-	-	-	-	-	315	405	180	900
	Battery Storage - WYSW	-	-	-	-	120.0	-	-	-	-	-	-	-	-	-	-	-	-	-	105.0	315.0	120.0	540.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	180.0	-	-	-	-	-	15.0	135.0	-	330.0
	FOT East - Summer	-	-	-	-	290	-	-	-	-	300	300	300	257	162	298	300	300	300	300	300	59	170
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	95	-	-	-	-	-	-	500	595
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	19	405	424
	Utility Solar - PV - jbridger	-	-	-	-	713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	713	725
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	331	-	331
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	380	-	-	-	-	-	-	-	380
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	411	-	411
	Total Solar	-	-	-	-	713	905	-	-	-	-	-	-	100	475	-	-	-	-	-	773	1,618	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	11.3	-	-	-	-	5.3	-	-	-	-	-	11.3	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	49.7	-	-	-	-	10.7	-	-	-	76.9	-	49.7	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	42	47	39	36	41	39	37	33	31	30	29	26	26	25	26	24	24	405	676
	Energy Efficiency, WA	11	10	11	12	12	12	11	11	11	10	9	9	9	8	8	6	6	5	4	4	111	179
	Energy Efficiency Total	52	55	55	55	61	52	49	54	52	49	44	42	40	38	35	33	32	32	29	29	534	888
	Battery Storage - S-Oregon	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-	300	(75)	120	345
	Battery Storage - Willamette Valley	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	105	195
	Battery Storage - Portland NC	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	60	90	60	210
	Battery Storage - Walla Walla	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	135	300
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	719	607	661	1,075	675	766	740	813	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	786	927
	FOT West - Winter	151	131	265	300	310	239	243	245	291	423	420	381	433	355	275	192	209	209	-	-	260	254
	Existing Plant Retirements/Conversions	-	(61)	(810)	(224)	(708)	(62)	-	(148)	(85)	(912)	(93)	(753)	(350)	(114)	(320)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	140	303	204	1,659	3,761	147	150	141	1,062	403	2,530	444	593	113	82	93	469	2,441	1,983		
	Annual Additions, Short Term Resources	877	850	872	961	1,675	913	1,009	985	1,104	1,798	1,795	1,756	1,765	1,591	1,648	1,567	1,584	1,519	1,375	1,375		
	Total Annual Additions	1,007	990	1,175	1,164	3,334	4,675	1,156	1,134	1,245	2,861	2,198	4,285	2,209	2,184	1,761	1,649	1,676	1,987	3,816	3,358		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-35	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	370	555	-	-	-	-	-	-	-	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	141	479	-	-	-	-	-	-	-	-	-	141	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,017	-	-	-	-	-	-	-	-	-	1,017
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	141	479	1,017	-	-	-	-	-	-	-	-	2,061	3,557
	Utility Solar - PV - Utah-S	-	-	146	59	-	95	-	-	-	-	-	-	-	223	-	-	-	400	-	-	300	923
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	277	-	-	-	-	-	-	-	277
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	74	9	-	-	-	-	-	-	-	-	83
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	-	-	-	221
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	679	-	-	-	-	-	-	-	-	-	-	-	-	-	-	679	679
	Total Solar	-	-	146	59	-	874	-	-	-	-	-	295	9	500	-	-	-	400	909	-	1,079	3,193
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	5.7	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	45.8	-	-	-	-	70.8	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	2.1	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	64.0	-	8.2	7.2	-	70.8	6.7	8.2	-	12.0	134.2	-	15.3	3.7	19.2	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	68	70	75	67	67	68	65	62	56	56	52	50	49	38	34	25	22	22	668	1,071
	Energy Efficiency, WY	10	12	13	14	16	16	16	18	18	17	15	14	13	12	11	9	8	7	5	5	149	248
	Energy Efficiency Total	74	85	88	91	98	91	91	93	90	86	78	76	71	68	65	51	47	35	30	30	887	1,437
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	135.0	-	-	-	-	-	-	-	-	-	135	135	270
	Battery Storage - WYSW	-	-	-	-	105.0	-	-	-	-	210.0	-	-	-	-	-	-	-	-	360.0	30.0	315.0	705.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.0	30.0	-	15.0	645.0	-	-	780.0
	FOT East - Summer	-	-	-	-	17	-	-	-	-	227	169	255	300	239	296	298	300	297	300	300	24	150
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	349	-	-	-	-	-	-	16	-	-	-	-	-	-	-	349	365
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar - PV - jbridger	-	-	-	-	702	-	-	-	-	-	354	-	-	-	-	-	-	-	-	-	702	1,056
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	151	-	-	-	-	-	-	288	171	-	-	-	-	-	-	151	610
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	-	-	-	-	430
	Total Solar	-	-	-	-	702	905	-	-	-	-	354	-	404	171	430	-	-	-	-	-	1,607	2,966
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	-	-	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	43.6	-	-	-	56.4	-	-	-	6.1	-	9.4	115.5
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	43	43	42	47	39	43	41	39	37	33	31	30	29	26	26	26	26	24	21	412	681
	Energy Efficiency, WA	11	11	11	12	12	12	11	11	11	11	9	9	9	8	8	6	6	5	4	4	112	180
	Energy Efficiency Total	52	56	55	55	61	52	56	54	52	49	44	42	40	38	35	33	33	32	29	26	542	893
	Battery Storage - S-Oregon	-	-	-	-	105	-	-	-	-	30	-	-	-	-	-	-	-	-	255	60	135	450
	Battery Storage - Willamette Valley	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	30	75	60	165
	Battery Storage - Walla Walla	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	60	105	90	255
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	719	492	501	1,075	346	436	411	482	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,072	1,006	1,075	1,072	626	847
	FOT West - Winter	151	131	265	299	310	203	206	208	255	387	594	553	566	529	324	244	225	208	-	-	242	283
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(703)	(62)	-	(148)	(85)	(912)	(444)	(753)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	141	297	205	1,405	3,842	155	154	141	792	1,374	1,993	525	788	1,254	113	95	485	2,343	482		
	Annual Additions, Short Term Resources	877	850	757	800	1,402	548	643	619	737	1,689	1,838	1,883	1,941	1,843	1,695	1,616	1,597	1,512	1,375	1,372		
	Total Annual Additions	1,007	991	1,053	1,006	2,807	4,390	798	773	878	2,481	3,212	3,875	2,465	2,631	2,949	1,730	1,692	1,997	3,718	1,854		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-45	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	185	-	-	185	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	102	518	-	-	-	-	-	-	-	-	-	102	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,079	-	-	-	-	-	-	-	-	-	1,079
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	102	518	1,079	-	-	-	-	-	-	-	-	2,022	3,619
	Utility Solar - PV - Utah-S	-	-	146	59	4	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	209	609
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	91	-	-	-	-	-	-	500	-	-	-	-	-	-	-	91	591
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	21
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	897	12	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	805	-	-	-	-	-	-	-	-	-	805
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	68	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	95	95
	Total Solar	-	-	146	59	72	218	-	-	-	-	-	826	500	-	-	-	-	400	897	12	495	3,130
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	20.5	-	15.3	-	136.6	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	67	67	68	65	62	54	55	52	50	51	36	32	26	25	26	658	1,065
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	149	250
	Energy Efficiency Total	74	83	85	88	91	91	92	94	91	87	76	76	72	68	68	49	45	37	33	35	875	1,432
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	195.0	-	-	-	-	-	-	-	-	300	315	195	810
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	285.0	-	-	-	-	-	-	-	-	-	120.0	285.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	-	-	-	135.0	180.0	-	375.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	300	242	300	300	267	298	300	300	300	300	300	30	160
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	116	-	-	-	-	-	-	-	-	116
	Utility Solar - PV - Yakima	-	-	-	-	-	376	-	-	-	-	-	-	-	-	-	-	-	-	7	-	376	383
	Utility Solar - PV - jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	-	354	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	36	323	-	-	-	-	-	-	500	859
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	-	-	423	-	29	452
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	152	423	-	-	-	-	430	702	1,259	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	10.7	-	-	-	47.4	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	32	37	42	39	39	43	41	39	37	33	31	30	29	27	27	26	26	24	21	387	660
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	10	9	9	9	8	8	6	6	5	4	4	109	176
	Energy Efficiency Total	52	43	48	54	53	52	56	54	52	49	44	42	40	38	36	34	33	32	29	26	513	868
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	150	-	-	-	-	60	-	-	-	30	-	150	240
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	195	195
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	60	-	-	-	-	60	-	-	-	60	-	60	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	95	186	507	580	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,010	1,075	1,075	565	817
	FOT West - Winter	151	131	265	300	310	112	116	117	164	296	293	253	325	259	189	98	116	115	-	-	196	181
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	126	286	201	235	3,540	156	340	142	1,354	1,415	2,215	764	541	500	83	93	469	2,540	1,411		
	Annual Additions, Short Term Resources	1,149	850	757	801	806	207	302	625	744	1,671	1,610	1,628	1,700	1,601	1,561	1,473	1,490	1,425	1,375	1,375		
	Total Annual Additions	1,279	977	1,043	1,001	1,041	3,747	459	965	886	3,025	3,024	3,844	2,464	2,143	2,061	1,557	1,583	1,894	3,915	2,786		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-46	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	544	76	-	-	-	-	-	-	-	-	-	544	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	544	76	1,100	-	-	-	-	-	-	-	-	2,464	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	169	-	-	-	-	400	-	-	300	869
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	331	-	-	-	-	-	-	-	-	331
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	202	-	-	-	-	-	-	-	-	-	202
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	698	-	-	-	-	-	-	-	-	-	-	-	-	-	-	698	698
	Total Solar	-	-	146	59	67	726	-	-	-	-	-	202	600	-	-	-	-	400	909	-	998	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	5.7	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	2.1	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	25.4	8.2	-	12.0	112.8	-	15.3	3.7	21.9	17.3	161.2	377.8
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	3	3	3	68	117
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	54	52	50	49	38	32	26	25	26	654	1,063
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	15	14	13	12	11	9	8	7	5	5	139	238
	Energy Efficiency Total	74	83	85	86	89	90	91	88	89	86	79	74	71	67	65	51	45	37	33	35	861	1,417
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	-	-	240	240
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	495.0	-	-	495.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	135.0	-	240.0	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	210.0	60.0	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	227	241	159	208	135	285	286	300	286	300	300	23	136
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar - PV - Yakima	-	-	-	-	-	289	-	-	-	-	-	-	-	-	-	-	-	-	-	407	289	696
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	713	-	-	349	-	-	-	251	-	-	-	-	-	713	1,313
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	-	-	-	-	-	-	102
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	116	-	-	-	-	-	-	-	-	-	-	-	-	-	23	116	139
	Total Solar	-	-	-	-	-	905	-	713	-	-	349	-	-	575	353	-	-	-	-	430	1,618	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	-	-	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	11.3	3.3	-	-	-	2.0	-	-	-	-	-	11.3	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	49.7	8.7	-	-	-	51.0	-	-	-	6.1	-	49.7	115.5
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	42	39	46	43	41	39	37	33	31	30	30	27	27	26	26	25	24	399	677
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	48	48	54	53	59	56	54	52	49	44	42	40	40	37	34	33	32	30	29	525	887
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	555	30	45	630
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	30	-	120	150
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	30	30	105	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	54	47	538	610	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,061	1,007	1,075	1,075	553	810
	FOT West - Winter	151	131	265	299	310	91	95	96	143	275	482	441	450	432	231	159	176	160	-	-	186	219
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,207)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	131	286	199	227	3,700	155	1,048	140	1,701	952	1,796	711	694	1,061	85	93	488	2,545	631		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	145	142	634	753	1,577	1,797	1,675	1,733	1,642	1,591	1,520	1,537	1,452	1,375	1,375		
	Total Annual Additions	1,279	982	1,043	999	1,033	3,844	297	1,683	893	3,278	2,749	3,471	2,444	2,336	2,652	1,605	1,630	1,940	3,920	2,006		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-53	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	544	76	-	-	-	-	-	-	-	-	-	544	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	544	76	1,100	-	-	-	-	-	-	-	-	2,464	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	-	169	-	-	-	-	400	-	-	300	869
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	331	-	-	-	-	-	-	-	-	331
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	202	-	-	-	-	-	-	-	-	-	202
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	698	-	-	-	-	-	-	-	-	-	-	-	-	-	-	698	698
	Total Solar	-	-	146	59	67	726	-	-	-	-	-	202	600	-	-	-	-	400	909	-	998	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	-	5.7	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	-	2.1	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	25.4	8.2	-	12.0	112.8	-	15.3	3.7	21.9	17.3	161.2	377.8
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	3	3	3	68	117
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	54	52	50	49	38	32	26	25	26	654	1,063
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	15	14	13	12	11	9	8	7	5	5	139	238
	Energy Efficiency Total	74	83	85	86	89	90	91	88	89	86	79	74	71	67	65	51	45	37	33	35	861	1,417
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	495	-	240	735
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	135.0	-	240.0	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	210.0	60.0	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	227	241	159	208	135	285	286	300	286	300	300	23	136
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar - PV - Yakima	-	-	-	-	-	289	-	-	-	-	-	-	-	-	-	-	-	-	-	407	289	696
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	713	-	-	349	-	-	-	251	-	-	-	-	-	713	1,313
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	-	-	-	-	-	-	102
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	116	-	-	-	-	-	-	-	-	-	-	-	-	-	23	116	139
	Total Solar	-	-	-	-	-	905	-	713	-	-	349	-	-	575	353	-	-	-	-	430	1,618	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	-	-	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	11.3	3.3	-	-	-	2.0	-	-	-	-	-	11.3	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	49.7	8.7	-	-	-	51.0	-	-	-	6.1	-	49.7	115.5
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	42	39	46	43	41	39	37	33	31	30	30	27	27	26	26	25	24	399	677
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	48	48	54	53	59	56	54	52	49	44	42	40	40	37	34	33	32	30	29	525	887
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	555	30	45	630
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	30	-	120	150
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	30	30	105	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	54	47	538	610	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,061	1,007	1,075	1,075	553	810
	FOT West - Winter	151	131	265	299	310	91	95	96	143	275	482	441	450	432	231	159	176	160	-	-	186	219
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,212)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	131	286	199	227	3,700	155	1,048	140	1,701	952	1,796	711	694	1,061	85	93	488	2,545	631		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	145	142	634	753	1,577	1,797	1,675	1,733	1,642	1,591	1,520	1,537	1,452	1,375	1,375		
	Total Annual Additions	1,279	982	1,043	999	1,033	3,844	297	1,683	893	3,278	2,749	3,471	2,444	2,336	2,652	1,605	1,630	1,940	3,920	2,006		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-54	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	185	-	-	185	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,078	-	-	-	-	-	-	-	-	-	1,078
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,078	-	-	-	-	-	-	-	-	1,920	3,618
	Utility Solar - PV - Utah-S	-	-	146	59	67	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	272	672
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	28	-	-	-	-	-	-	500	-	-	-	-	-	-	-	28	528
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	-	22
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	205	-	-	-	-	-	-	-	-	-	205
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	695	695
	Total Solar	-	-	146	59	67	823	-	-	-	-	-	205	522	-	-	-	-	400	909	-	1,095	3,132
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	11.7	-	12.0	1.8	-	15.3	-	151.9	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	55	56	52	52	52	36	32	26	23	22	654	1,060
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	18	18	15	15	13	12	11	9	8	7	5	5	147	248
	Energy Efficiency Total	74	83	85	88	91	89	91	90	90	87	77	77	72	70	70	49	45	37	31	30	868	1,425
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	345.0	-	-	-	-	-	-	-	-	-	375	345	720
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	60.0	-	-	-	-	-	-	-	-	-	165.0	60.0	225.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	-	-	150.0	90.0	-	270.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	295	219	298	300	262	299	300	300	300	300	300	29	159
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	142	-	-	-	-	-	-	500	642
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	7	-	405	412
	Utility Solar - PV - jbridger	-	-	-	-	-	-	359	-	-	-	354	-	-	-	-	-	-	-	-	-	359	713
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	702	-	702
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	333	-	-	-	-	-	-	-	333
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	423	-	-	423
	Total Solar	-	-	-	-	-	905	359	-	-	-	354	-	-	475	100	-	-	-	430	702	1,264	3,325
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, OR-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	12.0	-	-	17.8
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	35.6	-	10.6	-	11.8	1.5	-	-	86.3	3.0	9.4	158.2
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	36	39	39	43	41	39	37	33	31	30	30	27	26	26	26	25	21	387	660
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	11	9	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	48	48	48	53	52	56	54	52	49	44	42	40	40	37	33	33	32	30	26	513	870
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	120	-	-	-	-	105	-	-	-	420	45	120	690
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15	15
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	135	-	-	-	-	30	-	-	-	-	45	135	210
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	135	-	-	-	-	15	-	-	-	45	-	135	195
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	180	174	485	558	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,009	1,075	1,075	568	818
	FOT West - Winter	151	131	265	300	310	239	243	244	291	423	419	380	389	391	321	231	248	248	-	-	260	261
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	(356)	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	286	195	229	3,790	515	336	142	1,177	1,507	1,598	645	597	585	84	93	469	2,696	1,502		
	Annual Additions, Short Term Resources	1,149	850	757	801	806	419	416	729	849	1,792	1,714	1,753	1,764	1,729	1,695	1,606	1,623	1,557	1,375	1,375		
	Total Annual Additions	1,279	982	1,043	995	1,036	4,209	931	1,065	991	2,970	3,220	3,351	2,409	2,326	2,279	1,689	1,716	2,026	4,071	2,877		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.13 - C-Cases, Detailed Capacity Expansion Portfolio

		Capacity (MW)																				Resource Totals 1/	
	P-31C	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	883	-	-	-	-	-	-	-	-	-	883
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	883	-	-	-	-	-	-	-	-	1,920	3,423
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	-	500	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	149	68	-	-	-	-	-	-	-	-	217
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	149	68	500	-	-	-	-	909	-	1,200	2,826
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	54.9	70.0	-	-	-	-	8.3	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	54.9	70.0	12.0	-	-	7.0	12.0	153.4	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	62	56	52	52	52	36	33	26	25	26	659	1,079
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	19	18	16	15	13	12	11	9	8	7	5	5	149	252
	Energy Efficiency Total	74	83	85	88	91	92	92	94	91	87	84	77	72	70	70	49	45	37	33	35	876	1,448
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105.0	-	-	-	165	300	-	570
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.0	-	-	-	75.0	165.0	-	330.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	-	-	-	-	150.0	-	345.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	46	236	300	230	258	260	300	300	300	300	-	127
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	30
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	30
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	354	-	-	-	359	-	-	-	-	702	-	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	467	-	-	-	-	-	-	33	-	475	-	-	-	-	-	467	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	400	405	805
	Total Solar	-	-	-	-	-	872	-	-	-	-	354	-	33	-	834	-	-	-	-	1,102	872	3,195
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	1.9	7.5	-	-	-	-	107.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	39	39	39	43	41	39	37	34	31	30	30	27	26	25	26	24	21	390	662
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	10	10	9	9	8	8	6	6	5	4	4	110	178
	Energy Efficiency Total	52	49	48	52	53	52	56	54	52	49	46	42	40	40	37	33	32	32	29	26	517	873
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	90	-	-	-	90	-	-	-	-	-	-	180
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	45	15	-	-	-	-	-	-	-	-	-	45	60
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	15	-	-	150
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105
	FOT West - Summer	998	719	493	503	498	160	156	157	204	922	1,075	1,075	1,075	1,075	1,075	1,075	1,040	1,044	1,072	1,075	481	775
	FOT West - Winter	151	131	268	303	314	54	61	63	112	244	223	184	200	137	68	-	15	5	-	-	170	127
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	299	204	235	3,841	156	340	142	181	1,561	1,575	285	629	1,421	82	84	81	2,299	1,829		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	215	217	220	316	1,166	1,344	1,494	1,575	1,442	1,401	1,335	1,355	1,349	1,372	1,375		
	Total Annual Additions	1,279	982	1,060	1,010	1,047	4,055	373	560	458	1,347	2,905	3,069	1,859	2,072	2,822	1,417	1,439	1,430	3,672	3,204		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-36C	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	-	-	185	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	185	370	-	-	185	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	280	321	20	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,097	-	-	-	-	-	-	-	-	-	1,097
	Wind, UT	-	-	-	-	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	151
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	151	1,920	-	-	-	-	280	1,417	20	-	-	-	-	-	-	-	2,071	3,788
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	149	-	-	-	-	-	-	-	500	-	-	-	-	-	-	149	649
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	826	-	-	-	-	-	-	3	500	-	-	-	-	909	-	1,049	2,461
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	46.7	70.0	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	46.7	70.0	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	19.1	161.2	379.6
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	67	68	71	68	71	68	63	59	57	53	50	48	49	36	32	26	25	23	659	1,059
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	17	16	15	14	12	12	11	9	8	7	5	5	144	242
	Energy Efficiency Total	74	83	85	88	94	92	95	93	86	82	79	73	68	65	65	49	45	37	33	31	873	1,418
	Battery Storage - Utah-N	-	-	-	-	-	-	-	15.0	105.0	-	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	750.0	-	-	750.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	30.0	75.0	-	-	-	-	-	-	-	-	-	300.0	60.0	105.0	465.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	435.0	-	-	435.0
	FOT East - Summer	-	-	-	-	-	-	-	77	117	196	195	197	300	197	217	220	225	295	300	300	39	142
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame SO	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	-	-	210	210
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	-	-	-	-	221
	Total SCCT	-	-	-	-	-	-	-	-	-	210	-	-	-	-	221	-	-	-	-	-	210	431
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	932	-	124	-	-	-	-	-	-	-	-	932	1,056
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	116	150	-	-	-	-	-	-	500	765
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	905	-	-	-	932	-	124	116	150	-	-	-	-	430	-	1,837	2,656
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8	-	-	26.8
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	11.3	-	-	-	-	-	-	-	-	2.0	-	11.3	13.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	43.9	-	-	-	-	-	-	-	-	35.0	-	43.9	78.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	37	43	42	47	46	43	41	39	37	33	31	30	29	26	26	24	25	22	23	413	679
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	10	9	9	8	8	7	6	6	5	4	4	111	177
	Energy Efficiency Total	52	49	55	55	61	60	56	55	52	49	44	41	40	38	35	32	31	30	27	27	541	888
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	195	-	-	-	-	-	-	-	-	-	-	-	-	195	195
	Battery Storage - Portland NC	-	-	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	150	150
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	104	98	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,017	1,075	1,075	663	866
	FOT West - Winter	151	131	265	299	310	34	38	583	630	337	334	261	293	272	-	-	-	-	-	-	278	197
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,914)	(85)	(912)	(93)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	132	305	207	323	3,802	160	955	365	1,387	594	2,034	247	765	508	82	83	67	3,083	138		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	138	136	1,734	1,822	1,608	1,604	1,533	1,668	1,544	1,292	1,295	1,300	1,312	1,375	1,375		
	Total Annual Additions	1,279	982	1,062	1,007	1,129	3,941	296	2,689	2,186	2,994	2,198	3,567	1,914	2,308	1,800	1,376	1,383	1,379	4,458	1,512		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-45C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	185	-	-	185	-	-	-	370	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,045	-	-	-	-	-	-	-	-	-	1,045
	Wind, UT	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	18	1,920	-	-	-	-	620	1,045	-	-	-	-	-	-	-	-	1,938	3,603
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	282	-	-	-	-	-	-	500	-	-	-	-	-	-	-	282	782
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-	38
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	55	-	-	-	-	-	-	-	-	-	55
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	899	10	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	54	623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	54	904	-	-	-	-	-	55	500	-	38	-	-	-	899	10	1,182	2,684
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	65	67	68	69	66	67	65	63	62	57	56	52	50	49	36	32	25	20	22	650	1,049
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	18	16	15	13	12	11	9	8	7	5	5	145	246
	Energy Efficiency Total	74	82	85	86	91	89	91	90	88	87	80	77	71	68	66	49	45	35	28	30	863	1,411
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	-	-	225	330	-	585
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	240.0	-	-	-	-	-	-	-	-	90.0	-	330.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	45.0	-	-	135.0	-	-	-	-	180.0	-	360.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	109	225	300	300	252	289	292	300	300	300	300	11	148
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	66	409	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	66	409	-	-	-	430	-	702	1,259	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	107.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	34	37	36	39	39	43	41	39	37	33	31	30	29	26	26	24	26	22	21	383	650
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	10	9	9	8	8	8	6	6	5	4	4	109	175
	Energy Efficiency Total	52	45	48	48	53	52	56	54	52	49	44	42	40	38	35	33	32	32	27	26	509	857
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	75	30	-	-	-	-	-	-	-	-	45	75	150
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	15	75	-	-	-	-	-	-	-	-	-	15	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	60	-	-	-	15	-	-	-	-	-	-	75
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	60	-	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	90	90
	FOT West - Summer	998	719	493	503	498	158	153	209	283	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,066	967	1,075	1,075	509	786
	FOT West - Winter	151	131	268	303	314	47	54	58	107	239	232	193	218	156	81	4	17	-	-	-	167	129
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	126	299	198	235	4,225	155	336	140	316	1,761	1,457	677	526	504	82	92	497	2,256	1,494		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	205	207	267	391	1,423	1,532	1,568	1,593	1,483	1,446	1,371	1,384	1,267	1,375	1,375		
	Total Annual Additions	1,279	977	1,060	1,004	1,047	4,430	363	603	531	1,739	3,293	3,024	2,270	2,009	1,949	1,453	1,475	1,765	3,631	2,869		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-46C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	-	-	-	-	-	185	370
	Total SCCT	-	-	-	-	-	-	-	185	-	185	185	370	-	-	-	-	-	-	-	-	370	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	127	493	-	-	-	-	-	-	-	-	-	127	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,091	-	-	-	-	-	-	-	-	-	1,091
	Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	294	1,920	-	-	-	127	493	1,091	-	-	-	-	-	-	-	-	2,341	3,925
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	500	-	-	-	-	-	-	-	6	506
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	9
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	509	-	100	-	-	-	909	-	906	2,424
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	18.7
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	18.6	161.2	379.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	61	67	68	69	66	67	65	64	62	57	53	50	48	47	36	32	25	22	22	646	1,037
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	18	17	16	14	12	11	11	9	8	7	5	5	140	238
	Energy Efficiency Total	74	77	85	86	89	89	91	88	88	86	80	73	68	65	63	49	44	35	30	30	854	1,391
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	435	60	-	495
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	-	105.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	660.0	-	-	660.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	205	239	164	178	235	247	250	267	300	300	300	20	134
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	384	-	-	349	-	-	-	682	-	-	-	-	-	384	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	905	-	384	-	-	349	-	-	-	1,157	-	-	-	430	-	1,289	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	23.2	-	-	-	22.4	-	-	-	52.8	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	37	40	42	47	46	43	41	39	37	33	31	30	29	26	26	26	26	24	21	410	680
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	10	10	9	8	8	8	6	6	5	4	4	111	178
	Energy Efficiency Total	52	49	52	55	61	59	56	55	52	49	45	41	40	38	35	33	33	32	29	26	539	890
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	15	-	-	150	-	-	-	-	-	-	-	-	60	15	225
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	45	-	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	15	30	-	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	92	86	578	650	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,075	569	820
	FOT West - Winter	151	131	265	300	310	33	37	38	85	217	254	213	222	170	69	7	16	9	-	-	157	126
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,207)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	125	303	205	462	3,657	155	869	170	573	1,616	1,584	617	115	1,822	82	85	67	2,769	224		
	Annual Additions, Short Term Resources	1,149	850	757	801	806	125	123	616	735	1,497	1,568	1,452	1,475	1,480	1,391	1,332	1,347	1,351	1,375	1,375		
	Total Annual Additions	1,279	976	1,060	1,005	1,268	3,782	278	1,486	905	2,070	3,184	3,036	2,091	1,594	3,214	1,413	1,431	1,418	4,144	1,599		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-46J23C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
	Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	294	1,920	-	-	-	620	-	1,096	-	-	-	-	-	-	-	-	2,834	3,930
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	-	500	-	-	-	-	-	-	6	506
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	4	500	100	-	-	-	909	-	906	2,419
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	19.8	161.2	380.4
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	4	3	3	68	118
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	55	56	52	51	52	39	36	32	26	27	653	1,080
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	15	14	13	12	11	9	8	7	5	5	143	245
	Energy Efficiency Total	74	83	85	86	91	90	91	88	90	87	77	77	72	69	70	53	48	43	34	35	865	1,442
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420.0	-	-	420.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	30.0	45.0	-	-	-	30.0	-	-	-	300.0	-	30.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	-	-	-	285.0	45.0	-	390.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	226	239	164	300	203	247	250	267	300	300	300	23	140
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	620	-	-	-	-	349	-	-	-	446	-	-	-	-	-	620	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	345	-	3	127	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	1,525	-	-	-	-	694	-	3	127	446	-	-	-	430	-	1,525	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	5.3	-	-	-	52.8	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	43	49	47	46	43	43	39	37	33	31	30	29	26	26	24	25	24	21	422	688
	Energy Efficiency, WA	11	10	11	11	12	12	12	12	11	10	9	9	8	8	8	6	6	5	4	4	112	179
	Energy Efficiency Total	52	49	55	62	61	60	57	57	51	49	44	41	40	38	35	32	32	30	29	26	551	899
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	30	-	90	-	-	-	-	-	-	-	-	30	90	120	240
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15	-	15	30
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	30	60	-	-	-	-	-	-	-	-	-	15	90	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	150	-	45	195
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	90	15	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	259	350	518	589	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,073	600	835
	FOT West - Winter	151	131	265	299	310	33	37	38	85	217	151	150	178	155	69	7	16	9	-	-	157	115
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(764)	-	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	132	306	212	464	4,278	156	382	261	1,122	1,277	1,593	118	746	1,190	85	87	73	2,818	231		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	292	387	556	675	1,518	1,465	1,390	1,553	1,432	1,391	1,332	1,347	1,351	1,375	1,373		
	Total Annual Additions	1,279	982	1,063	1,012	1,270	4,570	543	938	936	2,640	2,742	2,982	1,671	2,179	2,582	1,417	1,434	1,425	4,193	1,604		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-47C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	370	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	968	-	-	-	-	-	-	-	-	-	968
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	620	968	-	-	-	-	-	-	-	-	1,993	3,580
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	-	500	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	132	-	-	-	-	-	-	-	-	132
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	-	632	-	100	-	-	-	909	-	1,127	2,769
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	6.8	5.2	-	15.3	3.7	153.4	17.3	44.6	377.8
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	62	67	68	69	66	67	65	65	62	57	56	52	50	52	36	32	26	24	22	648	1,055
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	18	16	15	13	12	11	9	8	7	5	5	144	246
	Energy Efficiency Total	74	78	85	86	91	89	91	89	90	87	80	77	72	68	69	49	45	37	32	30	860	1,417
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	465.0	75	-	540.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	165.0	-	-	-	-	-	-	-	135.0	-	-	300.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	270.0	-	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	143	261	191	175	226	270	273	300	300	300	300	14	137
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	221	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	702	-	-	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	460	-	-	-	-	-	-	-	40	475	-	-	-	-	-	460	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,219	-	-	-	-	359	-	-	40	475	-	-	1,132	-	-	1,219	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	26.3	81.4	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	35	37	36	39	39	43	41	39	37	33	31	30	30	27	26	26	26	25	21	384	658
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	10	10	9	9	8	8	6	6	5	4	4	108	176
	Energy Efficiency Total	52	46	48	48	53	52	56	54	52	49	45	42	40	40	37	33	33	32	30	26	509	866
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	60	165	-	-	-	-	-	-	-	30	30	60	285
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	15	45	-	-	-	-	-	-	-	-	-	15	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	45	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	15	-	-	-	105	-	-	-	30	-	-	150
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	170	166	244	318	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,047	1,075	1,045	1,046	518	792
	FOT West - Winter	151	131	268	303	314	58	64	68	118	250	224	185	193	140	71	5	18	-	-	-	173	128
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(982)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	123	299	198	235	4,185	155	336	141	316	1,686	1,464	744	154	806	82	93	1,822	2,357	223		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	228	230	312	436	1,468	1,560	1,451	1,443	1,440	1,417	1,352	1,365	1,375	1,345	1,346		
	Total Annual Additions	1,279	974	1,060	1,004	1,047	4,413	385	648	577	1,784	3,246	2,915	2,187	1,595	2,223	1,434	1,458	3,197	3,702	1,569		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-48C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	370	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,993	3,713
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	195	305	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	195	305	-	100	-	-	-	909	-	1,127	2,636
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	1.8	15.3	3.7	151.7	19.1	44.6	379.6
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	117
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	56	54	52	52	36	32	26	25	26	654	1,070
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	18	16	15	13	12	11	9	8	7	5	5	145	248
	Energy Efficiency Total	74	83	85	86	91	89	91	90	90	87	80	77	74	70	70	49	45	37	33	35	866	1,435
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420.0	45	-	465.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	165.0	-	-	-	-	-	-	-	210.0	-	-	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	120.0	-	60.0	-	-	-	150.0	-	-	330.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	144	261	300	203	250	299	300	300	300	300	300	14	148
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	221	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	519	-	3	174	6	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	462	-	-	-	-	-	-	-	38	475	-	-	-	-	-	462	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,221	-	-	-	-	359	-	-	38	475	519	-	433	174	6	1,221	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	3.1	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	45.7	-	3.1	58.9	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	37	36	39	39	43	41	39	37	34	31	31	29	27	27	24	26	24	24	386	663
	Energy Efficiency, WA	11	9	10	10	12	12	12	11	11	10	10	9	9	8	8	6	6	5	4	4	108	176
	Energy Efficiency Total	52	48	48	48	53	52	56	54	52	49	46	42	42	38	36	34	32	32	29	29	512	871
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	165	-	-	-	45	-	-	-	-	30	-	240
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	-	-	-	-	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	30	-	-	-	75	-	-	-	-	60	-	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	726	719	493	503	498	170	165	244	318	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	969	1,075	1,073	491	778
	FOT West - Winter	151	131	268	303	314	57	64	68	117	249	224	185	193	140	105	-	-	-	-	-	172	129
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(858)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	131	299	198	235	4,187	155	336	142	316	1,688	1,792	540	159	861	1,241	92	508	2,356	224		
	Annual Additions, Short Term Resources	877	850	761	806	812	227	229	312	436	1,468	1,560	1,560	1,471	1,465	1,478	1,375	1,374	1,269	1,375	1,373		
	Total Annual Additions	1,007	982	1,060	1,004	1,047	4,414	385	648	578	1,784	3,248	3,353	2,012	1,623	2,339	2,616	1,466	1,778	3,731	1,597		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	Capacity (MW)																				Resource Totals 1/	
P-53C	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	-	-	-	-	-	185	370
Total SCCT	-	-	-	-	-	-	-	185	-	185	185	370	-	-	-	-	-	-	-	-	370	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	127	493	-	-	-	-	-	-	-	-	-	127	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,091	-	-	-	-	-	-	-	-	-	1,091
Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	294	1,920	-	-	-	127	493	1,091	-	-	-	-	-	-	-	-	2,341	3,925
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	500	-	-	-	-	-	-	-	6	506
Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	9
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	509	-	100	-	-	-	909	-	906	2,424
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	18.7
Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	18.6	161.2	379.2
Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
Energy Efficiency, UT	58	61	67	68	69	66	67	65	64	62	57	53	50	48	47	36	32	25	22	22	646	1,037
Energy Efficiency, WY	10	10	11	12	13	16	16	17	18	17	16	14	12	11	11	9	8	7	5	5	140	238
Energy Efficiency Total	74	77	85	86	89	89	91	88	88	86	80	73	68	65	63	49	44	35	30	30	854	1,391
Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	435	60	-	495
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	-	105.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	660.0	-	-	660.0
FOT East - Summer	-	-	-	-	-	-	-	-	-	205	239	164	178	235	247	250	267	300	300	300	20	134
Existing Plant Retirements and PPA Termination																						
JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	384	-	-	349	-	-	-	682	-	-	-	-	-	384	1,415
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
Total Solar	-	-	-	-	-	905	-	384	-	-	349	-	-	-	1,157	-	-	-	430	-	1,289	3,225
Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	23.2	-	-	-	22.4	-	-	-	52.8	-	9.4	107.9
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
Energy Efficiency, OR	40	37	40	42	47	46	43	41	39	37	33	31	30	29	26	26	26	26	24	21	410	680
Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	10	10	9	8	8	8	6	6	5	4	4	111	178
Energy Efficiency Total	52	49	52	55	61	59	56	55	52	49	45	41	40	38	35	33	33	32	29	26	539	890
Battery Storage - S-Oregon	-	-	-	-	-	-	-	15	-	-	150	-	-	-	-	-	-	-	-	60	15	225
Battery Storage - Willamette Valley	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	-	-	-	-	-	60	60
Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	45	-	-	105
Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	15	30	-	165
Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
FOT West - Summer	998	719	492	501	496	92	86	578	650	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,075	569	820
FOT West - Winter	151	131	265	300	310	33	37	38	85	217	254	213	222	170	69	7	16	9	-	-	157	126
Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,212)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
Annual Additions, Long Term Resources	130	125	303	205	462	3,657	155	869	170	573	1,616	1,584	617	115	1,822	82	85	67	2,769	224		
Annual Additions, Short Term Resources	1,149	850	757	801	806	125	123	616	735	1,497	1,568	1,452	1,475	1,479	1,391	1,332	1,347	1,351	1,375	1,375		
Total Annual Additions	1,279	976	1,060	1,005	1,268	3,782	278	1,486	905	2,070	3,184	3,036	2,091	1,594	3,214	1,413	1,431	1,418	4,144	1,599		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

P-53J23C	Capacity (MW)																				Resource Totals 1/	
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	294	1,920	-	-	-	620	-	1,096	-	-	-	-	-	-	-	-	2,834	3,930
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	-	500	-	-	-	-	-	-	6	506
Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	4	500	100	-	-	-	909	-	906	2,419
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	19.8	161.2	380.4
Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	4	3	3	68	118
Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	55	56	52	51	52	39	36	32	26	27	653	1,080
Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	15	14	13	12	11	9	8	7	5	5	143	245
Energy Efficiency Total	74	83	85	86	91	90	91	88	90	87	77	77	72	69	70	53	48	43	34	35	865	1,442
Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420.0	-	-	420.0
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	30.0	45.0	-	-	-	30.0	-	-	-	300.0	-	30.0	405.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	-	-	-	285.0	45.0	-	390.0
FOT East - Summer	-	-	-	-	-	-	-	-	-	226	239	164	300	203	247	250	267	300	300	300	23	140
Existing Plant Retirements and PPA Termination																						
JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	-	-	443
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	620	-	-	-	-	349	-	-	-	446	-	-	-	-	-	620	1,415
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	345	-	3	127	-	-	-	-	-	-	500	975
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
Total Solar	-	-	-	-	-	1,525	-	-	-	-	694	-	3	127	446	-	-	-	430	-	1,525	3,225
Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	5.3	-	-	-	52.8	-	9.4	107.9
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
Energy Efficiency, OR	40	37	43	49	47	46	43	43	39	37	33	31	30	29	26	26	24	25	24	21	422	688
Energy Efficiency, WA	11	10	11	11	12	12	12	12	11	10	9	9	8	8	8	6	6	5	4	4	112	179
Energy Efficiency Total	52	49	55	62	61	60	57	57	51	49	44	41	40	38	35	32	32	30	29	26	551	899
Battery Storage - S-Oregon	-	-	-	-	-	-	-	30	-	90	-	-	-	-	-	-	-	-	30	90	120	240
Battery Storage - Willamette Valley	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15	-	15	30
Battery Storage - Portland NC	-	-	-	-	-	-	-	-	30	60	-	-	-	-	-	-	-	-	-	15	90	105
Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	150	-	45	195
Battery Storage - Yakima	-	-	-	-	-	-	-	-	90	15	-	-	-	-	-	-	-	-	-	-	105	105
FOT West - Summer	998	719	492	501	496	259	350	518	589	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,073	600	835
FOT West - Winter	151	131	265	299	310	33	37	38	85	217	151	150	178	155	69	7	16	9	-	-	157	115
Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(768)	-	(505)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
Annual Additions, Long Term Resources	130	132	306	212	464	4,278	156	382	261	1,122	1,277	1,593	118	746	1,190	85	87	73	2,818	231		
Annual Additions, Short Term Resources	1,149	850	757	800	806	292	387	556	675	1,518	1,465	1,390	1,553	1,432	1,391	1,332	1,347	1,351	1,375	1,373		
Total Annual Additions	1,279	982	1,063	1,012	1,270	4,570	543	938	936	2,640	2,742	2,982	1,671	2,179	2,582	1,417	1,434	1,425	4,193	1,604		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-54C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	823	-	-	-	-	-	-	-	-	-	823
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	823	-	-	-	-	-	-	-	-	1,920	3,363
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	500	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	175	102	-	-	-	-	-	-	-	-	277
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	899	10	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	175	602	100	-	-	-	-	899	10	1,200	2,986
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	6.8	5.2	-	15.3	3.7	153.4	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	117
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	58	56	52	50	51	36	32	26	25	26	654	1,066
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	18	18	16	15	13	12	11	9	8	7	5	5	147	249
	Energy Efficiency Total	74	83	85	88	91	89	91	90	90	87	80	77	72	68	69	49	45	37	33	35	868	1,432
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	-	-	-	-	450	-	540
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	-	-	-	-	165.0	-	255.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	-	-	-	45.0	15.0	-	195.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	133	245	300	290	300	226	228	300	300	300	300	13	146
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214	-	-	214
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214	-	-	214
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	359	-	-	-	354	-	-	-	-	-	-	-	-	702	359	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	467	-	-	-	-	-	-	-	33	475	-	-	-	-	-	467	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	216	-	405	621
	Total Solar	-	-	-	-	-	872	359	-	-	-	354	-	-	33	475	-	-	-	216	702	1,231	3,011
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	107.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	37	39	39	43	41	39	37	34	31	30	30	27	26	26	26	25	24	388	666
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	109	178
	Energy Efficiency Total	52	48	48	49	53	52	56	54	52	49	46	42	40	40	37	33	33	32	30	29	514	876
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	60	30	-	-	-	105	-	-	-	135	60	60	390
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	60	-	-	-	15	-	-	-	15	-	-	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	15	75	-	-	-	30	-	-	-	45	15	15	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	190	186	234	308	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,002	1,012	1,061	1,075	520	790
	FOT West - Winter	151	131	268	303	314	60	66	68	118	250	228	189	197	142	74	7	20	11	-	-	173	130
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	(356)	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	299	201	235	3,838	515	336	142	316	1,653	1,495	714	248	870	82	93	73	2,705	1,502		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	250	252	303	426	1,457	1,548	1,564	1,563	1,517	1,374	1,310	1,322	1,323	1,361	1,375		
	Total Annual Additions	1,279	982	1,060	1,007	1,047	4,088	767	639	568	1,773	3,202	3,059	2,277	1,765	2,244	1,393	1,415	1,395	4,067	2,877		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.14 – CP-Cases, Detailed Capacity Expansion Portfolio

	P-36CP	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	185	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	185	370	185	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	280	321	20	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,097	-	-	-	-	-	-	-	-	-	1,097
	Wind, UT	-	-	-	-	151	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	151	151
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	151	1,920	-	-	-	-	280	1,417	20	-	-	-	-	-	-	-	2,071	3,788
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	149	-	-	-	-	-	-	-	500	-	-	-	-	-	-	149	649
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	826	-	-	-	-	-	-	3	500	-	-	-	-	909	-	1,049	2,461
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	46.7	70.0	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	46.7	70.0	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	19.1	161.2	379.6
	Energy Efficiency, ID	6	6	6	7	7	8	7	7	7	7	7	6	6	6	6	5	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	67	69	71	71	71	68	63	62	57	53	52	50	49	37	34	25	22	23	668	1,069
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	17	17	16	14	13	12	11	9	8	7	5	5	146	246
	Energy Efficiency Total	74	83	85	90	94	95	96	94	87	86	80	73	71	67	65	50	47	35	30	32	883	1,433
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	180.0	-	-	-	-	-	-	-	-	-	-	-	180	180
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	450	-	660.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	105.0	-	-	-	-	-	-	-	-	-	-	255.0	150.0	105.0	510.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	60.0	-	-	-	135.0	-	180.0	30.0	-	405.0
	FOT East - Summer	-	-	-	-	-	-	-	77	117	196	195	197	300	197	217	220	225	295	300	300	39	142
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame SO	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	-	-	210	210
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	221	-	221	-	210	653
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	932	-	124	-	-	-	-	-	-	-	-	932	1,056
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	116	150	-	-	-	-	-	-	500	765
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	905	-	-	-	932	-	124	116	150	-	-	-	-	430	-	1,837	2,656
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8	-	-	26.8
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	11.3	-	-	-	-	-	-	-	-	2.0	-	11.3	13.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	43.9	-	-	-	-	-	-	-	-	35.0	-	43.9	78.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	49	47	46	45	43	39	37	33	31	30	29	26	26	26	25	22	23	430	698
	Energy Efficiency, WA	11	10	11	12	12	13	12	12	11	10	9	9	8	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	55	55	62	61	60	59	57	52	49	44	41	40	38	35	33	33	30	27	27	562	911
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	150	150
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	120	120
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	104	98	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,017	1,075	1,075	663	866
	FOT West - Winter	151	131	265	299	310	34	38	583	630	337	334	261	293	272	-	-	-	-	-	-	278	197
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,914)	(85)	(912)	(93)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	138	306	216	323	3,806	163	943	365	1,391	595	2,034	494	767	102	83	443	65	2,461	708		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	138	136	1,734	1,822	1,608	1,604	1,533	1,668	1,544	1,292	1,295	1,300	1,312	1,375	1,375		
	Total Annual Additions	1,279	989	1,063	1,017	1,130	3,945	299	2,677	2,187	2,999	2,199	3,567	2,162	2,311	1,394	1,378	1,743	1,377	3,836	2,083		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-45CP	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,045	-	-	-	-	-	-	-	-	-	1,045
	Wind, UT	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	18	1,920	-	-	-	-	620	1,045	-	-	-	-	-	-	-	-	1,938	3,603
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	282	-	-	-	-	-	-	500	-	-	-	-	-	-	-	282	782
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-	38
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	55	-	-	-	-	-	-	-	-	-	55
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	899	10	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	54	623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	54	904	-	-	-	-	-	55	500	-	38	-	-	-	899	10	1,182	2,684
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	117
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	56	52	52	49	36	34	25	22	26	654	1,062
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	18	16	14	13	12	11	9	8	7	5	5	144	246
	Energy Efficiency Total	74	83	85	86	91	90	91	90	90	87	80	77	72	70	65	49	46	35	30	35	866	1,425
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	120.0	-	-	-	-	-	-	-	165.0	240	-	525.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	120.0	225.0	-	360.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	150.0	225.0	-	390.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	109	225	300	300	252	289	292	300	300	300	300	11	148
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	66	409	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	66	409	-	-	-	430	-	702	1,259	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	107.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	36	39	39	43	41	39	37	34	31	31	30	26	26	24	25	22	21	387	656
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	10	9	9	8	7	6	6	5	4	4	109	176
	Energy Efficiency Total	52	48	48	48	53	52	56	54	52	49	46	42	41	40	35	33	32	30	27	26	513	864
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	75	105	-	-	-	-	-	-	-	-	-	75	180
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	150	-	-	-	-	-	45	-	-	-	-	195
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	90	-	-	-	-	120
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	158	153	209	283	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,066	967	1,075	1,075	509	786
	FOT West - Winter	151	131	268	303	314	47	54	58	107	239	232	193	218	156	81	4	17	-	-	-	167	129
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	299	198	235	4,226	155	336	141	316	1,658	1,597	679	546	138	82	228	495	2,468	1,484		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	205	207	267	391	1,423	1,532	1,568	1,593	1,483	1,446	1,371	1,384	1,267	1,375	1,375		
	Total Annual Additions	1,279	982	1,060	1,004	1,047	4,431	362	603	532	1,739	3,190	3,164	2,272	2,028	1,584	1,453	1,612	1,763	3,843	2,859		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	Capacity (MW)																				Resource Totals 1/	
P-46CP	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	-	-	-	-	-	185	370
Total SCCT	-	-	-	-	-	-	-	185	-	185	185	370	-	-	-	-	-	-	-	-	370	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	127	493	-	-	-	-	-	-	-	-	-	127	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,091	-	-	-	-	-	-	-	-	-	1,091
Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	294	1,920	-	-	-	127	493	1,091	-	-	-	-	-	-	-	-	2,341	3,925
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	500	-	-	-	-	-	-	-	6	506
Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	9
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	509	-	100	-	-	-	909	-	906	2,424
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	18.7
Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	18.6	161.2	379.2
Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
Energy Efficiency, UT	58	61	67	68	69	66	67	65	65	62	57	56	52	50	49	36	36	25	20	22	647	1,049
Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	16	14	13	12	11	9	8	7	5	5	139	238
Energy Efficiency Total	74	77	85	86	89	90	91	88	89	86	79	76	71	67	65	49	48	35	28	30	855	1,403
Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360.0	135	-	495.0
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	-	180.0	-	-	390.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	-	-	15.0	-	105.0	45.0	-	360.0
FOT East - Summer	-	-	-	-	-	-	-	-	-	205	239	164	178	235	247	250	267	300	300	300	20	134
Existing Plant Retirements and PPA Termination																						
JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	443
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	384	-	-	349	-	-	-	682	-	-	-	-	-	384	1,415
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
Total Solar	-	-	-	-	-	905	-	384	-	-	349	-	-	-	1,157	-	-	-	430	-	1,289	3,225
Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	23.2	-	-	-	22.4	-	-	-	52.8	-	9.4	107.9
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
Energy Efficiency, OR	40	37	40	42	47	46	43	41	39	37	33	31	30	30	26	26	26	25	22	21	410	678
Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	10	10	9	9	8	8	6	6	5	4	4	111	178
Energy Efficiency Total	52	48	52	55	61	59	56	55	52	49	45	42	40	40	35	33	33	30	27	26	539	889
Battery Storage - S-Oregon	-	-	-	-	-	-	-	30	-	-	210	-	-	-	-	-	15	-	-	-	30	255
Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75
Battery Storage - Portland NC	-	-	-	-	-	-	-	30	-	-	30	-	-	-	-	-	30	-	-	-	30	90
Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	30	-	105	-	-	-	-	-	-	-	15	-	30	150
Battery Storage - Yakima	-	-	-	-	-	-	-	90	-	-	15	-	-	-	-	-	-	-	-	-	90	105
FOT West - Summer	998	719	492	501	496	92	86	578	650	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,075	569	820
FOT West - Winter	151	131	265	300	310	33	37	38	85	217	254	213	222	170	69	7	16	9	-	-	157	126
Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,207)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
Annual Additions, Long Term Resources	130	125	303	205	462	3,657	155	869	170	573	1,616	1,587	620	314	1,382	82	580	65	2,492	254		
Annual Additions, Short Term Resources	1,149	850	757	801	806	125	123	616	735	1,497	1,568	1,452	1,475	1,480	1,391	1,332	1,347	1,351	1,375	1,375		
Total Annual Additions	1,279	976	1,060	1,005	1,268	3,782	278	1,486	905	2,070	3,184	3,039	2,094	1,794	2,773	1,414	1,926	1,416	3,867	1,629		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-46J23CP	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
	Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	294	1,920	-	-	-	620	-	1,096	-	-	-	-	-	-	-	-	2,834	3,930
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	-	500	-	-	-	-	-	-	6	506
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	4	500	100	-	-	-	909	-	906	2,419
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	19.8	161.2	380.4
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	3	3	3	69	118
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	57	56	54	52	51	38	36	26	22	26	659	1,076
	Energy Efficiency, WY	10	10	11	12	14	16	16	17	18	17	16	15	13	12	11	9	8	7	5	5	141	243
	Energy Efficiency Total	74	83	85	86	90	92	91	92	90	86	80	77	73	70	67	51	48	37	30	35	869	1,437
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360.0	120	-	480.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	120.0	-	-	240.0	-	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	75.0	120.0	-	-	45.0	-	-	135.0	-	375.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	226	239	164	300	203	247	250	267	300	300	300	23	140
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	620	-	-	-	-	349	-	-	-	446	-	-	-	-	-	620	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	345	-	3	127	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	1,525	-	-	-	-	694	-	3	127	446	-	-	-	430	-	1,525	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	5.3	-	-	-	52.8	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	43	49	47	46	43	43	41	38	35	32	31	30	27	27	26	26	24	24	425	707
	Energy Efficiency, WA	11	10	11	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	113	182
	Energy Efficiency Total	52	49	55	62	61	60	57	57	54	51	46	44	42	40	36	34	33	32	29	29	556	923
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	15	105	-	-	-	-	-	-	-	-	135	-	120	255
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	45	-	-	15	-	-	-	-	-	45	-	45	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	90	30	-	15	-	-	-	-	-	-	-	90	135
	Battery Storage - Yakima	-	-	-	-	-	-	-	45	60	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	259	350	518	589	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,073	600	835
	FOT West - Winter	151	131	265	299	310	33	37	38	85	217	151	150	178	155	69	7	16	9	-	-	157	115
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(764)	-	(505)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	132	306	212	463	4,279	156	386	263	1,123	1,267	1,595	227	869	672	85	697	69	2,154	578		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	292	387	556	675	1,518	1,465	1,390	1,553	1,432	1,391	1,332	1,347	1,351	1,375	1,373		
	Total Annual Additions	1,279	982	1,063	1,012	1,269	4,572	543	942	938	2,641	2,732	2,985	1,780	2,302	2,063	1,417	2,043	1,420	3,529	1,952		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-47C	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	370	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	968	-	-	-	-	-	-	-	-	-	968
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	620	968	-	-	-	-	-	-	-	-	1,993	3,580
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	-	500	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	132	-	-	-	-	-	-	-	-	132
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	-	632	-	100	-	-	-	909	-	1,127	2,769
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	6.8	5.2	-	15.3	3.7	153.4	17.3	44.6	377.8
	Energy Efficiency, ID	6	5	5	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	66	114
	Energy Efficiency, UT	58	61	62	68	69	66	65	65	62	62	57	53	52	50	49	36	32	26	22	26	637	1,040
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	16	14	13	12	11	9	8	7	5	5	139	239
	Energy Efficiency Total	74	76	78	86	89	89	89	88	85	86	79	74	71	68	65	49	45	36	30	35	841	1,393
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	435.0	105	-	540.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	105.0	-	-	15.0	-	-	-	-	150.0	15.0	-	285.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	210.0	-	-	300.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	143	261	191	175	226	270	273	300	300	300	300	14	137
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	702	-	-	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	460	-	-	-	-	-	-	-	40	475	-	-	-	-	-	460	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,219	-	-	-	-	359	-	-	40	475	-	-	1,132	-	-	1,219	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	26.3	81.4	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	36	38	39	43	41	39	37	33	31	31	30	26	26	24	26	22	23	385	655
	Energy Efficiency, WA	11	9	10	10	11	12	11	11	11	11	10	9	9	8	7	6	6	5	4	4	108	175
	Energy Efficiency Total	52	48	48	48	51	52	56	54	51	49	45	42	41	40	35	33	32	31	27	27	509	861
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	60	105	-	-	-	-	-	-	-	75	15	60	255
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	120
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	15	75	-	-	-	-	-	15	15	30	30	15	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	170	166	244	318	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,047	1,075	1,045	1,046	518	792
	FOT West - Winter	151	131	268	303	314	58	64	68	118	250	224	185	193	140	71	5	18	-	-	-	173	128
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(982)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	124	293	198	230	4,185	153	335	137	315	1,701	1,461	745	259	680	81	107	1,614	2,544	244		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	228	230	312	436	1,468	1,560	1,451	1,443	1,440	1,417	1,352	1,365	1,375	1,345	1,346		
	Total Annual Additions	1,279	974	1,054	1,004	1,042	4,413	383	646	572	1,783	3,261	2,912	2,188	1,700	2,097	1,434	1,471	2,989	3,889	1,590		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-48C	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	185	185	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,993	3,713
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	195	305	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	195	305	-	100	-	-	-	909	-	1,127	2,636
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	1.8	15.3	3.7	151.7	19.1	44.6	379.6
	Energy Efficiency, ID	6	5	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	3	3	3	67	116
	Energy Efficiency, UT	58	65	67	68	69	66	67	65	65	62	57	56	52	50	49	38	36	26	25	26	652	1,066
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	16	14	13	12	11	9	8	7	5	5	143	245
	Energy Efficiency Total	74	81	85	86	91	90	91	88	90	87	80	77	72	68	65	51	48	37	33	35	862	1,427
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	375.0	105	-	480.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	150.0	-	-	-	-	-	-	-	225.0	-	-	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	-	-	-	-	120.0	60.0	-	315.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	144	261	300	203	250	299	300	300	300	300	300	14	148
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	519	-	3	174	6	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	462	-	-	-	-	-	-	-	38	475	-	-	-	-	-	462	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,221	-	-	-	-	359	-	-	38	475	519	-	433	174	6	1,221	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	3.1	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	45.7	-	3.1	58.9	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	37	36	39	41	43	41	39	37	34	31	31	30	27	27	26	26	25	24	389	670
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	48	48	48	53	55	56	54	52	49	46	42	42	40	36	34	33	32	30	29	515	880
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	165	-	-	-	-	-	-	-	75	-	-	240
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	15	-	15	-	-	165
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	45	-	45	-	75	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	170	165	244	318	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	969	1,075	1,073	518	791
	FOT West - Winter	151	131	268	303	314	57	64	68	117	249	224	185	193	140	105	-	-	-	-	-	172	129
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(858)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	129	299	198	235	4,190	155	335	141	316	1,688	1,792	418	293	677	837	785	508	2,211	254		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	227	229	312	436	1,468	1,560	1,560	1,471	1,465	1,478	1,375	1,374	1,269	1,375	1,373		
	Total Annual Additions	1,279	979	1,060	1,004	1,047	4,417	385	647	577	1,784	3,249	3,352	1,889	1,758	2,155	2,212	2,159	1,778	3,586	1,627		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-53CP	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	-	-	-	-	-	185	370
	Total SCCT	-	-	-	-	-	-	-	185	-	185	185	370	-	-	-	-	-	-	-	-	370	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	127	493	-	-	-	-	-	-	-	-	-	127	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,091	-	-	-	-	-	-	-	-	-	1,091
	Wind, UT	-	-	-	-	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	294	294
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	294	1,920	-	-	-	127	493	1,091	-	-	-	-	-	-	-	-	2,341	3,925
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	6	-	-	-	-	-	-	500	-	-	-	-	-	-	-	6	506
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	9
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	683	-	-	-	-	-	-	509	-	100	-	-	-	909	-	906	2,424
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	18.7
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	18.6	161.2	379.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	61	67	68	69	66	67	65	65	62	57	56	52	50	49	36	36	25	20	22	647	1,049
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	16	14	13	12	11	9	8	7	5	5	139	238
	Energy Efficiency Total	74	77	85	86	89	90	91	88	89	86	79	76	71	67	65	49	48	35	28	30	855	1,403
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	360.0	135	-	495.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210.0	-	180.0	-	-	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	195.0	-	-	15.0	-	105.0	45.0	-	360.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	205	239	164	178	235	247	250	267	300	300	300	20	134
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	384	-	-	349	-	-	-	682	-	-	-	-	-	384	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	430	-	405	835
	Total Solar	-	-	-	-	-	905	-	384	-	-	349	-	-	-	1,157	-	-	-	430	-	1,289	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	23.2	-	-	-	22.4	-	-	-	52.8	-	9.4	107.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	40	42	47	46	43	41	39	37	33	31	30	30	26	26	26	25	22	21	410	678
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	10	10	9	9	8	8	6	6	5	4	4	111	178
	Energy Efficiency Total	52	48	52	55	61	59	56	55	52	49	45	42	40	40	35	33	33	30	27	26	539	889
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	30	-	-	210	-	-	-	-	-	15	-	-	-	30	255
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	30	-	-	30	-	-	-	-	-	30	-	-	-	30	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	30	-	105	-	-	-	-	-	-	-	15	-	30	150
	Battery Storage - Yakima	-	-	-	-	-	-	-	90	-	-	15	-	-	-	-	-	-	-	-	-	90	105
	FOT West - Summer	998	719	492	501	496	92	86	578	650	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,063	1,042	1,075	1,075	569	820
	FOT West - Winter	151	131	265	300	310	33	37	38	85	217	254	213	222	170	69	7	16	9	-	-	157	126
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,212)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	125	303	205	462	3,657	155	869	170	573	1,616	1,587	620	314	1,382	82	580	65	2,492	254		
	Annual Additions, Short Term Resources	1,149	850	757	801	806	125	123	616	735	1,497	1,568	1,452	1,475	1,479	1,391	1,332	1,347	1,351	1,375	1,375		
	Total Annual Additions	1,279	976	1,060	1,005	1,268	3,782	278	1,486	905	2,070	3,184	3,039	2,094	1,794	2,773	1,414	1,926	1,416	3,867	1,629		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.15 – Preferred Portfolio, Detailed Capacity Expansion Portfolio

		Capacity (MW)																				Resource Totals 1/	
	P-45CNW	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,040	-	-	-	-	-	-	-	-	-	1,040
	Wind, UT	-	-	-	-	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	69
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	60
	Total Wind	-	-	-	-	69	1,920	-	-	-	-	-	1,040	-	60	-	-	-	-	-	-	1,989	3,089
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	231	-	-	-	-	-	500	-	-	-	-	-	-	-	-	231	731
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	3	674	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	3	904	-	-	-	-	-	500	-	-	-	-	-	-	909	-	1,131	2,540
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	37.3
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	1.2	-	6.7
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	3.7	10.5	136.5	44.6	354.1
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	68	67	65	65	62	57	56	52	52	48	36	32	25	22	23	656	1,058
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	18	17	16	15	13	12	11	9	8	7	5	5	146	248
	Energy Efficiency Total	74	83	85	88	92	92	91	90	90	87	80	77	72	70	65	49	45	35	30	32	870	1,423
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	-	195.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	-	-	-	-	-	150.0	-	180.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	88	300	199	174	206	298	300	300	300	300	300	9	138
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind+Storage, YK	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	11	-	-	20
	Total Wind	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	11	-	-	20
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	395	-	-	-	-	-	-	-	-	-	-	-	419	-	-	395	815
	Total Solar	-	-	-	-	-	1,249	-	-	-	-	359	-	-	-	475	-	-	419	-	702	1,249	3,205
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	48.8	32.1	-	90.2
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	41	46	43	41	41	38	35	32	31	30	26	26	25	25	24	23	405	680
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	111	179
	Energy Efficiency Total	52	49	48	55	55	59	56	54	54	51	46	43	42	40	35	33	33	30	29	28	533	892
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	210	-	-	60	-	-	-	-	-	180	-	450
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	75	45	-	-	-	-	-	-	-	-	-	75	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	75	-	-	60	-	-	-	-	-	60	-	195
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	131	126	191	264	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	977	1,074	1,075	500	782
	FOT West - Winter	151	131	268	303	314	44	51	53	100	232	222	173	192	128	63	-	35	-	-	-	165	123
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	299	206	237	4,225	155	336	143	318	1,063	2,038	144	303	574	82	93	488	2,355	1,530		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	175	177	244	364	1,394	1,597	1,447	1,441	1,409	1,435	1,375	1,410	1,277	1,374	1,375		
	Total Annual Additions	1,279	982	1,060	1,012	1,049	4,400	333	580	507	1,712	2,661	3,485	1,584	1,712	2,010	1,457	1,503	1,765	3,729	2,905		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.16 – FOT Risk Assessment Cases, Detailed Capacity Expansion Portfolio

P-45CP-FOT	Capacity (MW)																				Resource Totals 1/	
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	185	-	-	-	-	-	-	-	185	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	-	-	185	-	-	370
Total SCCT	-	-	-	-	-	-	-	185	-	-	-	185	370	-	-	-	-	-	185	-	185	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	839	-	-	-	-	-	-	-	-	-	839
Wind, UT	-	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	130
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	130	1,920	-	-	-	-	620	839	-	-	-	-	-	-	-	-	2,050	3,508
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	170	-	-	-	-	-	-	-	500	-	-	-	-	-	-	170	670
Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	261	-	-	-	-	-	-	-	-	-	261
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	715	-	-	715
Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
Total Solar	-	-	159	64	-	847	-	-	-	-	-	261	-	500	-	-	-	-	715	-	1,070	2,546
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	33.5	45.8	37.3	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	40.7	45.8	37.3	6.7	10.0	-	12.0	18.7	-	15.3	3.7	133.0	21.6	161.2	382.2
Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	68	116
Energy Efficiency, UT	58	67	67	68	69	67	67	65	65	62	56	56	50	50	47	35	32	25	20	23	655	1,049
Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	17	15	15	13	12	11	9	8	7	5	5	144	244
Energy Efficiency Total	74	83	85	87	91	91	91	90	90	86	78	77	69	67	63	48	45	35	28	31	868	1,408
Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	15
Battery Storage - Utah-S	-	-	-	-	-	-	-	-	15.0	-	210.0	-	-	-	-	-	-	-	120.0	420	15.0	765.0
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	45.0	75.0	-	-	-	-	-	-	-	60.0	165.0	45.0	345.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	15.0	15.0	-	-	-	-	-	255.0	90.0	-	375.0
FOT East - Summer	42	42	-	-	-	-	-	70	67	150	180	150	150	150	150	150	150	150	300	260	37	108
Existing Plant Retirements and PPA Termination																						
JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	391	-	-	-	-	-	-	-	-	-	-	-	-	444	-	391	835
Total Solar	-	-	-	-	-	1,245	-	-	-	-	359	-	-	475	-	-	-	-	444	702	1,245	3,225
Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	30.3	2.0	-	37.7
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	4.1	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
Demand Response Total	-	-	-	-	-	7.5	1.9	-	4.1	5.2	34.4	-	5.4	-	2.0	-	3.1	-	73.8	3.0	18.6	140.4
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
Energy Efficiency, OR	40	37	37	36	39	45	43	41	39	37	33	31	30	30	26	26	26	26	24	23	393	666
Energy Efficiency, WA	11	9	9	11	11	12	12	11	11	11	9	9	9	8	7	6	6	5	4	4	107	175
Energy Efficiency Total	52	48	47	48	52	59	56	54	52	49	44	43	40	40	35	33	33	32	29	27	518	874
Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	105	60	-	-	-	-	-	-	-	90	-	105	255
Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	-	-	60
Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	30	30
Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	-	-	-	30	60
FOT West - Summer	956	678	492	500	496	107	99	100	141	927	1,075	812	620	432	795	797	794	804	1,075	1,075	449	639
FOT West - Winter	151	131	265	300	311	39	43	44	91	223	244	243	271	169	187	204	219	294	-	100	160	176
Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
Annual Additions, Long Term Resources	130	131	298	198	283	4,169	165	369	207	388	1,518	1,430	499	1,094	118	81	96	71	2,650	1,460		
Annual Additions, Short Term Resources	1,149	850	757	800	807	145	142	214	299	1,300	1,499	1,205	1,041	751	1,132	1,151	1,163	1,248	1,375	1,435		
Total Annual Additions	1,279	982	1,055	998	1,090	4,315	307	583	506	1,688	3,017	2,635	1,540	1,846	1,250	1,232	1,259	1,318	4,025	2,895		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-46CP-FOT	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	33	587	-	-	-	-	-	-	-	-	-	33	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,010	-	-	-	-	-	-	-	-	-	1,010
	Wind, UT	-	-	-	-	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145	145
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	145	1,920	-	-	-	33	587	1,010	-	-	-	-	-	-	-	-	2,097	3,695
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	155	-	-	-	-	-	-	-	500	-	-	-	-	-	-	155	655
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	-	-	-	90
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	832	-	-	-	-	-	90	-	500	-	-	-	-	909	-	1,055	2,554
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	116.7	-	-	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	123.8	-	-	6.7	10.0	-	12.0	18.7	-	15.3	3.7	133.0	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	69	118
	Energy Efficiency, UT	58	67	67	68	71	68	71	68	65	62	57	56	52	52	53	36	32	25	22	24	665	1,074
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	17	16	14	14	12	11	11	9	8	7	5	5	140	237
	Energy Efficiency Total	74	83	85	86	94	92	95	92	89	85	78	76	71	69	69	49	44	35	30	33	875	1,428
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	540.0	90	-	630.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	15.0	-	-	30.0	-	-	-	-	-	120.0	-	180.0	-	15.0	345.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	105.0	45.0	-	-	-	-	135.0	30.0	-	315.0
	FOT East - Summer	42	42	-	-	-	-	-	144	150	150	150	150	150	150	216	218	214	223	299	295	53	130
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	534	-	-	349	-	-	-	533	-	-	-	-	-	534	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	401	-	-	-	-	-	-	-	-	3	-	-	-	430	-	401	835
	Total Solar	-	-	-	-	-	901	-	534	-	-	349	-	-	-	1,011	-	-	-	430	-	1,435	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.0	-	-	12.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	30.3	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	7.5	5.9	5.2	-	-	34.4	-	5.4	-	2.0	-	3.1	-	62.5	3.0	18.6	129.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	48	47	46	43	43	39	38	34	32	31	31	28	26	24	26	24	24	417	698
	Energy Efficiency, WA	11	9	10	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	111	180
	Energy Efficiency Total	52	48	49	60	61	59	57	57	52	51	46	44	42	42	38	32	32	32	29	29	546	911
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	15	15	225	15	-	-	-	-	-	-	-	-	45	255	315
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	15	15
	Battery Storage - Portland NC	-	-	-	-	-	-	-	30	15	-	-	-	-	-	-	-	-	-	60	-	45	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	15	-	60	75
	Battery Storage - Yakima	-	-	-	-	-	-	-	15	45	-	-	-	-	-	-	-	-	-	-	-	60	60
	FOT West - Summer	956	678	491	500	496	100	88	100	166	1,060	1,075	817	949	885	1,075	1,075	1,075	1,075	1,075	1,074	464	741
	FOT West - Winter	151	131	265	300	311	36	40	41	88	220	242	239	268	295	201	217	232	306	100	100	158	189
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,207)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	131	300	211	309	3,812	174	1,146	215	394	1,516	1,599	223	668	1,139	81	657	70	2,523	251		
	Annual Additions, Short Term Resources	1,149	850	757	800	807	136	128	285	404	1,430	1,467	1,207	1,367	1,330	1,491	1,510	1,521	1,604	1,474	1,469		
	Total Annual Additions	1,279	981	1,056	1,011	1,116	3,948	302	1,431	620	1,825	2,983	2,806	1,590	1,998	2,631	1,591	2,179	1,675	3,997	1,720		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-47CP-FOT	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	370	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,009	66	-	-	-	-	-	-	-	-	1,075
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	620	1,009	66	-	-	-	-	-	-	-	1,993	3,688
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	-	-	500	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	25
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	25	-	500	-	-	-	-	909	-	1,127	2,561
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	33.5	59.0	24.1	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	40.7	59.0	24.1	6.7	10.0	-	12.0	18.7	-	15.3	3.7	133.0	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	5	4	4	3	3	3	68	115
	Energy Efficiency, UT	58	65	67	68	69	66	65	65	62	62	54	53	50	48	47	36	32	26	22	22	646	1,035
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	17	17	15	14	12	12	11	9	8	7	5	5	141	239
	Energy Efficiency Total	74	81	85	86	91	89	89	88	85	86	76	73	68	65	63	49	44	36	30	30	855	1,389
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	255.0	-	-	-	-	-	-	-	330.0	120	-	705.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	315.0	-	-	315.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45.0	240.0	60.0	-	345.0
	FOT East - Summer	42	42	-	-	-	-	-	48	37	150	173	150	150	150	150	150	150	173	300	292	32	108
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	-	233
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	443	-	-	676
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	702	-	-	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	197	-	-	405	602
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	475	-	-	-	899	-	-	1,259	2,992
	Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.4	-	-	16.4
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	30.3	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	4.1	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	7.5	1.9	-	4.1	5.2	34.4	-	5.4	-	2.0	-	3.1	-	66.9	3.0	18.6	133.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	31
	Energy Efficiency, OR	40	32	37	36	39	39	39	41	39	37	33	31	30	29	26	26	26	26	24	23	378	650
	Energy Efficiency, WA	11	9	9	10	11	11	11	11	11	10	9	9	8	8	7	6	6	5	4	4	105	172
	Energy Efficiency Total	52	43	47	48	52	51	52	54	51	49	44	41	40	38	35	34	33	32	29	27	500	853
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	30
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	-	-	-	30	60
	FOT West - Summer	956	678	492	500	497	120	112	113	154	920	1,075	857	662	474	837	839	836	1,075	1,070	1,046	454	666
	FOT West - Winter	151	131	265	300	311	39	43	44	91	223	244	243	271	169	187	203	218	251	100	100	160	179
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(982)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	124	298	198	226	4,232	159	368	200	329	1,561	1,528	549	1,090	118	82	96	1,278	2,496	261		
	Annual Additions, Short Term Resources	1,149	850	757	800	808	159	155	206	282	1,293	1,492	1,250	1,083	793	1,174	1,193	1,204	1,499	1,470	1,438		
	Total Annual Additions	1,279	974	1,055	998	1,033	4,390	314	574	482	1,623	3,052	2,778	1,632	1,883	1,292	1,275	1,300	2,777	3,966	1,700		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-48CP-FOT	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	370	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,055	45	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	261	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	261	261
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	261	1,920	-	-	-	-	620	1,055	45	-	-	-	-	-	-	-	2,181	3,901
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	39	-	-	-	-	-	-	500	-	-	-	-	-	-	-	39	539
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	716	-	-	-	-	-	-	500	-	-	-	-	-	909	-	939	2,348
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55.2	-	-	18.9	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	33.5	59.0	24.1	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	40.7	59.0	24.1	6.7	10.0	-	12.0	20.5	55.2	15.3	3.7	75.9	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	5	4	3	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	69	67	67	66	65	62	54	53	52	50	49	39	36	26	24	31	655	1,069
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	19	17	14	14	13	12	11	9	8	7	5	6	147	247
	Energy Efficiency Total	74	83	85	88	91	90	91	92	91	86	75	74	71	67	66	53	48	37	32	40	871	1,433
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.0	-	765.0	60	-	900.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	255.0	-	-	-	-	255.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	180.0	-	-	120.0	-	360.0
	FOT East - Summer	42	42	-	-	-	-	-	118	106	150	150	150	150	150	150	270	242	251	298	300	46	129
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	-	221
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	233	-	-	-	-	-	-	-	-	-	-	233	233
	Total SCCT	-	-	-	-	-	-	-	-	-	233	-	-	-	-	-	-	-	-	221	-	233	455
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	438	102	-	146	16	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	85	390	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	172	-	-	-	-	-	-	-	-	-	-	-	-	430	-	172	602
	Total Solar	-	-	-	-	-	1,026	-	-	-	-	359	-	85	390	-	438	102	-	576	16	1,026	2,992
	Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	30.3	-	-	-	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	4.1	-	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	7.5	1.9	4.1	-	5.2	34.4	-	5.4	-	2.0	41.3	3.1	-	3.0	3.0	18.6	110.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	32	37	36	36	39	41	41	39	37	33	31	30	29	26	26	26	25	22	23	375	643
	Energy Efficiency, WA	11	9	9	10	11	12	12	11	11	10	9	9	8	8	7	6	6	5	4	4	107	173
	Energy Efficiency Total	52	43	47	48	48	52	54	54	52	49	44	41	40	38	35	33	33	30	27	27	499	848
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	90	180	-	-	-	-	-	-	-	-	-	90	270
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	30	15	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	90	30	-	-	-	-	-	-	-	-	-	90	120
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	15	-	15	30
	FOT West - Summer	956	678	492	500	496	125	117	115	158	790	968	731	394	349	710	1,075	1,075	1,075	1,031	1,006	443	642
	FOT West - Winter	151	131	265	300	311	88	93	94	141	38	58	57	64	-	1	18	33	109	-	100	161	103
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(858)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	126	298	199	410	3,812	163	376	246	593	1,365	1,550	1,117	507	123	680	712	71	2,624	288		
	Annual Additions, Short Term Resources	1,149	850	757	800	807	214	210	327	405	978	1,176	939	608	499	862	1,364	1,350	1,435	1,329	1,406		
	Total Annual Additions	1,279	977	1,055	999	1,217	4,026	373	703	651	1,571	2,541	2,488	1,725	1,006	985	2,043	2,062	1,506	3,953	1,694		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-53CP-FOT	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	33	587	-	-	-	-	-	-	-	-	-	33	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,010	-	-	-	-	-	-	-	-	-	1,010
	Wind, UT	-	-	-	-	145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145	145
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	145	1,920	-	-	-	33	587	1,010	-	-	-	-	-	-	-	-	2,097	3,695
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	155	-	-	-	-	-	-	-	500	-	-	-	-	-	-	155	655
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	-	-	-	90
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	832	-	-	-	-	-	90	-	500	-	-	-	-	909	-	1,055	2,554
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	116.7	-	-	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	123.8	-	-	6.7	10.0	-	12.0	18.7	-	15.3	3.7	133.0	21.6	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	69	118
	Energy Efficiency, UT	58	67	67	68	71	68	71	68	65	62	57	56	52	52	53	36	32	25	22	24	665	1,074
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	17	16	14	14	12	11	11	9	8	7	5	5	140	237
	Energy Efficiency Total	74	83	85	86	94	92	95	92	89	85	78	76	71	69	69	49	44	35	30	33	875	1,428
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	540.0	90	-	630.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	15.0	-	-	30.0	-	-	-	-	-	120.0	-	180.0	-	15.0	345.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	105.0	45.0	-	-	-	-	135.0	30.0	-	315.0
	FOT East - Summer	42	42	-	-	-	-	-	144	150	150	150	150	150	150	216	218	214	223	299	295	53	130
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	534	-	-	349	-	-	-	533	-	-	-	-	-	534	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	401	-	-	-	-	-	-	-	-	3	-	-	-	430	-	401	835
	Total Solar	-	-	-	-	-	901	-	534	-	-	349	-	-	-	1,011	-	-	-	430	-	1,435	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.0	-	-	12.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	-	30.3	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	7.5	5.9	5.2	-	-	34.4	-	5.4	-	2.0	-	3.1	-	62.5	3.0	18.6	129.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	48	47	46	43	43	39	38	34	32	31	31	28	26	24	26	24	24	417	698
	Energy Efficiency, WA	11	9	10	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	111	180
	Energy Efficiency Total	52	48	49	60	61	59	57	57	52	51	46	44	42	42	38	32	32	32	29	29	546	911
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	15	15	225	15	-	-	-	-	-	-	-	-	45	255	315
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	15	15
	Battery Storage - Portland NC	-	-	-	-	-	-	-	30	15	-	-	-	-	-	-	-	-	-	60	-	45	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	15	-	60	75
	Battery Storage - Yakima	-	-	-	-	-	-	-	15	45	-	-	-	-	-	-	-	-	-	-	-	60	60
	FOT West - Summer	956	678	491	500	496	100	88	100	166	1,060	1,075	817	949	885	1,075	1,075	1,075	1,075	1,075	1,074	464	741
	FOT West - Winter	151	131	265	300	311	36	40	41	88	220	242	239	268	295	201	217	232	306	100	100	158	189
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,212)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	131	300	211	309	3,812	174	1,146	215	394	1,516	1,599	223	668	1,139	81	657	70	2,523	251		
	Annual Additions, Short Term Resources	1,149	850	757	800	807	136	128	285	404	1,430	1,467	1,207	1,367	1,330	1,491	1,510	1,521	1,604	1,474	1,469		
	Total Annual Additions	1,279	981	1,056	1,011	1,116	3,948	302	1,431	620	1,824	2,983	2,806	1,590	1,998	2,631	1,591	2,179	1,675	3,997	1,720		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-45CNW-FOT	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	150
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	150	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	2,070	3,170
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	150	-	-	-	-	-	-	500	-	-	-	-	-	-	-	150	650
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	827	-	-	-	-	-	-	500	-	-	-	-	-	909	-	1,050	2,459
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	33.5	-	83.1	-	8.2	-	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	37.3	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	9.9	-	16.5	40.7	-	83.1	6.7	10.0	-	12.0	18.7	-	15.3	3.7	81.3	73.3	161.2	382.2
	Energy Efficiency, ID	6	6	6	7	7	8	7	7	7	7	7	6	6	6	6	4	4	4	3	3	69	117
	Energy Efficiency, UT	58	67	67	68	71	70	71	64	62	61	57	56	52	50	49	38	36	29	20	22	658	1,066
	Energy Efficiency, WY	10	10	13	14	15	18	19	17	18	17	16	15	13	12	11	9	8	7	5	5	150	253
	Energy Efficiency Total	74	83	86	88	94	96	97	87	86	85	80	77	72	68	66	51	48	40	28	30	877	1,436
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	765.0	-	-	-	765.0
	Battery Storage - WYSW	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-	-	-	180.0	-	-	15.0	195.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	75.0	75.0	-	-	-	-	240.0	-	-	-	390.0
	FOT East - Summer	42	42	-	-	-	-	-	78	106	150	150	150	150	150	150	150	150	150	185	150	42	98
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	47	-	-	-	-	-	-	-	47
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	47	-	-	-	-	-	-	-	47
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	358	-	-	-	-	-	-	-	-	-	-	-	-	430	-	358	788
	Total Solar	-	-	-	-	-	1,212	-	-	-	-	359	-	-	475	-	-	-	-	430	702	1,212	3,178
	Demand Response, OR-Ancillary Services	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	20.3	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	-	30.3	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	4.1	-	9.2	-	-	-	-	-	-	-	-	-	4.1	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	3.1	-	-	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	7.5	1.9	-	4.1	5.2	34.4	-	-	5.4	2.0	-	3.1	-	44.3	32.5	18.6	140.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	36	43	42	40	46	43	35	39	37	33	32	30	30	27	27	26	28	22	23	399	675
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	10	9	9	8	8	7	6	6	5	4	4	109	176
	Energy Efficiency Total	52	47	54	55	54	59	56	48	52	49	44	43	40	40	36	34	33	33	27	27	526	884
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	60	15	30	-	-	-	-	-	735	-	-	60	840
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	15	30	-	-	-	-	-	-	-	210	-	-	45	255
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	-	-	-	30
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	45	15	15	-	-	-	-	-	30	-	-	45	105
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	15	-	-	30	45
	FOT West - Summer	956	678	492	500	496	108	100	101	142	936	1,054	569	585	495	859	861	858	867	1,075	1,072	451	640
	FOT West - Winter	151	131	265	300	311	46	50	52	99	231	251	250	278	170	187	204	219	295	-	100	164	179
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	307	206	307	4,122	187	361	157	387	924	1,720	686	647	123	85	115	2,267	2,025	864		
	Annual Additions, Short Term Resources	1,149	850	757	800	807	154	150	231	347	1,317	1,455	969	1,013	815	1,196	1,215	1,227	1,312	1,260	1,322		
	Total Annual Additions	1,279	981	1,063	1,007	1,114	4,276	337	592	503	1,704	2,379	2,689	1,700	1,462	1,319	1,300	1,342	3,579	3,285	2,187		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.17 – Gateway & No Gas Cases, Detailed Capacity Expansion Portfolio

	P-22	Capacity (MW) 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Resource Totals 1/ 10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	185	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	185	185	-	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,033	-	-	-	-	-	-	-	-	-	1,033
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	-	67	-	-	-	-	-	-	-	67
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	-	1,033	-	67	-	-	-	-	-	-	1,993	3,093
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	272	228	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	272	228	-	100	-	-	-	909	-	1,127	2,636
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	37.3	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	-	31.2	139.2	44.6	373.9
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	68	115
	Energy Efficiency, UT	58	61	67	68	69	66	65	65	62	62	57	58	54	48	47	36	32	25	22	25	642	1,044
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	18	16	15	13	12	11	9	8	7	5	5	143	245
	Energy Efficiency Total	74	77	85	86	91	89	89	89	86	87	80	79	73	65	63	49	45	35	30	33	853	1,404
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	-	-	390.0	-	480.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	60.0	90.0	-	-	-	-	-	-	30.0	-	180.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	52	300	295	216	236	285	287	300	300	300	300	5	144
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, Jbridger	-	-	-	-	-	-	-	200	-	-	359	-	-	-	-	-	-	-	-	-	200	559
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	298	-	-	298
	Total Wind	-	-	-	-	-	-	-	200	-	-	359	-	-	-	-	-	-	-	298	-	200	858
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	-	-	-	-	-	-	-	-	-	702	354	1,056
	Utility Solar+Storage - PV - Borah	-	-	-	-	-	-	-	300	-	-	-	-	-	-	-	-	-	-	-	-	300	300
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	463	-	-	-	-	-	-	-	37	475	-	-	-	-	-	463	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	132	-	405	537
	Total Solar	-	-	-	-	-	1,222	-	300	-	-	-	-	-	37	475	-	-	-	132	702	1,522	2,868
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8	10.9	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	78.6	32.1	-	120.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	37	39	39	43	41	39	37	33	32	31	29	26	26	24	25	24	24	388	660
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	9	9	9	8	7	6	6	5	4	4	109	176
	Energy Efficiency Total	52	48	48	49	53	52	56	54	52	49	44	43	42	38	35	33	32	31	29	29	514	869
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	-	165
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	-	210
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	75	-	135	-	-	-	-	-	-	30	-	75	240
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	167	162	164	228	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,062	1,075	1,075	1,074	501	787
	FOT West - Winter	151	131	268	303	314	56	63	65	114	246	223	183	192	138	92	3	15	9	-	-	171	128
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	125	299	199	235	4,188	153	650	138	316	616	2,396	523	219	673	81	92	251	2,670	1,520		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	223	225	229	342	1,373	1,598	1,553	1,483	1,449	1,452	1,365	1,377	1,384	1,375	1,374		
	Total Annual Additions	1,279	975	1,060	1,005	1,047	4,411	378	879	479	1,689	2,214	3,950	2,006	1,668	2,124	1,447	1,469	1,635	4,045	2,893		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-23	Capacity (MW) 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Resource Totals 1/ 10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame DJ	-	-	-	-	-	-	-	-	-	-	-	195	-	195	195	-	-	-	-	-	-	584
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	-	-	-	185	-	370	-	564	-	195	195	-	-	-	-	-	555	1,508
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131	131
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	131	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	2,051	3,151
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	169	-	-	-	-	-	-	-	-	500	-	-	-	-	-	169	669
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	846	-	-	-	-	-	-	-	-	600	-	-	-	909	-	1,069	2,578
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	-	-	74.1
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	-	8.2	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	-	-	16.7	-	-	18.7
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	-	8.2	14.0	1.8	-	7.0	-	150.7	16.1	161.2	365.7
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	7	6	6	5	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	67	68	71	68	71	68	65	62	57	59	52	50	47	34	31	25	20	22	665	1,061
	Energy Efficiency, WY	10	10	13	14	15	16	17	19	18	18	16	15	13	12	11	9	8	7	5	5	150	251
	Energy Efficiency Total	74	83	86	88	94	92	96	94	90	87	80	81	71	68	63	47	43	35	28	30	885	1,429
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	195	-	225.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	15.0	-	-	30.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	-	-	135.0
	FOT East - Summer	-	-	-	-	-	-	-	21	49	191	205	121	252	300	213	215	220	291	300	300	26	134
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, Jbridger	-	-	-	-	-	-	-	200	-	620	-	-	-	-	-	-	-	-	-	-	820	820
	Wind, Borah	-	-	-	-	-	-	-	-	488	-	-	-	-	-	-	-	-	-	-	-	488	488
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5
	Total Wind	-	-	-	-	-	-	-	200	488	620	-	-	-	-	-	-	-	-	5	-	1,308	1,314
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	254	126	56	-	-	-	-	-	-	-	-	254	436
	Utility Solar+Storage - PV - Borah	-	-	-	-	-	-	-	300	112	-	-	-	-	-	-	-	-	-	-	-	412	412
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	425	-	405	830
	Total Solar	-	-	-	-	-	905	-	300	112	254	126	56	-	-	475	-	-	-	425	-	1,570	2,652
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.4	-	-	16.4
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	-	-	5.3	-	-	11.8
	Demand Response Total	-	-	-	-	-	-	-	-	-	22.6	-	-	-	11.3	5.2	-	-	-	86.5	2.0	22.6	127.6
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	37	37	42	47	46	43	43	39	37	34	32	30	30	26	26	24	25	22	21	408	678
	Energy Efficiency, WA	11	10	11	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	48	49	55	61	60	57	57	52	49	46	44	40	40	35	32	31	30	27	26	539	891
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	255	-	-	-	-	-	15	-	-	-	-	150	105	255	525
	Battery Storage - Portland NC	-	-	-	-	-	-	-	75	-	-	-	-	-	15	-	-	-	-	-	15	75	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	60	-	75	135
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	720	318	352	383	-	-	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,018	1,075	1,075	599	834
	FOT West - Winter	104	101	107	72	72	-	-	-	-	29	-	-	-	-	-	-	-	-	-	-	48	24
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,914)	(85)	(912)	(93)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	132	309	207	295	3,822	161	1,353	742	1,519	259	1,845	120	373	1,375	79	81	65	2,464	388		
	Annual Additions, Short Term Resources	1,101	820	424	424	454	-	-	1,096	1,124	1,296	1,280	1,196	1,327	1,375	1,288	1,290	1,295	1,309	1,375	1,375		
	Total Annual Additions	1,231	952	734	631	750	3,822	161	2,449	1,866	2,815	1,539	3,041	1,447	1,748	2,663	1,370	1,376	1,374	3,839	1,763		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-25	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame DJ	-	-	-	-	-	-	-	-	-	-	-	584	-	-	-	-	-	-	-	-	-	584
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	1,138	-	-	-	-	-	-	370	-	-	1,508
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	500	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	715	-	-	715
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	-	500	-	100	-	-	-	715	-	1,200	2,515
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	3.4
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	37.3	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	3.7	31.0	131.3	44.6	369.4
	Energy Efficiency, ID	6	5	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	67	115
	Energy Efficiency, UT	58	61	67	68	69	66	67	65	62	62	57	56	52	50	51	36	32	26	23	26	644	1,053
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	16	15	13	12	11	9	8	7	5	6	143	246
	Energy Efficiency Total	74	76	85	86	91	89	91	88	86	87	80	77	72	68	68	49	45	37	31	35	853	1,414
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	300.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105.0	60.0	-	165.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	52	300	224	242	266	298	300	299	88	300	300	5	133
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	15
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, Jbridger	-	-	-	-	-	-	-	200	-	-	359	-	-	-	-	-	-	-	-	-	200	559
	Wind, Borah	-	-	-	-	-	-	-	76	600	-	-	-	-	-	-	-	-	-	-	-	676	676
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	430
	Total Wind	-	-	-	-	-	-	-	276	600	-	359	-	-	-	-	-	-	-	-	430	876	1,665
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	-	-	-	-	-	-	-	-	-	702	354	1,056
	Utility Solar+Storage - PV - Borah	-	-	-	-	-	-	-	224	-	-	-	-	-	-	-	-	-	-	-	-	224	224
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	309	-	-	-	-	-	-	-	128	538	-	-	-	-	-	309	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,068	-	224	-	-	-	-	-	128	538	-	-	-	-	702	1,293	2,660
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	118.8	12.2	-	140.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	37	37	39	46	43	41	41	38	34	32	31	30	27	26	26	26	25	24	398	679
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	111	181
	Energy Efficiency Total	52	49	48	50	53	59	57	55	54	51	46	44	42	40	37	33	33	32	30	29	527	892
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	465	-	-	465
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15	15
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	45	-	-	15	-	-	-	30	-	-	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	120	-	-	135
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	720	318	353	359	-	-	199	227	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	997	955	968	425	735
	FOT West - Winter	104	101	107	75	75	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	50	25
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	125	307	199	227	4,041	156	650	740	258	618	2,412	613	248	773	82	93	72	2,458	1,699		
	Annual Additions, Short Term Resources	1,101	820	424	428	434	-	-	199	227	1,165	1,375	1,299	1,317	1,341	1,373	1,375	1,374	1,385	1,255	1,268		
	Total Annual Additions	1,231	945	732	628	660	4,041	156	849	966	1,423	1,993	3,712	1,930	1,588	2,145	1,457	1,468	1,457	3,713	2,967		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-26	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	73
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	73	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	1,993	3,093
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	227	-	-	-	-	-	-	500	-	-	-	-	-	-	-	227	727
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	898	11	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	904	-	-	-	-	-	-	500	-	100	-	-	-	898	11	1,127	2,636
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	-	8.3	-	5.1	-	138.3
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	-	2.1
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	7.0	12.0	27.6	94.0	44.6	328.7
	Energy Efficiency, ID	6	5	5	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	66	114
	Energy Efficiency, UT	58	61	66	68	69	66	67	65	62	62	57	56	52	50	51	36	32	25	22	26	642	1,049
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	18	17	16	15	13	12	11	9	8	7	5	5	140	242
	Energy Efficiency Total	74	76	82	86	89	89	91	88	86	86	79	77	72	68	68	49	45	35	30	35	848	1,404
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	150.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	30.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	45.0	-	-	-	-	-	-	150.0	-	195.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	82	300	295	151	153	201	203	208	300	300	300	8	125
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, Borah	-	-	-	-	-	-	-	-	218	-	-	-	-	-	-	-	-	-	-	-	218	218
	Total Wind	-	-	-	-	-	-	-	-	218	-	-	-	-	-	-	-	-	-	-	-	218	218
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - Borah	-	-	-	-	-	-	-	-	382	-	-	-	-	-	-	-	-	-	-	-	382	382
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	288	-	-	-	-	-	-	-	212	475	-	-	-	-	-	288	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,047	-	-	382	-	359	-	-	212	475	-	-	-	-	702	1,428	3,177
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	32.3	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	57.2	53.5	-	120.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	36	34	39	43	41	39	37	34	32	31	30	27	26	24	26	24	24	381	660
	Energy Efficiency, WA	11	9	10	10	11	12	11	11	11	11	10	9	9	8	8	6	6	5	4	4	108	177
	Energy Efficiency Total	52	48	48	48	47	52	56	54	52	49	46	44	42	40	37	33	32	32	29	29	505	869
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	180	135	-	120	-	-	-	-	120	-	555
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	135	-	-	15	-	-	-	-	15	-	165
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	30	-	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	105
	FOT West - Summer	998	720	493	503	498	214	209	286	257	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	988	1,072	1,075	525	796
	FOT West - Winter	151	131	269	304	314	102	109	113	-	-	-	-	-	-	-	-	-	-	-	-	149	75
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	124	296	198	227	4,012	155	334	738	135	618	2,154	794	333	815	81	83	79	2,359	1,419		
	Annual Additions, Short Term Resources	1,149	851	762	807	812	316	318	398	257	1,157	1,375	1,370	1,226	1,228	1,276	1,278	1,284	1,288	1,372	1,375		
	Total Annual Additions	1,279	974	1,058	1,004	1,039	4,328	473	733	995	1,293	1,993	3,524	2,020	1,560	2,091	1,360	1,367	1,366	3,731	2,794		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-29	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	502	-	-	-	-	-	-	-	-	-	502
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	572	6	-	-	-	-	-	-	-	-	577
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,074	6	-	-	-	-	-	-	-	1,920	2,999
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	500	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	27	-	73	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	21
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	21	527	-	73	-	-	-	909	-	1,200	2,730
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	-	-	-	-	5.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.5	-	-	5.7	-	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	-	2.1	-	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	142.1	8.2	1.8	13.8	117.1	-	15.3	11.4	3.2	21.6	44.6	379.1
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	4	3	3	69	118
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	57	58	54	50	49	36	34	29	25	26	659	1,077
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	18	18	16	15	13	12	11	9	8	7	5	6	148	251
	Energy Efficiency Total	74	83	85	88	92	92	92	93	90	87	80	79	74	68	65	49	47	40	33	35	876	1,445
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	645.0	780	-	1,425.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	120.0	-	-	-	-	-	-	-	390.0	-	-	510.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	180.0	-	-	-	-	-	-	105.0	105.0	-	390.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	108	272	300	300	231	300	300	300	300	300	300	11	151
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	Wind+Storage, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	5
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	425	-	-	-	-	-	405	830
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	475	425	-	-	-	-	702	1,259	3,220
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.3	-	-	-	3.0	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	5.4	-	-	-	30.3	-	-	-	-	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, OR-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	-	2.0
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-	-	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	-	-	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	3.1	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	14.6	-	-	-	2.0	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	58.4	-	-	-	72.8	-	-	3.1	5.0	3.0	-	142.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	37	42	47	46	43	41	41	38	35	32	31	30	26	27	26	27	25	24	410	693
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	10	9	8	8	6	6	5	4	4	111	181
	Energy Efficiency Total	52	49	48	55	60	59	56	55	54	51	46	44	42	40	35	34	34	34	30	29	539	907
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	165	15	165	15	-	-	-	30	-	-	-	390
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	-	-	-	135
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	15	-	-	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	105	-	-	15	-	-	-	-	-	45	-	105	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	492	501	496	184	177	213	284	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,074	1,072	1,075	1,074	514	794
	FOT West - Winter	151	131	265	299	310	49	52	54	101	233	229	180	199	116	19	-	-	140	-	-	165	126
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	299	206	243	4,234	156	155	144	348	1,181	1,421	831	612	788	83	96	118	2,186	1,675		
	Annual Additions, Short Term Resources	1,149	850	757	800	806	232	230	267	385	1,415	1,576	1,555	1,574	1,422	1,394	1,375	1,374	1,511	1,375	1,374		
	Total Annual Additions	1,279	982	1,056	1,007	1,049	4,467	386	422	529	1,764	2,757	2,976	2,405	2,034	2,182	1,458	1,469	1,629	3,561	3,049		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-29PS	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	620
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	404	77	-	-	-	-	-	-	-	481
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	620	404	77	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	-	500	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	-	-	500	100	-	-	-	909	-	1,200	2,709
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	8.3	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	-	-	6.8	130.0	-	7.0	12.0	153.4	21.6	44.6	382.2
	Energy Efficiency, ID	6	5	6	7	7	7	7	7	7	7	7	6	6	6	6	5	4	3	3	3	67	116
	Energy Efficiency, UT	58	67	67	68	69	68	67	67	65	62	57	56	54	50	49	38	36	26	25	29	658	1,076
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	18	17	16	15	13	12	11	9	8	7	5	6	146	249
	Energy Efficiency Total	74	83	85	88	91	92	91	91	90	87	79	77	74	68	66	51	48	37	33	37	871	1,442
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	660	-	660.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	75.0	-	-	-	-	-	-	-	720.0	-	-	795.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	120.0	-	-	-	-	-	-	315.0	-	-	435.0
	Pump Storage - East	-	-	-	-	-	-	-	-	-	400	-	-	-	-	-	-	-	-	-	-	400	400
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	41	296	268	174	288	290	300	300	300	300	-	128
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	490	-	-	-	-	-	-	-	10	475	-	-	-	-	-	490	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,249	-	-	-	-	359	-	-	10	475	-	-	-	-	702	1,249	2,795
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.4	-	-	61.4
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	1.1	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	3.1
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	166.2	3.0	-	178.6
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	37	42	46	46	43	41	41	38	34	32	31	29	27	27	26	26	25	24	409	690
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	111	179
	Energy Efficiency Total	52	49	48	54	59	59	56	55	54	51	46	44	42	38	36	34	34	32	30	29	537	903
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	285	-	45	30	-	-	-	90	-	30	-	285	480
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	-	-	-	60	-	-	195
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	75	-	15	-	-	-	-	-	15	-	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	105	-	30	-	-	-	-	-	30	-	-	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	189	185	227	301	812	1,075	1,075	1,075	1,075	1,075	1,075	1,069	1,072	1,075	1,074	492	783
	FOT West - Winter	151	131	268	303	314	55	62	63	113	245	231	184	195	143	75	8	36	11	-	-	171	129
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	299	206	241	4,224	155	153	144	928	882	906	595	700	817	86	179	81	2,461	1,453		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	244	246	290	414	1,057	1,347	1,555	1,538	1,392	1,437	1,374	1,405	1,383	1,375	1,374		
	Total Annual Additions	1,279	982	1,060	1,012	1,053	4,468	401	444	558	1,985	2,229	2,461	2,133	2,092	2,254	1,459	1,584	1,464	3,836	2,827		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table 18 – Sensitivity Cases, Detailed Capacity Expansion Portfolio

		Capacity (MW)																				Resource Totals 1/	
	S-01	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	370	-	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, UT	-	-	-	-	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	70
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	70	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	1,990	3,090
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	230	-	-	-	-	-	-	-	500	-	-	-	-	-	-	230	730
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	899	10	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	155	62	-	683	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	155	62	-	913	-	-	-	-	-	-	-	500	100	-	-	-	899	10	1,130	2,639
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.7	24.1	8.3	-	-	5.1	-	138.3
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	-	-	6.8	100.7	29.3	15.3	-	6.9	16.1	44.6	226.4
	Energy Efficiency, ID	6	5	5	6	7	7	7	7	7	7	6	6	6	6	5	4	4	3	3	3	64	111
	Energy Efficiency, UT	58	61	60	60	69	66	65	63	59	59	54	56	50	48	49	36	32	26	22	23	620	1,017
	Energy Efficiency, WY	10	10	11	12	13	15	16	17	17	16	15	14	13	12	11	9	8	7	5	5	137	237
	Energy Efficiency Total	74	76	77	78	89	88	88	86	83	82	76	76	69	65	65	49	45	37	30	32	821	1,365
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165.0	-	-	165.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	225.0	-	-	225.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	-	126	258	13	300	296	300	300	300	300	-	110
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	-	221
	Wind, WallaW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100
	Wind+Storage, PNC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	466	-	466
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	466	-	566
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	272	-	-	-	-	-	-	-	703	-	-	-	-	-	-	272	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,031	-	-	-	-	359	-	-	703	-	-	-	-	-	702	1,031	2,795
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	5.8
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.2	-	9.2
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.3	-	11.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	7.5	31.1	-	40.5
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	36	39	43	43	41	39	37	34	32	31	30	26	26	26	26	24	23	390	668
	Energy Efficiency, WA	11	9	10	10	11	12	11	11	11	11	10	9	9	8	8	6	6	5	4	4	108	177
	Energy Efficiency Total	52	48	48	48	52	56	56	54	52	49	46	44	42	40	35	33	33	32	29	28	515	877
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	120	-	30	-	-	-	-	-	-	-	150
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	30	-	-	45
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	15	-	30	-	-	-	-	105	-	-	150
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	105
	FOT West - Summer	434	166	337	346	341	70	46	50	97	654	959	1,075	1,075	1,075	1,075	1,075	1,066	1,075	1,073	967	254	653
	FOT West - Winter	60	56	156	191	202	-	2	8	57	193	124	87	96	23	-	-	-	-	120	-	92	69
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	124	287	188	230	4,008	152	147	135	131	488	2,120	111	1,376	301	113	93	84	2,472	1,506		
	Annual Additions, Short Term Resources	493	222	493	537	543	70	48	58	155	847	1,083	1,288	1,430	1,111	1,375	1,371	1,366	1,375	1,492	1,267		
	Total Annual Additions	623	345	780	724	773	4,077	201	205	290	978	1,571	3,408	1,540	2,486	1,675	1,484	1,459	1,459	3,965	2,773		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	S-02	Capacity (MW) 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Resource Totals 1/ 10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame DJ	-	-	-	-	-	-	-	-	-	-	389	-	-	-	195	-	-	-	-	-	-	584
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370	370
	Total SCCT	-	-	-	-	-	-	-	185	-	370	389	370	-	-	195	-	-	-	-	-	555	1,508
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,096	-	-	-	-	-	-	-	-	-	1,096
	Wind, UT	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	75
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
	Total Wind	-	-	-	-	75	1,920	-	-	-	-	-	1,096	4	-	-	-	-	-	-	-	1,995	3,095
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	225	-	-	-	-	-	500	-	-	-	-	-	-	-	-	225	725
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	164	66	-	670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	164	66	-	995	-	-	-	-	-	500	-	-	-	-	-	-	909	-	1,225	2,634
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	-	-	7.0	-	165.4	21.6	161.2	382.2
	Energy Efficiency, ID	6	5	5	6	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	64	112
	Energy Efficiency, UT	58	61	60	60	69	66	65	63	62	59	54	54	52	50	51	36	32	26	23	23	623	1,024
	Energy Efficiency, WY	10	10	11	12	13	16	16	17	17	17	15	14	13	12	11	9	8	7	5	5	139	240
	Energy Efficiency Total	74	76	77	78	89	89	88	86	85	83	76	74	72	68	68	49	45	37	31	32	826	1,376
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	540	-	540.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	45.0	-	75.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105.0	45.0	-	150.0
	FOT East - Summer	295	186	-	-	-	-	-	-	-	300	275	164	300	237	299	297	284	300	300	300	78	177
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind+Storage, YK	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	5	-	1	6
	Total Wind	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	5	-	1	6
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	404	-	-	-	-	-	-	-	-	-	-	-	-	425	-	404	829
	Total Solar	-	-	-	-	-	1,258	-	-	-	-	359	-	-	475	-	-	-	-	425	702	1,258	3,219
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8	4.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	3.1	-	5.2	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	5.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	32.6	-	-	-	-	-	-	-	-	67.3	-	32.6	99.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	50	49	47	46	45	43	39	37	34	32	31	30	27	26	26	26	24	23	431	710
	Energy Efficiency, WA	11	10	10	11	12	13	12	12	11	11	10	9	9	8	8	6	6	5	4	4	113	182
	Energy Efficiency Total	52	49	62	62	61	60	59	57	52	49	46	44	42	40	37	33	33	32	29	27	561	924
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	135	-	-	-	-	360	165	-	660
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	-	-	60	45	-	-	-	-	-	-	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	15	-	-	-	-	-	-	60	-	-	-	15	30	15	120
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	45	-	-	-	-	-	15	30	-	-	-	60	30	45	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	1,276	1,125	922	966	1,001	405	505	831	912	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,071	1,074	1,074	1,075	902	988
	FOT West - Winter	37	234	372	408	421	157	162	165	215	349	285	249	252	216	168	93	110	90	-	-	252	199
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	125	318	206	235	4,322	155	500	137	652	877	2,092	118	805	434	82	85	69	2,645	1,637		
	Annual Additions, Short Term Resources	1,608	1,545	1,293	1,374	1,422	561	667	996	1,127	1,724	1,635	1,488	1,627	1,528	1,542	1,465	1,465	1,464	1,374	1,375		
	Total Annual Additions	1,738	1,669	1,611	1,580	1,657	4,884	823	1,497	1,264	2,376	2,512	3,580	1,745	2,333	1,975	1,547	1,550	1,533	4,018	3,012		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	S-03	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	185	-	185	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	-	-	-	185	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	185	185	-	185	185	-	-	-	-	-	185	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,070	-	-	-	-	-	-	-	-	-	1,070
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	30
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,070	30	-	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	-	500	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	52	-	5	-	-	-	-	-	-	56
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	907	2	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	-	52	500	5	-	-	-	907	2	1,200	2,665
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	5.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	8.3	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	37.3	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	-	-	7.0	8.3	105.4	70.3	161.2	379.1
	Energy Efficiency, ID	6	5	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	67	115
	Energy Efficiency, UT	58	66	67	68	69	66	67	65	65	62	54	56	52	50	51	36	32	25	22	26	652	1,056
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	17	15	14	13	12	11	9	8	7	5	5	144	245
	Energy Efficiency Total	74	81	85	86	91	90	91	90	89	87	76	77	72	68	68	49	45	35	30	35	863	1,416
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	285	-	285.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240.0	-	240.0
	FOT East - Summer	133	-	-	-	-	-	-	-	-	300	263	267	300	245	300	294	297	300	300	300	43	165
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame SO	-	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	-	-	210
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	210	-	-	-	-	-	-	-	-	443	-	653
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	265	-	-	-	-	-	-	-	500	765
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	430	-	-	405	835
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	265	-	-	-	-	430	-	702	1,259	3,015
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	2.0	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5	1.1	-	6.6
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	-	93.1	3.0	9.4	105.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	37	43	49	47	46	44	43	41	38	34	32	31	30	27	26	24	26	24	24	427	705
	Energy Efficiency, WA	11	10	10	11	12	13	12	12	11	11	10	9	9	8	8	6	6	5	4	4	113	183
	Energy Efficiency Total	52	49	55	62	61	60	58	57	54	51	46	44	42	40	37	33	32	32	29	29	558	921
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	120	105	225
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	45	45
	Battery Storage - Portland NC	-	-	-	-	-	-	-	45	-	30	-	-	-	-	30	-	-	-	-	15	75	120
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	30	-	15	-	-	-	30	60	-	-	-	-	45	45	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	1,125	984	584	618	626	219	197	484	561	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	970	1,075	1,075	647	856
	FOT West - Winter	526	498	630	661	672	404	962	969	1,016	591	380	327	921	896	849	772	781	108	386	315	693	633
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	130	314	212	234	4,233	158	518	143	459	883	1,383	461	835	384	82	83	505	1,670	2,003		
	Annual Additions, Short Term Resources	1,784	1,482	1,214	1,279	1,298	623	1,159	1,454	1,576	1,966	1,717	1,669	2,296	2,216	2,224	2,141	2,153	1,378	1,761	1,690		
	Total Annual Additions	1,914	1,612	1,528	1,490	1,532	4,856	1,317	1,972	1,719	2,425	2,600	3,052	2,756	3,051	2,608	2,222	2,236	1,882	3,430	3,693		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	S-04	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	185	185	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	185	740	-	-	-	-	-	-	-	-	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,058	-	-	-	-	-	-	-	-	-	1,058
	Wind, UT	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	20
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	-	-	-	22
	Total Wind	-	-	-	-	20	1,920	-	-	-	-	-	1,058	-	22	-	-	-	-	-	-	1,940	3,021
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	280	-	-	-	-	-	-	-	500	-	-	-	-	-	-	280	780
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	20
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	160	64	53	623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	160	64	53	903	-	-	-	-	-	20	-	500	100	-	-	-	909	-	1,180	2,709
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	11.0	105.6	8.2	-	-	-	-	8.3	-	-	5.1	11.0	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37.3	-	37.3
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	11.0	112.3	8.2	-	6.8	5.2	-	15.3	3.7	23.7	73.3	55.6	304.1
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	68	67	68	65	62	54	56	52	50	51	36	32	25	22	26	659	1,063
	Energy Efficiency, WY	10	10	11	14	15	16	17	18	18	18	15	14	13	12	11	9	8	7	5	5	148	249
	Energy Efficiency Total	74	83	85	88	91	92	92	93	90	87	76	76	72	68	68	49	45	35	30	35	875	1,428
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	-	-	-	210	-	240.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	-	-	-	-	-	-	30.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150.0	-	-	-	-	90.0	-	240.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	220	287	300	297	140	204	265	300	300	300	300	22	146
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	664	221	-	886
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	664	221	-	886
	Wind+Storage, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	25
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	25
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	405	-	-	405	810
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	475	-	-	-	405	-	702	1,259	3,200
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	-	2.0
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	-	-	-	-	9.2	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	-	-	8.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	13.4	-	-	-	-	-	8.3	-	14.0	3.0	-	38.7
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	37	39	46	43	41	39	37	33	31	31	30	27	26	24	25	22	23	395	666
	Energy Efficiency, WA	11	10	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	110	177
	Energy Efficiency Total	52	49	48	50	53	59	56	54	52	49	44	42	42	40	37	32	31	30	27	27	522	875
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	75	-	-	15	-	-	-	-	-	-	-	75	90
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	30	-	-	60	-	-	-	-	-	-	-	30	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	15	-	-	-	-	45	-	-	-	-	-	15	60
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	105
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	996	753	473	488	484	182	161	317	397	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,019	1,069	1,075	533	801
	FOT West - Winter	151	131	265	300	311	48	54	56	103	235	223	174	186	117	67	5	28	-	-	-	166	123
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	132	299	202	235	4,233	156	154	142	372	791	1,944	293	1,112	465	82	100	474	2,199	1,361		
	Annual Additions, Short Term Resources	1,147	884	739	788	795	229	216	374	500	1,531	1,585	1,549	1,558	1,331	1,346	1,345	1,403	1,319	1,369	1,375		
	Total Annual Additions	1,277	1,016	1,038	990	1,030	4,463	372	528	642	1,903	2,375	3,493	1,851	2,443	1,810	1,426	1,503	1,793	3,567	2,736		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	S-05	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	370	-	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	994	-	-	-	-	-	-	-	-	-	994
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	30	-	76	-	-	-	-	-	-	-	106
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,024	-	76	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	500	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	904	5	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	-	500	-	100	-	-	-	904	5	1,200	2,709
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.4	-	48.4
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	92.5	32.4	-	-	-	-	-	-	8.3	5.1	-	138.3
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	-	2.1
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.9	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	99.2	32.4	-	12.0	-	-	7.0	-	15.2	90.0	44.6	300.4
	Energy Efficiency, ID	6	5	6	7	7	7	7	7	7	7	7	6	6	6	6	4	4	3	3	3	67	116
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	58	52	50	51	36	32	26	23	26	654	1,065
	Energy Efficiency, WY	10	10	11	12	15	16	16	18	18	17	16	15	13	12	11	9	8	7	5	5	144	246
	Energy Efficiency Total	74	83	85	86	91	90	91	90	89	87	80	79	72	68	68	49	45	37	31	35	865	1,427
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420	-	420.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	90.0	-	45.0	-	-	-	-	-	30.0	-	165.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	31	224	300	280	145	300	281	300	300	300	300	3	138
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	475	-	-	-	-	-	702	1,259	2,795
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.4	-	7.4
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	5.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	1.9	-	7.5	-	-	-	-	21.6	15.7	-	46.7
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	33
	Energy Efficiency, OR	40	37	37	40	39	46	43	41	39	38	35	32	31	30	28	26	26	26	25	24	399	682
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	109	179
	Energy Efficiency Total	52	48	48	52	53	59	56	54	52	51	46	44	42	40	38	33	33	32	30	29	525	893
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	15	-	120	-	-	150	-	-	-	60	-	15	345
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	45	-	-	30	-	-	-	-	-	-	75
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	15	-	-	-	60	-	120	195
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	720	494	504	500	175	169	198	243	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,051	1,063	1,075	1,062	507	789
	FOT West - Winter	151	131	268	303	314	50	57	60	110	242	262	226	247	128	75	7	22	175	-	-	169	141
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	130	299	202	235	4,232	155	151	141	378	585	2,066	614	724	401	82	85	69	2,440	1,341		
	Annual Additions, Short Term Resources	1,149	850	762	807	814	225	225	258	353	1,347	1,561	1,601	1,603	1,347	1,450	1,363	1,374	1,538	1,375	1,362		
	Total Annual Additions	1,279	981	1,061	1,009	1,049	4,457	380	409	495	1,725	2,146	3,667	2,216	2,071	1,851	1,445	1,459	1,607	3,815	2,703		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	S-06	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	185	370	-	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	185	370	-	-	-	-	-	-	-	370	-	185	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	-	500	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	73	604	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	73	904	-	-	-	-	-	-	500	-	100	-	-	-	909	-	1,200	2,709
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	-	8.2	-	-	-	8.3	-	-	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	116.7	6.7	-	8.2	12.0	-	-	15.3	3.7	25.5	141.2	161.2	373.9
	Energy Efficiency, ID	7	7	7	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	70	118
	Energy Efficiency, UT	66	64	67	68	69	68	67	68	65	62	57	56	50	48	49	36	32	25	22	26	664	1,064
	Energy Efficiency, WY	11	11	11	14	15	16	16	18	18	17	16	15	13	12	11	9	8	7	5	5	149	249
	Energy Efficiency Total	84	82	85	88	91	92	91	93	90	87	79	77	69	65	65	49	45	35	30	34	883	1,431
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	225	-	225.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	105.0	-	45.0	-	-	-	-	-	45.0	-	195.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	282	263	194	206	252	300	2	88	88	300	300	28	114
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	300	300	-	-	-	45
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, WallaW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	-	58
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92	-	-	92
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92	58	-	150
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	455	-	-	-	-	-	-	-	45	475	-	-	-	-	-	455	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	338	-	405	743
	Total Solar	-	-	-	-	-	1,214	-	-	-	-	359	-	-	45	475	-	-	-	338	702	1,214	3,133
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	32.3	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	-	57.2	53.5	9.4	120.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	32
	Energy Efficiency, OR	40	41	32	42	47	46	43	41	40	38	33	32	30	29	26	26	24	26	24	24	410	682
	Energy Efficiency, WA	10	9	10	11	12	12	12	12	11	11	10	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	52	44	54	60	59	56	55	53	51	45	43	40	38	35	33	32	32	29	29	537	891
	Battery Storage - S-Oregon	-	-	15	-	-	-	-	-	-	45	-	105	-	15	180	-	-	(15)	-	-	60	345
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	15	75	-	-	-	-	-	-	-	-	-	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	75	-	15	-	-	-	-	-	-	-	90
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	60	-	-	-	90	15	-	-	-	-	-	60	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	1,010	964	521	555	560	191	187	472	545	1,075	1,075	1,075	1,075	1,075	1,075	1,075	989	998	1,075	1,070	608	833
	FOT West - Winter	149	123	259	294	305	53	60	62	111	243	219	172	188	136	67	-	34	5	-	-	166	124
	Existing Plant Retirements/Conversions	-	(308)	(186)	(224)	(1)	(412)	(387)	(505)	(85)	(912)	(449)	(149)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	139	134	319	206	234	4,189	155	155	144	659	875	1,580	617	326	870	81	92	55	2,798	1,302		
	Annual Additions, Short Term Resources	1,159	1,088	780	849	865	245	247	533	657	1,600	1,558	1,441	1,469	1,463	1,442	1,377	1,411	1,391	1,375	1,370		
	Total Annual Additions	1,299	1,222	1,099	1,055	1,099	4,433	402	688	800	2,259	2,432	3,022	2,087	1,788	2,312	1,459	1,503	1,447	4,173	2,672		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	S-07	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	370	-	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	947	-	-	-	-	-	-	-	-	-	947
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Wind+Storage, GO	-	-	-	-	-	-	-	-	-	-	-	66	-	83	-	-	-	-	-	-	-	149
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,013	-	83	-	-	-	-	-	-	1,920	3,016
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	300	-	-	-	-	-	500	-	-	-	-	-	-	-	-	300	800
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	-	-	-	1,200	-	-	-	-	-	504	-	-	-	-	-	-	909	-	1,200	2,613
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	8.3	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	8.3	9.9	-	8.2	7.2	-	-	123.3	8.2	-	12.0	-	-	15.3	3.7	23.7	143.1	44.6	373.9
	Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	68	116
	Energy Efficiency, UT	58	67	67	68	69	66	67	65	65	62	57	58	53	50	48	36	32	25	22	26	654	1,060
	Energy Efficiency, WY	10	10	11	14	15	16	16	18	18	18	16	15	13	12	11	9	8	7	5	5	147	248
	Energy Efficiency Total	74	83	85	88	91	90	91	90	90	87	79	79	73	68	64	49	45	35	30	35	869	1,425
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270	-	270.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	120.0	75.0	-	-	-	-	-	-	-	195.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	46	263	300	277	300	230	232	300	300	300	300	5	142
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	221	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	221	221	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	-	475	-	-	-	-	702	1,259	2,795
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.4	32.3	-	37.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	-	10.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	57.2	44.3	-	110.9
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	42	39	45	43	41	39	37	33	32	31	29	26	26	24	26	24	24	398	673
	Energy Efficiency, WA	11	9	10	11	12	12	12	11	11	11	10	9	9	8	8	6	6	5	4	4	109	177
	Energy Efficiency Total	52	48	48	54	53	58	56	54	52	49	45	43	42	38	35	33	32	32	29	29	524	882
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	45	-	90	45	-	270	-	-	-	-	-	45	450
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	15	-	60	15	30	-	-	-	-	-	-	15	120
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	30	-	15	-	15	15	-	-	-	-	-	30	75
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	15	-	45	-	-	105	-	-	-	-	-	15	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	54	49	147	221	1,075	1,075	1,075	1,075	1,075	1,074	1,075	1,006	1,016	1,065	1,059	476	768
	FOT West - Winter	151	131	268	303	314	32	39	40	90	222	212	166	185	123	54	-	29	-	-	-	159	118
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	131	140	150	154	4,527	155	151	142	346	617	2,412	295	337	964	82	92	70	2,575	1,444		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	86	88	188	311	1,342	1,551	1,541	1,537	1,498	1,357	1,307	1,335	1,316	1,365	1,359		
	Total Annual Additions	1,279	982	901	956	966	4,613	243	339	453	1,689	2,167	3,953	1,832	1,834	2,321	1,389	1,427	1,386	3,940	2,803		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	S-08	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	CCCT - DJohns - J 1x1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	Total CCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	505	-	-	505
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	185	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	555	-	-	-	-	-	-	185	185	-	925
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	1,920	3,020
	Utility Solar+Storage - PV - Utah-S	-	-	206	90	4	-	-	29	233	216	-	22	-	-	-	-	-	-	-	-	778	800
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	69	831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	206	90	72	931	-	29	233	216	-	22	-	-	-	-	-	-	909	-	1,778	2,709
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	3.7	-	1.8	-	10.6
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.7	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	-	8.3	-	5.1	-	138.3
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	39.4
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	-	1.2
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	6.7	124.9	-	6.8	5.2	-	7.0	12.0	3.2	135.2	44.6	345.5
	Energy Efficiency, ID	6	5	5	6	7	7	7	7	7	7	7	6	6	6	5	4	4	3	3	3	66	114
	Energy Efficiency, UT	58	61	67	68	69	66	67	65	62	62	57	56	54	52	47	36	32	25	22	26	644	1,051
	Energy Efficiency, WY	10	10	11	12	15	16	16	17	18	17	16	15	13	12	11	9	8	7	5	5	142	244
	Energy Efficiency Total	74	76	84	86	91	90	91	88	86	86	79	77	74	70	64	49	45	35	30	35	852	1,409
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270	-	270.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	105.0	15.0	15.0	-	-	-	-	45.0	-	180.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	235	300	277	215	265	268	300	300	300	300	-	138
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	14
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	14
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	475	-	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	416	-	-	405	821
	Total Solar	-	-	-	-	-	1,259	-	-	-	-	359	-	-	475	-	-	-	416	-	702	1,259	3,211
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32.3	-	32.3
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.3	-	-	9.3
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	17.6	32.3	-	59.3
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	17	32
	Energy Efficiency, OR	40	37	37	36	39	46	43	41	41	38	35	32	31	31	26	26	24	25	24	24	397	674
	Energy Efficiency, WA	11	9	10	10	11	12	11	12	11	11	10	10	9	8	8	6	6	5	4	4	109	178
	Energy Efficiency Total	52	48	48	48	52	59	56	55	54	51	46	44	42	42	35	33	32	31	29	29	522	884
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	30	-	165	75	-	150	-	-	-	-	-	30	420
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	15	-	-	90	-	-	-	-	-	-	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	15	-	-	-	-	135	-	-	-	-	-	15	150
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	719	493	503	498	111	107	165	159	1,005	1,075	1,075	1,075	1,075	1,074	1,075	1,048	944	1,075	1,072	476	767
	FOT West - Winter	151	131	268	303	314	39	45	47	96	228	222	172	192	110	61	-	36	-	-	-	162	121
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	124	345	223	234	4,259	155	179	373	504	492	2,217	296	609	494	81	83	507	2,121	1,447		
	Annual Additions, Short Term Resources	1,149	850	761	806	812	150	152	212	255	1,234	1,532	1,547	1,544	1,400	1,400	1,343	1,384	1,244	1,375	1,372		
	Total Annual Additions	1,279	974	1,107	1,029	1,046	4,409	307	390	628	1,737	2,024	3,764	1,840	2,009	1,893	1,424	1,467	1,752	3,496	2,820		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.19 – DSM Bundled Cases, Detailed Capacity Expansion Portfolio

		Capacity (MW)																				Resource Totals 1/	
	P-45DP	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	370	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,088	-	-	-	-	-	-	-	-	-	1,088
	Wind, UT	-	-	-	-	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64	64
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	64	1,920	-	-	-	-	620	1,088	-	-	-	-	-	-	-	-	1,984	3,691
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	236	-	-	-	-	-	-	-	-	-	500	-	-	-	-	236	736
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	12
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	9	668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	9	904	-	-	-	-	-	-	12	-	100	500	-	-	909	-	1,136	2,658
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	116.7	8.2	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	-	123.3	8.2	-	6.8	5.2	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	7	8	8	8	8	8	8	8	8	7	7	7	6	5	4	4	4	3	76	130
	Energy Efficiency, UT	58	76	77	77	79	78	79	77	74	71	70	64	62	62	53	38	34	28	26	28	745	1,210
	Energy Efficiency, WY	10	11	12	13	16	17	17	18	18	17	16	15	14	12	11	9	8	7	5	5	149	251
	Energy Efficiency Total	74	93	96	98	103	103	104	103	99	96	94	87	83	81	70	52	47	39	35	36	970	1,592
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	135.0	360	-	495.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	75.0	-	-	-	-	-	-	-	-	240.0	-	315.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	90.0	105.0	-	-	-	-	15.0	135.0	-	345.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	173	293	220	196	249	297	182	281	300	300	300	17	139
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	354	-	-	-	-	359	-	-	-	-	-	-	-	-	702	354	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	454	-	-	-	-	-	-	-	46	475	-	-	-	-	-	454	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	430	405	835
	Total Solar	-	-	-	-	-	1,213	-	-	-	-	359	-	-	46	475	-	-	-	-	1,132	1,213	3,225
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	9.4	-	-	-	-	-	-	-	107.7	-	-	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	20	37
	Energy Efficiency, OR	40	35	36	36	38	44	42	41	39	39	35	35	35	34	27	27	26	28	26	25	388	685
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	10	9	9	8	6	6	5	4	4	111	184
	Energy Efficiency Total	52	46	48	48	51	59	56	55	52	52	48	47	47	45	37	35	34	34	32	30	518	906
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	45	120	-	-	-	-	-	-	-	60	-	45	225
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	30	45	-	30	-	-	-	-	-	-	-	30	105
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	-	105	-	-	15	-	-	-	-	45	-	-	165
	Battery Storage - Yakima	-	-	-	-	-	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	725	500	515	516	198	199	270	347	1,075	1,075	1,075	1,075	1,075	1,075	1,075	979	976	1,074	1,075	534	795
	FOT West - Winter	151	135	276	318	336	89	102	112	167	304	272	237	248	198	146	66	86	73	-	-	199	166
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(412)	-	(505)	(85)	(912)	(449)	(396)	(350)	(114)	(557)	(156)	(36)	(280)	(2,260)	(745)		
	Annual Additions, Long Term Resources	130	139	310	210	245	4,199	169	350	152	328	1,704	1,599	262	299	687	587	96	73	2,308	1,955		
	Annual Additions, Short Term Resources	1,149	861	776	833	852	287	301	382	514	1,552	1,640	1,532	1,518	1,522	1,518	1,322	1,346	1,350	1,374	1,375		
	Total Annual Additions	1,279	1,000	1,086	1,043	1,097	4,486	470	732	665	1,880	3,343	3,131	1,780	1,821	2,204	1,910	1,442	1,422	3,682	3,330		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-46DP	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	923	-	-	-	-	-	-	-	-	-	923
	Wind, UT	-	-	-	-	300	-	-	-	-	-	-	-	4	4	23	-	-	-	-	-	300	331
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	300	1,920	-	-	-	620	-	923	4	4	23	-	-	-	-	-	2,840	3,793
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	469	-	-	-	-	-	-	-	-	469
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	49	129	-	-	-	-	-	-	-	-	178
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	677	-	-	-	-	-	49	598	-	100	-	-	-	909	-	900	2,556
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	21.6	161.2	382.2
	Energy Efficiency, ID	6	7	7	7	8	8	8	8	8	8	7	7	7	7	6	5	5	4	3	3	77	130
	Energy Efficiency, UT	58	74	77	77	79	79	77	77	73	70	63	62	58	54	53	39	35	27	23	26	741	1,181
	Energy Efficiency, WY	10	11	12	13	14	17	17	18	18	17	15	15	13	12	11	9	8	7	5	5	146	245
	Energy Efficiency Total	74	91	96	98	102	104	103	103	100	95	86	83	78	73	70	52	48	37	31	34	964	1,556
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-	-	-	15
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420.0	90	-	510.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0	30.0	-	-	60.0	-	300.0	-	-	420.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	15.0	105.0	-	-	60.0	-	75.0	45.0	-	300.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	227	171	254	87	148	255	261	275	300	300	300	23	129
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	-	-	(349)	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	-	-	-	-	-	-	(353)	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	206	-	-	206
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	206	-	-	206
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	713	-	-	349	-	-	-	353	-	-	-	-	-	713	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	224	-	405	629
	Total Solar	-	-	-	-	-	905	-	713	-	-	349	-	-	-	828	-	-	-	224	-	1,618	3,019
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	5.3	-	-	-	62.0	-	9.4	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	20	37
	Energy Efficiency, OR	40	35	37	42	45	45	42	41	39	37	35	33	32	31	27	27	26	26	23	24	403	687
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	10	9	9	8	6	6	5	4	4	111	184
	Energy Efficiency Total	52	46	49	55	59	59	57	55	53	50	47	45	43	42	37	35	34	32	29	29	535	907
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	15	120	15	-	-	-	-	-	-	-	60	-	135	210
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	45	-	15	-	-	-	-	-	45	-	15	-	45	120
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	15	-	-	60	-	-	15	-	-	-	-	60	30	15	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	90	15	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	724	500	515	515	106	106	516	589	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,070	1,062	1,075	1,075	565	819
	FOT West - Winter	151	135	276	318	336	64	77	81	133	270	264	228	240	180	135	68	86	74	-	-	184	156
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,207)	(85)	(912)	(444)	(396)	(350)	(114)	(913)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	137	310	216	479	3,665	167	1,168	227	1,087	1,018	1,478	753	281	1,065	87	697	70	2,555	250		
	Annual Additions, Short Term Resources	1,149	859	776	833	851	171	183	598	723	1,572	1,509	1,557	1,402	1,403	1,465	1,405	1,431	1,436	1,375	1,375		
	Total Annual Additions	1,279	996	1,087	1,049	1,330	3,836	350	1,765	950	2,659	2,528	3,035	2,155	1,684	2,530	1,492	2,128	1,506	3,929	1,625		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

		Capacity (MW)																				Resource Totals 1/	
	P-53DP	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Colstrip 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Colstrip 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	(74)	-	-	-	-	-	-	-	-	-	-	(74)	(74)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	-	-	-	(201)	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Coal Ret_WY - Gas RePower	-	247	-	-	-	-	-	-	-	-	-	(247)	-	-	-	-	-	-	-	-	247	-
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	185	-	-	-	370	-	-	-	-	-	-	-	-	185	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	370	-	-	-	-	-	-	-	-	-	-	370
	Total SCCT	-	-	-	-	-	-	-	185	-	-	370	370	-	-	-	-	-	-	-	-	185	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	923	-	-	-	-	-	-	-	-	-	923
	Wind, UT	-	-	-	-	300	-	-	-	-	-	-	-	4	4	23	-	-	-	-	-	300	331
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	300	1,920	-	-	-	620	-	923	4	4	23	-	-	-	-	-	2,840	3,793
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	469	-	-	-	-	-	-	-	-	469
	Utility Solar+Storage - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	49	129	-	-	-	-	-	-	-	-	178
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	-	909
	Utility Solar+Storage - PV - Utah-N	-	-	159	64	-	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	900
	Total Solar	-	-	159	64	-	677	-	-	-	-	-	49	598	-	100	-	-	-	909	-	900	2,556
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	116.7	-	8.2	-	-	-	-	-	-	8.3	5.1	116.7	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	-	-	8.3	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	7.0	-	18.1	-	8.2	7.2	-	116.7	6.7	8.2	-	12.0	1.8	-	7.0	-	163.7	21.6	161.2	382.2
	Energy Efficiency, ID	6	7	7	7	8	8	8	8	8	8	7	7	7	7	6	5	5	4	3	3	77	130
	Energy Efficiency, UT	58	74	77	77	79	79	77	77	73	70	63	62	58	54	53	39	35	27	23	26	741	1,181
	Energy Efficiency, WY	10	11	12	13	14	17	17	18	18	17	15	15	13	12	11	9	8	7	5	5	146	245
	Energy Efficiency Total	74	91	96	98	102	104	103	103	100	95	86	83	78	73	70	52	48	37	31	34	964	1,556
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-	-	-	15
	Battery Storage - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	420.0	90	-	510.0
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	15.0	-	15.0	30.0	-	-	60.0	-	300.0	-	-	420.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	15.0	105.0	-	-	60.0	-	75.0	45.0	-	300.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	227	171	254	87	148	255	261	275	300	300	300	23	129
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	-	-	-	-	-	-	(356)	(356)
	JimBridger 3 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	(349)	-	-	-	-	-	-	-	-	-	-	(349)
	JimBridger 4 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	-	-	-	-	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	-	-	443
	Wind, YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	206	-	-	206
	Total Wind	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	206	-	-	206
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	713	-	-	349	-	-	-	353	-	-	-	-	-	713	1,415
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	-	475	-	-	-	-	-	500	975
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	224	-	405	629
	Total Solar	-	-	-	-	-	905	-	713	-	-	349	-	-	-	828	-	-	-	224	-	1,618	3,019
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	8	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	1.9	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	4.8	-	-	-	-	-	-	-	-	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	-	-	3.0
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	13.3	-	-	-	-	-	-	-	-	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	11.3	-	-	-	5.3	-	-	-	-	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	9.4	40.4	-	-	-	5.3	-	-	-	62.0	-	9.4	117.1
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	20	37
	Energy Efficiency, OR	40	35	37	42	45	45	42	41	39	37	35	33	32	31	27	27	26	26	23	24	403	687
	Energy Efficiency, WA	11	10	10	11	12	12	12	12	11	11	10	10	9	9	8	6	6	5	4	4	111	184
	Energy Efficiency Total	52	46	49	55	59	59	57	55	53	50	47	45	43	42	37	35	34	32	29	29	535	907
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	15	120	15	-	-	-	-	-	-	-	60	-	135	210
	Battery Storage - Willamette Valley	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	45	-	15	-	-	-	-	-	45	-	15	-	45	120
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	15	-	-	60	-	-	15	-	-	-	-	60	30	15	180
	Battery Storage - Yakima	-	-	-	-	-	-	-	90	15	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	724	500	515	515	106	106	516	589	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,070	1,062	1,075	1,075	565	819
	FOT West - Winter	151	135	276	318	336	64	77	81	133	270	264	228	240	180	135	68	86	74	-	-	184	156
	Existing Plant Retirements/Conversions	-	(61)	(573)	(224)	(1)	(62)	-	(1,212)	(85)	(912)	(442)	(396)	(350)	(114)	(911)	(156)	(36)	(280)	(2,260)	(43)		
	Annual Additions, Long Term Resources	130	137	310	216	479	3,665	167	1,168	227	1,087	1,018	1,478	753	281	1,065	87	697	70	2,555	250		
	Annual Additions, Short Term Resources	1,149	859	776	833	851	171	183	598	723	1,572	1,509	1,557	1,402	1,403	1,465	1,405	1,431	1,436	1,375	1,375		
	Total Annual Additions	1,279	996	1,087	1,049	1,330	3,836	350	1,765	950	2,659	2,528	3,035	2,155	1,684	2,530	1,492	2,128	1,506	3,929	1,625		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

Table K.21 – P70 Cases, Detailed Capacity Expansion Portfolio

	P-70	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	370	-	-	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	185	-	-	370	-	-	-	370	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	119	501	-	-	-	-	-	-	-	-	-	119	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,083	-	-	-	-	-	-	-	-	-	1,083
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	119	501	1,083	-	-	-	-	-	-	-	-	2,039	3,623
	Utility Solar - PV - Utah-S	-	-	146	59	67	7	-	-	-	-	-	-	-	-	-	-	-	400	-	-	279	679
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	21	-	-	-	-	-	-	500	-	-	-	-	-	-	-	21	521
	Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	17
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	3	703	-	-	-	-	-	-	-	-	37	743
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	157	-	-	-	-	-	-	-	-	-	-	-	-	-	-	157	157
	Total Solar	-	-	146	59	67	285	-	-	-	37	3	720	500	-	-	-	-	400	-	909	594	3,126
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	124.9	-	-	-	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	124.9	-	12.0	-	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	7	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	118
	Energy Efficiency, UT	58	67	69	73	75	66	67	68	65	62	54	53	52	50	49	36	33	26	23	26	670	1,072
	Energy Efficiency, WY	10	12	13	16	18	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	155	256
	Energy Efficiency Total	74	85	88	96	100	90	91	93	91	87	76	74	71	68	65	49	45	37	31	35	896	1,447
	Battery Storage - Utah-N	-	-	-	-	150.0	-	-	-	-	-	-	-	-	-	-	-	-	-	120	555	150	825
	Battery Storage - WYSW	-	-	-	-	15.0	-	-	-	-	525.0	-	-	-	-	-	-	-	-	-	-	540.0	540.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	285.0	90.0	-	375.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	256	219	300	252	254	298	300	88	300	300	300	26	143
	FOT East - Winter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	-	-	-	-	15
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1 (Coal Early Retirement/Conversions)	-	-	-	-	(351)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	SCCT Frame YK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	233	-	-	233
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	676	-	-	676
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	337	-	-	-	-	-	-	500	837
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	183	-	-	-	405	588
	Utility Solar - PV - jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270	-	270
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,142	-	1,142
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	138	-	-	-	-	-	-	-	138
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	14
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	-	475	100	-	197	-	-	1,412	905	3,089
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.1	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	9.2	-	-	-	118.8	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	49	47	39	41	41	39	37	33	31	30	29	26	27	26	26	24	24	417	691
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	10	9	9	8	8	8	6	6	5	4	4	112	180
	Energy Efficiency Total	52	56	56	63	61	52	55	54	52	49	44	41	40	38	35	34	33	32	29	29	549	904
	Battery Storage - S-Oregon	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	150	180
	Battery Storage - Willamette Valley	-	-	-	-	15	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Portland NC	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	15	60	60	135
	Battery Storage - Walla Walla	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	30	195
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	617	676	1,052	469	562	537	595	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,051	1,075	979	1,029	754	906
	FOT West - Winter	151	131	268	303	314	245	251	253	303	315	308	334	301	331	284	201	184	180	-	-	253	233
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(352)	(62)	-	(148)	(3)	(764)	(93)	(506)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,101)		
	Annual Additions, Long Term Resources	130	141	306	217	763	3,252	154	155	142	861	631	2,237	611	593	579	83	291	469	1,802	3,306		
	Annual Additions, Short Term Resources	1,149	1,090	886	979	1,366	714	813	790	898	1,645	1,602	1,709	1,628	1,661	1,657	1,576	1,623	1,555	1,279	1,329		
	Total Annual Additions	1,279	1,231	1,192	1,197	2,129	3,966	967	944	1,040	2,507	2,233	3,946	2,239	2,254	2,236	1,660	1,914	2,024	3,081	4,635		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-71	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1 (Coal Early Retirement/Conversions)	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(156)	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	185
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	-	-	-	370	-	-	555
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,077	23	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,077	23	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	-	205	605
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	95	-	-	-	-	-	-	-	500	-	-	-	-	-	-	95	595
	Utility Solar - PV - Naughton	-	-	-	-	156	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	312	312
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	-	862	-	-	-	-	-	-	-	-	-	862
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	38
	Total Solar	-	-	146	59	156	389	-	-	-	-	-	862	-	500	-	-	-	400	-	909	750	3,421
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	-	-	6.8	130.0	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	69	73	75	68	71	68	65	67	54	53	50	50	49	36	32	26	22	26	681	1,079
	Energy Efficiency, WY	10	12	13	14	18	16	18	19	19	18	15	14	13	12	11	9	8	7	5	5	156	256
	Energy Efficiency Total	74	85	88	94	100	92	96	94	91	92	75	74	69	68	66	49	45	37	30	35	906	1,453
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	330.0	-	-	-	-	-	-	-	-	255	525	330	1,110
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	255.0	-	-	-	-	-	-	-	-	-	120.0	255.0	375.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	285.0	285.0	-	570.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	95	42	226	300	180	223	225	300	300	300	300	9	125
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	94	-	-	-	-	-	-	500	594
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	345	-	405	750
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	-	1,408
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	143	238	-	-	-	-	-	-	381
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	-	85
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	-	237	338	-	-	-	430	1,408	905	3,318
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.3	-	-	-	3.9	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	3.1	-	-	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.9	-	3.1	-	110.4	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	19	34
	Energy Efficiency, OR	40	43	43	46	47	39	43	41	39	37	33	31	30	29	26	27	26	26	24	24	416	689
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	8	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	56	56	59	61	53	56	54	52	49	44	41	40	38	35	34	33	32	29	29	547	903
	Battery Storage - S-Oregon	-	-	-	-	105	-	-	-	-	30	-	-	-	-	-	-	-	-	-	165	135	300
	Battery Storage - Willamette Valley	-	-	-	-	60	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Portland NC	-	-	-	-	45	-	-	-	-	30	-	-	-	-	-	-	-	-	15	75	75	165
	Battery Storage - Walla Walla	-	-	-	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	45	120	165
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	617	677	858	284	377	353	412	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,010	1,046	1,075	661	863
	FOT West - Winter	151	131	268	303	314	243	249	253	303	317	309	336	302	294	241	185	120	119	-	-	253	222
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(157)	(62)	-	(148)	(3)	(764)	(93)	(350)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	141	305	212	642	3,359	161	156	142	921	746	2,055	131	850	778	83	96	469	2,124	3,617		
	Annual Additions, Short Term Resources	1,149	1,090	886	980	1,172	527	626	606	715	1,487	1,427	1,638	1,677	1,549	1,538	1,485	1,495	1,430	1,346	1,375		
	Total Annual Additions	1,279	1,231	1,191	1,192	1,813	3,885	787	762	857	2,408	2,173	3,692	1,809	2,399	2,316	1,569	1,591	1,898	3,470	4,992		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-72	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1 (Coal Early Retirement/Conversions)	-	-	-	-	(44)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(44)	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	185	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	-	555	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	-	48	66	185	-	-	-	-	-	-	414	-	-	-	-	400	-	-	300	1,114
	Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	86	-	-	-	-	-	-	-	-	86
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	-	3	126	600	-	-	-	-	-	-	-	-	729
	Utility Solar+Storage - PV - Utah-N	-	-	159	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171	171
	Total Solar	-	-	159	60	66	285	-	-	-	-	3	126	1,100	-	-	-	-	400	-	909	571	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	-	-	6.8	130.0	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	116
	Energy Efficiency, UT	58	67	68	69	75	66	67	65	65	62	54	53	50	50	49	36	34	26	22	26	662	1,061
	Energy Efficiency, WY	10	12	13	14	18	16	16	17	18	17	15	14	13	12	11	9	8	7	5	5	150	250
	Energy Efficiency Total	74	85	87	90	100	89	91	88	89	87	75	74	69	67	65	49	46	36	30	35	881	1,428
	Battery Storage - Utah-N	-	-	-	-	-	-	-	-	-	285.0	-	-	-	-	-	-	-	-	-	720	285	1,005
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	405.0	-	-	-	-	-	-	-	-	-	-	405.0	405.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.0	240.0	-	315.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	-	-	277	300	247	204	206	300	300	300	300	-	122
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	-	209	-	-	-	-	-	-	500	709
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	-	1,408
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	266	-	-	-	-	-	-	-	266
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	-	475	100	-	-	-	430	1,408	905	3,318
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	7.5	-	-	-	128.0	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	47	47	39	36	41	39	37	33	31	30	29	26	26	26	26	24	24	410	682
	Energy Efficiency, WA	11	11	11	12	12	12	11	11	11	10	9	9	8	8	8	6	6	5	4	4	112	179
	Energy Efficiency Total	52	56	55	60	61	52	49	54	52	49	44	41	40	38	35	33	33	32	29	29	540	894
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	150	180	330
	Battery Storage - Willamette Valley	-	-	-	-	15	-	-	-	-	45	-	-	-	-	-	-	-	-	-	-	60	60
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	75	75
	Battery Storage - Walla Walla	-	-	-	-	45	-	-	-	-	75	-	-	-	-	-	-	-	-	-	90	120	210
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	557	614	645	235	254	233	290	1,048	995	1,075	1,075	1,075	1,075	1,075	1,059	994	1,059	1,075	583	820
	FOT West - Winter	151	131	269	304	314	249	255	259	309	323	313	343	309	302	253	173	151	151	-	-	257	228
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(45)	(62)	-	(148)	(3)	(764)	(93)	(506)	(306)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	141	317	211	402	3,252	148	150	141	1,201	749	1,341	1,209	589	708	82	95	468	1,846	3,602		
	Annual Additions, Short Term Resources	1,149	1,091	826	917	959	484	510	493	599	1,371	1,308	1,695	1,684	1,624	1,532	1,454	1,510	1,445	1,359	1,375		
	Total Annual Additions	1,279	1,231	1,143	1,128	1,361	3,735	658	643	740	2,572	2,057	3,036	2,892	2,213	2,240	1,536	1,605	1,913	3,206	4,977		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	Capacity (MW)																				Resource Totals 1/	
P-73	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East																						
Existing Plant Retirements and PPA Termination																						
Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
Hunter 1 (Coal Early Retirement/Conversions)	-	-	-	-	(418)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(418)	(418)
Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
Expansion Resources																						
SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	185	-	-	370	-	-	-	-	-	-	555
SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	-	185	-	-	370
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	185	-	-	370	-	185	-	185	-	-	925
Wind, Djohnston	-	-	-	-	-	-	-	-	-	327	293	-	-	-	-	-	-	-	-	-	327	620
Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,061	-	-	-	-	-	-	-	-	-	1,061
Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
Total Wind	-	-	-	-	-	1,920	-	-	-	327	293	1,061	-	-	-	-	-	-	-	-	2,247	3,601
Utility Solar - PV - Utah-S	-	-	146	59	67	-	-	-	-	-	-	-	99	-	-	-	-	400	-	-	272	771
Utility Solar - PV - WYSW	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	100
Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	28	-	-	-	-	-	-	401	-	-	-	-	-	-	-	28	429
Utility Solar+Storage - PV - GO	-	-	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	-	-	39
Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	-	37	3	695	-	-	-	-	-	-	-	-	37	735
Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	165
Total Solar	-	-	146	59	67	293	-	-	-	37	3	734	500	-	-	-	-	400	-	909	602	3,148
Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	-	3.7	1.8	-	10.6
Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	11.0	-	113.8	-	-	-	-	8.3	-	-	5.1	11.0	138.3
Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	11.0	6.7	113.8	-	12.0	-	-	15.3	-	157.1	21.6	55.6	382.2
Energy Efficiency, ID	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	69	117
Energy Efficiency, UT	58	67	67	69	73	68	67	68	65	64	54	53	52	50	49	36	34	27	23	22	667	1,066
Energy Efficiency, WY	10	12	13	14	15	16	17	18	19	18	15	14	13	12	11	9	8	7	5	5	152	253
Energy Efficiency Total	74	85	86	90	96	92	92	94	91	89	76	74	71	68	65	49	46	37	31	30	888	1,436
Battery Storage - Utah-N	-	-	-	-	285.0	-	-	-	-	420.0	-	-	-	-	-	-	-	-	270	360	705	1,335
Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	525.0	-	525.0
Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	315.0	105.0	-	420.0
FOT East - Summer	-	-	-	-	36	-	-	-	-	215	216	300	273	249	298	300	300	300	300	300	25	154
West																						
Existing Plant Retirements and PPA Termination																						
JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
Expansion Resources																						
SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
Utility Solar - PV - S-Oregon	-	-	-	-	-	234	-	-	-	-	-	-	-	235	-	-	-	-	-	-	234	469
Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	67	-	405	472
Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	-	1,408
Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	266	-	-	-	-	-	-	-	240	-	-	-	-	-	-	266	506
Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	363	-	-	363
Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	-	575	-	-	-	-	430	1,408	905	3,318
Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	8
Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	1.9
Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	-	-	-	9.2	-	-	13.3
Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	3.1	-	-	-	-	8.3
Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	9.4	-	-	9.2	-	3.1	-	115.6	-	-	137.4
Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
Energy Efficiency, OR	40	37	43	42	39	39	37	41	39	37	33	31	30	29	26	26	24	25	22	21	392	658
Energy Efficiency, WA	11	10	11	12	12	12	12	11	11	10	9	9	8	8	8	6	6	5	4	4	112	178
Energy Efficiency Total	52	49	55	55	53	52	50	54	52	49	44	41	40	38	35	33	32	31	27	26	522	869
Battery Storage - Willamette Valley	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	60	90
Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	-	195
Battery Storage - Walla Walla	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	180	285
Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
FOT West - Summer	998	959	617	672	1,075	470	563	538	596	1,075	1,075	1,075	1,075	1,075	1,075	1,075	988	924	1,060	1,075	756	903
FOT West - Winter	151	131	268	303	314	181	188	190	239	251	242	269	238	207	196	113	94	93	-	-	222	183
Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(420)	(62)	-	(148)	(3)	(764)	(93)	(506)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,451)		
Annual Additions, Long Term Resources	130	134	303	204	856	3,263	150	155	142	933	423	2,218	611	693	479	82	281	468	1,974	3,714		
Annual Additions, Short Term Resources	1,149	1,090	886	975	1,425	651	751	727	835	1,542	1,532	1,644	1,585	1,532	1,569	1,488	1,382	1,317	1,360	1,375		
Total Annual Additions	1,279	1,224	1,189	1,179	2,280	3,914	901	883	978	2,474	1,955	3,862	2,197	2,224	2,048	1,570	1,664	1,785	3,333	5,089		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

	P-74	Capacity (MW)																				Resource Totals 1/	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	10-year	20-year
East	**Existing Plant Retirements and PPA Termination**																						
	Craig 1 (Coal Early Retirement/Conversions)	-	-	-	-	(82)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	(82)
	Craig 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(82)	-	-	-	-	(82)
	Hayden 1	-	-	-	-	-	-	-	-	-	-	-	-	(44)	-	-	-	-	-	-	-	-	(44)
	Hayden 2	-	-	-	-	-	-	-	-	-	-	-	-	(33)	-	-	-	-	-	-	-	-	(33)
	Huntington 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(459)	-	-	(459)
	Huntington 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(450)	-	-	(450)
	Cholla 4 (Coal Early Retirement/Conversions)	-	-	(387)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(387)	(387)
	DaveJohnston 1	-	-	-	-	-	-	-	-	-	(99)	-	-	-	-	-	-	-	-	-	-	(99)	(99)
	DaveJohnston 2	-	-	-	-	-	-	-	-	-	(106)	-	-	-	-	-	-	-	-	-	-	(106)	(106)
	DaveJohnston 3	-	-	-	-	-	-	-	-	-	(220)	-	-	-	-	-	-	-	-	-	-	(220)	(220)
	DaveJohnston 4	-	-	-	-	-	-	-	-	-	(330)	-	-	-	-	-	-	-	-	-	-	(330)	(330)
	Naughton 1	-	-	-	-	-	-	-	-	-	-	-	(156)	-	-	-	-	-	-	-	-	-	(156)
	Naughton 2	-	-	-	-	-	-	-	-	-	-	-	(201)	-	-	-	-	-	-	-	-	-	(201)
	Naughton 3 (Coal Early Retirement/Conversions)	-	(280)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(280)	(280)
	Gadsby 1-6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	-	-	-	-	-	(356)
	Retire - Hydro	-	-	-	-	-	(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(20)	(20)
	Retire - Wind	-	-	-	-	-	-	-	-	-	-	-	(40)	-	-	-	-	-	-	-	-	-	(40)
	Expire - Wind PPA	-	(27)	(17)	(49)	(0)	-	-	(65)	(3)	-	(19)	(99)	(200)	(45)	(181)	(80)	-	(60)	(80)	-	(160)	(924)
	Expire - Solar PPA	-	-	-	-	(1)	(1)	-	-	-	-	-	-	-	-	-	-	(35)	(94)	(849)	-	(1)	(979)
	Retire - Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(32)	-	(33)
	Expansion Resources																						
	SCCT Frame NTN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	185	-	-	-	-	555
	SCCT Frame WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	-	370
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	370	-	185	-	370	-	-	925
	Wind, Djohnston	-	-	-	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	-	-	620
	Wind, GO	-	-	-	-	-	-	-	-	-	-	-	1,100	-	-	-	-	-	-	-	-	-	1,100
	Wind, WYAE	-	-	-	-	-	1,920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,920	1,920
	Total Wind	-	-	-	-	-	1,920	-	-	-	-	620	1,100	-	-	-	-	-	-	-	-	1,920	3,640
	Utility Solar - PV - Utah-S	-	-	146	59	67	28	-	-	-	-	-	409	-	-	-	-	-	400	-	-	300	1,109
	Utility Solar - PV - WYSW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	100
	Utility Solar+Storage - PV - Utah-S	-	-	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	-	91
	Utility Solar+Storage - PV - Huntington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	909	-	909
	Utility Solar - PV - Utah-N	-	-	-	-	-	-	-	-	64	37	3	626	-	-	-	-	-	-	-	-	100	729
	Utility Solar+Storage - PV - Utah-N	-	-	-	-	-	171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171	171
	Total Solar	-	-	146	59	67	199	-	-	64	37	3	1,035	91	-	-	-	-	500	-	909	571	3,109
	Demand Response, ID-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	-	2.6
	Demand Response, ID-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, ID-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	-	3.7	1.8	-	10.6
	Demand Response, ID-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, UT-Cool/WH	4.1	-	7.0	-	9.9	-	-	7.2	-	-	6.7	-	-	6.8	-	-	7.0	-	-	7.2	28.1	55.9
	Demand Response, UT-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1	2.6	-	76.7
	Demand Response, UT-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	1.9
	Demand Response, UT-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9	-	8.3	-	-	5.1	-	138.3
	Demand Response, WY-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	1.8	-	5.2
	Demand Response, WY-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.4	-	-	39.4
	Demand Response, WY-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	1.8
	Demand Response, WY-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	1.2	-	19.9
	Demand Response, UT-Ancillary Services	-	-	8.3	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	3.2	-	13.5	16.7
	Demand Response, WY-Ancillary Services	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	3.0
	Demand Response Total	4.1	-	15.3	-	9.9	-	8.2	7.2	-	-	6.7	-	-	6.8	130.0	-	15.3	-	157.1	21.6	44.6	382.2
	Energy Efficiency, ID	6	6	6	7	8	7	7	7	7	7	6	6	6	6	6	4	4	3	3	3	70	117
	Energy Efficiency, UT	58	67	67	69	75	68	71	68	65	67	54	53	50	50	49	36	32	26	25	26	675	1,076
	Energy Efficiency, WY	10	12	13	14	18	16	17	19	19	18	15	14	13	12	11	9	8	7	5	5	155	254
	Energy Efficiency Total	74	85	86	90	100	92	96	94	91	92	75	74	69	67	65	49	45	37	33	35	899	1,448
	Battery Storage - Utah-N	-	-	-	-	30.0	-	-	-	-	300.0	-	-	-	-	-	-	-	-	-	660	330	990
	Battery Storage - WYSW	-	-	-	-	-	-	-	-	-	90.0	-	-	-	-	-	-	-	-	-	300.0	90.0	390.0
	Battery Storage - Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	285.0	-	-	285.0
	FOT East - Summer	-	-	-	-	-	-	-	-	-	23	-	300	246	284	246	248	300	300	300	300	2	127
West	**Existing Plant Retirements and PPA Termination**																						
	JimBridger 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(351)	-	(351)
	JimBridger 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(356)	-	(356)
	JimBridger 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(349)	-	(349)
	JimBridger 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(353)	-	(353)
	Hermiston	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(237)	-	-	(237)
	Retire - Hydro	-	(1)	(169)	-	(1)	-	-	(1)	-	(7)	-	-	(6)	-	-	(75)	-	(1)	-	-	(179)	(262)
	Expire - Wind PPA	-	-	-	(175)	-	(41)	-	-	-	-	(75)	(10)	-	(20)	(20)	-	-	(10)	(10)	-	(216)	(360)
	Expire - Solar PPA	-	-	-	-	-	-	-	-	-	(2)	-	-	(67)	(49)	-	-	(1)	(115)	(175)	(11)	(2)	(420)
	Expansion Resources																						
	SCCT Frame WV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Total SCCT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	443	-	-	443
	Utility Solar - PV - S-Oregon	-	-	-	-	-	500	-	-	-	-	-	-	411	-	-	-	-	-	-	-	500	911
	Utility Solar - PV - Yakima	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	405
	Utility Solar+Storage - PV - Jbridger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,408	-	1,408
	Utility Solar - PV - Walla Walla	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
	Utility Solar+Storage - PV - S-Oregon	-	-	-	-	-	-	-	-	-	-	-	-	-	64	-	-	-	-	-	-	-	64
	Utility Solar+Storage - PV - Yakima	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	430	-	430
	Total Solar	-	-	-	-	-	905	-	-	-	-	-	-	411	164	-	-	-	-	-	1,838	905	3,318
	Demand Response, OR-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
	Demand Response, WA-Ancillary Services	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	1.9
	Demand Response, CA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	-	1.5
	Demand Response, CA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	1.1
	Demand Response, CA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	4.8
	Demand Response, CA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	5.8
	Demand Response, OR-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.3	-	-	23.3
	Demand Response, OR-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.7	-	-	35.7
	Demand Response, OR-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.3	-	-	13.3
	Demand Response, WA-Cool/WH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	7.7
	Demand Response, WA-3rd Party Contracts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	-	-	9.9
	Demand Response, WA-Irrigate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.3	-	-	8.3
	Demand Response, WA-Thermostat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	-	-	16.6
	Demand Response Total	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	7.5	-	-	-	128.0	-	-	137.4
	Energy Efficiency, CA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	18	33
	Energy Efficiency, OR	40	43	43	42	47	39	43	41	39	37	33	31	30	29	26	27	26	26	25	24	412	687
	Energy Efficiency, WA	11	11	11	12	12	12	12	11	11	11	9	9	8	8	8	6	6	5	4	4	113	180
	Energy Efficiency Total	52	55	56	56	61	52	56	54	52	49	44	41	40	38	35	34	33	32	30	29	543	900
	Battery Storage - S-Oregon	-	-	-	-	-	-	-	-	-	240	-	-	-	-	-	-	-	-	75	60	240	375
	Battery Storage - Willamette Valley	-	-	-	-	15	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	90	90
	Battery Storage - Portland NC	-	-	-	-	-	-	-	-	-	90	-	-	-	-	-	-	-	-	30	-	90	120
	Battery Storage - Walla Walla	-	-	-	-	120	-	-	-	-	30	-	-	-	-	-	-	-	-	-	150	150	300
	Battery Storage - Yakima	-	-	-	-	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	105	105
	FOT West - Summer	998	959	618	677	710	285	308	284	342	1,075	1,046	1,075	1,075	1,075	1,075	1,075	940	872	1,051	1,075	625	831
	FOT West - Winter	151	131	269	304	314	255	261	265	315	329	318	349	357	358	298	218	196	195	-	-	259	244
	Existing Plant Retirements/Conversions	-	(308)	(573)	(224)	(84)	(62)	-	(66)	(3)	(764)	(93)	(506)	(350)	(114)	(557)	(156)	(117)	(280)	(2,260)	(1,451)		
	Annual Additions, Long Term Resources	130	140	303	205	508	3,168	160	156	206	1,003	749	2,250	611	278	608	83	278	569	1,551	4,002		
	Annual Additions, Short Term Resources	1,149	1,091	886	980	1,024	539	569	549	656	1,427	1,364	1,724	1,678	1,716	1,619	1,541	1,436	1,367	1,351	1,375		
	Total Annual Additions	1,279	1,231	1,190	1,185	1,531	3,708	729	705	862	2,430	2,114	3,973	2,289	1,994	2,226	1,624	1,714	1,936	2,902	5,377		

1/ Front office transaction amounts reflect one-year transaction periods, are not additive, and are reported as a 10/20-year annual average.

APPENDIX L – STOCHASTIC SIMULATION RESULTS

Introduction

This appendix reports additional results for the Monte Carlo production cost simulations conducted with the Planning and Risk (PaR) model for the core, sensitivity and final screening cases. These results supplement the data presented in Volume I, Chapter 8 (Modeling and Portfolio Selection Results) of the IRP document. The results presented include the following:

- Statistics of the stochastic simulation results
- Components of portfolios' present value revenue requirements (PVRR)
- Energy-not-served
- Customer rate impact of portfolios in the final screen as compared with the preferred portfolio
- Loss of Load Probability of portfolios in the final screen as compared with the preferred portfolio

There are thirty Initial Development cases, ten C cases, eight CP cases, six FOT Risk Assessment cases, six Gateway and No Gas cases, eight Sensitivity cases, three Rebundled DSM cases, and five P-70 cases.

Table L.1 – Stochastic Mean PVRR, Initial Development Cases

Med Gas, Med CO_2					
Name	**PVRR ($m)**	**Name**	**PVRR ($m)**	**Name**	**PVRR ($m)**
P01	24,106	**P12**	23,678	**P30**	23,733
P02	24,919	**P13**	24,016	**P31**	23,484
P03	23,822	**P14**	23,786	**P32**	23,750
P04	23,775	**P15**	24,285	**P33**	23,809
P06	23,932	**P16**	23,889	**P34**	23,938
P07	23,819	**P17**	24,182	**P35**	23,666
P08	23,875	**P18**	24,376	**P45**	23,525
P09	23,760	**P19**	24,000	**P46**	23,413
P10	23,655	**P20**	25,118	**P53**	23,468
P11	23,768	**P28**	23,686	**P54**	23,616

Table L.2 – Stochastic Mean PVRR by Price Scenario, Initial Development Cases

Name	PVRR ($m)			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P16	19,448	23,889	29,847	39,712
P17	21,013	24,182	28,858	36,415
P18	22,456	24,376	27,785	35,276
P19	20,194	24,000	29,224	38,396
P20	20,833	25,118	28,397	37,527

Table L.3 – Stochastic Mean PVRR, C Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P31C	23,374
P36C	23,430
P45C	23,283
P46C	23,278
P46J23C	23,312
P47C	23,198
P48C	23,221
P53C	23,340
P53J23C	23,391
P54C	23,381

Table L.4 – Stochastic Mean PVRR by Price Scenario, CP Cases

Name	PVRR ($m)			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P36CP	20,377	23,413	27,881	36,561
P45CP	20,094	23,192	27,786	36,934
P46CP	20,285	23,292	27,814	36,703
P46J23CP	20,306	23,303	27,812	36,555
P47CP	20,130	23,219	27,805	36,936
P48CP	20,173	23,205	27,736	36,798
P53CP	20,327	23,348	27,889	36,829
P45CNW	19,965	23,207	27,946	37,095

Table L.5 – Stochastic Mean PVRR, FOT Risk Assessment Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P45CNW-FOT	24,075
P45CP-FOT	24,024
P46CP-FOT	24,099
P47CP-FOT	24,001
P48CP-FOT	24,098
P53CP-FOT	24,164

Table L.6 – Stochastic Mean PVRR, Gateway and No Gas Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P-22CNW	23,603
P-23CNW	24,184
P-25CNW	24,239
P-26CNW	23,307
P29	23,328
P29PS	23,616

Table L.7 – Stochastic Mean PVRR, Sensitivity Cases

Name	Med Gas, Med CO_2 PVRR ($m)
S01	22,080
S02	24,346
S03	23,388
S04	23,308
S05	22,970
S06	24,038
S07	23,126
S08	23,186

Table L.8 – Stochastic Mean PVRR, DSM Rebundled Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P45DP	23,281
P46DP	23,350
P53DP	23,409

Table L.9 – Stochastic Mean PVRR, P70 Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P70	24,041
P71	24,010
P72	24,121
P73	24,261
P74	24,230

Table L.10 – Stochastic Risk Results, Initial Development Cases – Medium Gas, Medium CO_2

PVRR ($m)	Initial Cases Medium Gas, Medium CO_2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P01	95	23,952	24,228	24,258	10,521
P02	97	24,759	25,056	25,089	10,723
P03	98	23,672	23,945	23,996	10,395
P04	142	23,558	23,909	23,978	9,758
P06	133	23,724	24,061	24,149	10,436
P07	133	23,610	23,950	24,038	10,396
P08	134	23,664	24,006	24,115	10,600
P09	131	23,562	23,882	23,996	10,514
P10	133	23,451	23,778	23,875	9,874
P11	98	23,617	23,886	23,941	10,415
P12	132	23,469	23,796	23,907	10,225
P13	94	23,872	24,133	24,185	10,532
P14	185	23,547	23,921	24,025	10,238
P15	93	24,129	24,387	24,422	10,127
P16	159	23,648	24,045	24,153	13,505
P17	110	24,021	24,303	24,370	10,953
P18	131	24,191	24,515	24,531	8,803
P19	143	23,784	24,154	24,225	11,377
P20	143	24,903	25,272	25,343	11,377
P28	98	23,540	23,811	23,859	10,438
P30	99	23,588	23,850	23,909	10,355
P31	98	23,340	23,607	23,658	10,252
P32	101	23,605	23,875	23,940	10,405
P33	134	23,607	23,938	24,034	10,168
P34	138	23,727	24,061	24,159	10,143
P35	106	23,499	23,795	23,851	9,818
P45	101	23,373	23,647	23,703	10,284
P46	108	23,258	23,565	23,594	9,951
P53	109	23,312	23,622	23,644	10,002
P54	102	23,471	23,738	23,792	10,305

Table L.11 – Stochastic Risk Results, Initial Development Cases – Low Gas, No CO_2

PVRR ($m)	Initial Cases Low Gas, No CO2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P16	112	19,295	19,555	19,593	8,955
P17	86	20,892	21,102	21,161	7,759
P18	111	22,315	22,592	22,623	6,856
P19	103	20,052	20,296	20,318	7,471
P20	94	20,702	20,913	20,952	6,962

Table L.12 – Stochastic Risk Results, Initial Development Cases – High Gas, High CO_2

PVRR ($m)	Initial Cases High Gas, High CO2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P16	200	29,555	30,056	30,202	19,534
P17	136	28,652	29,014	29,069	15,676
P18	149	27,575	27,947	28,030	12,249
P19	178	28,970	29,407	29,539	16,665
P20	163	28,151	28,575	28,700	14,677

Table L.13 – Stochastic Risk Results, Initial Development Cases – Social Cost of Carbon

PVRR ($m)	Initial Cases Social Cost of Carbon				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P16	212	39,365	40,000	40,096	29,355
P17	156	36,173	36,605	36,635	23,280
P18	161	35,050	35,433	35,491	19,747
P19	193	38,115	38,642	38,752	25,807
P20	184	37,236	37,761	37,881	23,791

Table L.14 – Stochastic Risk Results, C Cases – Medium Gas, Medium CO_2

PVRR ($m)	C Cases				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P31C	99	23,233	23,507	23,536	10,353
P36C	146	23,213	23,574	23,677	10,275
P45C	99	23,131	23,409	23,449	10,072
P46C	104	23,125	23,404	23,458	9,864
P46J23C	106	23,160	23,445	23,506	9,856
P47C	103	23,045	23,333	23,371	10,023
P48C	103	23,073	23,342	23,396	9,933
P53C	105	23,185	23,466	23,518	9,921
P53J23C	107	23,235	23,525	23,580	9,915
P54C	102	23,233	23,509	23,547	10,211

Table L.15 – Stochastic Risk Results, CP Cases – Medium Gas, Medium CO_2

PVRR ($m)	CP Cases Medium Gas, Medium CO2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P36CP	142	23,194	23,561	23,657	10,241
P45CP	100	23,043	23,322	23,367	10,061
P46CP	104	23,143	23,426	23,464	9,844
P46J23CP	109	23,144	23,456	23,492	9,850
P47CP	103	23,067	23,349	23,393	10,040
P48CP	104	23,051	23,327	23,374	9,963
P53CP	105	23,199	23,476	23,521	9,892
P45CNW	98	23,062	23,348	23,372	10,338

Table L.16 – Stochastic Risk Results, CP Cases – Low Gas, Low CO_2

PVRR ($m)	CP Cases Low Gas, No CO2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P36CP	101	20,229	20,485	20,515	7,103
P45CP	68	20,001	20,187	20,216	6,895
P46CP	72	20,187	20,387	20,409	6,771
P46J23CP	79	20,195	20,412	20,427	6,802
P47CP	72	20,030	20,223	20,264	6,883
P48CP	72	20,070	20,268	20,293	6,862
P53CP	73	20,228	20,428	20,450	6,800
P45CPNW	67	19,878	20,052	20,085	7,029

Table L.17 – Stochastic Risk Results, CP Cases – High Gas, High CO_2

PVRR ($m)	CP Cases High Gas, High CO2				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P36CP	180	27,612	28,091	28,193	14,782
P45CP	133	27,585	27,947	28,039	14,733
P46CP	139	27,596	27,971	28,067	14,443
P46J23CP	142	27,595	28,008	28,059	14,409
P47CP	134	27,596	27,957	28,060	14,696
P48CP	137	27,528	27,893	27,990	14,571
P53CP	140	27,672	28,051	28,144	14,508
P45CPNW	133	27,748	28,121	28,190	15,151

Table L.18 – Stochastic Risk Results, CP– Social Cost of Carbon

PVRR ($m)	CP Cases Social Cost of Carbon				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P36CP	187	36,278	36,808	36,887	23,413
P45CP	152	36,713	37,137	37,141	23,870
P46CP	153	36,451	36,897	36,923	23,327
P46J23CP	153	36,296	36,755	36,784	23,151
P47CP	153	36,699	37,139	37,150	23,819
P48CP	155	36,567	37,007	37,020	23,620
P53CP	155	36,576	37,025	37,043	23,436
P45CPNW	152	36,877	37,292	37,303	24,302

Table L.19 – Stochastic Risk Results, FOT Risk Assessment Cases – Medium Gas, Medium CO_2

PVRR ($m)	FOT Cases				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P45CNW	104	23,917	24,212	24,258	11,032
P45CP	108	23,867	24,160	24,193	10,923
P46CP	113	23,924	24,239	24,296	10,762
P47CP	109	23,835	24,130	24,156	10,829
P48CP	111	23,927	24,241	24,293	10,904
P53CP	115	23,986	24,305	24,357	10,828

Table L.20 – Stochastic Risk Results, Gateway and No Gas Cases – Medium Gas, Medium CO_2

PVRR ($m)	Gateway and No Gas Studies				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P-22CNW	96	23,470	23,733	23,772	10,057
P-23CNW	100	24,037	24,307	24,358	9,625
P-25CNW	98	24,093	24,372	24,414	9,958
P-26CNW	99	23,162	23,454	23,479	10,255
P29	98	23,182	23,467	23,503	10,256
P29PS	123	23,439	23,777	23,803	10,509

Table L.21 – Stochastic Risk Results, Sensitivity Cases – Medium Gas, Medium CO_2

PVRR ($m)	Sensitivity Studies				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
S01	96	21,939	22,208	22,248	9,646
S02	113	24,182	24,475	24,527	11,270
S03	103	23,235	23,514	23,550	10,594
S04	100	23,161	23,442	23,480	10,527
S05	99	22,827	23,102	23,134	10,231
S06	95	23,902	24,183	24,207	11,119
S07	98	22,992	23,254	23,301	10,346
S08	97	23,039	23,313	23,350	10,187
P45CPNW	98	23,062	23,348	23,372	10,338

Table L.22 – Stochastic Risk Results, DSM Rebundled Cases – Medium Gas Medium CO_2

PVRR ($m)	DP Studies				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P45DP	101	22,956	23,248	23,268	10,026
P46DP	106	23,012	23,321	23,344	9,639
P53DP	107	23,070	23,381	23,401	9,687

Table L.23 – Stochastic Risk Results, P70 Cases – Medium Gas, Medium CO_2

PVRR ($m)	P70 Studies				
	Standard Deviation	5th percentile	90th percentile	95th percentile	Upper Tail (mean of 3 Highest) No Fixed Costs
P70	99	23,882	24,161	24,204	10,457
P71	95	23,859	24,139	24,165	10,384
P72	95	23,969	24,238	24,275	10,517
P73	98	24,100	24,391	24,426	10,502
P74	96	24,075	24,364	24,381	10,604

Table L.24 – Stochastic Risk Adjusted PVRR, Initial Cases

Med Gas, Med CO2					
Name	PVRR ($m)	Name	PVRR ($m)	Name	PVRR ($m)
P01	25,319	**P12**	24,873	**P30**	24,928
P02	26,174	**P13**	25,226	**P31**	24,667
P03	25,022	**P14**	24,987	**P32**	24,947
P04	24,974	**P15**	25,506	**P33**	25,010
P06	25,139	**P16**	25,097	**P34**	25,146
P07	25,021	**P17**	25,400	**P35**	24,858
P08	25,081	**P18**	25,602	**P45**	24,710
P09	24,960	**P19**	25,211	**P46**	24,593
P10	24,848	**P20**	26,385	**P53**	24,650
P11	24,966	**P28**	24,879	**P54**	24,806

Table L.25 – Stochastic Risk Adjusted PVRR by Price Scenario, Initial Cases

Name	PVRR ($m)			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P16	20,427	25,097	31,357	41,717
P17	22,071	25,400	30,312	38,247
P18	23,587	25,602	29,187	37,051
P19	21,209	25,211	30,701	40,334
P20	21,881	26,385	29,832	39,421

Table L.26 – Stochastic Risk Adjusted PVRR, C Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P31C	24,551
P36C	24,614
P45C	24,456
P46C	24,451
P46J23C	24,488
P47C	24,367
P48C	24,391
P53C	24,516
P53J23C	24,570
P54C	24,558

Table L.27 – Stochastic Risk Adjusted PVRR by Price Scenario, CP Cases

Name	PVRR ($m)			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P36CP	21,403	24,595	29,290	38,405
P45CP	21,105	24,360	29,188	38,791
P46CP	21,305	24,465	29,217	38,550
P46J23CP	21,327	24,478	29,215	38,394
P47CP	21,143	24,388	29,208	38,794
P48CP	21,187	24,374	29,135	38,649
P53CP	21,349	24,524	29,296	38,681
P45CNW	20,969	24,376	29,355	38,960

Table L.28 – Stochastic Risk Adjusted PVRR, FOT Risk Assessment Cases

Name	Med Gas, Med CO2 PVRR ($m)
P45CNW	25,288
P45CP	25,233
P46CP	25,314
P47CP	25,209
P48CP	25,312
P53CP	25,382

Table L.29 – Stochastic Risk Adjusted PVRR, Gateway and No Gas Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P-22CNW	24,792
P-23CNW	25,402
P-25CNW	25,460
P-26CNW	24,481
P29	24,503
P29PS	24,806

Table L.30 – Stochastic Risk Adjusted PVRR, Sensitivity Cases

Name	Med Gas, Med CO_2 PVRR ($m)
S01	23,193
S02	25,572
S03	24,565
S04	24,482
S05	24,126
S06	25,248
S07	24,291
S08	24,353

Table L.31 – Stochastic Risk Adjusted PVRR, DSM Rebundled Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P45DP	24,453
P46DP	24,526
P53DP	24,587

Table L.32 – Stochastic Risk Adjusted PVRR, P70 Cases

Name	Med Gas, Med CO_2 PVRR ($m)
P70	25,251
P71	25,218
P72	25,334
P73	25,482
P74	25,449

Table L.33 – Carbon Dioxide Emissions, Initial Cases

Med Gas, Med CO_2					
Name	**CO_2 (thousand tons)**	**Name**	**CO_2 (thousand tons)**	**Name**	**CO_2 (thousand tons)**
P01	616,896	**P12**	579,167	**P30**	587,905
P02	605,872	**P13**	604,396	**P31**	588,421
P03	595,728	**P14**	535,774	**P32**	583,565
P04	567,901	**P15**	472,569	**P33**	569,586
P06	585,907	**P16**	669,944	**P34**	568,422
P07	581,583	**P17**	475,390	**P35**	557,489
P08	595,956	**P18**	427,110	**P45**	583,981
P09	597,855	**P19**	607,157	**P46**	560,199
P10	571,707	**P20**	607,157	**P53**	562,025
P11	596,911	**P28**	594,322	**P54**	584,377

Table L.34 – Carbon Dioxide Emissions by Price Scenario, Initial Cases

Name	**CO_2 (thousand tons)**			
	Low Gas, No CO_2	**Med Gas, Med CO_2**	**High Gas, High CO_2**	**Social Cost of Carbon**
P16	674,184	669,944	653,963	496,702
P17	465,998	475,390	478,795	366,220
P18	418,674	427,110	431,628	321,000
P19	607,941	607,157	598,587	459,469
P20	579,150	607,157	572,793	437,132

Table L.35 – Carbon Dioxide Emissions, C Cases

Name	Med Gas, Med CO_2 (thousand tons)
P31C	588,334
P36C	550,233
P45C	578,607
P46C	560,210
P46J23C	553,673
P47C	573,088
P48C	567,025
P53C	562,972
P53J23C	556,990
P54C	581,465

Table L.36 – Carbon Dioxide Emissions by Price Scenario, CP Cases

Name	CO_2 (thousand tons)			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P36CP	549,329	549,427	544,092	405,969
P45CP	577,806	577,439	571,643	432,168
P46CP	555,322	557,824	553,331	414,320
P46J23CP	549,304	552,065	549,152	411,129
P47CP	572,966	573,649	568,183	429,251
P48CP	567,163	567,889	562,313	424,073
P53CP	558,186	560,553	556,201	418,116
P45CNW	586,648	585,641	579,073	437,599

Table L.37 – Carbon Dioxide Emissions, FOT Risk Assessment Cases

Name	Med Gas, Med CO2 (thousand tons)
P45CNW-FOT	542,046
P45CP-FOT	540,134
P46CP-FOT	522,510
P47CP-FOT	535,827
P48CP-FOT	533,930
P53CP-FOT	525,364

Table L.38 – Carbon Dioxide Emissions, Gateway and No Gas Cases

Name	Med Gas, Med CO2 (thousand tons)
P-22CNW	581,028
P-23CNW	544,811
P-25CNW	580,014
P-26CNW	579,969
P29	580,126
P29PS	576,806

Table L.39 – Carbon Dioxide Emissions, Sensitivity Cases

Name	Med Gas, Med CO2 (thousand tons)
S01	569,357
S02	607,239
S03	590,315
S04	590,401
S05	580,957
S06	586,136
S07	583,986
S08	581,368

Table L.40 – Carbon Dioxide Emissions, DSM Rebundled Cases

Name	Med Gas, Med CO2 (thousand tons)
P45DP	578,417
P46DP	556,742
P53DP	559,529

Table L.41 – Carbon Dioxide Emissions, P70 Cases

Name	Med Gas, Med CO2 (thousand tons)
P70	25,251
P71	25,218
P72	25,334
P73	25,482
P74	25,449

Table L.42 – Average Annual Energy Not Served, Initial Development Cases

Med Gas, Med CO_2					
Name	**GWh**	**Name**	**GWh**	**Name**	**GWh**
P01	4.3	**P12**	5.3	**P30**	6.4
P02	5.6	**P13**	5.3	**P31**	5.8
P03	5.3	**P14**	10.2	**P32**	5.5
P04	7.2	**P15**	7.9	**P33**	4.7
P06	4.6	**P16**	4.4	**P34**	5.0
P07	4.6	**P17**	37.9	**P35**	6.7
P08	5.8	**P18**	73.3	**P45**	5.2
P09	5.9	**P19**	4.5	**P46**	8.1
P10	6.0	**P20**	4.5	**P53**	8.3
P11	5.1	**P28**	5.5	**P54**	5.8

Table L.43 – Average Annual ENS by Price Scenario, Initial Development Cases

Name	GWh			
	Low Gas, No CO_2	**Med Gas, Med CO_2**	**High Gas, High CO_2**	**Social Cost of Carbon**
P16	4.4	4.4	4.4	4.5
P17	37.9	37.9	38.0	37.9
P18	73.8	73.3	73.9	73.9
P19	4.5	4.5	4.5	4.5
P20	4.6	4.5	4.6	4.6

Table L.44 – Average Annual Energy Not Served, C Cases

Name	Med Gas, Med CO_2 GWh
P31C	6.8
P36C	8.9
P45C	6.7
P46C	7.2
P46J23C	8.3
P47C	8.1
P48C	7.5
P53C	7.4
P53J23C	8.3
P54C	7.7

Table L.45 – Average Annual Energy Not Served by Price Scenario, CP Cases

Name	GWh			
	Low Gas, No CO_2	Med Gas, Med CO_2	High Gas, High CO_2	Social Cost of Carbon
P36CP	7.5	7.5	7.5	7.5
P45CP	6.3	6.3	6.4	6.3
P46CP	8.4	8.4	8.4	8.4
P46J23CP	9.1	9.1	9.1	9.1
P47CP	8.9	8.9	8.9	8.9
P48CP	8.3	8.3	8.3	8.3
P53CP	8.4	8.4	8.4	8.4
P45CNW	5.4	5.4	5.4	5.4

Table L.46 – Average Annual Energy Not Served, FOT Risk Assessment Cases

Name	Med Gas, Med CO_2 GWh
P45CNW-FOT	5.2
P45CP-FOT	6.2
P46CP-FOT	8.6
P47CP-FOT	6.5
P48CP-FOT	7.6
P53CP-FOT	8.5

Table L.47 – Average Annual Energy Not Served, Gateway and No Gas Cases

Name	Med Gas, Med CO_2 GWh
P-22CNW	4.9
P-23CNW	4.8
P-25CNW	4.0
P-26CNW	4.0
P29	4.2
P29PS	30.8

Table L.48 – Average Annual Energy Not Served, Sensitivity Cases

Name	Med Gas, Med CO_2 GWh
S01	3.5
S02	8.4
S03	7.3
S04	5.1
S05	5.4
S06	6.5
S07	5.6
S08	5.5

Table L.49 – Average Annual Energy Not Served, DSM Rebundled Cases

Name	Med Gas, Med CO_2 GWh
P45DP	6.7
P46DP	8.6
P53DP	8.6

Table L.50 – Average Annual Energy Not Served, P70 Cases

Name	Med Gas, Med CO_2 GWh
P70	25250.8
P71	25218.3
P72	25334.3
P73	25481.9
P74	25449.2

Table L.51 – PVRR Cost Components by Price Scenario, Initial Cases, Medium Gas, Medium CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P01	10,526	245	463	3,179	(760)	939	(5,190)	886	13,818	24,106
P02	10,520	318	461	3,078	(756)	926	(5,024)	957	14,440	24,919
P03	10,459	260	462	2,971	(764)	911	(5,076)	919	13,680	23,822
P04	9,815	236	527	2,846	(772)	987	(5,181)	890	14,426	23,775
P06	10,258	262	491	2,923	(765)	972	(4,986)	902	13,874	23,932
P07	10,196	265	496	2,886	(769)	972	(4,956)	931	13,799	23,819
P08	10,465	259	460	2,968	(767)	926	(5,025)	918	13,672	23,875
P09	10,498	261	459	2,990	(769)	897	(5,107)	908	13,622	23,760
P10	10,017	237	512	2,866	(765)	982	(5,246)	898	14,154	23,655
P11	10,496	261	464	2,987	(766)	926	(5,095)	900	13,595	23,768
P12	10,130	255	475	2,863	(760)	979	(5,022)	928	13,828	23,678
P13	10,470	260	460	3,065	(760)	903	(5,028)	921	13,726	24,016
P14	9,855	289	518	2,594	(763)	989	(4,870)	1,081	14,093	23,786
P15	10,246	380	580	1,898	(750)	1,105	(4,721)	1,171	14,376	24,285
P16	11,737	350	453	3,659	(315)	875	(4,936)	1,234	10,833	23,889
P17	10,322	421	556	1,914	(773)	1,020	(4,439)	1,684	13,476	24,182
P18	8,799	271	632	1,512	(684)	1,258	(4,894)	1,613	15,869	24,376
P19	10,811	320	483	3,180	(792)	715	(4,844)	1,089	13,039	24,000
P20	10,811	320	483	3,180	(792)	715	(4,844)	1,089	14,157	25,118
P28	10,444	258	464	2,968	(766)	923	(5,022)	922	13,495	23,686
P30	10,411	258	470	2,928	(767)	974	(5,066)	899	13,625	23,733
P31	10,341	256	463	2,925	(757)	906	(5,037)	912	13,477	23,484
P32	10,337	269	484	2,898	(769)	977	(4,981)	930	13,605	23,750
P33	10,088	248	505	2,810	(762)	995	(5,015)	917	14,023	23,809

Table L.52 Continued– PVRR Cost Components by Price Scenario, Initial Cases, Medium Gas, Medium CO_2

P34	10,023	257	511	2,806	(760)	950	(4,973)	929	14,194	23,938
P35	10,103	280	502	2,700	(760)	973	(5,187)	963	14,092	23,666
P45	10,343	268	471	2,892	(766)	915	(5,021)	923	13,500	23,524
P46	10,137	281	478	2,669	(759)	905	(4,976)	967	13,712	23,413
P53	10,158	281	478	2,688	(760)	905	(4,977)	966	13,730	23,468
P54	10,321	262	468	2,865	(702)	910	(5,014)	935	13,573	23,616

Table L.53 – PVRR Cost Components by Price Scenario, Initial Cases, Low Gas, No CO_2

	Stochastic PVRR ($ millions)									
Name	**Thermal Fuel**	**Variable O&M incl. FOT**	**Long Term Contracts**	**Emissions**	**Renewable**	**DSM**	**System Balancing Sales**	**System Balancing Purchases**	**Capital and Fixed O&M Cost**	**Total PVRR**
P16	9,901	351	442	0	(311)	875	(3,412)	768	10,833	19,448
P17	8,213	430	546	0	(766)	1,020	(3,073)	1,168	13,476	21,013
P18	7,228	282	621	0	(684)	1,258	(3,338)	1,218	15,871	22,456
P19	9,058	323	473	0	(787)	715	(3,342)	714	13,039	20,194
P20	8,585	261	489	0	(743)	1,026	(3,557)	614	14,158	20,833

Table L.54 – PVRR Cost Components by Price Scenario, Initial Cases, High Gas, High CO_2

	Stochastic PVRR ($ millions)									
Name	**Thermal Fuel**	**Variable O&M incl. FOT**	**Long Term Contracts**	**Emissions**	**Renewable**	**DSM**	**System Balancing Sales**	**System Balancing Purchases**	**Capital and Fixed O&M Cost**	**Total PVRR**
P16	13,968	307	465	6,855	(317)	875	(5,285)	2,145	10,833	29,847
P17	12,935	372	568	3,720	(780)	1,020	(4,868)	2,416	13,476	28,858
P18	10,760	224	644	2,925	(688)	1,258	(5,417)	2,211	15,868	27,785
P19	13,000	281	495	6,015	(801)	715	(5,342)	1,821	13,039	29,224
P20	12,097	217	511	5,437	(753)	1,026	(5,793)	1,499	14,156	28,397

Table L.55 – PVRR Cost Components by Price Scenario, Initial Cases, Social Cost of Carbon

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P16	10,374	437	488	17,102	(353)	875	(4,274)	4,110	10,833	39,712
P17	9,224	441	592	13,132	(831)	1020	(4,531)	3,785	13,476	36,415
P18	7,704	281	667	11,726	(729)	1258	(5,207)	3,541	15,869	35,276
P19	9,667	390	518	15,893	(840)	715	(4,531)	3,470	13,039	38,396
P20	9,001	298	534	15,270	(800)	1026	(5,174)	3,117	14,157	37,527

Table L.56 – PVRR Cost Components, C Cases, Medium Gas, Medium CO_2

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P31C	10,266	252	473	2,929	(763)	934	(4,948)	965	13,265	23,374
P36C	9,998	282	521	2,603	(740)	935	(4,860)	1,110	13,581	23,430
P45C	10,139	248	479	2,865	(764)	893	(5,006)	972	13,458	23,283
P46C	10,109	282	485	2,676	(847)	901	(4,970)	981	13,659	23,278
P46J23C	10,058	282	499	2,641	(845)	941	(4,966)	993	13,709	23,312
P47C	10,104	253	501	2,800	(782)	893	(4,994)	998	13,426	23,198
P48C	10,057	256	506	2,741	(780)	910	(5,000)	992	13,539	23,221
P53C	10,142	282	485	2,699	(847)	901	(4,974)	976	13,677	23,340
P53J23C	10,104	282	499	2,665	(845)	941	(4,973)	983	13,735	23,391
P54C	10,189	252	468	2,882	(759)	915	(4,970)	982	13,422	23,381

Table L.57 – PVRR Cost Components, CP Cases, Medium Gas Medium CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P36CP	9,982	282	520	2,599	(742)	975	(4,877)	1,090	13,582	23,413
P45CP	10,116	249	497	2,852	(764)	906	(5,008)	970	13,375	23,192
P46CP	10,024	271	504	2,652	(846)	908	(4,941)	1,025	13,694	23,292
P46J23CP	10,000	275	504	2,626	(845)	955	(4,950)	1,014	13,723	23,303
P47CP	10,109	252	503	2,804	(782)	862	(4,980)	1,017	13,434	23,219
P48CP	10,076	257	503	2,749	(780)	904	(4,999)	998	13,496	23,205
P53CP	10,055	271	504	2,674	(846)	908	(4,946)	1,017	13,712	23,348
P45CNW	10,280	258	494	2,933	(792)	932	(4,997)	988	13,111	23,207

Table L.58 – PVRR Cost Components, CP Cases, Low Gas No CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P36CP	8,383	287	510	0	(734)	975	(3,350)	724	13,583	20,377
P45CP	8,603	254	487	0	(758)	906	(3,426)	653	13,375	20,094
P46CP	8,437	275	493	0	(840)	908	(3,380)	696	13,694	20,285
P46J23CP	8,379	278	494	0	(838)	955	(3,382)	696	13,724	20,306
P47CP	8,576	257	492	0	(776)	862	(3,406)	690	13,434	20,130
P48CP	8,529	263	492	0	(774)	904	(3,418)	679	13,497	20,173
P53CP	8,470	275	493	0	(840)	908	(3,383)	691	13,712	20,327
P45CPNW	8,731	262	483	0	(786)	932	(3,424)	654	13,112	19,965

Table L.59 – PVRR Cost Components, CP Cases, High Gas High CO_2

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P36CP	11,983	239	532	4,888	(750)	975	(5,357)	1,789	13,582	27,881
P45CP	12,054	208	509	5,389	(768)	906	(5,516)	1,631	13,374	27,786
P46CP	12,065	230	516	5,025	(851)	908	(5,452)	1,681	13,693	27,814
P46J23CP	12,084	234	516	4,982	(850)	955	(5,479)	1,647	13,723	27,812
P47CP	12,066	211	515	5,309	(786)	862	(5,487)	1,683	13,433	27,805
P48CP	12,039	216	515	5,200	(784)	904	(5,508)	1,659	13,495	27,736
P53CP	12,101	230	516	5,073	(851)	908	(5,463)	1,664	13,711	27,889
P45CPNW	12,098	217	506	5,534	(796)	932	(5,488)	1,676	13,110	27,946

Table L.60 – PVRR Cost Components, CP Cases, Social Cost of Carbon

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P36CP	8,893	327	556	14,280	(826)	975	(4,712)	3,358	13,583	36,561
P45CP	8,979	289	532	15,098	(813)	906	(4,844)	3,261	13,375	36,934
P46CP	8,939	323	539	14,571	(897)	908	(4,795)	3,284	13,694	36,703
P46J23CP	8,901	324	540	14,444	(897)	955	(4,820)	3,251	13,723	36,555
P47CP	8,971	291	538	15,028	(831)	862	(4,818)	3,312	13,434	36,936
P48CP	8,954	298	538	14,875	(830)	904	(4,853)	3,272	13,496	36,798
P53CP	8,979	322	539	14,696	(897)	908	(4,818)	3,251	13,712	36,829
P45CPNW	9,127	301	529	15,253	(841)	932	(4,801)	3,330	13,111	37,095

Table L.61 – PVRR Cost Components, FOT Cases, Medium Gas Medium CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P45CNW-FOT	9,588	245	499	2,680	(815)	945	(3,093)	723	13,304	24,075
P45CP-FOT	9,507	238	498	2,671	(806)	903	(3,090)	724	13,379	24,024
P46CP-FOT	9,414	259	508	2,492	(809)	944	(3,073)	773	13,591	24,099
P47CP-FOT	9,515	249	495	2,620	(785)	862	(3,103)	703	13,445	24,001
P48CP-FOT	9,602	264	489	2,596	(844)	890	(3,095)	728	13,468	24,098
P53CP-FOT	9,447	258	508	2,515	(809)	944	(3,074)	766	13,609	24,164

Table L.62 – PVRR Cost Components, Gateway and No Gas Cases, Medium Gas Medium CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P-22CNW	10,181	246	491	2,883	(772)	888	(5,012)	910	13,788	23,603
P-23CNW	9,869	277	495	2,562	(776)	957	(4,965)	961	14,804	24,184
P-25CNW	10,145	249	463	2,872	(738)	903	(5,024)	843	14,527	24,239
P-26CNW	10,183	257	472	2,888	(800)	934	(4,916)	988	13,301	23,307
P29	10,184	257	467	2,890	(800)	934	(4,916)	993	13,319	23,328
P29PS	9,921	205	568	2,836	(771)	940	(4,778)	1,292	13,402	23,616

Table L.63 – PVRR Cost Components, Sensitivity Cases, Medium Gas Medium CO_2

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
S01	9,946	240	466	2,836	(790)	843	(4,997)	872	12,665	22,080
S02	10,724	291	486	3,068	(794)	896	(4,855)	1,144	13,386	24,346
S03	10,430	277	485	2,975	(774)	942	(5,007)	989	13,071	23,388
S04	10,413	270	481	2,973	(777)	923	(4,995)	988	13,032	23,308
S05	10,177	246	493	2,883	(775)	920	(4,929)	969	12,985	22,970
S06	10,755	422	498	2,956	(769)	1,067	(5,059)	1,005	13,163	24,038
S07	10,233	246	498	2,904	(760)	922	(4,952)	1,007	13,028	23,126
S08	10,184	248	503	2,900	(770)	895	(4,998)	986	13,238	23,186

Table L.64 – PVRR Cost Components, DSM Rebundled Cases, Medium Gas Medium CO_2

	Stochastic PVRR ($ millions)									
Name	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P45DP	10,148	250	497	2,858	(780)	889	(4,899)	993	13,325	23,281
P46DP	10,013	272	505	2,648	(845)	887	(4,925)	1,018	13,778	23,350
P53DP	10,046	271	505	2,671	(846)	887	(4,930)	1,010	13,795	23,409

Table L.65 – PVRR Cost Components, P70 Cases, Medium Gas Medium CO_2

Name	Stochastic PVRR ($ millions)									
	Thermal Fuel	Variable O&M incl. FOT	Long Term Contracts	Emissions	Renewable	DSM	System Balancing Sales	System Balancing Purchases	Capital and Fixed O&M Cost	Total PVRR
P70	10,384	249	487	3,111	(761)	992	(5,239)	920	13,828	24,041
P71	10,301	232	476	3,116	(761)	999	(5,182)	891	13,860	24,010
P72	10,400	244	470	3,161	(759)	959	(5,159)	887	13,838	24,121
P73	10,379	258	501	3,034	(758)	950	(5,135)	954	14,001	24,261
P74	10,447	248	467	3,178	(761)	984	(5,138)	873	13,857	24,230

Table L.66 – 10-year Average Incremental Customer Rate Impact*

$ Millions	10-year Average Incremental Customer Rate Impact (2019 - 2028)									
	Low Gas, No $C0_2$		Medium Gas, Medium CO_2		High Gas, High CO_2		Social Cost of Carbon		Average	
	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank
P45CNW	0	4	0	5	0	5	0	6	0	5
P36CP	114	8	102	8	81	8	9	8	77	8
P45CP	(1)	3	(1)	3	(1)	3	0	7	(0)	4
P46CP	4	5	(0)	4	(1)	4	(30)	1	(7)	1
P46J23CP	50	7	34	7	19	7	(28)	2	19	7
P47CP	(7)	1	(5)	1	(2)	2	(1)	5	(3)	2
P48CP	(5)	2	(4)	2	(2)	1	(2)	4	(3)	3
P53CP	18	6	15	6	16	6	(7)	3	11	6

*The relative difference in customer rate impacts is negligible and no adjustment to the selection of P-45CNW as the preferred portfolio.

Table L.67 – 20-year Average Incremental Customer Rate Impact *

$ Millions	20-year Average Incremental Customer Rate Impact (2019 - 2038)									
	Low Gas, No C0₂		Medium Gas, Medium CO_2		High Gas, High CO_2		Social Cost of Carbon		Average	
	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank	Difference from Preferred Portfolio	Rank
P45CNW	0	1	0	6	0	8	0	8	0	7
P36CP	50	8	21	8	(20)	7	(45)	5	2	8
P45CP	35	7	5	7	(30)	6	(20)	7	(3)	6
P46CP	25	5	(12)	3	(51)	3	(56)	2	(24)	2
P46J23CP	4	2	(33)	1	(75)	1	(90)	1	(48)	1
P47CP	23	4	(5)	5	(37)	5	(27)	6	(11)	5
P48CP	22	3	(13)	2	(51)	2	(46)	4	(22)	3
P53CP	29	6	(7)	4	(45)	4	(47)	3	(17)	4

*The relative difference in customer rate impacts is negligible and no adjustment to the selection of P-45CNW as the preferred portfolio.

Table L.68 – Loss of Load Probability, Major (> 25,000 MWh) July Event, Medium Gas Medium CO_2

Year	P45CNW - Preferred Portfolio	P36CP	P45CP	P46CP	P46J23CP	P47CP	P48CP	P53CP
2019	2%	0%	2%	2%	2%	2%	2%	2%
2020	0%	0%	0%	0%	0%	0%	0%	0%
2021	0%	0%	0%	0%	0%	0%	0%	0%
2022	2%	2%	2%	2%	2%	2%	2%	2%
2023	0%	0%	0%	0%	0%	0%	0%	0%
2024	0%	0%	0%	0%	0%	0%	0%	0%
2025	0%	0%	0%	0%	0%	0%	0%	0%
2026	0%	2%	0%	0%	0%	0%	0%	0%
2027	0%	2%	0%	0%	0%	0%	0%	0%
2028	0%	4%	0%	0%	0%	0%	0%	0%
2029	4%	2%	4%	2%	4%	4%	4%	2%
2030	0%	0%	0%	2%	2%	0%	0%	0%
2031	0%	0%	0%	0%	0%	0%	0%	0%
2032	0%	0%	0%	0%	0%	0%	0%	0%
2033	2%	0%	6%	6%	12%	2%	0%	6%
2034	0%	2%	0%	0%	2%	0%	2%	0%
2035	12%	0%	6%	12%	14%	12%	14%	12%
2036	6%	2%	0%	8%	10%	14%	8%	8%
2037	2%	18%	2%	24%	20%	24%	22%	24%
2038	14%	24%	8%	28%	22%	26%	26%	28%

Table L.69 – Summer Peak, Average Loss of Load Probability, Medium Gas Medium CO_2

Event Size (MWh)	Average for operating years 2019 through 2028							
	P45CNW - Preferred Portfolio	P36CP	P45CP	P46CP	P46J23CP	P47CP	P48CP	P53CP
> 0	12%	11%	12%	11%	12%	12%	12%	11%
> 1,000	5%	8%	5%	6%	6%	6%	5%	6%
> 10,000	1%	3%	1%	1%	1%	1%	1%	1%
> 25,000	0%	1%	0%	0%	0%	0%	0%	0%
> 50,000	0%	0%	0%	0%	0%	0%	0%	0%
> 100,000	0%	0%	0%	0%	0%	0%	0%	0%
> 500,000	0%	0%	0%	0%	0%	0%	0%	0%

Event Size (MWh)	Average for operating years 2019 through 2038							
	P45CNW - Preferred Portfolio	P36CP	P45CP	P46CP	P46J23CP	P47CP	P48CP	P53CP
> 0	21%	15%	16%	22%	24%	24%	22%	22%
> 1,000	15%	12%	12%	17%	19%	18%	18%	17%
> 10,000	6%	6%	4%	9%	10%	9%	9%	9%
> 25,000	2%	0%	2%	4%	5%	4%	4%	4%
> 50,000	1%	1%	0%	2%	2%	2%	1%	2%
> 100,000	0%	1%	0%	0%	0%	0%	0%	0%
> 500,000	0%	0%	0%	0%	0%	0%	0%	0%
> 1,000,000	0%	0%	0%	0%	0%	0%	0%	0%