

Appendix A

Appendix A: System Information

Background:

This file was created to assist respondents to the 2021 DR RFP in the development of proposed DR program designs that are tailored to customer types and electricity uses in PacifiCorp's service territories.

2021 Conservation Potential Assessment Key Resources

1. Residential, Commercial, and Industrial Market Profiles for WA, CA, ID, UT, WY	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PAC_2021_CPA_Residential_Market_Profiles_Final_06-08-2020.xlsx
	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PAC_2021_CPA_Commercial_Market_Profiles_Final_06-08-2020.xlsx
	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PAC_2021_CPA_Industrial_Market_Profiles_Final_06-08-2020.xlsx
2. 2021 CPA Final Demand Response Technical Achievable Potential Results	https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021-irp/2021-irp-support-and-studies/PacifiCorp%20DR%20Cost%20and%20Potential%20Summary%2011232020.xlsx
3. Oregon 2018 MWh by customer segment	See TAB 1, OR 2018
4. Oregon 2018 Space heating and water heating	See TAB 2, OR SH&WH
5. Oregon and Washington Energy, Demand and Customer Counts	See TABS 3 and 4
6. Estimates for DR eligible customer equipment in 2020	See TAB 5
7. Oregon PUC Staff Memo with Analysis of Pacific Power's October 2020 filing for forecasted energy efficiency avoided costs in Oregon	https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAU&FileName=um1893hau82219.pdf&DocketID=20999&numSequence=27
8. Oregon Irrigation Pilot evaluation filed with the Oregon PUC	https://apps.puc.state.or.us/edockets/DocketNoLayout.asp?DocketID=20031

Appendix A

Residential

Customer Type	Segment	2018 Actuals			% of Homes
		Households	MWH	Intensity (kWh/HH)	
Single Family	R_Single Fam	351,622	4,110,014	11,689	70%
Multi-Family	R_Multi Fam	97,585	733,643	7,518	19%
Mobile Home	R_Manuf	55,053	748,155	13,590	11%
Total		504,260	5,591,813	11,089	

Commercial & Industrial

Sector	Segment	2018 MWh
Commercial	C_College	92,734
Commercial	C_Data Center	4,563
Commercial	C_Grocery	636,913
Commercial	C_Hospital	308,745
Commercial	C_Lodging	225,847
Commercial	C_Office	1,411,155
Commercial	C_Other	523,308
Commercial	C_Other Health	4,943
Commercial	C_Restaurant	373,016
Commercial	C_Retail	679,351
Commercial	C_School	180,717
Commercial	C_Warehouse	717,797
Industrial	I_Agriculture	284,471
Industrial	I_Chemicals	85,473
Industrial	I_Cold Storage	97,465
Industrial	I_Food Products	254,902
Industrial	I_Hi Tech	23,678
Industrial	I_Metal Fab	108,053
Industrial	I_Metal Foundries	57,061
Industrial	I_Other	434,108
Industrial	I_Pulp & Paper	31,499
Industrial	I_Transportation and Equipment	148,522
Industrial	I_Wastewater	132,657
Industrial	I_Wood Products	501,031

Appendix A

Oregon 2018 space and water heat fuel shares

	Space Heat - Electric Resistance Only	Space Heat - Space Heat Pump Only	Space Heat - Heat - Gas Only	DHW - Elec Only (nonHP)	DHW - Heat Pump Only	DHW - DHW - Gas Only
R_Single Fam	16%	21%	50%	49%	2%	45%
R_Multi Fam	78%	6%	84%	76%	2%	14%
R_Manuf	45%	31%	7%	87%	2%	7%
C_Office	33%	5%	46%	67%	1%	29%
C_Restaurant	23%	7%	48%	35%	1%	65%
C_Retail	16%	1%	66%	63%	0%	35%
C_Grocery	15%	0%	65%	35%	3%	55%
C_Warehouse	9%	0%	52%	76%	1%	22%
C_School	17%	3%	71%	38%	0%	57%
C_College	18%	1%	39%	26%	0%	63%
C_Hospital	5%	0%	85%	22%	0%	66%
C_Other Health	26%	3%	63%	37%	0%	59%
C_Lodging	49%	13%	22%	32%	0%	65%
C_Other	19%	1%	54%	51%	1%	45%
C_Data Center	21%	3%	56%	44%	1%	51%

Appendix A

PacifiCorp
 Oregon Marginal Cost Study
 20 Year Marginal Cost
 December 2021 Dollars

(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)
Schedule 23	General Service - Schedule 28			General Service - Schedule 30			Large Power Service - Schedule 48				Irrg - Sch 41	Lighting		
Primary (pri)	0-50 kW (sec)	51-100 kW (sec)	100 + kW (sec)	Primary (pri)	0-300 kW (sec)	300+ kW (sec)	Primary (pri)	1 - 4 MW (sec)	1 - 4 MW (pri)	> 4 MW (sec)	> 4 MW (pri)	Trn (trn)	(sec)	Schs 15, 51, 53, 54 (sec)
0	70	109	154	4	32	163	16	78	80	7	136	118	31	
0	76	124	175	5	37	179	18	83	84	8	142	-	36	
-	141	255	319	-	47	301	-	124	-	15	-	-	168	
2,218	466,522	724,636	981,918	27,600	214,254	1,150,078	103,898	539,781	560,495	59,596	1,080,319	1,015,388	239,201	
90	4,681	3,686	2,121	73	231	593	56	97	60	2	29	7	4,803	
90	4,681	3,686	2,121	73	231	593	56	97	60	2	29	7	7,894	

PacifiCorp
Cost Of Service By Rate Schedule
State of Washington
WCA
12 Months Ending June 2019
Weighted Customer Factors

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
Description		Residential Schedule 16	Small General Service Schedule 24	Large General Service < 1,000 kW Schedule 36	Large General Service > 1,000 kW	Large General Dedicated Facilities Schedule 48	Agricultural Pumping Schedule 40	Street & Area Lighting Sch. 15, 51-54, 57	Total
Peak Demand (kW) @ Input		3,591,389	1,068,243	1,710,316	692,539	679,497	296,744	9,361	8,048,090
Annual MWh @ Input		1,672,158	608,382	1,042,219	439,867	450,573	180,732	13,700	4,407,633
Avg Customers		107,790	19,929	1,076	64	1	5,136	2,874	136,869

Current DR-eligible technologies assumed in the 2021 CPA

DR Measure	Estimated Number of Customers with Technology in 2020					
	CA	OR	WA	ID	UT	WY
Air-Source Heat Pump - DLC	6,334	102,863	29,644	3,188	32,372	3,068
Central AC - DLC	4,883	194,054	50,705	24,159	653,329	38,954
Connected Electric Vehicle Supply Equipment	14	595	129	54	3,940	100
Ductless Mini Split Heat Pump - DLC	44	882	269	98	1,568	128
Electric Furnace - DLC	5,114	93,321	26,390	6,218	73,333	6,155
Electric Vehicle Supply Equipment - DLC	27	1,104	240	100	7,318	185
ENERGY STAR - Connected Thermostat	1,295	33,849	9,163	3,248	76,490	4,772
Electric Resistance Water Heater - DLC	28,037	266,381	80,007	27,610	126,710	37,475
Geothermal Heat Pump - DLC	320	6,702	1,923	436	5,366	689
Grid Interactive ER Water Heater	49	442	133	65	344	68
Grid Interactive HPWH Water Heater	5	43	13	6	34	7
Home Energy Management System (HEMS)	732	7,565	2,172	1,492	18,223	2,364
HPWH Water Heater - DLC	455	4,108	1,233	611	3,253	644
Pool Pump - DLC	39	907	200	67	1,285	33
Room AC - DLC	10,881	143,854	54,233	21,586	98,543	22,181

Note: These estimates for 2020 change over time due to assumed adoption of related energy efficiency measures and standards changes including CTA 2045 requirements