

Puget Sound Energy
2018 Annual Renewable Portfolio Standard Report
pursuant to RCW 19.285.070 and WAC 480-109-210

June 1, 2018

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The percent of its total annual retail revenue requirement invested in the incremental cost of eligible renewable resources and the cost of renewable energy credits	Total incremental cost as a dollar amount and in dollars per megawatt-hour of renewable energy generated by all eligible renewable resources and multiply the dollars per megawatt-hour cost by the number of megawatt-hours needed for target year compliance.	Section 4 Incremental Cost Calculation and Revenue Requirement Ratio Page 2
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Attachment 1: Memo dated December 13, 2017 Regarding Eligible Renewable Resources

Attachment 2: Appendix N from PSE's Integrated Resource Plan filed with the Commission on November 14, 2017

Attachment 3: Reporting Tool

Attachment 4: REC Sales, Confidential Version

Attachment 4: REC Sales, Redacted Version

Attachment 5: Incremental Cost Template, Confidential Version

Attachment 5: Incremental Cost Template, Redacted Version

Attachment 6: Department of Commerce EIA Workbook

Attachment 7: Apprenticeship Credit Approval Letters

Section 1. Annual Load for the Prior Two Years

	<u>2016</u>	<u>2017</u>
Delivered Load to Retail Customers (MWh)	20,448,423	21,316,397

The source of this data is the Puget Sound Energy (“PSE”) 2017 FERC Form 1, p. 301, line 10, columns d and e.

Section 2. 2018 Renewable Energy Target

This section provides the number of megawatt-hours from eligible renewable resources and/or renewable resource credits the utility needed to meet its annual renewable energy target by January 1st of the target year.

After Commission approval, PSE’s Renewable Energy Target for 2018 will be 1,879,417 MWh.

Calculation:

	<u>2016</u>	<u>2017</u>
Delivered Load to Retail Customers (MWh)	20,448,423	21,316,397
Average Load	20,882,410	
9% of Average Load	1,879,417	

Section 3. Renewable Energy Acquired To Meet 2018 Renewable Energy Target

This section provides the amount (in megawatt-hours) of each type of eligible renewable resource used, and the amount of renewable energy credits acquired to meet the 2018 target.

As demonstrated in Attachment 1, PSE has sufficient eligible renewable resources to meet its 2018 target. PSE plans to meet its 2018 target with a combination of incremental hydro along with other renewable energy certificates from qualifying resources as demonstrated in the following table:

Incremental Hydro Resources	120,648
Eligible Wind Resources	2,185,465
Solar	37,300

Section 4. Incremental Cost Calculation and Revenue Requirement Ratio

This section calculates the total incremental cost as a dollar amount and in dollars per megawatt-hour of renewable energy generated by all eligible renewable resources and multiplies the dollars per megawatt-hour cost by the number of megawatt-hours needed for target year compliance and provides the annual revenue requirement ratio.

The following is a summary of PSE's incremental cost calculation as developed in Staff's template, attached as Attachment 5.

Incremental Cost	\$27.8M
Revenue Requirement	\$1,996,287M
Percentage	1.459%
Source of Information	Please see table below.

PSE's incremental cost is based on the average cost of eligible renewable resources. Consistent with the requirements outlined in WAC 480-109-210 (2)(a)(i) (A) through (G), the calculation of incremental costs for each eligible resource is performed at the time of acquisition. PSE has not acquired any new resources since 2013 and therefore continues to utilize incremental cost calculations as documented in Attachment 2. The incremental costs along with the annual megawatt hour (MWh) for each eligible resource are as follows:

Resource	Renewable Resource	Equivalent Non-Renewable			One Year Incremental Cost	Annual MWh	Market Price/Peaker Assumptions*
		Peaker	Market	Total			
Hopkins Ridge	\$18.77	\$1.71	\$19.26	\$20.97	(\$2.20)	466,908	2004 RFP
Wild Horse	\$34.94	\$3.21	\$26.53	\$29.74	\$5.20	642,984	2006 RFP
Klondike III	\$10.27	\$0.93	\$8.98	\$9.91	\$0.36	157,680	2006 RFP
Hopkins Infill	\$1.28	\$0.17	\$1.19	\$1.36	(\$0.08)	21,024	2007 IRP
Wild Horse Expansion	\$10.03	\$0.81	\$5.09	\$5.90	\$4.14	91,980	2007 IRP
Lower Snake River I	\$70.61	\$1.69	\$48.51	\$50.20	\$20.42	897,900	2010 Trends
Snoqualmie Falls Upgrade	\$3.85	\$0.74	\$2.44	\$3.18	\$0.67	34,164	2009 Trends
Lower Baker 4	\$8.60	\$1.37	\$7.92	\$9.29	(\$0.69)	109,500	2011 IRP Base
Total					\$27.81	2,422,140	

(\$ Millions/Year)

This information appears in PSE's 2017 IRP, Appendix N, Page N-177, Figure N-145, and is provided in Attachment 2.

The incremental cost of the eligible renewable resources portfolio is \$27.81M resulting in an average cost/MWh of \$11.48. The incremental cost for the 2018 target year, based on the average cost for the portfolio of resources is \$21.6M ($\$11.48 * 1,879,417$ MWh).

The resulting ratio of this investment relative to the utility's total annual retail revenue requirement is 1.459%¹

Utilizing Staff's template, attached as Attachment 5, that calculates the incremental cost for the target based on the actual planned resources, the incremental cost for 2018 target year compliance is \$22.1M. It should be noted that the 2018 target year incremental cost calculation includes 44,300 of Vintage 2017 Recs that PSE purchased for 2018 compliance. Due to negative power market pricing, PSE wind generation resources were curtailed which impacted the level of generation at various PSE owned facilities. In order to manage ERU supply for potential CAR compliance and to ensure adequate RECs for RPS compliance, part of the curtailment strategy included purchasing REC volumes equivalent to the MWh of wind generation curtailed. The cost of these REC purchases equaled \$108,480 and has been included in the incremental costs for the target year compliance. The power costs savings associated with this strategy resulted in approximately \$252,000 of power cost savings or a net benefit to the power supply portfolio of \$144,000 (252K less 108K).

The total annual retail revenue requirement for 2018 is \$1,996.287 million.² The 2018 revenue requirement is based on the revenue requirement determined in PSE's last general rate case (UE-170033) after adjusting for Tax Cuts and Jobs Act ("Tax Reform") (Docket UE-180202).

Section 5. Alternative Compliance

This section states whether the utility is relying upon one of the alternative compliance mechanisms provided in WAC 480-109-220 instead of fully meeting its renewable resource target. A utility using an alternative compliance mechanism must use the incremental cost methodology described in this section and include sufficient data, documentation and other information in its report to demonstrate that it qualifies to use that alternative mechanism.

PSE is not utilizing an alternative compliance mechanism provided for in RCW 19.285.040(2)(d) or RCW 19.285.050(1) and WAC 480.109.220 instead of meeting its 2018 Renewable Energy Target.

¹ The revenue requirement ratio for 2018, considering the purchased RECs discussed above, would be 1.465%. See Attachment 5 for calculations.

² Figure reflects Revenue Requirement from PSE's 2017 General Rate Case, after adjusting for Tax Reform updates approved by the Commission in Docket UE-180202. Electric Revenue Requirement as originally approved in UE-170033 was \$2,069,159,344. Utilizing the pre-tax reform, revenue requirement results in a 1.408% revenue requirement ratio.

Section 6. 2018 Compliance Plan

This section describes the resources that PSE intends to use to meet the renewable resource requirements for the target year.

PSE is positioned to meet its 2018 Renewable Energy Target with a combination of qualified hydroelectric upgrades and other renewable energy certificates from qualifying resources. The following table provides a summary of PSE’s expected 2018 compliance. Further details about this information can be found in Attachment 3.

2018 Compliance Plan	
	MWh or Equiv
Lower Baker Project Incremental Hydro	101,842
Snoqualmie Falls Project Incremental Hydro	18,806
Lower Snake River - Phalen Gulch (Vintage 2017)	299,266
Extra Apprenticeship Credits	59,853
Wild Horse Phase II (Vintage 2017)	99,368
Extra Apprenticeship Credits	19,874
Lower Snake River-Dodge Junction (Vintage 2017)	413,806
Extra Apprenticeship Credits	82,761
Hopkins Ridge (Vintage 2017)	329,544
Hopkins Ridge Phase II (Vintage 2017)	15,881
Wild Horse (Vintage 2017)	394,116
Various REC Purchases	44,300
Available to Meet Target	1,879,417

Data for 2018 provided above is an estimate and is subject to change.

Section 7. Eligible Resources

This section provides a list of each eligible renewable resource that serves Washington customers, for which PSE owns the certificates, with an installed capacity greater than twenty-five kilowatts and each resource's WREGIS registration status and use of certificates, whether it be for annual target compliance, a voluntary renewable energy program as provided for in RCW 19.29A.090, or owned by the customer; and eligible resources being included in the report for the first time and documentation of their eligibility.

PSE has acquired sufficient eligible renewable resources in its portfolio to supply at least nine percent of its estimated load for the year 2018, in advance of January 1, 2018. Eligible renewable resources that PSE may elect to use in whole or in part to meet its 2018 target include (but are not limited to):

- Hopkins Ridge Wind Project;
- Wild Horse Wind Project;
- Wild Horse Expansion Wind Project (including extra apprenticeship credits);

- Lower Snake River Wind Project (including extra apprenticeship credits);
- Klondike III Wind Project (e.g. the output PSE purchases from Iberdrola);
- Snoqualmie Falls Hydroelectric Efficiency Upgrades;
- Lower Baker River Hydroelectric Efficiency Upgrades;
- Allocation of Hydroelectric Efficiency Upgrades that may be (now or in the future) a part of PSE's Mid-C Contracts;
- Purchased RECs associated with PSE's curtailment strategy;
- Customer-Generator owned facilities taking service from PSE under PSE electric rate Schedule 91; and
- Any other eligible renewable resources that may become available in 2018 or 2019.

Please also see Attachment 1.

Section 8. Sales

This section reports on the number of certificates sold, their WREGIS certificate numbers, their source, and the revenues obtained from the sales.

The following table summarizes PSE's REC sales by source and vintage year for 2012 through 2016 vintages. Through March 31, 2018, the Company has not transferred title to any Vintage 2017 RECs.

RECs Sold by Year by Resource

Source	WREGIS #	Vintage					Total RECs Sold
		2012	2013	2014	2015	2016	
Wild Horse	W183	238,143	246,192	541,930	43,254	138,677	1,208,196
Wild Horse Phase II	W1364	54,206	47,386	98,496	10,000	-	210,088
Hopkins Ridge	W184	171,359	166,117	423,662	109,781	190,560	1,061,479
Hopkins Ridge Phase II	W1382	-	7,309	18,641	1,735	9,184	36,869
Klondike III	W237	58,264	68,465	133,571	60,697	62,849	383,846
Lower Snake River-Dodge Junction	W2669	-	201,751	230,247	-	-	431,998
Lower Snake River-Phalen Gulch	W2670	-	142,210	169,808	12,732	-	324,750
		521,972	879,430	1,616,355	238,199	401,270	3,657,226

Reflects REC transfers through 3/31/18.

Confidential Attachment 4 provides transaction details including the revenue proceeds associated with those sales.