



e-FILING REPORT COVER SHEET

COMPANY NAME: PacifiCorp d/b/a Pacific Power

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number:

Report is required by: OAR 860-030-011

Statute

Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

Other

(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number: UM 1893

List Key Words for this report. We use these to improve search results.

OAR 860-030-0011, 2019 Energy Efficiency Avoided Cost Report

Send the completed Cover Sheet and the Report in an email addressed to PUC.FilingCenter@state.or.us

Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.



825 NE Multnomah, Suite 2000
Portland, Oregon 97232

October 15, 2019

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE, Suite 100
Salem, OR 97301-3398

Attn: Filing Center

RE: UM 1893—PacifiCorp's 2019 Energy Efficiency Avoided Cost Report

In accordance with Oregon Administrative Rule 860-030-011(1), PacifiCorp d/b/a Pacific Power encloses for filing its Energy Efficiency Avoided Cost Report in the above-referenced proceeding.

If you have questions about this filing, please contact Cathie Allen, Regulatory Affairs Manager, at (503) 813-5934.

Sincerely,

A handwritten signature in black ink, appearing to read "Etta Lockey", with a long, sweeping underline.

Etta Lockey
Vice President, Regulation

Energy Efficiency Avoided Cost Submission Template - Electric	
Utility Name:	PacifiCorp
Submission Date:	10/15/2019
Instructions and Definitions	
<p><> Please fill out this workbook completely and per the instructions and submit via electronic filing to docket UM 1893. Submissions are due October 15 of each year.</p> <p><> Inputs will be reviewed and approved by the OPUC before being sent to the Energy Trust of Oregon for use in Avoided Cost development</p> <p><> Provide as much detail as possible when sourcing data inputs, including the link to the source (if available), page number and table or graph number <i>This will increase the efficiency of this process and require less iteration during the OPUC review period</i></p> <p><i>Required pages 1,2,3,4 refer to data presented in the most recently acknowledged IRP, IRP Update, or General Rate Case unless otherwise noted.</i></p>	
1) Global Inputs - IRP	
<p><> Most components of the avoided costs are input into this tab including inflation/discount rates, line losses, risk reduction values, T&D deferral values, and generation deferral values</p> <p><> Identify the winter & summer peak periods for Transmission and Distribution. The Generation LOLP Map will be utilized for generation peak definitions.</p> <p><> If necessary, Energy Trust will work with each utility about sector definitions for T&D for which values to provide for Res, Com, and Ind</p> <p><> Ensure that the dollar years of the data inputs match the source - Energy Trust will inflate to the proper year</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
2) Forward Market Prices - IRP	
<p><> Provide forward market price forecast by month for both high load hours and low load hours</p> <p><> Please provide the dollar amount of these prices that is associated with carbon costs (or %). If it is a dollar value, this is a subset of the total prices provided - The total forward market prices should be the FULL price, including carbon</p> <p><> Indicate if the forecast is in nominal or real dollars (and what dollar year if real)</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
3) LOLP - IRP	
<p><> Input a 12x24 Loss of Load Probability heat map per the example in the worksheet</p> <p><> These will be potentially utilized in future iterations of avoided cost updates pending outcome of UM1893</p> <p><> Include heat maps for all days, weekdays only, and weekends only</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
4) RPS Compliance - IRP	
<p><> Input RPS compliance costs by year</p> <p><> Please provide the values in the most recently acknowledged IRP</p>	
1a, 2a, 3a, 4a) Alternative Submissions	
<p><> Use these worksheets to provide alternative values to the most recently acknowledged IRP values</p> <p><> Provide a rationale for submitting the alternative values in the box provided at the top of each alternative worksheet</p> <p><> If a second set of alternative values is submitted, simply copy the alt tabs necessary and rename to 1b, alt 2 in the tab name</p>	

Global Assumptions Inputs				SOURCING					
Provide as much detail as possible with sourcing including a link. Ensure that dollar years listed here are the same as the source.									
Avoided Cost Element	Units	Value	Dollar Year	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes	
Inflation Rate	Percent	2.22%	N/A	PacifiCorp 2017 IRP	Vol. 1: pg. 150		http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_Volume1_IRP_Final.pdf	(Sep. 2016 forecast)	
Real Discount Rate	Percent	4.26%	N/A	PacifiCorp 2017 IRP	Vol. 1: pg. 150		http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_Volume1_IRP_Final.pdf	Calculated from inflation and nominal discount rates	
Regional Act Credit	Percent	10.00%	N/A						
Transmission Loss Factor	Percent	4.53%	N/A	PacifiCorp's most recent class-level line losses are from its 2009 Transmission and Distribution Loss Study by Management Applications Consulting, Inc. published in November 2011. Transmission losses are assumed to be the same for all energy efficiency measures.					
Distribution Loss Factor, Commercial	Percent	5.06%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Distribution Loss Factor, Industrial	Percent	2.59%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Distribution Loss Factor, Residential	Percent	5.48%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Risk Reduction Value	\$/MWh	\$4.33	2018	Risk reduction value for 2017 IRP EE selections calculated using IRP models. The difference in present-value revenue requirement (PVRrd) between stochastic studies and deterministic studies with and without energy efficiency, divided by the net present value of the energy efficiency savings (MWh) yields the \$/MWh assumed value of stochastic risk reduction.					
Transmission Deferral Credit	\$/kw-yr	\$5.94	2018	The 2017 IRP transmission capacity cost accounts for the cost, capacity, and carrying charges associated with planned transmission capacity increase projects. Details on the methodology, which is unchanged from the 2017 IRP, were provided in the August 30-31, 2018 public input meeting, see slide 32				https://www.pacifiCorp.com/content/dam/pacifiCorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2019-irp/2019-irp-presentations-and-schedule/2018-08-30-31%20-%20General%20Public%20Meeting.pdf	
Seasonal Capacity Split - Summer	Percent	48.46%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					
Seasonal Capacity Split - Winter	Percent	51.54%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					
Summer Peak Period Definition	Month/Da	Trans. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Da	Trans. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					Day is intended to be weekday or weekend
Deficiency start year	Year	2018	N/A	2017 IRP Assumption: T&D EE credit applied from first year of study					
Distribution Deferral Credit	\$/kw-yr	\$7.63	2018	Distribution capacity cost accounts for the cost, capacity, and carrying charges associated with planned distribution capacity increase projects, as well as current distribution utilization. Details on the system-wide values under the existing methodology, also used in the 2017 IRP, were provided in the August 30-31, 2018 public input meeting, slide 32.				https://www.pacifiCorp.com/content/dam/pacifiCorp/documents/en/pacifiCorp/energy/integrated-resource-plan/2019-irp/2019-irp-presentations-and-schedule/2018-08-30-31%20-%20General%20Public%20Meeting.pdf	
Seasonal Capacity Split - Summer	Percent	57.29%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					
Seasonal Capacity Split - Winter	Percent	42.71%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					
Summer Peak Period Definition	Month/Da	Dist. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					Day is intended to be weekday or weekend
Winter Peak Period Definition	Month/Da	Dist. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-1910					Day is intended to be weekday or weekend
Deficiency start year	Year	2018	N/A	2017 IRP Assumption: T&D EE credit applied from first year of study					
Generation Capacity Credit	\$/kw-yr	\$82.38	2018	Simple Cycle Combustion Turbine, Frame F, 5050'. 2017 IRP Supply Side Table, Table 6.2 on page 105 (adjusted to 2018).				http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Energy_Sources/integrated_Resource_Plan/2017_IRP/2017_IRP_Volume1_IRP_Final.pdf	
Seasonal Capacity Split - Summer	Percent	99.4%	N/A	2017 IRP LOLP Data, June - September events. See 2017 IRP Volume II, Appendix N, Figure N.2 (pg. 317)				http://www.pacifiCorp.com/content/dam/pacifiCorp/doc/Energy_Sources/integrated_Resource_Plan/2017_IRP/2017_IRP_Volume1_IRP_Final.pdf	
Seasonal Capacity Split - Winter	Percent	0.6%	N/A	2017 IRP LOLP Data, October - May events					
Deficiency start year	Year	2030	N/A	From Standard QF AC approved 2018 07 18 (update following 2017 IRP acknowledgment), pg. 5.				https://www.pacificpower.net/content/dam/pacific_power/doc/About_Us/Rates_Regulation/Oregon/Approved_Tariffs/PUJP_A_Power_Source_Agreement/Standard_Avoided_Cost_Rates_Avoided_Cost_Purchases_From_Eligible_Qualifying_Facilities.pdf	
RPS Compliance Cost	\$/MWh	see annual table	2018						
Avoided RPS Compliance Obligation	%	see annual table	N/A						

6.57%

Forward Price Inputs

Real or Nominal?	Nominal
Dollar Year:	n/a
Carbon Prices Additive?	Additive
Carbon Value Units (\$/MWh)	\$/Ton
Source and Pg #:	PacifiCorp September 30, 2019 Official Forward Price Curve
Source Link or File Name:	
Source Notes:	Data for 2041+ escalated at inflation

NOTES:
Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/ton. Please identify the units in the box to the left

PacifiCorp's 2017 IRP did not specifically identify a carbon emissions rate for market purchases.

Year	Date	HLH Total (\$/MWh)	LLH Total (\$/MWh)	HLH Carbon Cost (OR % of HLH Price that accounts for Carbon?)	LLH Carbon Cost (OR % of LLH Price that accounts for Carbon?)
2021	1/1/2021	28.97	24.16	-	-
2021	2/1/2021	28.27	26.11	-	-
2021	3/1/2021	25.67	23.62	-	-
2021	4/1/2021	19.30	16.54	-	-
2021	5/1/2021	19.62	12.35	-	-
2021	6/1/2021	19.48	9.55	-	-
2021	7/1/2021	48.32	27.99	-	-
2021	8/1/2021	52.61	32.49	-	-
2021	9/1/2021	47.36	31.22	-	-
2021	10/1/2021	24.46	21.70	-	-
2021	11/1/2021	24.21	20.35	-	-
2021	12/1/2021	28.06	22.31	-	-
2022	1/1/2022	28.35	23.49	-	-
2022	2/1/2022	30.96	24.21	-	-
2022	3/1/2022	27.38	23.86	-	-
2022	4/1/2022	22.24	16.59	-	-
2022	5/1/2022	22.51	12.40	-	-
2022	6/1/2022	23.67	14.00	-	-
2022	7/1/2022	51.09	32.43	-	-
2022	8/1/2022	56.16	37.08	-	-
2022	9/1/2022	51.44	35.45	-	-
2022	10/1/2022	25.66	22.20	-	-
2022	11/1/2022	29.59	25.27	-	-
2022	12/1/2022	31.54	26.59	-	-
2023	1/1/2023	30.58	27.18	-	-
2023	2/1/2023	30.98	26.91	-	-
2023	3/1/2023	28.51	24.05	-	-
2023	4/1/2023	24.07	18.81	-	-
2023	5/1/2023	21.13	13.27	-	-
2023	6/1/2023	32.88	25.24	-	-
2023	7/1/2023	64.07	40.32	-	-
2023	8/1/2023	68.54	43.63	-	-
2023	9/1/2023	43.69	34.45	-	-
2023	10/1/2023	29.42	25.65	-	-
2023	11/1/2023	32.16	26.91	-	-
2023	12/1/2023	34.89	29.84	-	-
2024	1/1/2024	33.32	30.26	-	-
2024	2/1/2024	32.05	28.16	-	-
2024	3/1/2024	28.24	23.91	-	-
2024	4/1/2024	24.81	20.17	-	-
2024	5/1/2024	19.83	12.99	-	-
2024	6/1/2024	41.72	37.47	-	-
2024	7/1/2024	73.64	45.87	-	-
2024	8/1/2024	76.83	49.94	-	-
2024	9/1/2024	33.37	29.89	-	-
2024	10/1/2024	30.59	28.55	-	-
2024	11/1/2024	34.13	29.79	-	-
2024	12/1/2024	38.53	31.86	-	-
2025	1/1/2025	35.98	32.54	4.75	4.75

Loss of Load Probability Heat Map Input

NOTE: This is utilized for generation deferrals only.

Source and page #: 2017 IRP: Data disk 2 CONF, Chapters + Appendix, Appendix N - Wind & Solar Capacity Contribution Study

File Link or File Name: Tbl N.1, Capacity Factor Calculation Wind and Solar.xlsx - tab Hourly LOLP, col BB:BY

The LOLP data from the 2017 IRP was prepared in 2016, at the beginning of the IRP development process.

Since that time there have been sizeable additions of renewable resources to the Company's portfolio, and significant changes in the composition of the preferred portfolio.

For instance, the 2015 IRP Update preferred portfolio, which formed the basis for the LOLP data in the 2017 IRP, did not include any proxy wind

Source Notes: or solar resource additions.

WEEKDAYS & WEEKENDS

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WEEKDAYS ONLY

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EXAMPLE

Count	31	28	31	30	31	30	31	31	30	31	30	31
Hr Ending	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.01	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

RPS Compliance Inputs IRP

Real or Nominal?	Nominal
Dollar Year:	
Source and Pg #:	2017 IRP Vol. 1, pg. 244
Source Link or File Name:	http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017_IRP/2017_IRP_Volume1_IRP_Final.pdf
Source Notes:	The 2017 IRP Preferred Portfolio does not include any renewable resources added for the purpose of RPS compliance. The cost-effective renewables in the portfolio are lower cost than non-RPS alternatives.

	RPS Compliance Cost (\$/MWh)	Avoided RPS Compliance Obligation (%)
2021	0	20%
2022	0	20%
2023	0	20%
2024	0	20%
2025	0	27%
2026	0	27%
2027	0	27%
2028	0	27%
2029	0	27%
2030	0	35%
2031	0	35%
2032	0	35%
2033	0	35%
2034	0	35%
2035		45%
2036		45%
2037		45%
2038		45%
2039		45%
2040		50%
2041		50%
2042		50%
2043		50%
2044		50%
2045		50%
2046		50%
2047		50%
2048		50%
2049		50%
2050		50%

Alternative Submissions				Rationale for alternative submission: <i>PacifiCorp's 2019 IRP includes significantly more recent data and significant portfolio changes that can drive avoided costs.</i>					
Global Assumptions Inputs				SOURCING <i>Provide as much detail as possible with sourcing including a link. Ensure that dollar years listed here are the same as the source.</i>					
Avoided Cost Element	Units	Value	Dollar Year	Source	Source Page #	Table # (if applicable)	Source Link or File Name	Source Notes	
Inflation Rate	Percent	2.28%	N/A	PacifiCorp 2019 IRP					
Real Discount Rate	Percent	4.54%	N/A	PacifiCorp 2019 IRP					
Regional Act Credit	Percent	10.00%	N/A						
Transmission Loss Factor	Percent	4.53%	N/A	PacifiCorp's most recent class-level line losses are from its 2009 Transmission and Distribution Loss Study by Management Applications Consulting, Inc. published in November 2011. Transmission losses are assumed to be the same for all energy efficiency measures.					
Distribution Loss Factor, Commercial	Percent	5.06%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Distribution Loss Factor, Industrial	Percent	2.59%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Distribution Loss Factor, Residential	Percent	5.48%	N/A	2009 Loss Study, incremental to transmission losses. Reflects proportion of the class interconnected at each voltage level.					
Risk Reduction Value	\$/MWh	\$4.10	2018	Risk reduction value for 2019 IRP EE selections calculated using IRP models. The difference in present-value revenue requirement (PVRrd) between stochastic studies and deterministic studies with and without energy efficiency, divided by the net present value of the energy efficiency savings (MWh) yields the \$/MWh assumed value of stochastic risk reduction.					
Transmission Deferral Credit	\$/kW-yr	\$4.16	2018	2019 IRP EE Transmission Credit					
Seasonal Capacity Split - Summer	Percent	48.46%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C					
Seasonal Capacity Split - Winter	Percent	51.54%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C					
Summer Peak Period Definition	Month/Day/Hour	Trans. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C				Day is intended to be weekday or weekend	
Winter Peak Period Definition	Month/Day/Hour	Trans. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C				Day is intended to be weekday or weekend	
Deficiency start year	Year	2018	N/A	2017 IRP Assumption: T&D EE credit applied from first year of study					
Distribution Deferral Credit	\$/kW-yr	\$9.20	2018	2019 IRP EE Transmission Credit (Oregon)					
Seasonal Capacity Split - Summer	Percent	57.29%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C					
Seasonal Capacity Split - Winter	Percent	42.71%	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C					
Summer Peak Period Definition	Month/Day/Hour	Dist. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C				Day is intended to be weekday or weekend	
Winter Peak Period Definition	Month/Day/Hour	Dist. 12x24 profile	N/A	Analysis for 7/18/2019 RVOS Compliance Filing in UM-191C				Day is intended to be weekday or weekend	
Deficiency start year	Year	2018	N/A	2017 IRP Assumption: T&D EE credit applied from first year of study					
Generation Capacity Credit	\$/kW-yr	\$83.76	2018	Naughton Brownfield SCCT Frame F. 2019 IRP Table 6.2					
Seasonal Capacity Split - Summer	Percent	92.02%	N/A						
Seasonal Capacity Split - Winter	Percent	7.98%	N/A						
Deficiency start year	Year	2026	N/A	SCCT Frame NTN, 2019 IRP Table 8.18					
RPS Compliance Cost	\$/MWh	see annual table							
Avoided RPS Compliance Obligation	%	see annual table	N/A						

6.92%

Alternative Submissions	Rationale for alternative submission: Medium CO2 assumptions used in the 2019 IRP. PacifiCorp is not proposing an alternative forward price curve.
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Forward Price Inputs

Real or Nominal?	Nominal
Dollar Year:	n/a
Carbon Prices Additive?	Additive
Carbon Value Units (\$/MWh)	\$/Ton
Source and Pg #:	2019 IRP Medium CO2 prices
Source Link or File Name:	
Source Notes:	Data for 2041+ escalated at inflation PacifiCorp's 2019 IRP did not specifically identify a carbon emissions rate for market purchases.

NOTES: Please provide notes as to how this value relates to forward market prices. It can be expressed as a percentage of forward market prices, a set \$/MWh, or \$/ton. Please identify the units in the box to the left

Year	Date	HLH Total (\$/MWh)	LLH Total (\$/MWh)	HLH Carbon Cost (\$/MWh) (OR % of HLH Price that accounts for Carbon?)	LLH Carbon Cost (\$/MWh) (OR % of LLH Price that accounts for Carbon?)
2021	1/1/2021			0	0
2021	2/1/2021			0	0
2021	3/1/2021			0	0
2021	4/1/2021			0	0
2021	5/1/2021			0	0
2021	6/1/2021			0	0
2021	7/1/2021			0	0
2021	8/1/2021			0	0
2021	9/1/2021			0	0
2021	10/1/2021			0	0
2021	11/1/2021			0	0
2021	12/1/2021			0	0
2022	1/1/2022			0	0
2022	2/1/2022			0	0
2022	3/1/2022			0	0
2022	4/1/2022			0	0
2022	5/1/2022			0	0
2022	6/1/2022			0	0
2022	7/1/2022			0	0
2022	8/1/2022			0	0
2022	9/1/2022			0	0
2022	10/1/2022			0	0
2022	11/1/2022			0	0
2022	12/1/2022			0	0
2023	1/1/2023			0	0
2023	2/1/2023			0	0
2023	3/1/2023			0	0
2023	4/1/2023			0	0
2023	5/1/2023			0	0
2023	6/1/2023			0	0
2023	7/1/2023			0	0
2023	8/1/2023			0	0
2023	9/1/2023			0	0
2023	10/1/2023			0	0
2023	11/1/2023			0	0
2023	12/1/2023			0	0
2024	1/1/2024			0	0
2024	2/1/2024			0	0
2024	3/1/2024			0	0
2024	4/1/2024			0	0
2024	5/1/2024			0	0
2024	6/1/2024			0	0
2024	7/1/2024			0	0
2024	8/1/2024			0	0
2024	9/1/2024			0	0
2024	10/1/2024			0	0
2024	11/1/2024			0	0
2024	12/1/2024			0	0

Alternative Submissions	Rationale for alternative submission: PacifiCorp 2019 IRP RPS results
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RPS Compliance Inputs IRP

Real or Nominal?	Nominal
Dollar Year:	
Source and Pg #:	Figure 8.42
Source Link or File Name:	2019 IRP
Source Notes:	Figure 8.42 shows PacifiCorp’s renewable portfolio standard (RPS) compliance forecast for California, Oregon, and Washington after accounting for new renewable resources in the preferred portfolio. While these resources are not included in the preferred portfolio as cost-effective system resources and are not included to specifically meet RPS targets, they nonetheless contribute to meeting RPS targets in PacifiCorp’s western states. Oregon RPS compliance is achieved through 2038 with the addition of new renewable resources and transmission in the 2019 IRP preferred portfolio.

	RPS Compliance Cost (\$/MWh)	Avoided RPS Compliance Obligation (%)
2021	0	20%
2022	0	20%
2023	0	20%
2024	0	20%
2025	0	27%
2026	0	27%
2027	0	27%
2028	0	27%
2029	0	27%
2030	0	35%
2031	0	35%
2032	0	35%
2033	0	35%
2034	0	35%
2035	0	45%
2036	0	45%
2037	0	45%
2038	0	45%
2039		45%
2040		50%
2041		50%
2042		50%
2043		50%
2044		50%
2045		50%
2046		50%
2047		50%
2048		50%
2049		50%
2050		50%

Distribution 12x24 Weighting

		Dist. 12x24 profile																								
		Hour																								
Season	Monthly Weight	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Winter	21%	1	0%	0%	0%	0%	0%	0%	6%	12%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	7%	2	0%	0%	0%	0%	0%	0%	2%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	0%	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	5%	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	37%	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	8%	10%	10%	7%	0%	0%	0%	0%	0%
Summer	15%	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	4%	4%	3%	0%	0%	0%	0%	0%
Summer	0%	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	3%	11	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	13%	12	0%	0%	0%	0%	0%	0%	4%	7%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Transmission 12x24 Weighting

		Trans. 12x24 profile																								
		Hour																								
Season	Monthly Weighting	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Winter	25%	1	0%	0%	0%	0%	0%	0%	0%	9%	10%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	8%	2	0%	0%	0%	0%	0%	0%	0%	6%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	0%	3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	1%	6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	37%	7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	7%	11%	12%	4%	0%	0%	0%	0%	0%
Summer	11%	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	5%	4%	1%	0%	0%	0%	0%	0%	0%
Summer	0%	9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Summer	0%	10	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	3%	11	0%	0%	0%	0%	0%	0%	0%	2%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Winter	15%	12	0%	0%	0%	0%	0%	0%	0%	3%	4%	1%	0%	0%	0%	0%	0%	0%	0%	2%	3%	2%	0%	0%	0%	0%