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Salt Lake City, Utah 84116

September 25, 2018

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attn: Gary Widerburg
Commission Secretary

Re: **Docket 03-035-14 – Quarterly Compliance Filing – 2018.Q2 Avoided Cost Input Changes**
Docket 18-035-23 – 2018.Q2 Avoided Cost Input Changes Quarterly Compliance Filing

PacifiCorp (dba Rocky Mountain Power) hereby respectfully submits its quarterly Schedule 38 compliance filing.

Public Service Commission of Utah (Commission) orders dated October 31, 2005, and February 2, 2006, in Docket No. 03-035-14 require the Company to keep a record of any changes, including data inputs, made to the Proxy model and the Generation and Regulation Initiative Decision Tool (GRID) model used in calculating avoided costs. The orders further require the Company to notify the Commission and Division of Public Utilities (DPU) of updates made to the models used in the approved Proxy and Partial Displacement Differential Revenue Requirement (PDDRR) avoided cost methodologies. The Commission order dated June 9, 2015 in Docket 14-035-140 requires the Company to identify routine and non-routine updates or modeling changes. Non-routine updates will become effective in three weeks if the update is unchallenged by any party or upon resolution by settlement or Commission action if challenged by any party.

No comments were filed that challenged the Company's previous compliance filing, which was submitted to the Commission on May 31, 2018.

Routine Updates

The Company identifies the following routine updates to its avoided cost inputs since the previous filing:

1. **GRID Model Data Updates**

A number of data and modeling assumption updates have occurred in the GRID model since the last filing. **Appendix A** provides a summary of those updates.

2. **Official Forward Price Curve (OFPC)**

Update to the curve dated June 29, 2018 (1806 OFPC).

3. **Qualifying Facility (QF) Queue**

Update of signed contract queue and current potential QFs. The QF queue was revised to include 3,544 MW nameplate in this filing. The potential queue was 4,568 MW nameplate in the 2017.Q1 filing. In addition:

- PacifiCorp has signed contracts with 437 MW of new system solar resources.¹
- As a result of the Utah Commission's June 22, 2018 order approving the EV2020 Wind resources and Energy Gateway sub-segment D2, these resources are no longer considered deferrable.
- Wind resources contained in the load and resource balance for the 2017 IRP Update preferred portfolio that were not approved by the Utah or Wyoming Commission have been replaced by Front Office Transactions through 2029 and proxy wind resources in comparable locations starting in 2030. The replacement resources are deferrable.
 - Everpower Wind QF (Wyoming Northeast)
 - EV2020 Uinta Wind (Goshen)
 - Monticello Wind QF (Utah South)

4. **Load Forecast**

Update to PacifiCorp's June 29, 2018 load forecast. In addition, this forecast includes incremental loads that are contingent upon the concurrent addition of renewable resources. To account for this, proxy renewable resources sufficient to meet the requirements embedded in the load forecast have been included in the queue of committed resources.

Non-Routine Updates

The Company has identified the following non-routine updates in this filing:

1. **Hourly Solar Shape** – For solar resources, hourly values have previously been represented using a typical day by month (12 month by 24 hour, or 12x24). For the first time in 2017, the Company had significant solar resources online for the whole year, so the Company proposes that the shaping methodology adopted for wind resources be applied to solar resources. For resources that were online during 2017 (the most recent calendar year), the historical hourly shape is used, with adjustments so that the monthly results correspond to expected normal output. For solar resources that were not online in the most recent calendar year, correlated hourly shapes are developed based on nearby existing resources, again with adjustments so that the monthly results correspond to expected normal output.
2. **Wind Dispatch** – When resources in a constrained area exceed the load and available exports, the GRID model identifies any excess as “trapped energy” and avoided cost includes the cost of loss production tax credits (PTCs) if there are no other curtailable resources in that area. Previously, the amount of lost PTCs was calculated in a spreadsheet

¹ See slide 23 from the 2019 Integrated Resource Plan (IRP) Public Input Meeting, July 26-27, 2018.

www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2019_IRP/PacifiCorp_2019_IRP_July_26-27_2018_Public_Input_Meeting.pdf

that compared hourly trapped energy volumes in a constrained area to dispatchable PTC and non-PTC wind volumes for that area. To simplify the calculation of lost PTCs, the Company proposes that wind resources in constrained areas that can be economically curtailed by the Company and which are not eligible for PTCs be dispatched within the GRID model. These resources are represented within GRID as thermal resources, with a price of \$1/MWh for owned resources subject to the Wyoming wind tax, or consistent with contract terms for purchased resources, and can be backed down within GRID when energy would otherwise be trapped. This change eliminates the need for additional calculations as all of the remaining trapped energy reported by GRID for these constrained areas represents lost PTCs until the Company's repowered wind PTC eligibility expires in 2029.

Additional Details

Additional detail is provided below:

1. **GRID Data Updates** – A number of data and modeling assumption updates have occurred in GRID since the previous compliance filing. **Appendix A** provides a summary of those updates.
2. **Proxy / Partial Displacement Differential Revenue Requirement (PDDRR) Avoided Cost Methodology** – The proxy resources used in the PDDRR avoided cost methodology are consistent with the Company's 2017 Integrated Resource Plan (IRP) Update filed with the Commission on May 1, 2018. The 2017 IRP Update preferred portfolio includes cost-effective solar and wind resources. The incremental thermal QF resource partially displaces summer and winter front office transactions (FOT) since the 2017 Update portfolio does not include any thermal resources. The incremental tracking solar QF resource partially displaces summer and winter FOTs during study period since the IRP solar resources from 2017 IRP Update portfolio are fully displaced by the potential QFs in the queue. The wind QF resource partially displaces summer and winter FOTs during 2017-2032 and the partially displaces Goshen Wind resource from the 2017 IRP Update preferred portfolio in 2033.
3. **Impact to Avoided Cost Prices (\$/MWh)** – Provided as **Appendix B.1** is the \$/MWh impact of the above mentioned updates on avoided costs, compared to the previous compliance filing. The updates reflect a total decrease of approximately \$0.13/MWh.
 - a. Avoided costs presented in **Appendix B.1** were calculated assuming a 100 MW 85 percent capacity factor thermal QF resource.
 - b. Avoided costs presented in **Appendix B.2** were calculated assuming an 80 MW 31.1 percent capacity factor single-axis tracking solar QF resource.
 - c. Avoided costs presented in **Appendix B.3** were calculated assuming an 80 MW 31 percent capacity factor wind QF resource.
4. **Major Changes from the Prior Study** – Provided as **Appendix C** is a \$/MWh step impact study of the routine updates from the prior study. Also provided in **Appendix C** is the incremental impact of each change from the prior step.

Work Papers

The Company has also provided calculations with additional details on the following:

- Current QF queue and partial displacement adjusted for solar degradation; and
- FOT partial displacement

It is respectfully requested that all formal correspondence and requests regarding this compliance filing be addressed to:

By E-Mail (preferred): datarequest@pacificorp.com

By Regular Mail: Data Request Response Center
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, OR 97232

Informal inquiries may be made to Jana Saba at (801) 220-2823, or Dan MacNeil at (503) 813-5523.

Very truly yours,



Joelle Steward
Vice President, Regulation

cc: Service List (Docket No. 03-035-14)
Service List (Docket No. 18-035-23)

ROCKY MOUNTAIN POWER
DESCRIPTION OF AVOIDED COST INPUT CHANGES
2018.Q2 – SEPTEMBER 2018

Appendix A

PacifiCorp Avoided Cost (Partial Displacement Differential Revenue Requirement (PDDRR)) Model Updates through August 2018 Docket No. 03-035-14 / Docket No. 18-035-23

Assumptions that have changed since the 2018.Q2 compliance filing are in **bold and underline**.

GRID Scenario Study Period

- January 1, 2019 through December 31, 2033 - 15-year study.
- Avoided cost prices starting in January 2019.

Official Forward Price Curve (OFPC) (Gas and Electric Market Prices)

- **Updated to PacifiCorp's June 29, 2018 OFPC (1806 OFPC)**
- Hourly Market Price Scalars consistent with 2017 IRP Update

Fuel Prices (Coal)

- Average and incremental coal costs based on forecast dated **August 2018**.
- Coal burn expense reflects incremental coal costs and coal take or pay minimum burn levels.

Integrated Resource Plan (IRP) Resources

- 2017 IRP Update filed with the Public Service Commission of Utah (UPSC) on May 1, 2018.
- Resource additions, including generating resources, and front office transactions (FOT), consistent with 2017 IRP Update (Table 8.1).
- Existing plant retirement consistent with 2017 IRP Update (Table 8.1).
- The GRID topology includes the Aeolus to Bridger/Anticline portion of Gateway West (Energy Gateway sub-segment D2), consistent with the preferred portfolio in the 2017 IRP Update. The Energy Gateway assumptions are described in more detail in Chapter 7 of the 2017 IRP Update.
- **Wind resources contained in the load and resource balance for the 2017 IRP Update preferred portfolio that were not approved by the Utah or Wyoming Commission have been replaced by Front Office Transactions through 2029 and proxy wind resources in comparable locations starting in 2030. The replacement resources are deferrable.**
 - **Everpower Wind QF (Wyoming Northeast)**
 - **EV2020 Uinta Wind (Goshen)**
 - **Monticello Wind QF (Utah South)**

REC Ownership:

Consistent with the Commission's January 23, 2018 order in Docket No. 17-035-37, when a QF defers or avoids a renewable resource, the Company retains the RECs on behalf of ratepayers. When a QF's avoided capacity costs are not based on the costs of a renewable resource, the QF is entitled to the RECs associated with its output.

Hydro Resources

- 2017 hydro forecast prepared December 2017.
- 2017 hydro levels extended thereafter with known and measurable changes.
- Adjust Klamath dispatch to reflect current operating patterns.
- Update Mid-Columbia (Mid-C) generation forecast.

Discount Rate

- 6.91 percent discount rate - 2017 IRP Update
- Discount rate is consistent with UPSC's order in Docket 11-035-T06.

Inflation Rates

- Company's inflation rate forecast dated **June 2018**.

Levelized Prices (Nominal) @ 6.91 percent Discount Rate

- 15 years 2018 through 2032.
- Levelized prices are for illustrative purposes only.

Load Forecast (Retail)

- **20-year load forecast dated from June 29, 2018.**

Long-Term Contracts

- Long-term contracts which have prices that are indexed to market are consistent with the **1806 OFPC**.
- Contracts are modeled based on 48 months ended **June 2018**.
- Qualifying Facility (QF) power purchase agreements (PPA) are assumed to terminate and not renew at the end of their current PPA term.
- Incorporates signed PPAs.

Market Capacity

- Capacity set at 48-month average of all short-term firm (STF) sales ended **June 2018**.
- Mid-C and Palo Verde (PV) markets uncapped.
- Additional heavy load hour (HLH) and light load hour (LLH) sales limited to historical 48-month average less monthly executed STF contracts as of **August 2018**.

Potential Environmental Costs

- Potential environmental costs are excluded from fuel cost for net power costs (NPC) and plant commitment and dispatch decisions.

Regulating Margin

- Requirements are modeled based on the Flexible Reserve Study used in the 2017 IRP.
- Incremental integration costs for wind and solar resources reflect Flexible Reserve Study results used in the 2017 IRP.

Incremental Flex Capacity Costs (2016 \$/MWh)

	Regulation Reserve	System Balancing	Total
Wind	0.429	0.145	0.573
Solar	0.458	0.145	0.603

- Levelized integration costs for 2018-2032 for wind and solar are \$0.68/MWh and \$0.72/MWh, respectively.

Contingency Reserve Calculation

- Reserve modeling reflects NERC / WECC reliability standard BAL-002-WECC-2 – contingency reserves set to 3 percent of retail load plus 3 percent of generating resources.
- Hourly retail load reserve calculation through 2021.
- Typical week retail load reserve calculation thereafter.

Short-Term Firm (STF) Transactions

- Executed STF contracts as of August 2018.

Size of the Avoided Cost Resource

- The avoided cost thermal resource is 100 MW with an 85 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost tracking solar resource is 80 MW with a 31.1 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost wind resource is 80 MW with a 31.0 percent capacity factor and is located in the Utah North transmission bubble.

Thermal Resources

- Thermal resource operating characteristics updated to be consistent with current Company official characteristics.
- Forced outage, planned outage, and heat rate levels based on 48 months ended December 2017.

Wind and Solar Resources

- Existing wind **and solar** generation profiles modeled using 2017 actual generation shape.¹
- Wind **and solar** generation shaped to hourly using 2017 actual generation shape.¹
- **Non-PTC wind resources that are located in a constrained area and can be curtailed on an economic basis are now dispatched within the GRID model.**²
- Capacity contribution values used in this study reflect the values from the 2017 IRP, and are summarized below.

Renewable Type	Capacity Contribution - Percent of Nameplate	
	EAST	West
Wind	15.8%	11.8%
Solar – Fixed Mount	37.9%	53.9%
Solar –Tracking	59.7%	64.8%

Transmission

- Short-term transmission modeled based on 48 months ended December 2017.
- The GRID topology includes the Aeolus to Bridger/Anticline portion of Gateway West (Energy Gateway sub-segment D2), consistent with the preferred portfolio in the 2017 IRP. The Energy Gateway assumptions are described in more detail in Chapter 4 of the 2017 IRP. **In Docket No. 17-035-37, the Commission specifically identified that the 2021 Aeolus Wind and Aeolus-Bridger Anticline Transmission (Gateway segment D2) in the 2017 IRP be considered deferrable by Utah Wind QFs until a final Commission determination was made. As a result of the Utah Commission’s June 22, 2018 order approving the EV2020 Wind resources and Energy Gateway sub-segment D2, this transmission is no longer considered deferrable.**
- Wyoming Central -> Wyoming Northeast transmission link included.

IRP Partial Displacements (This Filing)

Provided in the table below are the QFs that have executed a PPA or are actively negotiating for a PPA. Signed resources are new and were not included in the 2017 IRP Update.

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Tesoro Non Firm QF	0.00	25.00		0.0%	2018 01 01
2	Soda Lake Geothermal	13.30	20.00		66.5%	2019 09 01
3	Sprague River (terminated)	-4.54	-7.00		64.8%	

¹ Starting in the 2013.Q4 Compliance filing, wind generation has been modeled hourly using actual generation shape. Potential resources were also modeled hourly when data was provided by the project developer. Since the 2016.Q4 compliance filing, all potential wind generation profiles have been shaped to an hourly profile using the hourly shape of nearby wind resources. Shaping does not alter the 12x24 wind generation profile. This change was made to make potential wind modeling more consistent with existing wind modeling. **The hourly shaping of solar generation was identified as a non-routine change in the 2018.Q2 compliance filing.**

² **Wind dispatch was identified as a non-routine change in the 2018.Q2 compliance filing.**

4	Ivory Pine (terminated)	-6.48	-10.00		64.8%	
5	Roseburg Dillard QF	0.00	20.00		0.0%	2018 03 01
6	Cove Mountain Solar	34.63	58.00		59.7%	2020 12 31
7	Hunter Solar	59.70	100.00		59.7%	2020 12 31
8	Milford Solar	59.10	99.00		59.7%	2020 11 30
9	Milican Solar	29.16	45.00		64.8%	2020 12 31
10	Prineville Solar	35.64	55.00		64.8%	2020 12 31
11	Sigurd Solar	47.76	80.00		59.7%	2020 12 31
12	Non-deferrable PPAs	328.35	550.00		59.7%	2020-2028
13	Everpower (removal)	-37.92	-240.00		15.8%	2019 11 01
14	EV2020 (removal)	-25.44	-161.00		15.8%	2020 11 01
15	Monticello Wind QF (removal)	-12.51	-79.20		15.8%	2021 12 31
Total Signed MW		520.75	554.80			

1	QF - 249 - OR - Solar	25.92	40.00	29.1%	64.8%	2019 12 31
2	QF - 279 - OR - Solar	25.92	40.00	31.0%	64.8%	2019 12 31
3	QF - 280 - OR - Solar	12.96	20.00	27.9%	64.8%	2019 01 01
4	QF - 281 - OR - Solar	25.92	40.00	24.5%	64.8%	2019 12 31
5	QF - 456 - WY - Gas	0.00	13.30	85.0%	0.0%	2018 02 01
6	QF - 427 - WY - Wind	11.99	75.90	46.7%	15.8%	2019 09 01
7	QF - 372 - WY - Solar	23.87	40.00	27.4%	59.7%	2019 06 30
8	QF - 459 - WY - Solar	47.74	80.00	24.8%	59.7%	2020 01 01
9	QF - 460 - WY - Solar	47.74	80.00	24.8%	59.7%	2020 01 01
10	QF - 462 - WY - Solar	47.74	80.00	23.3%	59.7%	2020 12 01
11	QF - 477 - OR - Solar	12.96	20.00	21.6%	64.8%	2020 07 01
12	QF - 478 - OR - Solar	3.56	5.50	22.9%	64.7%	2020 03 01
13	QF - 479 - UT - Gas	0.00	36.00	85.0%	0.0%	2018 04 01
14	QF - 308 - WY - Wind	12.64	80.00	46.6%	15.8%	2020 11 01
15	QF - 309 - WY - Wind	12.64	80.00	46.6%	15.8%	2020 11 01
16	QF - 310 - WY - Wind	12.64	80.00	46.6%	15.8%	2020 11 01
17	QF - 311 - WY - Wind	6.32	40.00	46.6%	15.8%	2020 11 01
18	QF - 406 - OR - Solar	51.84	80.00	27.1%	64.8%	2021 12 01
19	QF - 407 - OR - Solar	51.84	80.00	27.1%	64.8%	2021 12 01
20	QF - 408 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
21	QF - 409 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
22	QF - 410 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
23	QF - 486 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
24	QF - 487 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
25	QF - 488 - OR - Solar	51.84	80.00	26.7%	64.8%	2021 12 01
26	QF - 436 - WY - Solar	17.90	30.00	26.8%	59.7%	2020 01 01
27	QF - 437 - WY - Solar	47.74	80.00	29.0%	59.7%	2020 01 01
28	QF - 328 - OR - Solar	29.81	46.00	28.7%	64.8%	2020 01 01
29	QF - 440 - OR - Solar	32.40	50.00	28.9%	64.8%	2019 06 01

30	QF - 411 - OR - Solar	32.40	50.00	27.5%	64.8%	2021 12 01
31	QF - 489 - WY - Solar	47.27	79.22	28.3%	59.7%	2021 09 01
32	QF - 490 - WY - Solar	11.93	20.00	28.2%	59.7%	2021 09 01
33	QF - 492 - WY - Solar	47.74	80.00	29.5%	59.7%	2021 12 01
34	QF - 428 - WY - Solar	23.87	40.00	30.2%	59.7%	2021 08 01
35	QF - 429 - WY - Solar	23.87	40.00	30.2%	59.7%	2021 08 01
36	QF - 493 - WY - Solar	30.59	51.26	27.5%	59.7%	2021 09 01
37	QF - 453 - UT - Solar	47.74	80.00	26.9%	59.7%	2021 09 01
38	QF - 454 - UT - Solar	47.74	80.00	26.9%	59.7%	2021 09 01
39	QF - 455 - UT - Solar	47.74	80.00	26.9%	59.7%	2021 09 01
40	QF - 456 - UT - Solar	35.80	60.00	26.9%	59.7%	2021 09 01
41	QF - 495 - WA - Solar	51.84	80.00	27.4%	64.8%	2020 12 01
42	QF - 496 - WY - Gas	0.00	98.00	75.0%	0.0%	2019 01 01
43	QF - 435 - UT - Gas	0.00	25.00	85.0%	0.0%	2019 01 01
44	QF - WY - Gas	0.00	30.00	85.0%	0.0%	2019 01 01
45	QF - 365 - UT - Wind	12.64	80.00	31.4%	15.8%	2020 12 01
46	QF - 442 - WY - Solar	47.74	80.00	26.7%	59.7%	2020 07 01
47	QF - 497 - WY - Wind	12.64	80.00	36.8%	15.8%	2020 12 01
48	QF - 498 - WY - Wind	12.64	80.00	36.8%	15.8%	2020 12 01
49	QF - 499 - WY - Wind	12.64	80.00	36.8%	15.8%	2020 12 01
Total Potential MW		1419.96	2990.18			

Total Partial Displacement	1940.71	3544.98
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50	Utah 2018.Q2	100.00	100.00	85.0%	100.0%	2018 01 01
Partial Displacement after QF		2040.71				

** PacifiCorp's June 2018 load forecast includes incremental loads that are contingent upon the concurrent addition of renewable resources. To account for this, proxy renewable resources sufficient to meet the requirements embedded in the load forecast have been included in the queue of committed resources.*

After accounting for the QF queue, the capacity displacement associated with the proxy avoided cost resources in this filing were as follows:

- Thermal: No thermal resources are present in the 2017 IRP Update preferred portfolio. The incremental thermal QF displaces available FOTs for entire term.
- Tracking Solar: **1,860** MW of solar resources are displaced by the QF queue. After degradation, the incremental solar QF displaces available FOTs for entire term.
- Wind: **676 MW of wind resources are displaced by the QF queue. The incremental wind QF displaces 80 MW of IRP Goshen Wind in 2033. The Company retains 100% of the RECs starting in 2033.**

Year	IRP Additions (Nameplate MW)				Base Case Displacement (Deferred MW)				
	IRP Thermal	IRP Baseload Renewable	IRP Solar	IRP Wind	Thermal	Solar	Wind	FOT Summer	FOT Winter
2017	-	-	-	-	-	-	-	(11)	(11)
2018	-	-	-	-	-	-	-	(218)	(218)
2019	-	-	-	-	-	-	-	(151)	(151)
2020	-	-	-	-	-	-	-	158	158
2021	-	-	-	1,149	-	-	-	395	303
2022	-	-	-	1,149	-	-	-	445	305
2023	-	-	-	1,149	-	-	-	419	310
2024	-	-	-	1,149	-	-	-	428	304
2025	-	-	-	1,149	-	-	-	538	317
2026	-	-	-	1,149	-	-	-	499	330
2027	-	-	-	1,149	-	-	-	500	343
2028	-	-	-	1,149	-	-	-	1,247	357
2029	-	-	-	1,149	-	-	-	1,378	758
2030	-	-	651	1,750	-	-	601	956	794
2031	-	-	745	1,750	-	651	601	890	809
2032	-	-	878	1,750	-	745	601	801	776
2033	-	-	1,854	2,550	-	878	676	195	195
2034	-	-	1,854	2,550	-	1,854	676	194	194
2035	-	-	1,860	2,883	-	1,854	676	190	190
2036	-	-	1,860	3,032	-	1,860	676	189	189

IRP Partial Displacements (Previous Filing)

Thermal partial displacement was 2,365 MW in the base case and 2,465 MW in the avoided cost case as shown in the table below, adjusted for solar degradation:

QF Queue						
No.	QF	Partial Displacement	Nameplate	CF	Capacity Contribution	Start Date
1	Tesoro Non Firm QF	0.00	25.00	85.0%	0.000%	2018 01 01
2	Soda Lake Geothermal	13.29	20.00	84.2%	66.500%	2019 09 01
3	Sprague River (terminated)	-4.54	-7.00		64.900%	
4	Ivory Pine (terminated)	-6.48	-10.00		64.800%	
5	Roseburg Dillard QF	0.00	20.00	14.3%	0.000%	2018 03 01
Total Signed MW		2.27	48.00			

1	QF - 245 - WY - Wind	12.64	80.00	44.9%	16.000%	2018 11 01
2	QF - 246 - WY - Wind	12.64	80.00	42.0%	15.800%	2018 11 01
3	QF - 247 - WY - Wind	12.64	80.00	37.4%	15.800%	2018 11 01
4	QF - 249 - OR - Solar	25.92	40.00	29.1%	64.800%	2017 12 31
5	QF - 279 - OR - Solar	25.92	40.00	31.0%	64.800%	2018 06 30
6	QF - 280 - OR - Solar	25.92	40.00	27.9%	64.800%	2018 12 01
7	QF - 281 - OR - Solar	25.92	40.00	24.5%	64.800%	2018 12 01
8	QF - 433 - UT - Non firm	0.00	31.80	58.2%	0.000%	2018 01 01
9	QF - 434 - UT - Non firm	0.00	6.20	85.0%	0.000%	2018 01 01
10	QF - 438 - OR - Solar	39.27	60.60	25.6%	64.800%	2020 11 01
11	QF - 442 - WY - Solar	47.74	80.00	26.7%	59.700%	2020 01 01
12	QF - 443 - WY - Wind	12.64	80.00	33.0%	15.800%	2020 12 01
13	QF - 444 - WY - Solar	34.61	58.00	28.0%	59.700%	2020 01 01
14	QF - 444 - WY - Wind	7.20	50.00	51.6%	14.400%	2020 01 01
15	QF - 292 - OR - Solar	25.92	40.00	28.3%	64.800%	2021 01 01
16	QF - 293 - OR - Solar	32.40	50.00	26.7%	64.800%	2021 01 01
17	QF - 446 - WY - Solar	2.98	5.00	28.4%	59.600%	2019 01 01
18	QF - 447 - WY - Solar	2.98	5.00	28.4%	59.600%	2019 01 01
19	QF - 448 - WY - Solar	2.98	5.00	29.2%	59.600%	2019 01 01
20	QF - 456 - WY - Gas	0.00	13.30	85.0%	0.000%	2018 02 01
21	QF - 458 - OR - Solar	25.92	40.00	23.1%	64.800%	2020 11 01
22	QF - 427 - WY - Wind	11.99	75.90	46.7%	15.800%	2019 09 01
23	QF - 372 - WY - Solar	23.87	40.00	27.4%	59.700%	2019 06 30
24	QF - 304 - WY - Solar	17.90	30.00	27.4%	59.700%	2020 01 01
25	QF - 305 - WY - Solar	47.74	80.00	27.4%	59.700%	2020 01 01
26	QF - 390 - WY - Solar	11.93	20.00	26.9%	59.700%	2018 12 01
27	QF - 391 - WY - Solar	11.93	20.00	27.7%	59.700%	2018 12 01
28	QF - 459 - WY - Solar	47.74	80.00	24.8%	59.700%	2020 01 01
29	QF - 460 - WY - Solar	47.74	80.00	24.76%	59.700%	2020 01 01
30	QF - 365 - UT - Wind	12.64	80.00	31.36%	15.800%	2020 08 01
31	QF - 461 - UT - Solar	21.48	36.00	22.58%	59.700%	2019 12 01
32	QF - 462 - WY - Solar	47.74	80.00	23.35%	59.700%	2020 12 01
33	QF - 463 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
34	QF - 464 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
35	QF - 465 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
36	QF - 466 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01

37	QF - 467 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
38	QF - 468 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
39	QF - 469 - UT - Solar	47.74	80.00	29.41%	59.700%	2020 12 01
40	QF - 470 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
41	QF - 471 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
42	QF - 472 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
43	QF - 473 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
44	QF - 474 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
45	QF - 475 - UT - Solar	47.74	80.00	29.41%	59.700%	2021 04 01
46	QF - 476 - UT - Solar	47.74	80.00	29.4%	59.700%	2021 04 01
47	QF - 477 - OR - Solar	12.96	20.00	21.6%	64.800%	2020 07 01
48	QF - 478 - OR - Solar	3.56	5.50	22.9%	64.700%	2020 03 01
49	QF - 430 - WY - Wind	2.61	16.50	29.9%	15.800%	2018 07 01
50	QF - 479 - UT - Gas	0.00	36.00	85.0%	0.000%	2018 04 01
51	QF - 480 - UT - Gas	36.00	36.00	85.0%	100.000%	2018 04 01
52	QF - 308 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
53	QF - 309 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
54	QF - 310 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
55	QF - 311 - WY - Wind	6.32	40.00	46.6%	15.800%	2020 11 01
56	QF - 450 - UT - Solar	11.93	20.00	28.3%	59.700%	2019 12 01
57	QF - 481 - UT - Solar	44.75	75.00	27.4%	59.700%	2020 12 01
58	QF - 482 - UT - Solar	47.74	80.00	28.6%	59.700%	2020 12 01
59	QF - 483 - UT - Solar	23.87	40.00	32.1%	59.700%	2020 12 01
60	QF - 484 - UT - Solar	47.74	80.00	27.6%	59.700%	2020 12 01
61	QF - 485 - UT - Solar	47.74	80.00	26.2%	59.700%	2020 12 01
62	QF - 486 - OR - Solar	51.84	80.00	26.7%	64.800%	2021 12 01
63	QF - 487 - OR - Solar	51.84	80.00	26.7%	64.800%	2021 12 01
64	QF - 488 - OR - Solar	51.84	80.00	26.7%	64.800%	2021 12 01
65	QF - 405 - OR - Solar	32.40	50.00	27.1%	64.800%	2019 12 01
66	QF - 406 - OR - Solar	51.84	80.00	27.1%	64.800%	2019 12 01
67	QF - 407 - OR - Solar	51.84	80.00	27.1%	64.800%	2019 12 01
68	QF - 408 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
69	QF - 409 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
70	QF - 410 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
71	QF - 411 - OR - Solar	32.40	50.00	27.5%	64.800%	2019 12 01
72	QF - 393 - OR - Solar	32.40	50.00	28.7%	64.800%	2018 12 01
73	QF - 436 - WY - Solar	17.90	30.00	26.8%	59.700%	2020 01 01
74	QF - 437 - WY - Solar	47.74	80.00	29.0%	59.700%	2020 01 01
75	QF - 440 - OR - Solar	32.40	50.00	28.9%	64.800%	2019 06 01
76	QF - 328 - OR - Solar	29.81	46.00	28.7%	64.800%	2019 06 01
77	QF - 282 - WY - Solar	44.69	74.90	30.6%	59.700%	2019 03 01
78	QF - 337 - WY - Solar	7.95	13.33	26.7%	59.600%	2019 03 01
Total Potential MW		2362.85	4520.03			
Total Partial Displacement		2365.12	4568.03			

ROCKY MOUNTAIN POWER

UPDATE IMPACT – UPDATED AVOIDED COST STUDY

2018.Q2 – SEPTEMBER 2018

Appendix B.1
Avoided Cost Prices \$/MWh
Utah 2018.Q2 Sch 38

Year	Thermal Avoided Cost at 85.0% CF (2)	Solar Tracking Avoided Cost at 31.1% CF (2)	Wind Avoided Cost at 31.0% CF (2)	Thermal UT 2018.Q1 Filing	Solar Tracking UT 2018.Q1 Filing	Wind UT 2018.Q1 Filing	Thermal Difference	Solar Tracking Difference	Wind Difference
2019	\$18.84	\$17.47	\$16.38	\$16.77	\$13.49	\$14.73	\$2.07	\$3.98	\$1.65
2020	\$16.60	\$14.31	\$15.52	\$16.46	\$11.95	\$12.16	\$0.14	\$2.36	\$3.36
2021	\$15.17	\$10.73	\$13.97	\$16.75	\$5.99	\$13.04	(\$1.58)	\$4.74	\$0.93
2022	\$14.08	\$8.35	\$13.51	\$16.87	\$5.60	\$14.64	(\$2.79)	\$2.75	(\$1.13)
2023	\$14.83	\$9.42	\$14.13	\$17.62	\$6.14	\$14.58	(\$2.79)	\$3.28	(\$0.44)
2024	\$16.50	\$10.25	\$15.02	\$19.70	\$7.81	\$15.80	(\$3.20)	\$2.44	(\$0.78)
2025	\$21.90	\$12.77	\$20.16	\$23.79	\$9.80	\$16.12	(\$1.89)	\$2.97	\$4.05
2026	\$23.57	\$11.91	\$22.52	\$24.63	\$10.19	\$17.37	(\$1.06)	\$1.72	\$5.15
2027	\$24.50	\$13.77	\$23.78	\$25.29	\$9.87	\$17.25	(\$0.79)	\$3.89	\$6.52
2028	\$27.98	\$16.72	\$27.17	\$28.79	\$12.69	\$11.48	(\$0.81)	\$4.03	\$15.70
2029	\$32.15	\$19.22	\$31.76	\$32.12	\$14.66	\$10.62	\$0.02	\$4.56	\$21.14
2030	\$39.32	\$25.01	\$37.72	\$35.67	\$15.86	\$18.56	\$3.65	\$9.15	\$19.15
2031	\$40.92	\$28.40	\$39.42	\$37.27	\$17.42	\$61.93	\$3.65	\$10.98	(\$22.51)
2032	\$44.51	\$28.01	\$40.45	\$39.97	\$18.52	\$63.12	\$4.54	\$9.49	(\$22.67)
2033	\$46.79	\$29.08	\$50.26	\$41.27	\$18.33	\$65.41	\$5.51	\$10.75	(\$15.14)

15-Year Levelized Prices (Nominal) @ 6.910% Discount Rate (1) (3)										
2019-2033	\$/MWh	\$23.69	\$15.46	\$22.56	\$23.82	\$11.00	\$20.92	(\$0.13)	\$4.46	\$1.64
							-1%	41%	8%	

Footnotes:

- (1) Discount Rate - 2017 IRP Update
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2019 - 2033, levelized monthly

Table 1
Avoided Cost Prices
Utah 2018.Q2 - 100.0 MW and 85.0% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	85.0% Capacity Factor \$/MWh
2018	\$0.00	\$22.52	\$22.52
2019	\$0.00	\$18.84	\$18.84
2020	\$0.00	\$16.60	\$16.60
2021	\$0.00	\$15.17	\$15.17
2022	\$0.00	\$14.08	\$14.08
2023	\$0.00	\$14.83	\$14.83
2024	\$0.00	\$16.50	\$16.50
2025	\$0.00	\$21.90	\$21.90
2026	\$0.00	\$23.57	\$23.57
2027	\$0.00	\$24.50	\$24.50
2028	\$0.00	\$27.98	\$27.98
2029	\$0.00	\$32.15	\$32.15
2030	\$0.00	\$39.32	\$39.32
2031	\$0.00	\$40.92	\$40.92
2032	\$0.00	\$44.51	\$44.51
2033	\$0.00	\$46.79	\$46.79
2034	\$0.00	\$46.24	\$46.24
2035	\$0.00	\$49.18	\$49.18
2036	\$0.00	\$50.74	\$50.74
2037	\$0.00	\$51.82	\$51.82

15 Year Starting 2018

15 year Levelized Prices (Nominal) @ 6.91% Discount Rate (1) (3)

\$/kW	\$0.00		
\$/MWh		\$22.70	\$22.70

15 Year Starting 2019

15 year Levelized Prices (Nominal) @ 6.91% Discount Rate (1) (3)

\$/kW	\$0.00		
\$/MWh		\$23.69	\$23.69

Footnotes:

(1) Discount Rate - 2017 IRP Update

(2) 'Energy Only' is the GRID calculated costs and includes some capacity costs.

Table 4
Burnertip Natural Gas Price Forecast
Utah 2018.Q2 - 100.0 MW and 85.0% CF

Year	PacifiCorp		
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2016	\$2.32	\$2.30	\$2.35
2017	\$2.71	\$2.77	\$2.71
2018	\$2.28	\$2.16	\$2.28
2019	\$2.09	\$1.99	\$2.02
2020	\$1.97	\$1.88	\$1.90
2021	\$1.94	\$1.90	\$1.94
2022	\$2.01	\$2.00	\$2.01
2023	\$2.16	\$2.11	\$2.12
2024	\$2.55	\$2.50	\$2.50
2025	\$3.34	\$3.30	\$3.28
2026	\$3.81	\$3.79	\$3.74
2027	\$3.93	\$3.92	\$3.86
2028	\$4.14	\$4.18	\$4.08
2029	\$4.52	\$4.62	\$4.44
2030	\$4.96	\$5.07	\$4.88
2031	\$4.98	\$5.06	\$4.90
2032	\$5.36	\$5.44	\$5.27
2033	\$5.63	\$5.73	\$5.54
2034	\$5.56	\$5.62	\$5.48
2035	\$5.75	\$5.76	\$5.66
2036	\$5.69	\$5.71	\$5.61
2037	\$6.03	\$6.09	\$5.94
2038	\$6.44	\$6.53	\$6.35
2039	\$6.68	\$6.81	\$6.59
2040	\$7.08	\$7.22	\$6.98
2041	\$7.23	\$7.38	\$7.13
2042	\$4.84	\$4.91	\$4.77

Official Forward Price Curve Forecast dated Jun 29, 2018

Table 5

Utah 2018.Q2 - 100.0 MW and 85.0% CF

January 2018 through December 2037

Nominal Avoided Costs Calculated Monthly

15 Year Starting 2019 \$ 166,701,046 \$ - \$ 166,701,046 \$ 7,038,138 \$23.69

Nominal NPV at 6.91% Discount Rate

15 Year Starting 2018 \$ 159,749,964 \$ - \$ 159,749,964 \$ 7,037,797 \$22.70

20 Year Starting 2019 \$ 223,586,725 \$ - \$ 223,586,725 \$ 8,180,456 \$27.33

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	85.0% CF	Dollars	MWH	85.0% CF
Jan-18	1,185,614	-	1,185,614	63,240	18.75
Feb-18	936,107	-	936,107	57,120	16.39
Mar-18	997,104	-	997,104	63,240	15.77
Apr-18	880,643	-	880,643	61,200	14.39
May-18	898,595	-	898,595	63,240	14.21
Jun-18	982,618	-	982,618	61,200	16.06
Jul-18	4,103,295	-	4,103,295	63,240	64.88
Aug-18	1,920,862	-	1,920,862	63,240	30.37
Sep-18	1,328,348	-	1,328,348	61,200	21.71
Oct-18	1,093,009	-	1,093,009	63,240	17.28
Nov-18	1,067,999	-	1,067,999	61,200	17.45
Dec-18	1,374,282	-	1,374,282	63,240	21.73
Jan-19	1,196,300	-	1,196,300	63,240	18.92
Feb-19	1,080,269	-	1,080,269	57,120	18.91
Mar-19	999,251	-	999,251	63,240	15.80
Apr-19	820,501	-	820,501	61,200	13.41
May-19	853,544	-	853,544	63,240	13.50
Jun-19	899,511	-	899,511	61,200	14.70
Jul-19	2,271,077	-	2,271,077	63,240	35.91
Aug-19	1,609,694	-	1,609,694	63,240	25.45
Sep-19	1,201,711	-	1,201,711	61,200	19.64
Oct-19	1,001,677	-	1,001,677	63,240	15.84
Nov-19	924,226	-	924,226	61,200	15.10
Dec-19	1,170,788	-	1,170,788	63,240	18.51
Jan-20	1,073,117	-	1,073,117	63,240	16.97
Feb-20	894,879	-	894,879	59,160	15.13
Mar-20	940,584	-	940,584	63,240	14.87
Apr-20	781,551	-	781,551	61,200	12.77
May-20	841,383	-	841,383	63,240	13.30
Jun-20	904,259	-	904,259	61,200	14.78
Jul-20	1,412,677	-	1,412,677	63,240	22.34
Aug-20	1,457,199	-	1,457,199	63,240	23.04
Sep-20	1,112,333	-	1,112,333	61,200	18.18
Oct-20	985,810	-	985,810	63,240	15.59
Nov-20	942,002	-	942,002	61,200	15.39
Dec-20	1,047,032	-	1,047,032	63,240	16.56
Jan-21	1,021,283	-	1,021,283	63,240	16.15
Feb-21	970,660	-	970,660	57,120	16.99
Mar-21	977,553	-	977,553	63,240	15.46
Apr-21	643,725	-	643,725	61,200	10.52
May-21	792,107	-	792,107	63,240	12.53
Jun-21	752,186	-	752,186	61,200	12.29
Jul-21	1,183,114	-	1,183,114	63,240	18.71
Aug-21	1,252,325	-	1,252,325	63,240	19.80
Sep-21	870,079	-	870,079	61,200	14.22
Oct-21	849,012	-	849,012	63,240	13.43
Nov-21	838,267	-	838,267	61,200	13.70
Dec-21	1,146,254	-	1,146,254	63,240	18.13
Jan-22	1,022,713	-	1,022,713	63,240	16.17
Feb-22	903,809	-	903,809	57,120	15.82
Mar-22	928,154	-	928,154	63,240	14.68

Apr-22	696,853	-	696,853	61,200	11.39
May-22	716,019	-	716,019	63,240	11.32
Jun-22	845,264	-	845,264	61,200	13.81
Jul-22	951,238	-	951,238	63,240	15.04
Aug-22	982,868	-	982,868	63,240	15.54
Sep-22	826,378	-	826,378	61,200	13.50
Oct-22	670,512	-	670,512	63,240	10.60
Nov-22	923,499	-	923,499	61,200	15.09
Dec-22	1,016,620	-	1,016,620	63,240	16.08
Jan-23	944,760	-	944,760	63,240	14.94
Feb-23	871,174	-	871,174	57,120	15.25
Mar-23	1,003,812	-	1,003,812	63,240	15.87
Apr-23	726,287	-	726,287	61,200	11.87
May-23	844,428	-	844,428	63,240	13.35
Jun-23	827,126	-	827,126	61,200	13.52
Jul-23	988,890	-	988,890	63,240	15.64
Aug-23	1,054,337	-	1,054,337	63,240	16.67
Sep-23	871,681	-	871,681	61,200	14.24
Oct-23	857,785	-	857,785	63,240	13.56
Nov-23	936,397	-	936,397	61,200	15.30
Dec-23	1,116,248	-	1,116,248	63,240	17.65
Jan-24	1,159,042	-	1,159,042	63,240	18.33
Feb-24	1,032,785	-	1,032,785	59,160	17.46
Mar-24	992,336	-	992,336	63,240	15.69
Apr-24	755,971	-	755,971	61,200	12.35
May-24	845,437	-	845,437	63,240	13.37
Jun-24	789,657	-	789,657	61,200	12.90
Jul-24	1,055,059	-	1,055,059	63,240	16.68
Aug-24	1,160,259	-	1,160,259	63,240	18.35
Sep-24	982,757	-	982,757	61,200	16.06
Oct-24	1,112,991	-	1,112,991	63,240	17.60
Nov-24	1,333,555	-	1,333,555	61,200	21.79
Dec-24	1,099,431	-	1,099,431	63,240	17.39
Jan-25	1,363,970	-	1,363,970	63,240	21.57
Feb-25	1,183,473	-	1,183,473	57,120	20.72
Mar-25	1,145,725	-	1,145,725	63,240	18.12
Apr-25	1,177,791	-	1,177,791	61,200	19.24
May-25	1,118,796	-	1,118,796	63,240	17.69
Jun-25	1,024,285	-	1,024,285	61,200	16.74
Jul-25	1,579,608	-	1,579,608	63,240	24.98
Aug-25	1,735,513	-	1,735,513	63,240	27.44
Sep-25	1,580,495	-	1,580,495	61,200	25.83
Oct-25	1,232,678	-	1,232,678	63,240	19.49
Nov-25	1,517,529	-	1,517,529	61,200	24.80
Dec-25	1,644,009	-	1,644,009	63,240	26.00
Jan-26	1,688,006	-	1,688,006	63,240	26.69
Feb-26	1,559,683	-	1,559,683	57,120	27.31
Mar-26	1,380,315	-	1,380,315	63,240	21.83
Apr-26	1,090,105	-	1,090,105	61,200	17.81
May-26	1,273,366	-	1,273,366	63,240	20.14
Jun-26	1,354,378	-	1,354,378	61,200	22.13
Jul-26	1,645,875	-	1,645,875	63,240	26.03
Aug-26	1,695,592	-	1,695,592	63,240	26.81
Sep-26	1,330,669	-	1,330,669	61,200	21.74
Oct-26	1,212,692	-	1,212,692	63,240	19.18
Nov-26	1,621,320	-	1,621,320	61,200	26.49
Dec-26	1,700,352	-	1,700,352	63,240	26.89
Jan-27	1,770,021	-	1,770,021	63,240	27.99
Feb-27	1,426,339	-	1,426,339	57,120	24.97
Mar-27	1,428,191	-	1,428,191	63,240	22.58
Apr-27	1,285,263	-	1,285,263	61,200	21.00
May-27	1,278,567	-	1,278,567	63,240	20.22

Jun-27	1,388,857	-	1,388,857	61,200	22.69
Jul-27	1,794,647	-	1,794,647	63,240	28.38
Aug-27	1,846,122	-	1,846,122	63,240	29.19
Sep-27	1,432,362	-	1,432,362	61,200	23.40
Oct-27	1,367,321	-	1,367,321	63,240	21.62
Nov-27	1,505,953	-	1,505,953	61,200	24.61
Dec-27	1,720,198	-	1,720,198	63,240	27.20
Jan-28	1,664,244	-	1,664,244	63,240	26.32
Feb-28	1,689,693	-	1,689,693	59,160	28.56
Mar-28	1,405,299	-	1,405,299	63,240	22.22
Apr-28	1,498,840	-	1,498,840	61,200	24.49
May-28	1,493,588	-	1,493,588	63,240	23.62
Jun-28	1,477,793	-	1,477,793	61,200	24.15
Jul-28	2,284,517	-	2,284,517	63,240	36.12
Aug-28	2,394,812	-	2,394,812	63,240	37.87
Sep-28	1,786,218	-	1,786,218	61,200	29.19
Oct-28	1,693,955	-	1,693,955	63,240	26.79
Nov-28	1,693,700	-	1,693,700	61,200	27.67
Dec-28	1,807,711	-	1,807,711	63,240	28.58
Jan-29	1,930,826	-	1,930,826	63,240	30.53
Feb-29	1,758,022	-	1,758,022	57,120	30.78
Mar-29	1,645,107	-	1,645,107	63,240	26.01
Apr-29	1,527,969	-	1,527,969	61,200	24.97
May-29	1,801,530	-	1,801,530	63,240	28.49
Jun-29	1,633,505	-	1,633,505	61,200	26.69
Jul-29	2,708,580	-	2,708,580	63,240	42.83
Aug-29	2,804,212	-	2,804,212	63,240	44.34
Sep-29	2,189,882	-	2,189,882	61,200	35.78
Oct-29	1,855,742	-	1,855,742	63,240	29.34
Nov-29	1,938,746	-	1,938,746	61,200	31.68
Dec-29	2,143,431	-	2,143,431	63,240	33.89
Jan-30	2,344,952	-	2,344,952	63,240	37.08
Feb-30	2,059,448	-	2,059,448	57,120	36.05
Mar-30	2,121,205	-	2,121,205	63,240	33.54
Apr-30	1,808,721	-	1,808,721	61,200	29.55
May-30	1,955,182	-	1,955,182	63,240	30.92
Jun-30	1,941,235	-	1,941,235	61,200	31.72
Jul-30	3,903,284	-	3,903,284	63,240	61.72
Aug-30	3,284,671	-	3,284,671	63,240	51.94
Sep-30	2,663,649	-	2,663,649	61,200	43.52
Oct-30	2,411,388	-	2,411,388	63,240	38.13
Nov-30	2,218,363	-	2,218,363	61,200	36.25
Dec-30	2,565,234	-	2,565,234	63,240	40.56
Jan-31	2,367,127	-	2,367,127	63,240	37.43
Feb-31	2,278,295	-	2,278,295	57,120	39.89
Mar-31	2,147,645	-	2,147,645	63,240	33.96
Apr-31	1,862,769	-	1,862,769	61,200	30.44
May-31	1,899,647	-	1,899,647	63,240	30.04
Jun-31	2,112,186	-	2,112,186	61,200	34.51
Jul-31	4,550,972	-	4,550,972	63,240	71.96
Aug-31	3,363,699	-	3,363,699	63,240	53.19
Sep-31	2,698,857	-	2,698,857	61,200	44.10
Oct-31	2,378,241	-	2,378,241	63,240	37.61
Nov-31	2,208,018	-	2,208,018	61,200	36.08
Dec-31	2,602,751	-	2,602,751	63,240	41.16
Jan-32	2,444,990	-	2,444,990	63,240	38.66
Feb-32	2,299,710	-	2,299,710	59,160	38.87
Mar-32	2,241,327	-	2,241,327	63,240	35.44
Apr-32	2,055,189	-	2,055,189	61,200	33.58
May-32	2,191,715	-	2,191,715	63,240	34.66
Jun-32	2,015,394	-	2,015,394	61,200	32.93
Jul-32	5,543,401	-	5,543,401	63,240	87.66

Aug-32	3,620,885	-	3,620,885	63,240	57.26
Sep-32	2,920,119	-	2,920,119	61,200	47.71
Oct-32	2,658,485	-	2,658,485	63,240	42.04
Nov-32	2,422,571	-	2,422,571	61,200	39.58
Dec-32	2,818,522	-	2,818,522	63,240	44.57
Jan-33	2,722,817	-	2,722,817	63,240	43.06
Feb-33	2,710,338	-	2,710,338	57,120	47.45
Mar-33	2,415,309	-	2,415,309	63,240	38.19
Apr-33	2,206,106	-	2,206,106	61,200	36.05
May-33	2,321,313	-	2,321,313	63,240	36.71
Jun-33	2,302,452	-	2,302,452	61,200	37.62
Jul-33	4,617,440	-	4,617,440	63,240	73.01
Aug-33	3,966,759	-	3,966,759	63,240	62.73
Sep-33	3,145,621	-	3,145,621	61,200	51.40
Oct-33	2,809,300	-	2,809,300	63,240	44.42
Nov-33	2,573,766	-	2,573,766	61,200	42.06
Dec-33	3,047,208	-	3,047,208	63,240	48.18
Jan-34	2,862,321	-	2,862,321	63,240	45.26
Feb-34	2,579,574	-	2,579,574	57,120	45.16
Mar-34	2,300,108	-	2,300,108	63,240	36.37
Apr-34	2,249,454	-	2,249,454	61,200	36.76
May-34	2,143,734	-	2,143,734	63,240	33.90
Jun-34	2,315,198	-	2,315,198	61,200	37.83
Jul-34	4,608,817	-	4,608,817	63,240	72.88
Aug-34	3,986,797	-	3,986,797	63,240	63.04
Sep-34	3,082,582	-	3,082,582	61,200	50.37
Oct-34	2,721,777	-	2,721,777	63,240	43.04
Nov-34	2,576,195	-	2,576,195	61,200	42.09
Dec-34	3,003,200	-	3,003,200	63,240	47.49
Jan-35	2,882,255	-	2,882,255	63,240	45.58
Feb-35	2,554,107	-	2,554,107	57,120	44.71
Mar-35	2,367,451	-	2,367,451	63,240	37.44
Apr-35	2,395,920	-	2,395,920	61,200	39.15
May-35	2,392,850	-	2,392,850	63,240	37.84
Jun-35	2,489,204	-	2,489,204	61,200	40.67
Jul-35	4,810,927	-	4,810,927	63,240	76.07
Aug-35	4,330,100	-	4,330,100	63,240	68.47
Sep-35	3,426,314	-	3,426,314	61,200	55.99
Oct-35	2,973,921	-	2,973,921	63,240	47.03
Nov-35	2,713,418	-	2,713,418	61,200	44.34
Dec-35	3,285,213	-	3,285,213	63,240	51.95
Jan-36	2,940,209	-	2,940,209	63,240	46.49
Feb-36	2,637,346	-	2,637,346	59,160	44.58
Mar-36	2,440,939	-	2,440,939	63,240	38.60
Apr-36	2,446,393	-	2,446,393	61,200	39.97
May-36	2,338,255	-	2,338,255	63,240	36.97
Jun-36	2,559,725	-	2,559,725	61,200	41.83
Jul-36	4,861,987	-	4,861,987	63,240	76.88
Aug-36	4,423,585	-	4,423,585	63,240	69.95
Sep-36	3,845,336	-	3,845,336	61,200	62.83
Oct-36	3,186,621	-	3,186,621	63,240	50.39
Nov-36	2,842,351	-	2,842,351	61,200	46.44
Dec-36	3,362,204	-	3,362,204	63,240	53.17
Jan-37	3,001,953	-	3,001,953	63,240	47.47
Feb-37	2,599,878	-	2,599,878	57,120	45.52
Mar-37	2,492,198	-	2,492,198	63,240	39.41
Apr-37	2,497,767	-	2,497,767	61,200	40.81
May-37	2,387,358	-	2,387,358	63,240	37.75
Jun-37	2,613,480	-	2,613,480	61,200	42.70
Jul-37	4,964,089	-	4,964,089	63,240	78.50
Aug-37	4,516,480	-	4,516,480	63,240	71.42
Sep-37	3,926,088	-	3,926,088	61,200	64.15

Oct-37	3,253,541	-	3,253,541	63,240	51.45
Nov-37	2,902,041	-	2,902,041	61,200	47.42
Dec-37	3,432,810	-	3,432,810	63,240	54.28
Jan-38	3,064,994	-	3,064,994	63,240	48.47
Feb-38	2,654,475	-	2,654,475	57,120	46.47
Mar-38	2,544,534	-	2,544,534	63,240	40.24
Apr-38	2,550,220	-	2,550,220	61,200	41.67
May-38	2,437,492	-	2,437,492	63,240	38.54
Jun-38	2,668,363	-	2,668,363	61,200	43.60
Jul-38	5,068,335	-	5,068,335	63,240	80.14
Aug-38	4,611,326	-	4,611,326	63,240	72.92
Sep-38	4,008,535	-	4,008,535	61,200	65.50
Oct-38	3,321,865	-	3,321,865	63,240	52.53
Nov-38	2,962,984	-	2,962,984	61,200	48.41

Appendix B.2

Avoided Cost Prices \$/MWh

Utah 2018.Q2 Sch 38

Year	Wind UT 2017.Q2 31.0% CF (2)	Wind UT 2017.Q1 Filing	Wind Difference
2019	\$16.38	\$14.73	\$1.65
2020	\$15.52	\$12.16	\$3.36
2021	\$13.97	\$13.04	\$0.93
2022	\$13.51	\$14.64	(\$1.13)
2023	\$14.13	\$14.58	(\$0.44)
2024	\$15.02	\$15.80	(\$0.78)
2025	\$20.16	\$16.12	\$4.05
2026	\$22.52	\$17.37	\$5.15
2027	\$23.78	\$17.25	\$6.52
2028	\$27.17	\$11.48	\$15.70
2029	\$31.76	\$10.62	\$21.14
2030	\$37.72	\$18.56	\$19.15
2031	\$39.42	\$61.93	(\$22.51)
2032	\$40.45	\$63.12	(\$22.67)
2033	\$50.26	\$65.41	(\$15.14)

15-Year Levelized Prices (Nominal) @ 6.910% Discount Rate (1) (3)

2019-2033	\$/MWh	\$22.56 (4)	\$20.92 (4)	\$1.64
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Footnotes:

- (1) Discount Rate - 2017 IRP Update
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2019 - 2033, levelized monthly

Table 1
Avoided Cost Prices
Utah 2018.Q2_Wind - 80.0 MW and 31.0% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	31.0% Capacity Factor \$/MWh	Total Price @
2018	\$0.00	\$18.84	\$18.84	
2019	\$0.00	\$16.38	\$16.38	
2020	\$0.00	\$15.52	\$15.52	
2021	\$0.00	\$13.97	\$13.97	
2022	\$0.00	\$13.51	\$13.51	
2023	\$0.00	\$14.13	\$14.13	
2024	\$0.00	\$15.02	\$15.02	
2025	\$0.00	\$20.16	\$20.16	
2026	\$0.00	\$22.52	\$22.52	
2027	\$0.00	\$23.78	\$23.78	
2028	\$0.00	\$27.17	\$27.17	
2029	\$0.00	\$31.76	\$31.76	
2030	\$0.00	\$37.72	\$37.72	
2031	\$0.00	\$39.42	\$39.42	
2032	\$0.00	\$40.45	\$40.45	
2033	\$154.30	(\$6.55)	\$50.26	
2034	\$157.39	(\$6.77)	\$51.18	
2035	\$160.54	(\$6.36)	\$52.76	
2036	\$163.75	(\$7.98)	\$52.14	
2037	\$167.19	(\$8.11)	\$53.41	

15 Year Starting 2018

15 year Levelized Prices (Nominal) @ 6.91% Discount Rate (1) (3)

\$/kW	\$0.00		
\$/MWh		\$21.14	\$21.14

15 Year Starting 2019

15 year Levelized Prices (Nominal) @ 0.00% Discount Rate (1) (3)

\$/kW	\$6.19		
\$/MWh		\$20.28	\$22.56

Footnotes:

- (1) Discount Rate - 2017 IRP Update
- (2) 'Energy Only' is the GRID calculated costs and includes some capacity costs.
- (3) Levelized monthly

Table 3
2017 IRP Update ID Wind Resource
38% Capacity Factor

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized	Fixed O&M	Fixed Costs	Variable O&M	Tax Credit	Total Resource Costs	Total Resource Costs	Wind Integration Cost
	\$/kW	\$/kW-yr	\$/kW-yr	\$/MWh	\$/MWh	\$/MWh	\$/MWh	\$/kW-yr	\$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(h)

2017 IRP Update ID Wind Resource - 38% Capacity Factor

2016									
2017			\$37.57	\$11.29	\$0.00	-	\$11.29	\$37.57	\$0.59
2018			\$38.43	\$11.54	\$0.00	\$0.00	\$11.54	\$38.43	\$0.60
2019			\$39.28	\$11.80	\$0.00	\$0.00	\$11.80	\$39.28	\$0.61
2020			\$40.26	\$12.09	\$0.00	\$0.00	\$12.09	\$40.26	\$0.63
2021			\$41.23	\$12.39	\$0.00	\$0.00	\$12.39	\$41.23	\$0.65
2022			\$42.22	\$12.68	\$0.00	\$0.00	\$12.68	\$42.22	\$0.67
2023			\$43.23	\$12.99	\$0.00	\$0.00	\$12.99	\$43.23	\$0.69
2024			\$44.22	\$13.28	\$0.00	\$0.00	\$13.28	\$44.22	\$0.71
2025			\$45.24	\$13.59	\$0.00	\$0.00	\$13.59	\$45.24	\$0.73
2026			\$46.24	\$13.89	\$0.00	\$0.00	\$13.89	\$46.24	\$0.75
2027			\$47.26	\$14.20	\$0.00	\$0.00	\$14.20	\$47.26	\$0.77
2028			\$48.30	\$14.51	\$0.00	\$0.00	\$14.51	\$48.30	\$0.79
2029			\$49.31	\$14.81	\$0.00	\$0.00	\$14.81	\$49.31	\$0.81
2030			\$50.30	\$15.11	\$0.00	\$0.00	\$15.11	\$50.30	\$0.83
2031			\$51.31	\$15.41	\$0.00	\$0.00	\$15.41	\$51.31	\$0.85
2032			\$52.34	\$15.72	\$0.00	\$0.00	\$15.72	\$52.34	\$0.87
2033	\$1,420	\$100.91	\$53.39	\$46.35	\$0.00	\$0.00	\$46.35	\$154.30	\$0.89
2034		\$102.93	\$54.46	\$47.28	\$0.00	\$0.00	\$47.28	\$157.39	\$0.91
2035		\$104.99	\$55.55	\$48.23	\$0.00	\$0.00	\$48.23	\$160.54	\$0.93
2036		\$107.09	\$56.66	\$49.19	\$0.00	\$0.00	\$49.19	\$163.75	\$0.95
2037		\$109.34	\$57.85	\$50.23	\$0.00	\$0.00	\$50.23	\$167.19	\$0.97
2038		\$111.64	\$59.06	\$51.28	\$0.00	\$0.00	\$51.28	\$170.70	\$0.99
2039		\$113.98	\$60.30	\$52.36	\$0.00	\$0.00	\$52.36	\$174.28	\$1.01
2040		\$116.37	\$61.57	\$53.45	\$0.00	\$0.00	\$53.45	\$177.94	\$1.03
2041		\$118.93	\$62.92	\$54.63	\$0.00	\$0.00	\$54.63	\$181.85	\$1.05
2042		\$121.55	\$64.30	\$55.83	\$0.00	\$0.00	\$55.83	\$185.85	\$1.07

Sources, Inputs and Assumptions

Source:	(c)(f)	Plant Costs - 2017 IRP Update - Table 5.4 & 5.5
	(a)	Plant capacity cost
	(b)	= (a) x 0.0710599128799291
	(d)	= ((b) + (c)) / (8.76 x 38.0%)
	(g)	= (d) + (f)
	(h)	Plant Costs - 2017 IRP Update - Table 5.4 & 5.5

2017 IRP Update ID Wind Resource - 38% Capacity Factor	
Wind	Cost and Input Assumptions

2033 \$	\$1,420	Plant capacity cost	\$/kW-yr
2017 \$	\$37.57	Fixed O&M, plus on-going capital cost	\$/kW-yr
2017 \$	0.59	Integration Cost	\$/MWH
2017 \$	\$0.00	Variable O&M	\$/MWH
2017 \$		Tax Credit \$/MWh	\$/MWH
	7.106%	Payment Factor	
	38%	Capacity Factor	

Company Official Inflation Forecast Dated June 29, 2018					
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2017	2.0%	2026	2.2%	2035	2.0%
2018	2.3%	2027	2.2%	2036	2.0%
2019	2.2%	2028	2.2%	2037	2.1%
2020	2.5%	2029	2.1%	2038	2.1%
2021	2.4%	2030	2.0%	2039	2.1%
2022	2.4%	2031	2.0%	2040	2.1%
2023	2.4%	2032	2.0%	2041	2.2%
2024	2.3%	2033	2.0%	2042	2.2%
2025	2.3%	2034	2.0%	2043	2.2%

Table 4
Burnertip Natural Gas Price Forecast
Utah 2018.Q2_Wind - 80.0 MW and 31.0% CF

Year	PacifiCorp		
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2016	\$2.32	\$2.30	\$2.35
2017	\$2.71	\$2.77	\$2.71
2018	\$2.28	\$2.16	\$2.28
2019	\$2.09	\$1.99	\$2.02
2020	\$1.97	\$1.88	\$1.90
2021	\$1.94	\$1.90	\$1.94
2022	\$2.01	\$2.00	\$2.01
2023	\$2.16	\$2.11	\$2.12
2024	\$2.55	\$2.50	\$2.50
2025	\$3.34	\$3.30	\$3.28
2026	\$3.81	\$3.79	\$3.74
2027	\$3.93	\$3.92	\$3.86
2028	\$4.14	\$4.18	\$4.08
2029	\$4.52	\$4.62	\$4.44
2030	\$4.96	\$5.07	\$4.88
2031	\$4.98	\$5.06	\$4.90
2032	\$5.36	\$5.44	\$5.27
2033	\$5.63	\$5.73	\$5.54
2034	\$5.56	\$5.62	\$5.48
2035	\$5.75	\$5.76	\$5.66
2036	\$5.69	\$5.71	\$5.61
2037	\$6.03	\$6.09	\$5.94
2038	\$6.44	\$6.53	\$6.35
2039	\$6.68	\$6.81	\$6.59
2040	\$7.08	\$7.22	\$6.98
2041	\$7.23	\$7.38	\$7.13
2042	\$4.84	\$4.91	\$4.77

Official Forward Price Curve Forecast dated Jun 29, 2018

Table 5
Utah 2018.Q2_Wind - 80.0 MW and 31.0% CF
January 2018 through December 2037
Nominal Avoided Costs Calculated Monthly

15 Year Starting 2019 \$ 41,557,857 \$ 4,672,629 \$ 46,230,486 \$ 2,049,534 \$22.56

Nominal NPV at 6.91% Discount Rate

15 Year Starting 2018 \$ 43,314,823 \$ - \$ 43,314,823 \$ 2,049,427 \$21.14

20 Year Starting 2019 \$ 39,084,044 \$ 21,317,860 \$ 60,401,904 \$ 2,381,884 \$25.36

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.0% CF	Dollars	MWH	31.0% CF
Jan-18	297,999	-	297,999	16,505	18.06
Feb-18	217,587	-	217,587	13,802	15.77
Mar-18	260,164	-	260,164	16,862	15.43
Apr-18	199,300	-	199,300	14,482	13.76
May-18	185,997	-	185,997	14,297	13.01
Jun-18	253,031	-	253,031	17,930	14.11
Jul-18	742,932	-	742,932	20,642	35.99
Aug-18	494,408	-	494,408	21,488	23.01
Sep-18	382,525	-	382,525	21,070	18.15
Oct-18	320,756	-	320,756	20,190	15.89
Nov-18	332,175	-	332,175	20,169	16.47
Dec-18	405,648	-	405,648	19,837	20.45
Jan-19	301,784	-	301,784	16,505	18.28
Feb-19	245,724	-	245,724	13,802	17.80
Mar-19	250,409	-	250,409	16,862	14.85
Apr-19	186,819	-	186,819	14,482	12.90
May-19	173,385	-	173,385	14,297	12.13
Jun-19	229,529	-	229,529	17,930	12.80
Jul-19	475,653	-	475,653	20,642	23.04
Aug-19	439,845	-	439,845	21,488	20.47
Sep-19	344,275	-	344,275	21,070	16.34
Oct-19	283,852	-	283,852	20,190	14.06
Nov-19	288,728	-	288,728	20,169	14.32
Dec-19	339,320	-	339,320	19,837	17.11
Jan-20	268,513	-	268,513	16,505	16.27
Feb-20	215,658	-	215,658	14,442	14.93
Mar-20	247,011	-	247,011	16,862	14.65
Apr-20	199,509	-	199,509	14,482	13.78
May-20	180,087	-	180,087	14,297	12.60
Jun-20	229,661	-	229,661	17,930	12.81
Jul-20	380,627	-	380,627	20,642	18.44
Aug-20	403,720	-	403,720	21,488	18.79
Sep-20	333,425	-	333,425	21,070	15.82
Oct-20	273,518	-	273,518	20,190	13.55
Nov-20	346,580	-	346,580	20,169	17.18
Dec-20	303,321	-	303,321	19,837	15.29
Jan-21	247,126	-	247,126	16,505	14.97
Feb-21	224,245	-	224,245	13,802	16.25
Mar-21	273,993	-	273,993	16,862	16.25
Apr-21	162,426	-	162,426	14,482	11.22
May-21	162,491	-	162,491	14,297	11.37
Jun-21	187,512	-	187,512	17,930	10.46
Jul-21	334,731	-	334,731	20,642	16.22
Aug-21	360,265	-	360,265	21,488	16.77
Sep-21	272,981	-	272,981	21,070	12.96
Oct-21	233,189	-	233,189	20,190	11.55
Nov-21	254,722	-	254,722	20,169	12.63
Dec-21	321,372	-	321,372	19,837	16.20
Jan-22	244,015	-	244,015	16,505	14.78
Feb-22	203,755	-	203,755	13,802	14.76
Mar-22	231,454	-	231,454	16,862	13.73

Apr-22	188,907	-	188,907	14,482	13.04
May-22	161,676	-	161,676	14,297	11.31
Jun-22	230,310	-	230,310	17,930	12.85
Jul-22	269,159	-	269,159	20,642	13.04
Aug-22	269,899	-	269,899	21,488	12.56
Sep-22	260,979	-	260,979	21,070	12.39
Oct-22	242,588	-	242,588	20,190	12.02
Nov-22	334,530	-	334,530	20,169	16.59
Dec-22	298,565	-	298,565	19,837	15.05
Jan-23	262,487	-	262,487	16,505	15.90
Feb-23	186,679	-	186,679	13,802	13.53
Mar-23	290,581	-	290,581	16,862	17.23
Apr-23	203,431	-	203,431	14,482	14.05
May-23	182,935	-	182,935	14,297	12.80
Jun-23	242,558	-	242,558	17,930	13.53
Jul-23	270,872	-	270,872	20,642	13.12
Aug-23	289,535	-	289,535	21,488	13.47
Sep-23	253,534	-	253,534	21,070	12.03
Oct-23	254,557	-	254,557	20,190	12.61
Nov-23	283,420	-	283,420	20,169	14.05
Dec-23	350,050	-	350,050	19,837	17.65
Jan-24	288,185	-	288,185	16,505	17.46
Feb-24	256,521	-	256,521	14,442	17.76
Mar-24	245,826	-	245,826	16,862	14.58
Apr-24	190,512	-	190,512	14,482	13.15
May-24	189,794	-	189,794	14,297	13.27
Jun-24	235,100	-	235,100	17,930	13.11
Jul-24	276,690	-	276,690	20,642	13.40
Aug-24	330,487	-	330,487	21,488	15.38
Sep-24	236,839	-	236,839	21,070	11.24
Oct-24	224,484	-	224,484	20,190	11.12
Nov-24	477,270	-	477,270	20,169	23.66
Dec-24	320,801	-	320,801	19,837	16.17
Jan-25	339,303	-	339,303	16,505	20.56
Feb-25	278,898	-	278,898	13,802	20.21
Mar-25	281,215	-	281,215	16,862	16.68
Apr-25	292,773	-	292,773	14,482	20.22
May-25	251,411	-	251,411	14,297	17.58
Jun-25	293,643	-	293,643	17,930	16.38
Jul-25	458,843	-	458,843	20,642	22.23
Aug-25	513,492	-	513,492	21,488	23.90
Sep-25	491,470	-	491,470	21,070	23.33
Oct-25	265,108	-	265,108	20,190	13.13
Nov-25	433,539	-	433,539	20,169	21.50
Dec-25	481,547	-	481,547	19,837	24.28
Jan-26	423,904	-	423,904	16,505	25.68
Feb-26	371,402	-	371,402	13,802	26.91
Mar-26	364,826	-	364,826	16,862	21.64
Apr-26	316,758	-	316,758	14,482	21.87
May-26	332,107	-	332,107	14,297	23.23
Jun-26	418,361	-	418,361	17,930	23.33
Jul-26	504,365	-	504,365	20,642	24.43
Aug-26	483,118	-	483,118	21,488	22.48
Sep-26	430,727	-	430,727	21,070	20.44
Oct-26	288,760	-	288,760	20,190	14.30
Nov-26	478,653	-	478,653	20,169	23.73
Dec-26	480,082	-	480,082	19,837	24.20
Jan-27	441,003	-	441,003	16,505	26.72
Feb-27	355,537	-	355,537	13,802	25.76
Mar-27	367,616	-	367,616	16,862	21.80
Apr-27	340,758	-	340,758	14,482	23.53
May-27	307,844	-	307,844	14,297	21.53

Jun-27	398,740	-	398,740	17,930	22.24
Jul-27	561,682	-	561,682	20,642	27.21
Aug-27	553,551	-	553,551	21,488	25.76
Sep-27	452,567	-	452,567	21,070	21.48
Oct-27	413,477	-	413,477	20,190	20.48
Nov-27	459,722	-	459,722	20,169	22.79
Dec-27	513,532	-	513,532	19,837	25.89
Jan-28	425,063	-	425,063	16,505	25.75
Feb-28	371,597	-	371,597	14,442	25.73
Mar-28	386,667	-	386,667	16,862	22.93
Apr-28	372,653	-	372,653	14,482	25.73
May-28	350,586	-	350,586	14,297	24.52
Jun-28	431,934	-	431,934	17,930	24.09
Jul-28	709,375	-	709,375	20,642	34.37
Aug-28	789,396	-	789,396	21,488	36.74
Sep-28	563,538	-	563,538	21,070	26.75
Oct-28	492,716	-	492,716	20,190	24.40
Nov-28	514,185	-	514,185	20,169	25.49
Dec-28	513,551	-	513,551	19,837	25.89
Jan-29	498,824	-	498,824	16,505	30.22
Feb-29	424,810	-	424,810	13,802	30.78
Mar-29	461,659	-	461,659	16,862	27.38
Apr-29	394,319	-	394,319	14,482	27.23
May-29	410,535	-	410,535	14,297	28.71
Jun-29	481,511	-	481,511	17,930	26.86
Jul-29	821,678	-	821,678	20,642	39.81
Aug-29	892,655	-	892,655	21,488	41.54
Sep-29	721,041	-	721,041	21,070	34.22
Oct-29	577,545	-	577,545	20,190	28.61
Nov-29	602,498	-	602,498	20,169	29.87
Dec-29	613,765	-	613,765	19,837	30.94
Jan-30	594,502	-	594,502	16,505	36.02
Feb-30	501,892	-	501,892	13,802	36.36
Mar-30	544,279	-	544,279	16,862	32.28
Apr-30	472,951	-	472,951	14,482	32.66
May-30	429,211	-	429,211	14,297	30.02
Jun-30	555,398	-	555,398	17,930	30.98
Jul-30	1,038,638	-	1,038,638	20,642	50.32
Aug-30	1,047,917	-	1,047,917	21,488	48.77
Sep-30	877,187	-	877,187	21,070	41.63
Oct-30	688,727	-	688,727	20,190	34.11
Nov-30	689,311	-	689,311	20,169	34.18
Dec-30	755,180	-	755,180	19,837	38.07
Jan-31	604,841	-	604,841	16,505	36.65
Feb-31	543,402	-	543,402	13,802	39.37
Mar-31	619,241	-	619,241	16,862	36.73
Apr-31	474,231	-	474,231	14,482	32.75
May-31	442,179	-	442,179	14,297	30.93
Jun-31	570,903	-	570,903	17,930	31.84
Jul-31	1,285,841	-	1,285,841	20,642	62.29
Aug-31	1,044,336	-	1,044,336	21,488	48.60
Sep-31	889,741	-	889,741	21,070	42.23
Oct-31	655,462	-	655,462	20,190	32.46
Nov-31	676,407	-	676,407	20,169	33.54
Dec-31	758,885	-	758,885	19,837	38.26
Jan-32	632,267	-	632,267	16,505	38.31
Feb-32	557,174	-	557,174	14,442	38.58
Mar-32	632,270	-	632,270	16,862	37.50
Apr-32	531,569	-	531,569	14,482	36.70
May-32	481,372	-	481,372	14,297	33.67
Jun-32	544,635	-	544,635	17,930	30.38
Jul-32	1,033,923	-	1,033,923	20,642	50.09

Aug-32	1,132,945	-	1,132,945	21,488	52.73
Sep-32	982,980	-	982,980	21,070	46.65
Oct-32	718,316	-	718,316	20,190	35.58
Nov-32	743,397	-	743,397	20,169	36.86
Dec-32	822,809	-	822,809	19,837	41.48
Jan-33	(49,562)	1,028,667	979,104	16,505	59.32
Feb-33	(375,544)	1,028,667	653,122	13,802	47.32
Mar-33	(328,095)	1,028,667	700,572	16,862	41.55
Apr-33	(341,075)	1,028,667	687,592	14,482	47.48
May-33	(136,618)	1,028,667	892,049	14,297	62.39
Jun-33	(122,838)	1,028,667	905,829	17,930	50.52
Jul-33	128,351	1,028,667	1,157,018	20,642	56.05
Aug-33	230,634	1,028,667	1,259,301	21,488	58.61
Sep-33	62,985	1,028,667	1,091,651	21,070	51.81
Oct-33	(56,876)	1,028,667	971,791	20,190	48.13
Nov-33	(194,532)	1,028,667	834,135	20,169	41.36
Dec-33	(239,837)	1,028,667	788,829	19,837	39.77
Jan-34	(120,680)	1,049,267	928,587	16,505	56.26
Feb-34	(339,418)	1,049,267	709,849	13,802	51.43
Mar-34	(322,404)	1,049,267	726,862	16,862	43.11
Apr-34	(365,682)	1,049,267	683,585	14,482	47.20
May-34	(151,626)	1,049,267	897,641	14,297	62.78
Jun-34	(129,498)	1,049,267	919,769	17,930	51.30
Jul-34	126,691	1,049,267	1,175,958	20,642	56.97
Aug-34	241,897	1,049,267	1,291,164	21,488	60.09
Sep-34	62,613	1,049,267	1,111,880	21,070	52.77
Oct-34	(47,321)	1,049,267	1,001,945	20,190	49.63
Nov-34	(190,072)	1,049,267	859,195	20,169	42.60
Dec-34	(235,913)	1,049,267	813,354	19,837	41.00
Jan-35	(55,838)	1,070,267	1,014,429	16,505	61.46
Feb-35	(324,503)	1,070,267	745,764	13,802	54.03
Mar-35	(329,560)	1,070,267	740,707	16,862	43.93
Apr-35	(351,184)	1,070,267	719,083	14,482	49.65
May-35	(189,897)	1,070,267	880,369	14,297	61.58
Jun-35	(122,657)	1,070,267	947,610	17,930	52.85
Jul-35	128,349	1,070,267	1,198,616	20,642	58.07
Aug-35	248,333	1,070,267	1,318,600	21,488	61.37
Sep-35	58,031	1,070,267	1,128,297	21,070	53.55
Oct-35	(19,809)	1,070,267	1,050,457	20,190	52.03
Nov-35	(192,412)	1,070,267	877,854	20,169	43.53
Dec-35	(229,635)	1,070,267	840,632	19,837	42.38
Jan-36	(75,669)	1,091,667	1,015,998	16,505	61.56
Feb-36	(351,598)	1,091,667	740,069	14,442	51.24
Mar-36	(345,963)	1,091,667	745,704	16,862	44.23
Apr-36	(395,867)	1,091,667	695,800	14,482	48.04
May-36	(194,735)	1,091,667	896,932	14,297	62.73
Jun-36	(156,327)	1,091,667	935,339	17,930	52.17
Jul-36	89,964	1,091,667	1,181,630	20,642	57.24
Aug-36	239,814	1,091,667	1,331,481	21,488	61.97
Sep-36	14,043	1,091,667	1,105,710	21,070	52.48
Oct-36	(107,901)	1,091,667	983,766	20,190	48.73
Nov-36	(222,658)	1,091,667	869,009	20,169	43.09
Dec-36	(231,796)	1,091,667	859,871	19,837	43.35
Jan-37	(77,258)	1,114,600	1,037,342	16,505	62.85
Feb-37	(346,603)	1,114,600	767,997	13,944	55.08
Mar-37	(353,228)	1,114,600	761,372	16,862	45.15
Apr-37	(404,180)	1,114,600	710,420	14,482	49.05
May-37	(198,824)	1,114,600	915,776	14,297	64.05
Jun-37	(159,610)	1,114,600	954,990	17,930	53.26
Jul-37	91,853	1,114,600	1,206,453	20,642	58.45
Aug-37	244,850	1,114,600	1,359,450	21,488	63.27
Sep-37	14,338	1,114,600	1,128,938	21,070	53.58

Oct-37	(110,167)	1,114,600	1,004,433	20,190	49.75
Nov-37	(227,334)	1,114,600	887,266	20,169	43.99
Dec-37	(236,663)	1,114,600	877,937	19,837	44.26
Jan-38	(78,880)	-	(78,880)	16,505	(4.78)
Feb-38	(353,881)	-	(353,881)	13,944	(25.38)
Mar-38	(360,646)	-	(360,646)	16,862	(21.39)
Apr-38	(412,668)	-	(412,668)	14,482	(28.49)
May-38	(202,999)	-	(202,999)	14,297	(14.20)
Jun-38	(162,962)	-	(162,962)	17,930	(9.09)
Jul-38	93,782	-	93,782	20,642	4.54
Aug-38	249,992	-	249,992	21,488	11.63
Sep-38	14,639	-	14,639	21,070	0.69
Oct-38	(112,480)	-	(112,480)	20,190	(5.57)
Nov-38	(232,108)	-	(232,108)	20,169	(11.51)

Appendix B.3

Avoided Cost Prices \$/MWh

Utah 2018.Q2 Sch 38

Year	Solar Tracking UT 2017.Q2 31.1% CF (2)	Solar Tracking UT 2017.Q1 Filing	Solar Tracking Difference
2019	\$17.47	\$13.49	\$3.98
2020	\$14.31	\$11.95	\$2.36
2021	\$10.73	\$5.99	\$4.74
2022	\$8.35	\$5.60	\$2.75
2023	\$9.42	\$6.14	\$3.28
2024	\$10.25	\$7.81	\$2.44
2025	\$12.77	\$9.80	\$2.97
2026	\$11.91	\$10.19	\$1.72
2027	\$13.77	\$9.87	\$3.89
2028	\$16.72	\$12.69	\$4.03
2029	\$19.22	\$14.66	\$4.56
2030	\$25.01	\$15.86	\$9.15
2031	\$28.40	\$17.42	\$10.98
2032	\$28.01	\$18.52	\$9.49
2033	\$29.08	\$18.33	\$10.75

15-Year Levelized Prices (Nominal) @ 6.910% Discount Rate (1) (3)

2019-2033	\$/MWh	\$15.46 (4)	\$11.00 (4)	\$4.46
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Footnotes:

- (1) Discount Rate - 2017 IRP Update
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2019 - 2033, levelized monthly

Table 1
Avoided Cost Prices
Utah 2018.Q2_Solar - 80.0 MW and 31.0% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	31.0% Capacity Factor \$/MWh
2018	\$0.00	\$22.78	\$22.78
2019	\$0.00	\$17.47	\$17.47
2020	\$0.00	\$14.31	\$14.31
2021	\$0.00	\$10.73	\$10.73
2022	\$0.00	\$8.35	\$8.35
2023	\$0.00	\$9.42	\$9.42
2024	\$0.00	\$10.25	\$10.25
2025	\$0.00	\$12.77	\$12.77
2026	\$0.00	\$11.91	\$11.91
2027	\$0.00	\$13.77	\$13.77
2028	\$0.00	\$16.72	\$16.72
2029	\$0.00	\$19.22	\$19.22
2030	\$0.00	\$25.01	\$25.01
2031	\$0.00	\$28.40	\$28.40
2032	\$0.00	\$28.01	\$28.01
2033	\$0.00	\$29.08	\$29.08
2034	\$0.00	\$29.38	\$29.38
2035	\$0.00	\$32.85	\$32.85
2036	\$0.00	\$36.53	\$36.53

15 Year Starting 2018

20 year Levelized Prices (Nominal) @ 6.91% Discount Rate (1) (3)

\$/kW	\$0.00		
\$/MWh		\$15.74	\$15.74

15 Year Starting 2019

15 year Levelized Prices (Nominal) @ 6.91% Discount Rate (1) (3)

\$/kW	\$0.00		
\$/MWh		\$15.46	\$15.46

Footnotes:

- (1) Discount Rate - 2017 IRP Update
- (2) 'Energy Only' is the GRID calculated costs and includes some capacity costs.

Table 4
Burnertip Natural Gas Price Forecast
Utah 2018.Q2_Solar - 80.0 MW and 31.0% CF

Year	PacifiCorp		
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2016	\$2.32	\$2.30	\$2.35
2017	\$2.71	\$2.77	\$2.71
2018	\$2.28	\$2.16	\$2.28
2019	\$2.09	\$1.99	\$2.02
2020	\$1.97	\$1.88	\$1.90
2021	\$1.94	\$1.90	\$1.94
2022	\$2.01	\$2.00	\$2.01
2023	\$2.16	\$2.11	\$2.12
2024	\$2.55	\$2.50	\$2.50
2025	\$3.34	\$3.30	\$3.28
2026	\$3.81	\$3.79	\$3.74
2027	\$3.93	\$3.92	\$3.86
2028	\$4.14	\$4.18	\$4.08
2029	\$4.52	\$4.62	\$4.44
2030	\$4.96	\$5.07	\$4.88
2031	\$4.98	\$5.06	\$4.90
2032	\$5.36	\$5.44	\$5.27
2033	\$5.63	\$5.73	\$5.54
2034	\$5.56	\$5.62	\$5.48
2035	\$5.75	\$5.76	\$5.66
2036	\$5.69	\$5.71	\$5.61
2037	\$6.03	\$6.09	\$5.94
2038	\$6.44	\$6.53	\$6.35
2039	\$6.68	\$6.81	\$6.59
2040	\$7.08	\$7.22	\$6.98
2041	\$7.23	\$7.38	\$7.13
2042	\$4.84	\$4.91	\$4.77

Official Forward Price Curve Forecast dated Jun 29, 2018

Table 5
Utah 2018.Q2_Solar - 80.0 MW and 31.0% CF
January 2018 through December 2037
Nominal Avoided Costs Calculated Monthly

15 Year Starting 2019 \$ 30,756,483 \$ - \$ 30,756,483 \$ 1,989,409 \$15.46

Nominal NPV at 6.91% Discount Rate

15 Year Starting 2018 \$ 31,465,364 \$ - \$ 31,465,364 \$ 1,999,283 \$15.74

20 Year Starting 2019 \$ 41,308,656 \$ - \$ 41,308,656 \$ 2,298,079 \$17.98

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	30.7% CF	Dollars	MWH	30.7% CF
Jan-18	167,566	-	167,566	10,534	15.91
Feb-18	145,211	-	145,211	11,790	12.32
Mar-18	233,942	-	233,942	18,247	12.82
Apr-18	228,206	-	228,206	21,209	10.76
May-18	297,936	-	297,936	24,553	12.13
Jun-18	403,939	-	403,939	26,084	15.49
Jul-18	1,794,520	-	1,794,520	23,608	76.01
Aug-18	716,331	-	716,331	23,646	30.29
Sep-18	409,890	-	409,890	20,843	19.67
Oct-18	206,538	-	206,538	16,897	12.22
Nov-18	177,316	-	177,316	11,381	15.58
Dec-18	173,588	-	173,588	8,735	19.87
Jan-19	174,511	-	174,511	10,481	16.65
Feb-19	159,104	-	159,104	11,731	13.56
Mar-19	232,671	-	232,671	18,156	12.82
Apr-19	212,919	-	212,919	21,103	10.09
May-19	266,335	-	266,335	24,430	10.90
Jun-19	352,730	-	352,730	25,954	13.59
Jul-19	923,613	-	923,613	23,490	39.32
Aug-19	566,154	-	566,154	23,527	24.06
Sep-19	362,738	-	362,738	20,738	17.49
Oct-19	222,239	-	222,239	16,813	13.22
Nov-19	161,128	-	161,128	11,324	14.23
Dec-19	147,562	-	147,562	8,692	16.98
Jan-20	160,528	-	160,528	10,429	15.39
Feb-20	135,811	-	135,811	12,374	10.98
Mar-20	210,466	-	210,466	18,065	11.65
Apr-20	160,866	-	160,866	20,998	7.66
May-20	260,555	-	260,555	24,308	10.72
Jun-20	357,774	-	357,774	25,824	13.85
Jul-20	484,870	-	484,870	23,373	20.75
Aug-20	489,549	-	489,549	23,410	20.91
Sep-20	324,782	-	324,782	20,635	15.74
Oct-20	221,471	-	221,471	16,729	13.24
Nov-20	145,127	-	145,127	11,267	12.88
Dec-20	140,675	-	140,675	8,648	16.27
Jan-21	115,556	-	115,556	10,377	11.14
Feb-21	125,436	-	125,436	11,614	10.80
Mar-21	163,785	-	163,785	17,975	9.11
Apr-21	131,081	-	131,081	20,893	6.27
May-21	217,502	-	217,502	24,186	8.99
Jun-21	269,278	-	269,278	25,695	10.48
Jul-21	359,131	-	359,131	23,256	15.44
Aug-21	372,554	-	372,554	23,293	15.99
Sep-21	178,990	-	178,990	20,532	8.72
Oct-21	144,012	-	144,012	16,645	8.65
Nov-21	109,255	-	109,255	11,211	9.75
Dec-21	112,174	-	112,174	8,605	13.04
Jan-22	121,687	-	121,687	10,325	11.79
Feb-22	123,518	-	123,518	11,555	10.69
Mar-22	155,955	-	155,955	17,885	8.72

Apr-22	104,827	-	104,827	20,788	5.04
May-22	126,779	-	126,779	24,065	5.27
Jun-22	254,746	-	254,746	25,566	9.96
Jul-22	276,414	-	276,414	23,140	11.95
Aug-22	281,062	-	281,062	23,176	12.13
Sep-22	136,819	-	136,819	20,429	6.70
Oct-22	(4,849)	-	(4,849)	16,562	(0.29)
Nov-22	86,759	-	86,759	11,155	7.78
Dec-22	117,084	-	117,084	8,562	13.67
Jan-23	112,390	-	112,390	10,273	10.94
Feb-23	117,836	-	117,836	11,498	10.25
Mar-23	143,636	-	143,636	17,796	8.07
Apr-23	113,195	-	113,195	20,684	5.47
May-23	171,338	-	171,338	23,945	7.16
Jun-23	249,226	-	249,226	25,438	9.80
Jul-23	286,305	-	286,305	23,024	12.44
Aug-23	281,442	-	281,442	23,060	12.20
Sep-23	141,037	-	141,037	20,327	6.94
Oct-23	133,009	-	133,009	16,479	8.07
Nov-23	128,558	-	128,558	11,099	11.58
Dec-23	120,064	-	120,064	8,519	14.09
Jan-24	118,884	-	118,884	10,222	11.63
Feb-24	147,746	-	147,746	12,129	12.18
Mar-24	129,599	-	129,599	17,707	7.32
Apr-24	103,485	-	103,485	20,581	5.03
May-24	156,858	-	156,858	23,825	6.58
Jun-24	224,652	-	224,652	25,311	8.88
Jul-24	311,133	-	311,133	22,909	13.58
Aug-24	322,730	-	322,730	22,945	14.07
Sep-24	216,445	-	216,445	20,225	10.70
Oct-24	207,880	-	207,880	16,397	12.68
Nov-24	134,635	-	134,635	11,044	12.19
Dec-24	96,070	-	96,070	8,476	11.33
Jan-25	139,309	-	139,309	10,171	13.70
Feb-25	122,275	-	122,275	11,383	10.74
Mar-25	124,568	-	124,568	17,618	7.07
Apr-25	201,290	-	201,290	20,478	9.83
May-25	222,436	-	222,436	23,706	9.38
Jun-25	296,490	-	296,490	25,185	11.77
Jul-25	399,703	-	399,703	22,794	17.54
Aug-25	385,489	-	385,489	22,830	16.88
Sep-25	272,790	-	272,790	20,124	13.56
Oct-25	173,905	-	173,905	16,315	10.66
Nov-25	181,899	-	181,899	10,988	16.55
Dec-25	161,872	-	161,872	8,434	19.19
Jan-26	160,598	-	160,598	10,120	15.87
Feb-26	161,303	-	161,303	11,326	14.24
Mar-26	169,114	-	169,114	17,530	9.65
Apr-26	34,385	-	34,385	20,376	1.69
May-26	218,371	-	218,371	23,587	9.26
Jun-26	371,568	-	371,568	25,059	14.83
Jul-26	347,914	-	347,914	22,680	15.34
Aug-26	377,329	-	377,329	22,716	16.61
Sep-26	196,692	-	196,692	20,023	9.82
Oct-26	105,909	-	105,909	16,233	6.52
Nov-26	183,978	-	183,978	10,933	16.83
Dec-26	162,412	-	162,412	8,392	19.35
Jan-27	157,308	-	157,308	10,069	15.62
Feb-27	157,558	-	157,558	11,269	13.98
Mar-27	171,053	-	171,053	17,442	9.81
Apr-27	213,962	-	213,962	20,274	10.55
May-27	202,415	-	202,415	23,470	8.62

Jun-27	390,399	-	390,399	24,934	15.66
Jul-27	413,995	-	413,995	22,567	18.35
Aug-27	391,473	-	391,473	22,603	17.32
Sep-27	204,130	-	204,130	19,923	10.25
Oct-27	215,956	-	215,956	16,152	13.37
Nov-27	177,274	-	177,274	10,879	16.30
Dec-27	166,897	-	166,897	8,350	19.99
Jan-28	165,970	-	165,970	10,019	16.57
Feb-28	172,328	-	172,328	11,888	14.50
Mar-28	165,254	-	165,254	17,355	9.52
Apr-28	244,423	-	244,423	20,173	12.12
May-28	224,505	-	224,505	23,352	9.61
Jun-28	403,332	-	403,332	24,809	16.26
Jul-28	533,825	-	533,825	22,454	23.77
Aug-28	543,548	-	543,548	22,490	24.17
Sep-28	383,211	-	383,211	19,824	19.33
Oct-28	223,228	-	223,228	16,071	13.89
Nov-28	233,161	-	233,161	10,824	21.54
Dec-28	177,001	-	177,001	8,308	21.30
Jan-29	193,400	-	193,400	9,969	19.40
Feb-29	191,396	-	191,396	11,157	17.15
Mar-29	184,423	-	184,423	17,268	10.68
Apr-29	220,806	-	220,806	20,072	11.00
May-29	350,668	-	350,668	23,235	15.09
Jun-29	448,586	-	448,586	24,685	18.17
Jul-29	655,426	-	655,426	22,342	29.34
Aug-29	646,487	-	646,487	22,377	28.89
Sep-29	321,811	-	321,811	19,724	16.32
Oct-29	283,036	-	283,036	15,991	17.70
Nov-29	247,567	-	247,567	10,770	22.99
Dec-29	213,541	-	213,541	8,267	25.83
Jan-30	229,586	-	229,586	9,919	23.15
Feb-30	202,602	-	202,602	11,101	18.25
Mar-30	309,547	-	309,547	17,182	18.02
Apr-30	283,712	-	283,712	19,971	14.21
May-30	406,203	-	406,203	23,119	17.57
Jun-30	546,612	-	546,612	24,561	22.25
Jul-30	1,120,495	-	1,120,495	22,230	50.40
Aug-30	783,625	-	783,625	22,265	35.19
Sep-30	413,157	-	413,157	19,626	21.05
Oct-30	330,222	-	330,222	15,911	20.75
Nov-30	254,033	-	254,033	10,716	23.71
Dec-30	243,046	-	243,046	8,225	29.55
Jan-31	222,909	-	222,909	9,869	22.59
Feb-31	225,097	-	225,097	11,046	20.38
Mar-31	308,544	-	308,544	17,096	18.05
Apr-31	295,268	-	295,268	19,871	14.86
May-31	345,140	-	345,140	23,004	15.00
Jun-31	553,110	-	553,110	24,439	22.63
Jul-31	1,725,279	-	1,725,279	22,119	78.00
Aug-31	810,350	-	810,350	22,154	36.58
Sep-31	451,303	-	451,303	19,528	23.11
Oct-31	354,084	-	354,084	15,831	22.37
Nov-31	252,024	-	252,024	10,663	23.64
Dec-31	244,706	-	244,706	8,184	29.90
Jan-32	225,700	-	225,700	9,820	22.98
Feb-32	217,455	-	217,455	11,652	18.66
Mar-32	273,433	-	273,433	17,011	16.07
Apr-32	302,135	-	302,135	19,772	15.28
May-32	415,781	-	415,781	22,889	18.17
Jun-32	581,844	-	581,844	24,316	23.93
Jul-32	1,446,420	-	1,446,420	22,008	65.72

Aug-32	858,784	-	858,784	22,043	38.96
Sep-32	461,603	-	461,603	19,430	23.76
Oct-32	389,685	-	389,685	15,752	24.74
Nov-32	270,064	-	270,064	10,609	25.45
Dec-32	255,429	-	255,429	8,143	31.37
Jan-33	232,543	-	232,543	9,771	23.80
Feb-33	247,523	-	247,523	10,936	22.63
Mar-33	325,275	-	325,275	16,926	19.22
Apr-33	294,793	-	294,793	19,673	14.98
May-33	393,094	-	393,094	22,774	17.26
Jun-33	613,499	-	613,499	24,195	25.36
Jul-33	1,306,014	-	1,306,014	21,898	59.64
Aug-33	1,025,876	-	1,025,876	21,933	46.77
Sep-33	502,352	-	502,352	19,333	25.98
Oct-33	366,861	-	366,861	15,674	23.41
Nov-33	267,564	-	267,564	10,556	25.35
Dec-33	291,682	-	291,682	8,103	36.00
Jan-34	256,134	-	256,134	9,722	26.35
Feb-34	277,284	-	277,284	10,881	25.48
Mar-34	307,529	-	307,529	16,841	18.26
Apr-34	317,265	-	317,265	19,575	16.21
May-34	347,172	-	347,172	22,660	15.32
Jun-34	620,935	-	620,935	24,074	25.79
Jul-34	1,326,009	-	1,326,009	21,789	60.86
Aug-34	1,021,229	-	1,021,229	21,823	46.80
Sep-34	491,717	-	491,717	19,236	25.56
Oct-34	367,266	-	367,266	15,595	23.55
Nov-34	275,871	-	275,871	10,504	26.26
Dec-34	289,336	-	289,336	8,062	35.89
Jan-35	263,455	-	263,455	9,673	27.23
Feb-35	274,866	-	274,866	10,827	25.39
Mar-35	308,949	-	308,949	16,757	18.44
Apr-35	289,299	-	289,299	19,477	14.85
May-35	433,606	-	433,606	22,547	19.23
Jun-35	676,153	-	676,153	23,953	28.23
Jul-35	1,404,446	-	1,404,446	21,680	64.78
Aug-35	1,140,151	-	1,140,151	21,714	52.51
Sep-35	586,667	-	586,667	19,140	30.65
Oct-35	397,484	-	397,484	15,517	25.62
Nov-35	312,469	-	312,469	10,451	29.90
Dec-35	475,229	-	475,229	8,022	59.24
Jan-36	282,023	-	282,023	9,625	29.30
Feb-36	281,539	-	281,539	11,421	24.65
Mar-36	346,101	-	346,101	16,673	20.76
Apr-36	375,631	-	375,631	19,380	19.38
May-36	433,811	-	433,811	22,434	19.34
Jun-36	716,179	-	716,179	23,834	30.05
Jul-36	1,439,520	-	1,439,520	21,572	66.73
Aug-36	1,192,058	-	1,192,058	21,606	55.17
Sep-36	857,206	-	857,206	19,044	45.01
Oct-36	506,956	-	506,956	15,440	32.83
Nov-36	349,983	-	349,983	10,399	33.66
Dec-36	503,739	-	503,739	7,982	63.11
Jan-37	287,946	-	287,946	9,625	29.92
Feb-37	277,539	-	277,539	11,027	25.17
Mar-37	353,369	-	353,369	16,673	21.19
Apr-37	383,519	-	383,519	19,380	19.79
May-37	442,921	-	442,921	22,434	19.74
Jun-37	731,218	-	731,218	23,834	30.68
Jul-37	1,469,750	-	1,469,750	21,572	68.13
Aug-37	1,217,091	-	1,217,091	21,606	56.33
Sep-37	875,207	-	875,207	19,044	45.96

Oct-37	517,602	-	517,602	15,440	33.52
Nov-37	357,333	-	357,333	10,399	34.36
Dec-37	514,318	-	514,318	7,982	64.44
Jan-38	293,993	-	293,993	9,625	30.54
Feb-38	283,368	-	283,368	11,027	25.70
Mar-38	360,790	-	360,790	16,673	21.64
Apr-38	391,573	-	391,573	19,380	20.21
May-38	452,223	-	452,223	22,434	20.16
Jun-38	746,574	-	746,574	23,834	31.32
Jul-38	1,500,615	-	1,500,615	21,572	69.56
Aug-38	1,242,650	-	1,242,650	21,606	57.52
Sep-38	893,587	-	893,587	19,044	46.92
Oct-38	528,472	-	528,472	15,440	34.23
Nov-38	364,837	-	364,837	10,399	35.08

ROCKY MOUNTAIN POWER

STEP STUDY BETWEEN PRIOR FILING AND CURRENT FILING

2018.Q2 – SEPTEMBER 2018

2019 - 2033, Nominal Levelized Payment at 6.910% Discount Rate

2018.Q1 As Filed	\$23.84	
Generic	-\$0.02	
OFPC	-\$0.32	
Queue	-\$0.14	
Load Forecast	+\$0.39	
Hourly Solar	-\$0.08	
Wind Disp	+\$0.03	
2018.Q2 As Filed	\$23.71	-\$0.13

2020 - 2034, Nominal Levelized Payment at 6.910% Discount Rate

2018.Q1 As Filed	\$25.35	
Generic	-\$0.12	
OFPC	-\$0.39	
Queue	-\$0.08	
Load Forecast	+\$0.44	
Hourly Solar	-\$0.09	
Wind Disp	+\$0.03	
2018.Q2 As Filed	\$25.14	-\$0.21

Appendix C
Utah Quarterly Compliance Filing
Step Study between 2018.Q2 and 2018.Q1 Compliance Filing
Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	Generic	OFPC (2)	Queue	Load Forecast	Hourly Solar	Wind Disp	Total Impact
2019	\$ 1.00	\$ 0.25	\$ 0.77	\$ 0.04	\$ 0.02	-	\$ 2.07
2020	\$ 0.55	\$ (0.33)	\$ (0.02)	\$ 0.05	\$ (0.14)	\$ 0.03	\$ 0.14
2021	\$ 2.97	\$ (2.42)	\$ (2.01)	\$ (0.05)	\$ (0.11)	\$ 0.04	\$ (1.58)
2022	\$ (2.84)	\$ (0.74)	\$ 1.00	\$ 0.09	\$ (0.23)	\$ (0.07)	\$ (2.79)
2023	\$ (3.61)	\$ (0.65)	\$ 1.66	\$ 0.18	\$ (0.27)	\$ (0.09)	\$ (2.79)
2024	\$ (2.60)	\$ (0.17)	\$ (0.50)	\$ 0.29	\$ (0.41)	\$ 0.19	\$ (3.20)
2025	\$ 0.56	\$ (0.14)	\$ (2.89)	\$ 0.50	\$ (0.03)	\$ 0.11	\$ (1.89)
2026	\$ 0.29	\$ 0.54	\$ (2.29)	\$ 0.38	\$ (0.01)	\$ 0.01	\$ (1.07)
2027	\$ 0.78	\$ 0.27	\$ (2.61)	\$ 0.85	\$ (0.08)	\$ 0.01	\$ (0.78)
2028	\$ 0.15	\$ 0.46	\$ (2.01)	\$ 0.60	\$ (0.03)	\$ 0.01	\$ (0.82)
2029	\$ 0.57	\$ (0.10)	\$ (1.57)	\$ 0.96	\$ 0.07	\$ 0.09	\$ 0.02
2030	\$ 0.69	\$ (0.22)	\$ 1.88	\$ 0.89	\$ 0.40	-	\$ 3.64
2031	\$ 1.81	\$ (0.10)	\$ 1.48	\$ 0.52	\$ (0.05)	\$ (0.01)	\$ 3.65
2032	\$ 0.28	\$ (0.20)	\$ 3.18	\$ 1.00	\$ 0.13	\$ 0.16	\$ 4.55
2033	\$ 0.17	\$ (0.22)	\$ 4.70	\$ 0.89	\$ (0.03)	-	\$ 5.52
2034	\$ 0.24	\$ (0.54)	\$ 3.64	\$ 0.83	\$ (0.17)	-	\$ 4.00
2035	\$ (0.93)	\$ (1.04)	\$ 5.77	\$ 0.58	\$ (0.21)	-	\$ 4.16
2036	\$ (1.42)	\$ (0.87)	\$ 0.95	\$ 1.06	-	-	\$ (0.27)

Nominal Levelized Payment at 6.910% Discount Rate (3)

2019 - 2033	\$ (0.02)	\$ (0.32)	\$ (0.14)	\$ 0.39	\$ (0.08)	\$ 0.03	\$ (0.13)
2020 - 2034	\$ (0.12)	\$ (0.39)	\$ (0.08)	\$ 0.44	\$ (0.09)	\$ 0.03	\$ (0.21)
2021 - 2035	\$ (0.21)	\$ (0.42)	\$ 0.14	\$ 0.49	\$ (0.09)	\$ 0.03	\$ (0.06)

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2018
- (3) Discount Rate - 2017 IRP Update

Appendix C
Utah Quarterly Compliance Filing
Step Study between 2018.Q2 and 2018.Q1 Compliance Filing
Total Avoided Cost Prices \$/MWH (1) (4)

Year	2018.Q1 As Filed	Generic (2)	OFPC	Queue	Load Forecast	Hourly Solar	Wind Disp
2019	\$16.77	\$17.77	\$18.02	\$18.79	\$18.83	\$18.85	\$18.85
2020	\$16.46	\$17.00	\$16.67	\$16.66	\$16.71	\$16.57	\$16.60
2021	\$16.75	\$19.72	\$17.30	\$15.29	\$15.24	\$15.13	\$15.17
2022	\$16.87	\$14.03	\$13.29	\$14.29	\$14.38	\$14.15	\$14.08
2023	\$17.62	\$14.01	\$13.35	\$15.01	\$15.19	\$14.92	\$14.83
2024	\$19.70	\$17.10	\$16.93	\$16.43	\$16.72	\$16.31	\$16.50
2025	\$23.79	\$24.35	\$24.22	\$21.32	\$21.82	\$21.79	\$21.90
2026	\$24.63	\$24.92	\$25.47	\$23.18	\$23.57	\$23.56	\$23.57
2027	\$25.29	\$26.07	\$26.34	\$23.73	\$24.57	\$24.49	\$24.50
2028	\$28.79	\$28.95	\$29.41	\$27.40	\$28.00	\$27.97	\$27.98
2029	\$32.12	\$32.70	\$32.59	\$31.02	\$31.99	\$32.06	\$32.15
2030	\$35.67	\$36.37	\$36.15	\$38.03	\$38.92	\$39.32	\$39.32
2031	\$37.27	\$39.08	\$38.98	\$40.46	\$40.98	\$40.93	\$40.92
2032	\$39.97	\$40.25	\$40.04	\$43.23	\$44.23	\$44.36	\$44.52
2033	\$41.27	\$41.45	\$41.23	\$45.93	\$46.82	\$46.79	\$46.79
2034	\$42.24	\$42.48	\$41.94	\$45.58	\$46.41	\$46.24	\$46.24
2035	\$45.02	\$44.09	\$43.05	\$48.82	\$49.39	\$49.18	\$49.18
2036	\$51.01	\$49.59	\$48.72	\$49.68	\$50.74	\$50.74	\$50.74

Nominal Levelized Payment at 6.910% Discount Rate (3)

2019 - 2033	\$23.84	\$23.82	\$23.51	\$23.37	\$23.76	\$23.68	\$23.71
2020 - 2034	\$25.35	\$25.23	\$24.84	\$24.76	\$25.20	\$25.11	\$25.14
2021 - 2035	\$27.10	\$26.89	\$26.47	\$26.61	\$27.10	\$27.01	\$27.04

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2018
- (3) Discount Rate - 2017 IRP Update
- (4) Capacity costs are allocated assuming an 85% capacity factor.

Appendix C

**Utah Quarterly Compliance Filing
Step Study between 2018.Q2 and 2018.Q1 Compliance Filing
GRID Calculated Energy Avoided Cost Prices \$/MWH (1)**

Year	2018.Q1 As Filed	Generic	OFPC	Queue	Load Forecast	Hourly Solar	Wind Disp
2019	\$16.77	\$17.77	\$18.02	\$18.79	\$18.83	\$18.85	\$18.85
2020	\$16.46	\$17.00	\$16.67	\$16.66	\$16.71	\$16.57	\$16.60
2021	\$16.75	\$19.72	\$17.30	\$15.29	\$15.24	\$15.13	\$15.17
2022	\$16.87	\$14.03	\$13.29	\$14.29	\$14.38	\$14.15	\$14.08
2023	\$17.62	\$14.01	\$13.35	\$15.01	\$15.19	\$14.92	\$14.83
2024	\$19.70	\$17.10	\$16.93	\$16.43	\$16.72	\$16.31	\$16.50
2025	\$23.79	\$24.35	\$24.22	\$21.32	\$21.82	\$21.79	\$21.90
2026	\$24.63	\$24.92	\$25.47	\$23.18	\$23.57	\$23.56	\$23.57
2027	\$25.29	\$26.07	\$26.34	\$23.73	\$24.57	\$24.49	\$24.50
2028	\$28.79	\$28.95	\$29.41	\$27.40	\$28.00	\$27.97	\$27.98
2029	\$32.12	\$32.70	\$32.59	\$31.02	\$31.99	\$32.06	\$32.15
2030	\$35.67	\$36.37	\$36.15	\$38.03	\$38.92	\$39.32	\$39.32
2031	\$37.27	\$39.08	\$38.98	\$40.46	\$40.98	\$40.93	\$40.92
2032	\$39.97	\$40.25	\$40.04	\$43.23	\$44.23	\$44.36	\$44.52
2033	\$41.27	\$41.45	\$41.23	\$45.93	\$46.82	\$46.79	\$46.79
2034	\$42.24	\$42.48	\$41.94	\$45.58	\$46.41	\$46.24	\$46.24
2035	\$45.02	\$44.09	\$43.05	\$48.82	\$49.39	\$49.18	\$49.18
2036	\$51.01	\$49.59	\$48.72	\$49.68	\$50.74	\$50.74	\$50.74

Nominal Levelized Payment at 6.91% Discount Rate (3) (4)

2019 - 2033	\$23.84	\$23.82	\$23.51	\$23.37	\$23.76	\$23.68	\$23.71
2020 - 2034	\$25.35	\$25.23	\$24.84	\$24.76	\$25.20	\$25.11	\$25.14
2021 - 2035	\$27.10	\$26.89	\$26.47	\$26.61	\$27.10	\$27.01	\$27.04

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2018
- (3) Discount Rate - 2017 IRP Update
- (4) 15-Year Nominal Levelized Payment (2018-2032)

Appendix C
Utah Quarterly Compliance Filing
Step Study between 2018.Q2 and 2018.Q1 Compliance Filing
Capacity Avoided Cost Prices

Year	\$/kW-Year		\$/MWH (1)	
	2018.Q1 (3)	2018.Q2 (3)	2018.Q1 (3)	2018.Q2 (3)
2019	-	-	-	-
2020	-	-	-	-
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	-	-	-	-
2027	-	-	-	-
2028	-	-	-	-
2029	-	-	-	-
2030	-	-	-	-
2031	-	-	-	-
2032	-	-	-	-
2033	-	-	-	-
2034	-	-	-	-
2035	-	-	-	-
2036	-	-	-	-

Nominal Levelized Payment at 6.910% Discount Rate (2)

2019 - 2033	\$0.00	\$0.00	\$0.00	\$0.00
2020 - 2034	\$0.00	\$0.00	\$0.00	\$0.00
2021 - 2035	\$0.00	\$0.00	\$0.00	\$0.00

- (1) Capacity costs are allocated assuming an 85% capacity factor.
- (2) (3) Discount Rate - 2017 IRP Update
- (3) No Capacity costs-All of the 2017 IRP Thermal resources are deferred due to the size of the

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **Quarterly Compliance Filing – Avoided Cost Input Changes** in Docket Nos. 03-035-14 and 18-035-23 was served upon the following by email on September 25, 2018.

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