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Salt Lake City, Utah 84116

October 2, 2017

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 – 2017.Q2 Avoided Cost Input Changes**
Docket 17-035-37 – 2017.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 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.

Comments were filed challenging routine and non-routine changes identified in the Company's previous compliance filing, which was submitted to the Commission on June 21, 2017. Pending resolution of these issues in docket 17-035-37, the proposed non-routine updates are not being incorporated in avoided cost pricing.

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 30, 2017 (1706 OFPC).
3. **Load Forecast Update** – Incorporate the Company’s Fall 2017 Load Forecast.
4. **Qualifying Facility (QF) Queue** – Update the QF queue to reflect current signed and potential QFs. Since the 2017.Q1 filing, QFs that have been signed or terminated represent a net increase of 58 megawatts (MW) nameplate. The QF queue was revised to include 5,775 MW nameplate in this filing. The potential queue was 4,754 MW nameplate in the 2017.Q1 filing.

Non-Routine Updates

The Company has not identified any non-routine updates in this filing.

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) filed with the Commission on April 4, 2017. The 2017 IRP preferred portfolio includes cost-effective solar and wind resources. The proxy thermal QF resource partially displaces summer and winter front office transactions (FOT) since all thermal resources in the 2017 preferred portfolio are fully displaced by the QF queue. The proxy tracking solar QF resource partially displaces summer and winter FOTs during 2017-2034 and the Utah South solar resource from the 2017 IRP preferred portfolio in 2035. The proxy wind QF resource partially displaces summer and winter FOTs during 2017-2035 and the Goshen wind resource in the 2017 IRP preferred portfolio in 2036.
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 increase of approximately \$0.68/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 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 Bob Lively at (801) 220-4052, or Dan MacNeil at (503) 813-5523.

Very truly yours,



Jeffrey K. Larsen
Vice President, Regulation

ROCKY MOUNTAIN POWER
DOCKET 03-035-14 AND DOCKET 17-035-37
DESCRIPTION OF AVOIDED COST INPUT CHANGES
2017.Q2 - SEPTEMBER 2017

Appendix A

PacifiCorp Avoided Cost (Partial Displacement Differential Revenue Requirement (PDDRR)) Model Updates through September 2017 Docket 03-035-14 / Docket 17-035-37

Assumptions that have changed since the 2017.Q1 compliance filing are in **bold and underline**.

GRID Scenario Study Period

- January 1, 2018 through December 31, 2032 - 15-year study.
- Avoided cost prices starting in January 2018.

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

- **Updated to PacifiCorp's June 30, 2017 OFPC (1706 OFPC)**
- OFPC reflecting the changes in forecasted prices inclusive of the impact of the United States (U.S.) Environmental Protection Agency's (EPA) Clean Power Plan final rule.

Fuel Prices (Coal)

- **Average and incremental coal costs based on forecast dated August 2017.**
- Coal burn expense reflects incremental coal costs and coal take or pay minimum burn levels.

Integrated Resource Plan (IRP) Resources

- 2017 IRP filed with the Public Service Commission of Utah (UPSC) on April 4, 2017.
- Resource additions, including generating resources, and front office transactions (FOT), consistent with 2017 IRP (Table 8.17).
- Existing plant retirement consistent with 2017 IRP (Table 5.3).
- 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.

Hydro Resources

- 2017 hydro forecast prepared March 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

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

Inflation Rates

- Company's inflation rate forecast dated June 2017.

Levelized Prices (Nominal) @ 6.57 percent Discount Rate

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

Load Forecast (Retail)

- 20-year load forecast from July 2017 (Fall 2017 Load Forecast).

Long-Term Contracts

- Long-term contracts which have prices that are indexed to market are consistent with the 1706 OFPC.
- Contracts are modeled based on 48 months ended December 2016.
- Qualifying Facility (QF) power purchase agreements (PPA) are assumed to terminate and not renew at the end of their current PPA term.
- Incorporates Signed QF PPAs.

Market Capacity

- Capacity set at 48-month average of all short-term firm (STF) sales ended December 2016.
- 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 May 2017

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 2020.
- Typical week retail load reserve calculation thereafter.

Short-Term Firm (STF) Transactions

- Executed STF contracts as of **May 2017**.

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 2016**.

Wind and Solar Resources

- Existing wind generation profiles modeled using **2016** actual generation shape.
- Wind generation shaped to hourly using **2016** actual generation shape¹.
- Solar generation modeled using 12x24 profiles.
- Capacity contribution values used in this study reflect the values from the 2017 IRP, and are summarized below.

¹ Starting in the 2013.Q4 Compliance filing, wind and solar 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.

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 2016**.
- 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.
- 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.

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Boswell Springs I Wind	12.64	80.00	40.7%	15.800%	2021 12 31
2	Boswell Springs II Wind	12.64	80.00	40.7%	15.800%	2021 12 31
3	Boswell Springs III Wind	12.64	80.00	40.7%	15.800%	2021 12 31
4	Boswell Springs IV Wind	12.64	80.00	40.7%	15.800%	2021 12 31
5	Glen Canyon A Solar QF	44.16	74.00	32.2%	59.700%	2019 09 29
6	Glen Canyon B Solar QF	12.53	21.00	34.9%	59.700%	2019 11 01
7	Sage I Solar QF	11.93	20.00	28.2%	59.700%	2019 10 01
8	Sage II Solar QF	11.93	20.00	28.2%	59.700%	2019 10 01
9	BYU-ID QF	4.20	5.60	79.0%	74.900%	2017 09 29
10	Sage III Solar QF	10.50	17.60	26.7%	59.700%	2019 10 01
11	Beatty Solar (Terminated)	-3.24	-5.00		64.800%	2016 12 01
Total Signed MW		142.57	473.20			

1	QF - 245 - WY - Wind	12.64	80.00	44.9%	15.800%	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 - 336 - UT - Solar	34.61	58.00	33.9%	59.700%	2018 07 01

9	QF - 351 - OR - Solar	35.64	55.00	28.0%	64.800%	2019 01 01
10	QF - 254 - OR - Solar	35.64	55.00	24.6%	64.800%	2020 12 31
11	QF - 372 - WY - Solar	23.87	40.00	27.4%	59.700%	2019 06 30
12	QF - 380 - OR - Solar	32.40	50.00	25.8%	64.800%	2019 01 01
13	QF - 381 - OR - Solar	51.84	80.00	29.3%	64.800%	2021 01 01
14	QF - 397 - OR - Solar	12.96	20.00	29.3%	64.800%	2021 01 01
15	QF - 383 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
16	QF - 384 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
17	QF - 385 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
18	QF - 388 - UT - Solar	61.35	80.00	27.8%	76.700%	2019 11 01
19	QF - 389 - WY - Wind	12.55	79.40	41.6%	15.800%	2019 01 01
20	QF - 390 - WY - Solar	11.93	20.00	26.9%	59.700%	2018 12 01
21	QF - 391 - WY - Solar	11.93	20.00	27.7%	59.700%	2018 12 01
22	QF - 337 - WY - Solar	7.95	13.33	26.7%	59.600%	2018 08 01
23	QF - 394 - WY - Wind	12.64	80.00	52.1%	15.800%	2020 01 01
24	QF - 365 - UT - Wind	12.64	80.00	31.4%	15.800%	2020 06 30
25	QF - 339 - WY - Wind	11.99	75.90	46.9%	15.800%	2019 01 01
26	QF - 304 - WY - Solar	17.90	30.00	27.4%	59.700%	2020 01 01
27	QF - 305 - WY - Solar	47.74	80.00	27.4%	59.700%	2020 01 01
28	QF - 292 - OR - Solar	25.92	40.00	28.3%	64.800%	2019 12 31
29	QF - 293 - OR - Solar	32.40	50.00	26.7%	64.800%	2019 12 31
30	QF - 396 - OR - Solar	18.53	28.60	28.9%	64.800%	2019 08 01
31	QF - 357 - UT - Solar	47.74	80.00	27.9%	59.700%	2020 09 01
32	QF - 405 - OR - Solar	32.40	50.00	27.1%	64.800%	2019 12 01
33	QF - 406 - OR - Solar	51.84	80.00	27.1%	64.800%	2019 12 01
34	QF - 407 - OR - Solar	51.84	80.00	27.1%	64.800%	2019 12 01
35	QF - 408 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
36	QF - 409 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
37	QF - 410 - OR - Solar	51.84	80.00	26.7%	64.800%	2019 12 01
38	QF - 411 - OR - Solar	32.40	50.00	27.5%	64.800%	2019 12 01
39	QF - 418 - OR - Solar	34.99	54.00	22.7%	64.800%	2019 06 01
40	QF - 412 - WY - Wind	7.90	50.00	45.4%	15.800%	2018 12 01
41	QF - 426 - UT - Solar	15.16	40.00	23.6%	37.900%	2018 09 18
42	QF - 432 - WY - Solar	35.80	60.00	26.3%	59.7%	2018 12 01
43	QF - 432 - WY - Wind	7.61	55.00	27.3%	13.8%	2018 12 01
44	QF - 427 - WY - Wind	12.64	80.00	46.7%	15.800%	2019 09 01
45	QF - 413 - UT - Solar	58.02	80.00	27.7%	72.500%	2020 01 01
46	QF - 414 - OR - Solar	10.77	20.00	19.3%	53.900%	2018 11 01
47	QF - 415 - OR - Solar	19.39	36.00	20.3%	53.900%	2018 11 01
48	QF - 416 - OR - Solar	7.00	13.00	21.9%	53.800%	2018 11 01
49	QF - 417 - UT - Solar	20.89	35.00	29.0%	59.700%	2018 12 15
50	QF - 430 - WY - Wind	2.61	16.50	29.5%	15.800%	2018 07 01
51	QF - 419 - UT - Solar	44.75	75.00	30.6%	59.700%	2020 07 01
52	QF - 420 - WY - Solar	2.98	5.00	28.0%	59.600%	2018 06 01
53	QF - 421 - UT - Solar	11.93	20.00	31.6%	59.700%	2020 10 01
54	QF - 422 - UT - Solar	11.93	20.00	31.6%	59.700%	2020 10 01
55	QF - 423 - UT - Solar	11.93	20.00	31.6%	59.700%	2020 10 01
56	QF - 424 - UT - Solar	11.93	20.00	31.6%	59.700%	2020 10 01
57	QF - 425 - UT - Solar	47.74	80.00	31.6%	59.700%	2020 10 01
58	QF - 429 - WY - Solar	23.87	40.00	30.2%	59.700%	2020 01 01
59	QF - 428 - WY - Solar	23.87	40.00	30.2%	59.700%	2020 01 01
60	QF - 393 - OR - Solar	32.40	50.00	28.7%	64.800%	2018 12 01
61	QF - 433 - UT - Non firm	0.00	31.80	58.2%	0.000%	2018 01 01

62	QF - 434 - UT - Non firm	0.00	6.20	85.0%	0.000%	2018 01 01
63	QF - 435 - UT - Non firm	0.00	25.00	85.0%	0.000%	2018 01 01
64	QF - 308 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
65	QF - 309 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
66	QF - 310 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 11 01
67	QF - 311 - WY - Wind	6.32	40.00	46.6%	15.800%	2020 11 01
68	QF - 313 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
69	QF - 315 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
70	QF - 317 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
71	QF - 319 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
72	QF - 321 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
73	QF - 323 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
74	QF - 325 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
75	QF - 358 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
76	QF - 359 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
77	QF - 360 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
78	QF - 361 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
79	QF - 362 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
80	QF - 363 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
81	QF - 364 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
82	QF - 431 - UT - Solar	47.74	80.00	29.6%	59.700%	2020 06 01
83	QF - 398 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
84	QF - 399 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
85	QF - 400 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
86	QF - 401 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
87	QF - 402 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
88	QF - 403 - OR - Solar	47.31	73.00	30.6%	64.800%	2021 01 01
89	QF - 436 - WY - Solar	17.90	30.00	26.8%	59.700%	2020 01 01
90	QF - 437 - WY - Solar	47.74	80.00	29.0%	59.700%	2020 01 01
91	QF - 328 - OR - Solar	29.81	46.00	28.7%	64.800%	2019 06 01
Total Potential MW		2777.05	5301.73			
Total Partial Displacement		2919.62	5774.93			

The table below provides the partial displacement of the base case, adjusted for solar degradation. After accounting for the QF queue, the capacity displacement associated with the proxy avoided cost resources in this filing were as follows:

- Thermal: All 1,313 MW of thermal resources are displaced by the QF queue. The thermal proxy defers FOTs for entire term.
- Tracking Solar: 755 MW of solar resources are displaced by the QF queue. After degradation, the solar proxy displaces 73 MW of Utah South tracking solar resources in 2035.
- Wind: 1031 MW of wind resources are displaced by the QF queue. The wind proxy displaces 80 MW of Goshen wind resources in 2036.

Year	IRP Additions (Nameplate MW)				Displacement Adjusted for Capacity Contribution and Degradation				
	IRP Thermal	IRP Baseload Renewable	IRP Solar	IRP Wind	Thermal	Solar	Wind	FOT Summer	FOT Winter
2017	-	-	-	-	-	-	-	(3)	(3)
2018	-	-	-	-	-	-	-	193	193
2019	-	-	-	-	-	-	-	614	273
2020	-	-	-	-	-	-	-	807	307
2021	-	-	-	1,100	-	-	320	799	319
2022	-	-	-	1,100	-	-	320	916	308
2023	-	-	-	1,100	-	-	320	844	306
2024	-	-	-	1,100	-	-	320	885	287
2025	-	-	-	1,100	-	-	320	1,042	348
2026	-	-	-	1,100	-	-	320	978	351
2027	-	-	-	1,100	-	-	320	1,040	297
2028	-	-	11	1,100	-	11	320	1,575	413
2029	200	30	108	1,100	200	108	320	1,575	551
2030	636	30	108	1,100	636	108	320	1,566	516
2031	636	30	226	1,185	636	226	405	1,575	490
2032	636	30	463	1,185	636	463	405	1,575	451
2033	1,313	30	689	1,185	1,313	689	405	1,036	437
2034	1,313	30	737	1,185	1,313	737	405	1,003	477
2035	1,313	30	1,028	1,185	1,313	755	405	552	479
2036	1,313	30	1,040	1,959	1,313	755	1,031	188	188

IRP Partial Displacements (Previous Filing)

Thermal partial displacement was 2,358 MW in the base case and 2,458 MW in the avoided cost case as shown in the table below, adjusted for solar degradation:

QF Queue						
No.	QF	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Boswell Springs I Wind	12.64	80.00	40.7%	15.800%	2018 12 31
2	Boswell Springs II Wind	12.64	80.00	40.7%	15.800%	2018 12 31
3	Boswell Springs III Wind	12.64	80.00	40.7%	15.800%	2018 12 31
4	Boswell Springs IV Wind	12.64	80.00	40.7%	15.800%	2018 12 31
5	Glen Canyon A Solar QF	44.16	74.00	32.2%	59.700%	2019 09 29
6	Glen Canyon B Solar QF	12.53	21.00	34.9%	59.700%	2019 11 01
Total Signed MW		107.25	415.00			
1	QF - 245 - WY - Wind	12.64	80.00	44.9%	15.800%	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 - 289 - UT - Solar	47.74	80.00	31.2%	59.700%	2018 12 01
9	QF - 290 - UT - Solar	47.74	80.00	31.5%	59.700%	2018 12 01
10	QF - 291 - UT - Solar	47.74	80.00	31.9%	59.700%	2018 12 01
11	QF - 308 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 01 01
12	QF - 309 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 01 01
13	QF - 310 - WY - Wind	12.64	80.00	46.6%	15.800%	2020 01 01
14	QF - 311 - WY - Wind	6.32	40.00	46.6%	15.800%	2020 01 01
15	QF - 284 - OR - Solar	11.65	17.97	26.0%	64.800%	2018 01 01
16	QF - 313 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
17	QF - 315 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
18	QF - 317 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
19	QF - 319 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
20	QF - 321 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
21	QF - 323 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
22	QF - 325 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
23	QF - 328 - OR - Solar	29.81	46.00	28.7%	64.800%	2018 12 01
24	QF - 336 - UT - Solar	34.61	58.00	33.89%	59.700%	2018 07 01
25	QF - 340 - WY - Solar	47.74	80.00	27.4%	59.700%	2019 06 01
26	QF - 342 - UT - Solar	47.74	80.00	28.9%	59.700%	2018 12 01
27	QF - 348 - WY - Solar	47.74	80.00	27.3%	59.700%	2019 12 01
28	QF - 349 - WY - Solar	47.74	80.00	27.0%	59.700%	2019 12 01
29	QF - 350 - UT - Solar	3.58	59.00	34.9%	6.100%	2019 12 01
30	QF - 351 - OR - Solar	35.64	55.00	28.0%	64.800%	2019 01 01
31	QF - 357 - UT - Solar	47.74	80.00	27.9%	59.700%	2020 04 01
32	QF - 358 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
33	QF - 359 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
34	QF - 360 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
35	QF - 361 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
36	QF - 362 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01

37	QF - 363 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
38	QF - 364 - UT - Solar	47.74	80.00	29.7%	59.700%	2019 12 01
39	QF - 254 - OR - Solar	35.64	55.00	24.6%	64.800%	2020 12 31
40	QF - 372 - WY - Solar	23.87	40.00	27.4%	59.700%	2019 06 30
41	QF - 380 - OR - Solar	32.40	50.00	25.8%	64.800%	2019 01 01
42	QF - 381 - OR - Solar	51.84	80.00	29.3%	64.800%	2021 01 01
43	QF - 397 - OR - Solar	12.96	20.00	29.3%	64.800%	2021 01 01
44	QF - 382 - UT - Solar	47.74	80.00	31.5%	59.700%	2020 06 01
45	QF - 383 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
46	QF - 384 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
47	QF - 385 - OR - Solar	51.84	80.00	28.0%	64.800%	2019 12 01
48	QF - 386 - UT - Solar	47.74	80.00	30.8%	59.700%	2020 06 30
49	QF - 387 - UT - Solar	47.74	80.00	29.6%	59.700%	2019 12 01
50	QF - 388 - UT - Solar	61.35	80.00	27.8%	76.700%	2019 11 01
51	QF - 389 - WY - Wind	12.55	79.40	41.6%	15.800%	2019 01 01
52	QF - 390 - WY - Solar	11.93	20.00	26.9%	59.700%	2018 12 01
53	QF - 391 - WY - Solar	11.93	20.00	27.7%	59.700%	2018 12 01
54	QF - 277 - WY - Solar	11.93	20.00	28.2%	59.700%	2019 10 01
55	QF - 278 - WY - Solar	11.93	20.00	28.2%	59.700%	2019 10 01
56	QF - 282 - WY - Solar	44.69	74.90	30.6%	59.700%	2018 03 01
57	QF - 302 - WY - Solar	9.55	16.00	29.3%	59.700%	2019 10 01
58	QF - 337 - WY - Solar	7.95	13.33	26.7%	59.600%	2018 08 01
59	QF - 393 - OR - Solar	32.40	50.00	28.7%	64.800%	2018 12 01
60	QF - 394 - WY - Wind	12.64	80.00	52.1%	15.800%	2020 01 01
61	QF - 365 - UT - Wind	12.64	80.00	31.4%	15.800%	2020 06 30
62	QF - 339 - WY - Wind	11.99	75.90	46.9%	15.800%	2019 01 01
63	QF - 304 - WY - Solar	17.90	30.00	27.4%	59.700%	2020 01 01
64	QF - 305 - WY - Solar	47.74	80.00	27.4%	59.700%	2020 01 01
65	QF - 395 - UT - Solar	47.62	79.80	28.3%	59.700%	2019 10 01
66	QF - 292 - OR - Solar	25.92	40.00	28.3%	64.800%	2019 12 31
67	QF - 293 - OR - Solar	32.40	50.00	26.7%	64.800%	2019 12 31
68	QF - 396 - OR - Solar	18.53	28.60	28.9%	64.800%	2019 08 01
Total Potential MW		2250.45	4338.90			
Total Partial Displacement		2357.70	4753.90			

ROCKY MOUNTAIN POWER
DOCKET 03-035-14 AND DOCKET 17-035-37
UPDATE IMPACT – UPDATED AVOIDED COST STUDY
2017.Q2 - SEPTEMBER 2017

Appendix B.1
Avoided Cost Prices \$/MWh
Utah 2017.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 2017.Q1 Filing	Solar Tracking UT 2017.Q1 Filing	Wind UT 2017.Q1 Filing	Thermal Difference	Solar Tracking Difference	Wind Difference
2018	\$20.74	\$20.39	\$19.10	\$19.82	\$19.25	\$18.09	\$0.92	\$1.14	\$1.00
2019	\$20.73	\$19.52	\$19.13	\$18.23	\$16.87	\$16.83	\$2.50	\$2.65	\$2.30
2020	\$18.95	\$14.94	\$18.39	\$16.72	\$14.65	\$16.21	\$2.23	\$0.29	\$2.18
2021	\$19.21	\$15.02	\$18.03	\$17.80	\$15.93	\$16.40	\$1.41	(\$0.90)	\$1.63
2022	\$20.82	\$17.57	\$19.41	\$18.66	\$16.88	\$16.87	\$2.16	\$0.69	\$2.53
2023	\$21.75	\$18.49	\$20.50	\$21.17	\$18.59	\$21.45	\$0.58	(\$0.10)	(\$0.95)
2024	\$22.38	\$18.87	\$21.01	\$22.50	\$19.71	\$20.60	(\$0.12)	(\$0.84)	\$0.41
2025	\$23.24	\$19.65	\$21.66	\$24.17	\$20.44	\$22.94	(\$0.94)	(\$0.79)	(\$1.28)
2026	\$24.61	\$20.67	\$22.67	\$24.23	\$20.86	\$22.77	\$0.38	(\$0.19)	(\$0.10)
2027	\$25.52	\$21.49	\$23.66	\$25.56	\$22.16	\$23.67	(\$0.04)	(\$0.67)	(\$0.01)
2028	\$27.69	\$23.51	\$25.64	\$28.73	\$23.28	\$27.39	(\$1.04)	\$0.23	(\$1.75)
2029	\$32.13	\$25.23	\$31.25	\$31.91	\$24.49	\$30.94	\$0.23	\$0.74	\$0.30
2030	\$35.16	\$27.38	\$34.37	\$35.60	\$27.20	\$34.61	(\$0.44)	\$0.18	(\$0.23)
2031	\$36.91	\$28.81	\$36.16	\$37.70	\$28.23	\$36.49	(\$0.79)	\$0.58	(\$0.33)
2032	\$38.81	\$29.89	\$38.03	\$39.41	\$29.78	\$38.58	(\$0.61)	\$0.12	(\$0.55)

15-Year Levelized Prices (Nominal) @ 6.570% Discount Rate (1) (3)										
2018-2032	\$/MWh	\$24.36 (4)	\$20.37 (4)	\$23.04 (4)	\$23.68 (4)	\$20.07 (4)	\$22.44 (4)	\$0.68	\$0.30	\$0.60

Footnotes:

- (1) Discount Rate - 2017 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2018 - 2032
- (4) Levelized Monthly

Table 1
Avoided Cost Prices
Utah 2017.Q2 - 100.0 MW and 85.0% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	Total Price @ 85.0% Capacity Factor \$/MWh
2018	\$0.00	\$20.74	\$20.74
2019	\$0.00	\$20.73	\$20.73
2020	\$0.00	\$18.95	\$18.95
2021	\$0.00	\$19.21	\$19.21
2022	\$0.00	\$20.82	\$20.82
2023	\$0.00	\$21.75	\$21.75
2024	\$0.00	\$22.38	\$22.38
2025	\$0.00	\$23.24	\$23.24
2026	\$0.00	\$24.61	\$24.61
2027	\$0.00	\$25.52	\$25.52
2028	\$0.00	\$27.69	\$27.69
2029	\$0.00	\$32.13	\$32.13
2030	\$0.00	\$35.16	\$35.16
2031	\$0.00	\$36.91	\$36.91
2032	\$0.00	\$38.81	\$38.81
2033	\$0.00	\$41.98	\$41.98
2034	\$0.00	\$44.45	\$44.45
2035	\$0.00	\$48.27	\$48.27
2036	\$0.00	\$53.26	\$53.26

2018-2032	15-Year Levelized Prices (Nominal) @ 6.570% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh	\$24.36	\$24.36 (3)
2020-2034	15 year Levelized Prices (Nominal) @ 6.57% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh	\$26.76	\$26.76 (3)

Footnotes:

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

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2017.Q2 - 100.0 MW and 85.0% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2018	20.74	25.11	23.02	21.52	18.14	17.14	17.73	23.01	23.06	20.33	19.36	18.85	21.59
2019	20.73	24.69	22.40	19.47	18.17	18.16	17.44	21.84	22.00	21.50	19.75	20.79	22.54
2020	18.95	22.48	20.59	18.20	15.75	15.12	15.58	21.43	21.35	19.01	18.27	18.27	21.15
2021	19.21	21.06	19.84	18.18	16.14	16.05	16.16	17.77	20.68	21.66	19.89	19.92	23.15
2022	20.82	21.95	22.49	21.13	18.55	17.12	16.90	19.41	22.23	22.70	20.99	21.96	24.47
2023	21.75	22.85	23.52	21.87	19.30	18.07	17.50	20.65	23.53	24.35	22.36	22.28	24.79
2024	22.38	22.76	24.42	22.95	20.22	19.09	18.99	22.19	24.06	24.49	22.83	23.52	23.07
2025	23.24	23.59	23.93	23.58	19.66	19.81	20.34	25.36	25.76	25.87	23.33	23.15	24.41
2026	24.61	24.85	26.52	24.59	21.78	20.96	21.36	26.21	26.21	26.74	24.40	25.98	25.78
2027	25.52	26.39	28.80	26.33	22.99	21.71	22.39	26.35	27.61	27.08	25.00	24.57	27.14
2028	27.69	28.63	28.61	27.42	25.26	25.14	25.32	28.10	30.03	29.83	27.26	27.08	29.62
2029	32.13	33.68	33.45	30.93	28.89	28.31	27.31	34.07	33.73	34.97	32.92	33.40	33.94
2030	35.16	37.20	37.29	34.98	31.67	30.95	30.06	36.19	38.38	38.01	35.21	34.10	37.84
2031	36.91	36.54	37.73	34.42	32.74	32.28	32.55	39.06	40.82	40.34	37.72	37.13	41.53
2032	38.81	39.18	40.31	37.48	34.78	34.03	34.92	41.19	42.76	42.16	38.51	37.31	42.95
2033	41.98	44.46	43.65	39.34	37.31	37.04	36.64	40.16	45.89	45.43	42.24	43.25	48.31
2034	44.45	48.26	46.34	42.39	38.56	37.46	38.03	47.14	48.09	45.93	42.98	45.17	52.90
2035	48.27	53.31	50.36	45.55	41.03	38.66	38.74	64.71	53.63	46.88	44.36	47.56	54.02
2036	53.26	55.38	53.65	47.75	44.09	41.85	42.28	70.08	62.26	55.45	50.55	54.77	60.49

Table 4
Burnertip Natural Gas Price Forecast
Utah 2017.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	\$2.29	\$2.35
2017	\$2.79	\$2.69	\$2.82
2018	\$2.67	\$2.56	\$2.67
2019	\$2.53	\$2.44	\$2.53
2020	\$2.54	\$2.46	\$2.54
2021	\$2.61	\$2.51	\$2.59
2022	\$2.68	\$2.57	\$2.64
2023	\$2.78	\$2.69	\$2.75
2024	\$2.95	\$2.89	\$2.91
2025	\$3.11	\$3.08	\$3.07
2026	\$3.41	\$3.37	\$3.37
2027	\$3.66	\$3.63	\$3.63
2028	\$4.01	\$3.97	\$3.98
2029	\$4.52	\$4.47	\$4.49
2030	\$4.86	\$4.80	\$4.83
2031	\$5.24	\$5.18	\$5.21
2032	\$5.52	\$5.46	\$5.50
2033	\$5.82	\$5.75	\$5.80
2034	\$6.13	\$6.06	\$6.11
2035	\$6.34	\$6.25	\$6.31
2036	\$6.73	\$6.63	\$6.71
2037	\$6.99	\$6.88	\$6.97
2038	\$7.33	\$7.21	\$7.31
2039	\$7.47	\$7.35	\$7.45
2040	\$7.71	\$7.59	\$7.69
2041	\$7.91	\$7.79	\$7.89
2042	\$5.44	\$5.36	\$5.44

Table 5
Utah 2017.Q2 - 100.0 MW and 85.0% CF
January 2018 through December 2037

Nominal Avoided Costs Calculated Monthly

15 year starting 2020	\$	192,167,994	\$	-	\$	192,167,994	7,182,064	\$26.76
Nominal NPV at 6.57% Discount Rate								
15 Year starting 2018	\$	174,962,638	\$	-	\$	174,962,638	7,181,378	\$24.36

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	85.0% CF	Dollars	MWH	85.0% CF
Jan-18	1,588,027	-	1,588,027	63,240	25.11
Feb-18	1,314,970	-	1,314,970	57,120	23.02
Mar-18	1,361,145	-	1,361,145	63,240	21.52
Apr-18	1,109,982	-	1,109,982	61,200	18.14
May-18	1,083,902	-	1,083,902	63,240	17.14
Jun-18	1,085,133	-	1,085,133	61,200	17.73
Jul-18	1,454,891	-	1,454,891	63,240	23.01
Aug-18	1,458,208	-	1,458,208	63,240	23.06
Sep-18	1,243,948	-	1,243,948	61,200	20.33
Oct-18	1,224,176	-	1,224,176	63,240	19.36
Nov-18	1,153,870	-	1,153,870	61,200	18.85
Dec-18	1,365,507	-	1,365,507	63,240	21.59
Jan-19	1,561,423	-	1,561,423	63,240	24.69
Feb-19	1,279,490	-	1,279,490	57,120	22.40
Mar-19	1,231,130	-	1,231,130	63,240	19.47
Apr-19	1,111,773	-	1,111,773	61,200	18.17
May-19	1,148,160	-	1,148,160	63,240	18.16
Jun-19	1,067,151	-	1,067,151	61,200	17.44
Jul-19	1,380,905	-	1,380,905	63,240	21.84
Aug-19	1,391,428	-	1,391,428	63,240	22.00
Sep-19	1,315,575	-	1,315,575	61,200	21.50
Oct-19	1,248,992	-	1,248,992	63,240	19.75
Nov-19	1,272,196	-	1,272,196	61,200	20.79
Dec-19	1,425,253	-	1,425,253	63,240	22.54
Jan-20	1,421,746	-	1,421,746	63,240	22.48
Feb-20	1,218,186	-	1,218,186	59,160	20.59
Mar-20	1,151,083	-	1,151,083	63,240	18.20
Apr-20	963,786	-	963,786	61,200	15.75
May-20	956,218	-	956,218	63,240	15.12
Jun-20	953,699	-	953,699	61,200	15.58
Jul-20	1,355,241	-	1,355,241	63,240	21.43
Aug-20	1,350,249	-	1,350,249	63,240	21.35
Sep-20	1,163,692	-	1,163,692	61,200	19.01
Oct-20	1,155,663	-	1,155,663	63,240	18.27
Nov-20	1,118,221	-	1,118,221	61,200	18.27
Dec-20	1,337,656	-	1,337,656	63,240	21.15
Jan-21	1,332,116	-	1,332,116	63,240	21.06
Feb-21	1,133,535	-	1,133,535	57,120	19.84
Mar-21	1,149,433	-	1,149,433	63,240	18.18
Apr-21	988,032	-	988,032	61,200	16.14
May-21	1,015,155	-	1,015,155	63,240	16.05
Jun-21	989,269	-	989,269	61,200	16.16
Jul-21	1,123,520	-	1,123,520	63,240	17.77
Aug-21	1,307,534	-	1,307,534	63,240	20.68
Sep-21	1,325,666	-	1,325,666	61,200	21.66
Oct-21	1,257,783	-	1,257,783	63,240	19.89
Nov-21	1,219,401	-	1,219,401	61,200	19.92
Dec-21	1,463,947	-	1,463,947	63,240	23.15
Jan-22	1,388,395	-	1,388,395	63,240	21.95
Feb-22	1,284,850	-	1,284,850	57,120	22.49
Mar-22	1,336,036	-	1,336,036	63,240	21.13

Apr-22	1,134,956	-	1,134,956	61,200	18.55
May-22	1,082,835	-	1,082,835	63,240	17.12
Jun-22	1,034,056	-	1,034,056	61,200	16.90
Jul-22	1,227,201	-	1,227,201	63,240	19.41
Aug-22	1,405,753	-	1,405,753	63,240	22.23
Sep-22	1,389,341	-	1,389,341	61,200	22.70
Oct-22	1,327,600	-	1,327,600	63,240	20.99
Nov-22	1,343,973	-	1,343,973	61,200	21.96
Dec-22	1,547,568	-	1,547,568	63,240	24.47
Jan-23	1,445,183	-	1,445,183	63,240	22.85
Feb-23	1,343,539	-	1,343,539	57,120	23.52
Mar-23	1,382,917	-	1,382,917	63,240	21.87
Apr-23	1,181,364	-	1,181,364	61,200	19.30
May-23	1,142,699	-	1,142,699	63,240	18.07
Jun-23	1,070,827	-	1,070,827	61,200	17.50
Jul-23	1,306,043	-	1,306,043	63,240	20.65
Aug-23	1,487,815	-	1,487,815	63,240	23.53
Sep-23	1,490,402	-	1,490,402	61,200	24.35
Oct-23	1,414,059	-	1,414,059	63,240	22.36
Nov-23	1,363,402	-	1,363,402	61,200	22.28
Dec-23	1,567,864	-	1,567,864	63,240	24.79
Jan-24	1,439,599	-	1,439,599	63,240	22.76
Feb-24	1,444,556	-	1,444,556	59,160	24.42
Mar-24	1,451,403	-	1,451,403	63,240	22.95
Apr-24	1,237,230	-	1,237,230	61,200	20.22
May-24	1,207,022	-	1,207,022	63,240	19.09
Jun-24	1,162,080	-	1,162,080	61,200	18.99
Jul-24	1,403,505	-	1,403,505	63,240	22.19
Aug-24	1,521,615	-	1,521,615	63,240	24.06
Sep-24	1,498,940	-	1,498,940	61,200	24.49
Oct-24	1,443,596	-	1,443,596	63,240	22.83
Nov-24	1,439,302	-	1,439,302	61,200	23.52
Dec-24	1,459,241	-	1,459,241	63,240	23.07
Jan-25	1,491,849	-	1,491,849	63,240	23.59
Feb-25	1,366,792	-	1,366,792	57,120	23.93
Mar-25	1,491,131	-	1,491,131	63,240	23.58
Apr-25	1,203,450	-	1,203,450	61,200	19.66
May-25	1,253,088	-	1,253,088	63,240	19.81
Jun-25	1,244,590	-	1,244,590	61,200	20.34
Jul-25	1,603,752	-	1,603,752	63,240	25.36
Aug-25	1,628,851	-	1,628,851	63,240	25.76
Sep-25	1,583,148	-	1,583,148	61,200	25.87
Oct-25	1,475,236	-	1,475,236	63,240	23.33
Nov-25	1,416,701	-	1,416,701	61,200	23.15
Dec-25	1,543,459	-	1,543,459	63,240	24.41
Jan-26	1,571,283	-	1,571,283	63,240	24.85
Feb-26	1,514,608	-	1,514,608	57,120	26.52
Mar-26	1,555,161	-	1,555,161	63,240	24.59
Apr-26	1,333,159	-	1,333,159	61,200	21.78
May-26	1,325,379	-	1,325,379	63,240	20.96
Jun-26	1,307,162	-	1,307,162	61,200	21.36
Jul-26	1,657,809	-	1,657,809	63,240	26.21
Aug-26	1,657,413	-	1,657,413	63,240	26.21
Sep-26	1,636,677	-	1,636,677	61,200	26.74
Oct-26	1,542,853	-	1,542,853	63,240	24.40
Nov-26	1,590,126	-	1,590,126	61,200	25.98
Dec-26	1,630,030	-	1,630,030	63,240	25.78
Jan-27	1,668,828	-	1,668,828	63,240	26.39
Feb-27	1,645,144	-	1,645,144	57,120	28.80
Mar-27	1,665,079	-	1,665,079	63,240	26.33
Apr-27	1,407,026	-	1,407,026	61,200	22.99
May-27	1,372,979	-	1,372,979	63,240	21.71

Jun-27	1,369,991	-	1,369,991	61,200	22.39
Jul-27	1,666,350	-	1,666,350	63,240	26.35
Aug-27	1,746,255	-	1,746,255	63,240	27.61
Sep-27	1,657,264	-	1,657,264	61,200	27.08
Oct-27	1,581,117	-	1,581,117	63,240	25.00
Nov-27	1,503,827	-	1,503,827	61,200	24.57
Dec-27	1,716,061	-	1,716,061	63,240	27.14
Jan-28	1,810,382	-	1,810,382	63,240	28.63
Feb-28	1,692,530	-	1,692,530	59,160	28.61
Mar-28	1,734,033	-	1,734,033	63,240	27.42
Apr-28	1,545,983	-	1,545,983	61,200	25.26
May-28	1,590,105	-	1,590,105	63,240	25.14
Jun-28	1,549,481	-	1,549,481	61,200	25.32
Jul-28	1,777,057	-	1,777,057	63,240	28.10
Aug-28	1,898,910	-	1,898,910	63,240	30.03
Sep-28	1,825,494	-	1,825,494	61,200	29.83
Oct-28	1,724,005	-	1,724,005	63,240	27.26
Nov-28	1,657,138	-	1,657,138	61,200	27.08
Dec-28	1,872,938	-	1,872,938	63,240	29.62
Jan-29	2,130,088	-	2,130,088	63,240	33.68
Feb-29	1,910,395	-	1,910,395	57,120	33.45
Mar-29	1,955,897	-	1,955,897	63,240	30.93
Apr-29	1,768,278	-	1,768,278	61,200	28.89
May-29	1,790,239	-	1,790,239	63,240	28.31
Jun-29	1,671,430	-	1,671,430	61,200	27.31
Jul-29	2,154,778	-	2,154,778	63,240	34.07
Aug-29	2,132,799	-	2,132,799	63,240	33.73
Sep-29	2,139,947	-	2,139,947	61,200	34.97
Oct-29	2,081,780	-	2,081,780	63,240	32.92
Nov-29	2,043,779	-	2,043,779	61,200	33.40
Dec-29	2,146,515	-	2,146,515	63,240	33.94
Jan-30	2,352,503	-	2,352,503	63,240	37.20
Feb-30	2,130,003	-	2,130,003	57,120	37.29
Mar-30	2,212,414	-	2,212,414	63,240	34.98
Apr-30	1,937,914	-	1,937,914	61,200	31.67
May-30	1,957,477	-	1,957,477	63,240	30.95
Jun-30	1,839,609	-	1,839,609	61,200	30.06
Jul-30	2,288,804	-	2,288,804	63,240	36.19
Aug-30	2,427,140	-	2,427,140	63,240	38.38
Sep-30	2,325,939	-	2,325,939	61,200	38.01
Oct-30	2,226,857	-	2,226,857	63,240	35.21
Nov-30	2,086,936	-	2,086,936	61,200	34.10
Dec-30	2,392,970	-	2,392,970	63,240	37.84
Jan-31	2,310,560	-	2,310,560	63,240	36.54
Feb-31	2,155,058	-	2,155,058	57,120	37.73
Mar-31	2,176,532	-	2,176,532	63,240	34.42
Apr-31	2,003,899	-	2,003,899	61,200	32.74
May-31	2,041,589	-	2,041,589	63,240	32.28
Jun-31	1,991,813	-	1,991,813	61,200	32.55
Jul-31	2,470,359	-	2,470,359	63,240	39.06
Aug-31	2,581,718	-	2,581,718	63,240	40.82
Sep-31	2,469,026	-	2,469,026	61,200	40.34
Oct-31	2,385,680	-	2,385,680	63,240	37.72
Nov-31	2,272,110	-	2,272,110	61,200	37.13
Dec-31	2,626,168	-	2,626,168	63,240	41.53
Jan-32	2,477,444	-	2,477,444	63,240	39.18
Feb-32	2,384,732	-	2,384,732	59,160	40.31
Mar-32	2,370,474	-	2,370,474	63,240	37.48
Apr-32	2,128,614	-	2,128,614	61,200	34.78
May-32	2,152,175	-	2,152,175	63,240	34.03
Jun-32	2,136,992	-	2,136,992	61,200	34.92
Jul-32	2,604,779	-	2,604,779	63,240	41.19

Aug-32	2,704,290	-	2,704,290	63,240	42.76
Sep-32	2,580,233	-	2,580,233	61,200	42.16
Oct-32	2,435,449	-	2,435,449	63,240	38.51
Nov-32	2,283,507	-	2,283,507	61,200	37.31
Dec-32	2,716,399	-	2,716,399	63,240	42.95
Jan-33	2,811,471	-	2,811,471	63,240	44.46
Feb-33	2,493,376	-	2,493,376	57,120	43.65
Mar-33	2,488,161	-	2,488,161	63,240	39.34
Apr-33	2,283,100	-	2,283,100	61,200	37.31
May-33	2,342,290	-	2,342,290	63,240	37.04
Jun-33	2,242,457	-	2,242,457	61,200	36.64
Jul-33	2,539,959	-	2,539,959	63,240	40.16
Aug-33	2,901,801	-	2,901,801	63,240	45.89
Sep-33	2,780,163	-	2,780,163	61,200	45.43
Oct-33	2,671,089	-	2,671,089	63,240	42.24
Nov-33	2,646,956	-	2,646,956	61,200	43.25
Dec-33	3,055,077	-	3,055,077	63,240	48.31
Jan-34	3,052,239	-	3,052,239	63,240	48.26
Feb-34	2,646,950	-	2,646,950	57,120	46.34
Mar-34	2,680,581	-	2,680,581	63,240	42.39
Apr-34	2,359,796	-	2,359,796	61,200	38.56
May-34	2,369,093	-	2,369,093	63,240	37.46
Jun-34	2,327,141	-	2,327,141	61,200	38.03
Jul-34	2,980,962	-	2,980,962	63,240	47.14
Aug-34	3,041,486	-	3,041,486	63,240	48.09
Sep-34	2,810,637	-	2,810,637	61,200	45.93
Oct-34	2,718,181	-	2,718,181	63,240	42.98
Nov-34	2,764,389	-	2,764,389	61,200	45.17
Dec-34	3,345,488	-	3,345,488	63,240	52.90
Jan-35	3,371,152	-	3,371,152	63,240	53.31
Feb-35	2,876,321	-	2,876,321	57,120	50.36
Mar-35	2,880,686	-	2,880,686	63,240	45.55
Apr-35	2,511,100	-	2,511,100	61,200	41.03
May-35	2,444,735	-	2,444,735	63,240	38.66
Jun-35	2,371,186	-	2,371,186	61,200	38.74
Jul-35	4,091,994	-	4,091,994	63,240	64.71
Aug-35	3,391,322	-	3,391,322	63,240	53.63
Sep-35	2,868,876	-	2,868,876	61,200	46.88
Oct-35	2,805,335	-	2,805,335	63,240	44.36
Nov-35	2,910,828	-	2,910,828	61,200	47.56
Dec-35	3,416,253	-	3,416,253	63,240	54.02
Jan-36	3,502,039	-	3,502,039	63,240	55.38
Feb-36	3,173,863	-	3,173,863	59,160	53.65
Mar-36	3,019,788	-	3,019,788	63,240	47.75
Apr-36	2,698,478	-	2,698,478	61,200	44.09
May-36	2,646,528	-	2,646,528	63,240	41.85
Jun-36	2,587,637	-	2,587,637	61,200	42.28
Jul-36	4,431,745	-	4,431,745	63,240	70.08
Aug-36	3,937,367	-	3,937,367	63,240	62.26
Sep-36	3,393,278	-	3,393,278	61,200	55.45
Oct-36	3,196,664	-	3,196,664	63,240	50.55
Nov-36	3,351,707	-	3,351,707	61,200	54.77
Dec-36	3,825,596	-	3,825,596	63,240	60.49

Appendix B.2

Avoided Cost Prices \$/MWh

Utah 2017.Q2 Sch 38 Solar - 80.0 MW and 31.1% CF

Year	Utah 2017.Q2 Sch 38 Solar	Utah 2017.Q1 Sch 38 Solar T	Difference
2018	\$20.39	\$19.25	\$1.14
2019	\$19.52	\$16.87	\$2.65
2020	\$14.94	\$14.65	\$0.29
2021	\$15.02	\$15.93	(\$0.90)
2022	\$17.57	\$16.88	\$0.69
2023	\$18.49	\$18.59	(\$0.10)
2024	\$18.87	\$19.71	(\$0.84)
2025	\$19.65	\$20.44	(\$0.79)
2026	\$20.67	\$20.86	(\$0.19)
2027	\$21.49	\$22.16	(\$0.67)
2028	\$23.51	\$23.28	\$0.23
2029	\$25.23	\$24.49	\$0.74
2030	\$27.38	\$27.20	\$0.18
2031	\$28.81	\$28.23	\$0.58
2032	\$29.89	\$29.78	\$0.12

2018-2032	15-Year Levelized Prices (Nominal) @ 6.570% Discount Rate (1) (3) \$/MWh	\$20.37 (3)	\$20.07 (3)	\$0.30	Discount Rate 6.570%
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Footnotes:

- (1) Discount Rate - 2017 IRP
- (2) 15-Year NPC is 2018 - 2032
- (3) Levelized Monthly

Table 1
Avoided Cost Prices
Utah 2017.Q2 Sch 38 Solar - 80.0 MW and 31.1% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	Total Price @ 31.1% Capacity Factor \$/MWh
2018	\$0.00	\$20.39	\$20.39
2019	\$0.00	\$19.52	\$19.52
2020	\$0.00	\$14.94	\$14.94
2021	\$0.00	\$15.02	\$15.02
2022	\$0.00	\$17.57	\$17.57
2023	\$0.00	\$18.49	\$18.49
2024	\$0.00	\$18.87	\$18.87
2025	\$0.00	\$19.65	\$19.65
2026	\$0.00	\$20.67	\$20.67
2027	\$0.00	\$21.49	\$21.49
2028	\$0.00	\$23.51	\$23.51
2029	\$0.00	\$25.23	\$25.23
2030	\$0.00	\$27.38	\$27.38
2031	\$0.00	\$28.81	\$28.81
2032	\$0.00	\$29.89	\$29.89
2033	\$0.00	\$30.32	\$30.32
2034	\$0.00	\$33.31	\$33.31
2035	\$223.24	\$0.28	\$89.62
2036	\$229.04	\$0.33	\$92.28

2018-2032	Nominal Levelized Prices (Nominal) @ 6.57% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh		\$20.37 (3)
2020-2034	15 year Levelized Prices (Nominal) @ 0.00% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh		\$21.39 (3)

Footnotes:

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

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2017.Q2 Sch 38 Solar - 80.0 MW and 31.1% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2018	20.39	24.99	22.54	21.94	17.86	16.86	17.30	24.68	23.44	19.66	18.95	17.90	21.79
2019	19.52	23.94	21.20	19.65	17.66	17.43	16.73	22.21	21.19	20.41	18.73	19.12	18.52
2020	14.94	18.42	16.98	16.06	12.90	11.65	12.75	18.02	16.29	14.65	15.19	13.59	16.25
2021	15.02	15.26	13.36	14.14	13.86	13.39	13.61	14.20	17.26	20.25	16.56	13.54	13.15
2022	17.57	17.76	17.57	17.58	16.52	14.38	14.21	16.14	21.55	22.46	18.67	17.24	18.70
2023	18.49	18.10	18.24	18.29	17.79	15.94	15.10	17.65	21.39	24.32	19.50	16.82	19.39
2024	18.87	17.32	19.21	19.46	17.66	16.67	16.91	18.98	21.76	23.39	19.49	16.25	17.38
2025	19.65	17.98	18.83	19.02	17.50	16.93	18.20	19.99	22.74	24.58	20.92	19.14	18.45
2026	20.67	18.70	19.87	20.49	18.76	18.12	19.32	21.17	23.22	25.87	21.83	18.81	19.81
2027	21.49	19.61	20.90	22.10	19.49	18.62	20.27	20.20	25.72	25.69	22.80	21.07	19.85
2028	23.51	21.11	22.59	22.95	21.20	21.62	22.53	24.20	26.77	27.51	24.89	22.16	21.52
2029	25.23	24.89	24.10	25.05	23.21	23.53	23.72	25.35	25.34	31.30	27.71	23.76	23.80
2030	27.38	27.29	26.50	27.85	24.88	24.83	25.07	27.93	30.18	32.62	28.13	25.83	26.86
2031	28.81	26.10	27.36	27.89	26.63	26.95	27.19	29.47	30.98	34.93	30.19	26.66	29.10
2032	29.89	27.73	29.28	29.43	27.96	28.25	28.71	30.73	32.41	34.93	29.98	26.63	30.17
2033	30.32	32.49	31.09	30.30	29.41	29.81	30.75	18.27	33.65	35.85	31.44	31.17	36.08
2034	33.31	36.56	31.90	32.21	29.93	30.95	31.40	34.31	35.50	34.94	32.33	32.30	44.78
2035	0.28	0.35	0.28	0.27	0.23	0.23	0.24	0.32	0.33	0.27	0.27	0.30	0.36
2036	0.33	0.38	0.33	0.30	0.26	0.25	0.27	0.36	0.43	0.36	0.34	0.37	0.41

Table 3
2017 IRP Utah Solar Resource
31% Capacity Factor

Year	Estimated Capital Cost	Capital Cost at Real Levelized Rate	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 Utah Solar Resource - 31% Capacity Factor									
2016	\$1,822	\$140.61	\$19.69	\$58.84	\$0.00	(\$2.45)	\$56.40	\$153.64	\$0.60
2017		\$143.99	\$20.17	\$60.26	\$0.00	(\$2.50)	\$57.76	\$157.35	\$0.62
2018		\$146.87	\$20.57	\$61.46	\$0.00	(\$2.55)	\$58.91	\$160.49	\$0.63
2019		\$150.10	\$21.02	\$62.81	\$0.00	(\$2.61)	\$60.20	\$164.01	\$0.64
2020		\$153.70	\$21.52	\$64.32	\$0.00	(\$2.67)	\$61.65	\$167.95	\$0.66
2021		\$157.54	\$22.06	\$65.92	\$0.00	(\$2.74)	\$63.18	\$172.14	\$0.68
2022		\$161.48	\$22.61	\$67.57	\$0.00	(\$2.81)	\$64.76	\$176.43	\$0.70
2023		\$165.52	\$23.18	\$69.26	\$0.00	(\$2.88)	\$66.38	\$180.85	\$0.72
2024		\$169.66	\$23.76	\$71.00	\$0.00	(\$2.95)	\$68.05	\$185.38	\$0.74
2025		\$173.90	\$24.35	\$72.77	\$0.00	(\$3.02)	\$69.75	\$190.02	\$0.76
2026		\$178.07	\$24.93	\$74.51	\$0.00	(\$3.09)	\$71.42	\$194.58	\$0.78
2027		\$182.52	\$25.55	\$76.37	\$0.00	(\$3.17)	\$73.20	\$199.43	\$0.80
2028		\$187.08	\$26.19	\$78.28	\$0.00	(\$3.25)	\$75.03	\$204.42	\$0.82
2029		\$191.76	\$26.84	\$80.24	\$0.00	(\$3.33)	\$76.91	\$209.53	\$0.84
2030		\$196.55	\$27.51	\$82.24	\$0.00	(\$3.41)	\$78.83	\$214.77	\$0.86
2031		\$201.46	\$28.20	\$84.30	\$0.00	(\$3.50)	\$80.80	\$220.12	\$0.88
2032		\$206.50	\$28.91	\$86.41	\$0.00	(\$3.59)	\$82.82	\$225.63	\$0.90
2033		\$211.66	\$29.63	\$88.57	\$0.00	(\$3.68)	\$84.89	\$231.26	\$0.92
2034		\$216.95	\$30.37	\$90.78	\$0.00	(\$3.77)	\$87.01	\$237.05	\$0.94
2035		\$222.37	\$31.13	\$93.05	\$0.00	(\$3.86)	\$89.19	\$242.98	\$0.96
2036		\$228.15	\$31.94	\$95.47	\$0.00	(\$3.96)	\$91.51	\$249.30	\$0.98
2037		\$233.85	\$32.74	\$97.85	\$0.00	(\$4.06)	\$93.79	\$255.53	\$1.00
2038		\$239.93	\$33.59	\$100.40	\$0.00	(\$4.17)	\$96.23	\$262.16	\$1.03
2039		\$246.17	\$34.46	\$103.01	\$0.00	(\$4.28)	\$98.73	\$268.97	\$1.06
2040		\$252.57	\$35.36	\$105.69	\$0.00	(\$4.39)	\$101.30	\$275.97	\$1.09
2041		\$259.14	\$36.28	\$108.44	\$0.00	(\$4.50)	\$103.94	\$283.16	\$1.12
2042		\$265.88	\$37.22	\$111.26	\$0.00	(\$4.62)	\$106.64	\$290.51	\$1.15

Sources, Inputs and Assumptions

Source:	(c)(f)	Plant Costs - 2017 IRP - Table 6.1 & 6.2
	(a)	Plant capacity cost
		= (a) x 0.0771567801772526
	(d)	= ((b) + (c)) / (8.76 x 31.1%)
	(g)	= (d) + (f)
	(h)	Plant Costs - 2017 IRP - Table 6.1 & 6.2

2017 IRP Utah Solar Resource - 31% Capacity Factor		
Wind	Cost and Input Assumptions	

2016 \$	\$1,822	Plant capacity cost	\$/kW-yr
2016 \$	\$19.69	Fixed O&M, plus on-going capital cost	\$/kW-yr
2016 \$	0.60	Integration Cost	\$/MWH
2016 \$	\$0.00	Variable O&M	\$/MWH
2016 \$	(2.45)	Tax Credit	\$/MWH

7.716% Payment Factor
31.1% Capacity Factor

Company Official Inflation Forecast Dated June 30, 2017					
2017	2.4%	2026	2.4%	2035	2.5%
2018	2.0%	2027	2.5%	2036	2.6%
2019	2.2%	2028	2.5%	2037	2.5%
2020	2.4%	2029	2.5%	2038	2.6%
2021	2.5%	2030	2.5%	2039	2.6%
2022	2.5%	2031	2.5%	2040	2.6%
2023	2.5%	2032	2.5%	2041	2.6%
2024	2.5%	2033	2.5%	2042	2.6%

Table 4
Burnertip Natural Gas Price Forecast
Utah 2017.Q2 Sch 38 Solar - 80.0 MW and 31.1% CF

Year	PacifiCorp		
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2016	\$2.32	\$2.29	\$2.35
2017	\$2.79	\$2.69	\$2.82
2018	\$2.67	\$2.56	\$2.67
2019	\$2.53	\$2.44	\$2.53
2020	\$2.54	\$2.46	\$2.54
2021	\$2.61	\$2.51	\$2.59
2022	\$2.68	\$2.57	\$2.64
2023	\$2.78	\$2.69	\$2.75
2024	\$2.95	\$2.89	\$2.91
2025	\$3.11	\$3.08	\$3.07
2026	\$3.41	\$3.37	\$3.37
2027	\$3.66	\$3.63	\$3.63
2028	\$4.01	\$3.97	\$3.98
2029	\$4.52	\$4.47	\$4.49
2030	\$4.86	\$4.80	\$4.83
2031	\$5.24	\$5.18	\$5.21
2032	\$5.52	\$5.46	\$5.50
2033	\$5.82	\$5.75	\$5.80
2034	\$6.13	\$6.06	\$6.11
2035	\$6.34	\$6.25	\$6.31
2036	\$6.73	\$6.63	\$6.71
2037	\$6.99	\$6.88	\$6.97
2038	\$7.33	\$7.21	\$7.31
2039	\$7.47	\$7.35	\$7.45
2040	\$7.71	\$7.59	\$7.69
2041	\$7.91	\$7.79	\$7.89
2042	\$5.44	\$5.36	\$5.44

Official Forward Price Curve Forecast dated Jun 30, 2017

Table 5
Utah 2017.Q2 Sch 38 Solar - 80.0 MW and 31.1% CF
January 2018 through December 2037

Nominal Avoided Costs Calculated Monthly

15 year starting 2020	\$	43,197,292	\$	-	\$	43,197,292	2,019,918	\$21.39
Nominal NPV at 6.57% Discount Rate								
15 Year Starting 2018	\$	41,548,703	\$	-	\$	41,548,703	2,040,121	\$20.37

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	30.7% CF	Dollars	MWH	30.7% CF
Jan-18	263,290	-	263,290	10,534	24.99
Feb-18	265,725	-	265,725	11,789	22.54
Mar-18	402,815	-	402,815	18,361	21.94
Apr-18	378,738	-	378,738	21,207	17.86
May-18	413,771	-	413,771	24,549	16.86
Jun-18	451,142	-	451,142	26,080	17.30
Jul-18	582,705	-	582,705	23,606	24.68
Aug-18	554,262	-	554,262	23,644	23.44
Sep-18	409,730	-	409,730	20,842	19.66
Oct-18	320,271	-	320,271	16,897	18.95
Nov-18	203,693	-	203,693	11,381	17.90
Dec-18	191,283	-	191,283	8,780	21.79
Jan-19	250,953	-	250,953	10,481	23.94
Feb-19	248,687	-	248,687	11,730	21.20
Mar-19	359,026	-	359,026	18,269	19.65
Apr-19	372,696	-	372,696	21,101	17.66
May-19	425,750	-	425,750	24,426	17.43
Jun-19	434,084	-	434,084	25,950	16.73
Jul-19	521,690	-	521,690	23,488	22.21
Aug-19	498,455	-	498,455	23,526	21.19
Sep-19	423,338	-	423,338	20,738	20.41
Oct-19	314,886	-	314,886	16,813	18.73
Nov-19	216,470	-	216,470	11,324	19.12
Dec-19	161,839	-	161,839	8,736	18.52
Jan-20	192,144	-	192,144	10,429	18.42
Feb-20	205,322	-	205,322	12,089	16.98
Mar-20	291,976	-	291,976	18,178	16.06
Apr-20	270,864	-	270,864	20,996	12.90
May-20	283,154	-	283,154	24,304	11.65
Jun-20	329,295	-	329,295	25,820	12.75
Jul-20	421,169	-	421,169	23,371	18.02
Aug-20	381,423	-	381,423	23,409	16.29
Sep-20	302,257	-	302,257	20,634	14.65
Oct-20	254,187	-	254,187	16,729	15.19
Nov-20	153,089	-	153,089	11,268	13.59
Dec-20	141,256	-	141,256	8,693	16.25
Jan-21	158,339	-	158,339	10,377	15.26
Feb-21	155,179	-	155,179	11,614	13.36
Mar-21	255,714	-	255,714	18,087	14.14
Apr-21	289,513	-	289,513	20,891	13.86
May-21	323,737	-	323,737	24,183	13.39
Jun-21	349,706	-	349,706	25,691	13.61
Jul-21	330,317	-	330,317	23,254	14.20
Aug-21	402,054	-	402,054	23,292	17.26
Sep-21	415,715	-	415,715	20,531	20.25
Oct-21	275,691	-	275,691	16,645	16.56
Nov-21	151,828	-	151,828	11,211	13.54
Dec-21	113,733	-	113,733	8,649	13.15
Jan-22	183,359	-	183,359	10,325	17.76
Feb-22	203,007	-	203,007	11,555	17.57
Mar-22	316,400	-	316,400	17,997	17.58

Apr-22	343,454	-	343,454	20,786	16.52
May-22	345,919	-	345,919	24,062	14.38
Jun-22	363,297	-	363,297	25,563	14.21
Jul-22	373,368	-	373,368	23,137	16.14
Aug-22	499,365	-	499,365	23,175	21.55
Sep-22	458,832	-	458,832	20,429	22.46
Oct-22	309,270	-	309,270	16,562	18.67
Nov-22	192,363	-	192,363	11,155	17.24
Dec-22	160,946	-	160,946	8,606	18.70
Jan-23	185,924	-	185,924	10,273	18.10
Feb-23	209,713	-	209,713	11,498	18.24
Mar-23	327,456	-	327,456	17,907	18.29
Apr-23	367,848	-	367,848	20,682	17.79
May-23	381,742	-	381,742	23,941	15.94
Jun-23	384,008	-	384,008	25,435	15.10
Jul-23	406,447	-	406,447	23,022	17.65
Aug-23	493,195	-	493,195	23,059	21.39
Sep-23	494,373	-	494,373	20,327	24.32
Oct-23	321,384	-	321,384	16,479	19.50
Nov-23	186,743	-	186,743	11,099	16.82
Dec-23	166,072	-	166,072	8,563	19.39
Jan-24	177,024	-	177,024	10,222	17.32
Feb-24	227,554	-	227,554	11,849	19.21
Mar-24	346,657	-	346,657	17,817	19.46
Apr-24	363,480	-	363,480	20,579	17.66
May-24	397,025	-	397,025	23,822	16.67
Jun-24	427,879	-	427,879	25,308	16.91
Jul-24	434,846	-	434,846	22,907	18.98
Aug-24	499,293	-	499,293	22,944	21.76
Sep-24	473,073	-	473,073	20,225	23.39
Oct-24	319,624	-	319,624	16,397	19.49
Nov-24	179,510	-	179,510	11,044	16.25
Dec-24	148,062	-	148,062	8,520	17.38
Jan-25	182,831	-	182,831	10,171	17.98
Feb-25	214,382	-	214,382	11,383	18.83
Mar-25	337,225	-	337,225	17,728	19.02
Apr-25	358,357	-	358,357	20,476	17.50
May-25	401,210	-	401,210	23,703	16.93
Jun-25	458,298	-	458,298	25,181	18.20
Jul-25	455,618	-	455,618	22,792	19.99
Aug-25	519,037	-	519,037	22,829	22.74
Sep-25	494,708	-	494,708	20,124	24.58
Oct-25	341,364	-	341,364	16,315	20.92
Nov-25	210,307	-	210,307	10,989	19.14
Dec-25	156,388	-	156,388	8,477	18.45
Jan-26	189,279	-	189,279	10,120	18.70
Feb-26	225,063	-	225,063	11,326	19.87
Mar-26	361,464	-	361,464	17,639	20.49
Apr-26	382,122	-	382,122	20,374	18.76
May-26	427,295	-	427,295	23,584	18.12
Jun-26	484,057	-	484,057	25,055	19.32
Jul-26	480,153	-	480,153	22,678	21.17
Aug-26	527,394	-	527,394	22,715	23.22
Sep-26	518,003	-	518,003	20,023	25.87
Oct-26	354,399	-	354,399	16,233	21.83
Nov-26	205,641	-	205,641	10,934	18.81
Dec-26	167,104	-	167,104	8,435	19.81
Jan-27	197,422	-	197,422	10,069	19.61
Feb-27	235,520	-	235,520	11,269	20.90
Mar-27	387,821	-	387,821	17,551	22.10
Apr-27	395,019	-	395,019	20,272	19.49
May-27	437,002	-	437,002	23,466	18.62

Jun-27	505,379	-	505,379	24,930	20.27
Jul-27	455,730	-	455,730	22,565	20.20
Aug-27	581,249	-	581,249	22,602	25.72
Sep-27	511,841	-	511,841	19,923	25.69
Oct-27	368,281	-	368,281	16,152	22.80
Nov-27	229,220	-	229,220	10,879	21.07
Dec-27	166,578	-	166,578	8,393	19.85
Jan-28	211,547	-	211,547	10,019	21.11
Feb-28	262,397	-	262,397	11,614	22.59
Mar-28	400,838	-	400,838	17,463	22.95
Apr-28	427,669	-	427,669	20,170	21.20
May-28	504,725	-	504,725	23,349	21.62
Jun-28	558,925	-	558,925	24,805	22.53
Jul-28	543,387	-	543,387	22,452	24.20
Aug-28	601,980	-	601,980	22,489	26.77
Sep-28	545,410	-	545,410	19,823	27.51
Oct-28	400,049	-	400,049	16,071	24.89
Nov-28	239,865	-	239,865	10,825	22.16
Dec-28	179,697	-	179,697	8,351	21.52
Jan-29	248,108	-	248,108	9,969	24.89
Feb-29	268,862	-	268,862	11,157	24.10
Mar-29	435,275	-	435,275	17,376	25.05
Apr-29	465,763	-	465,763	20,069	23.21
May-29	546,752	-	546,752	23,232	23.53
Jun-29	585,363	-	585,363	24,681	23.72
Jul-29	566,279	-	566,279	22,340	25.35
Aug-29	567,069	-	567,069	22,376	25.34
Sep-29	617,324	-	617,324	19,724	31.30
Oct-29	443,047	-	443,047	15,991	27.71
Nov-29	255,892	-	255,892	10,771	23.76
Dec-29	197,779	-	197,779	8,309	23.80
Jan-30	270,713	-	270,713	9,919	27.29
Feb-30	294,143	-	294,143	11,101	26.50
Mar-30	481,534	-	481,534	17,289	27.85
Apr-30	496,820	-	496,820	19,969	24.88
May-30	573,891	-	573,891	23,116	24.83
Jun-30	615,572	-	615,572	24,558	25.07
Jul-30	620,750	-	620,750	22,228	27.93
Aug-30	671,923	-	671,923	22,264	30.18
Sep-30	640,106	-	640,106	19,626	32.62
Oct-30	447,616	-	447,616	15,911	28.13
Nov-30	276,843	-	276,843	10,717	25.83
Dec-30	222,053	-	222,053	8,268	26.86
Jan-31	257,602	-	257,602	9,869	26.10
Feb-31	302,179	-	302,179	11,046	27.36
Mar-31	479,713	-	479,713	17,203	27.89
Apr-31	529,110	-	529,110	19,869	26.63
May-31	619,829	-	619,829	23,000	26.95
Jun-31	664,421	-	664,421	24,435	27.19
Jul-31	651,786	-	651,786	22,117	29.47
Aug-31	686,239	-	686,239	22,153	30.98
Sep-31	682,155	-	682,155	19,528	34.93
Oct-31	477,996	-	477,996	15,831	30.19
Nov-31	284,257	-	284,257	10,663	26.66
Dec-31	239,418	-	239,418	8,226	29.10
Jan-32	272,315	-	272,315	9,820	27.73
Feb-32	333,334	-	333,334	11,383	29.28
Mar-32	503,800	-	503,800	17,117	29.43
Apr-32	552,761	-	552,761	19,770	27.96
May-32	646,486	-	646,486	22,885	28.25
Jun-32	698,105	-	698,105	24,313	28.71
Jul-32	676,241	-	676,241	22,006	30.73

Aug-32	714,373	-	714,373	22,042	32.41
Sep-32	678,720	-	678,720	19,430	34.93
Oct-32	472,275	-	472,275	15,752	29.98
Nov-32	282,500	-	282,500	10,610	26.63
Dec-32	246,924	-	246,924	8,185	30.17
Jan-33	317,475	-	317,475	9,771	32.49
Feb-33	340,026	-	340,026	10,936	31.09
Mar-33	516,014	-	516,014	17,031	30.30
Apr-33	578,596	-	578,596	19,671	29.41
May-33	678,814	-	678,814	22,771	29.81
Jun-33	743,916	-	743,916	24,191	30.75
Jul-33	400,121	-	400,121	21,896	18.27
Aug-33	737,932	-	737,932	21,932	33.65
Sep-33	693,131	-	693,131	19,333	35.85
Oct-33	492,836	-	492,836	15,674	31.44
Nov-33	329,008	-	329,008	10,557	31.17
Dec-33	293,803	-	293,803	8,144	36.08
Jan-34	355,484	-	355,484	9,722	36.56
Feb-34	347,070	-	347,070	10,881	31.90
Mar-34	545,807	-	545,807	16,946	32.21
Apr-34	585,729	-	585,729	19,573	29.93
May-34	701,236	-	701,236	22,657	30.95
Jun-34	755,772	-	755,772	24,070	31.40
Jul-34	747,473	-	747,473	21,787	34.31
Aug-34	774,659	-	774,659	21,822	35.50
Sep-34	672,069	-	672,069	19,236	34.94
Oct-34	504,179	-	504,179	15,595	32.33
Nov-34	339,286	-	339,286	10,504	32.30
Dec-34	362,884	-	362,884	8,103	44.78
Jan-35	3,344	1,488,239	1,491,583	9,674	154.19
Feb-35	3,070	1,488,239	1,491,309	10,826	137.75
Mar-35	4,598	1,488,239	1,492,837	16,861	88.54
Apr-35	4,530	1,488,239	1,492,769	19,475	76.65
May-35	5,200	1,488,239	1,493,438	22,544	66.25
Jun-35	5,688	1,488,239	1,493,927	23,950	62.38
Jul-35	6,867	1,488,239	1,495,106	21,678	68.97
Aug-35	7,203	1,488,239	1,495,442	21,713	68.87
Sep-35	5,151	1,488,239	1,493,390	19,140	78.02
Oct-35	4,232	1,488,239	1,492,471	15,517	96.18
Nov-35	3,160	1,488,239	1,491,399	10,451	142.70
Dec-35	2,901	1,488,239	1,491,140	8,063	184.94
Jan-36	3,639	1,526,948	1,530,587	9,625	159.02
Feb-36	3,697	1,526,948	1,530,646	11,157	137.19
Mar-36	5,001	1,526,948	1,531,949	16,777	91.31
Apr-36	4,948	1,526,948	1,531,897	19,377	79.06
May-36	5,679	1,526,948	1,532,627	22,431	68.33
Jun-36	6,331	1,526,948	1,533,280	23,830	64.34
Jul-36	7,754	1,526,948	1,534,702	21,569	71.15
Aug-36	9,285	1,526,948	1,536,233	21,605	71.11
Sep-36	6,950	1,526,948	1,533,898	19,044	80.54
Oct-36	5,229	1,526,948	1,532,178	15,440	99.24
Nov-36	3,885	1,526,948	1,530,833	10,399	147.21
Dec-36	3,315	1,526,948	1,530,264	8,023	190.74

Appendix B.3

Avoided Cost Prices \$/MWh Utah 2017.Q2 Sch 38 Wind - 80.0 MW and 31.0% CF

Year	Utah 2017.Q2 Sch 38 Wind	Utah 2017.Q1 Sch 38 Wind	Difference
2018	\$19.10	\$18.09	\$1.00
2019	\$19.13	\$16.83	\$2.30
2020	\$18.39	\$16.21	\$2.18
2021	\$18.03	\$16.40	\$1.63
2022	\$19.41	\$16.87	\$2.53
2023	\$20.50	\$21.45	(\$0.95)
2024	\$21.01	\$20.60	\$0.41
2025	\$21.66	\$22.94	(\$1.28)
2026	\$22.67	\$22.77	(\$0.10)
2027	\$23.66	\$23.67	(\$0.01)
2028	\$25.64	\$27.39	(\$1.75)
2029	\$31.25	\$30.94	\$0.30
2030	\$34.37	\$34.61	(\$0.23)
2031	\$36.16	\$36.49	(\$0.33)
2032	\$38.03	\$38.58	(\$0.55)

2018-2032	15-Year Levelized Prices (Nominal) @ 6.570% Discount Rate (1) (3) \$/MWh	\$23.04 (3)	\$22.44 (3)	\$0.60	Discount Rate 6.570%
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Footnotes:

- (1) Discount Rate - 2017 IRP
- (2) 15-Year NPC is 2018 - 2032
- (3) Levelized Monthly

Table 1
Avoided Cost Prices
Utah 2017.Q2 Sch 38 Wind - 80.0 MW and 31.0% CF

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	Total Price @ 31.0% Capacity Factor \$/MWh
2018	\$0.00	\$19.10	\$19.10
2019	\$0.00	\$19.13	\$19.13
2020	\$0.00	\$18.39	\$18.39
2021	\$0.00	\$18.03	\$18.03
2022	\$0.00	\$19.41	\$19.41
2023	\$0.00	\$20.50	\$20.50
2024	\$0.00	\$21.01	\$21.01
2025	\$0.00	\$21.66	\$21.66
2026	\$0.00	\$22.67	\$22.67
2027	\$0.00	\$23.66	\$23.66
2028	\$0.00	\$25.64	\$25.64
2029	\$0.00	\$31.25	\$31.25
2030	\$0.00	\$34.37	\$34.37
2031	\$0.00	\$36.16	\$36.16
2032	\$0.00	\$38.03	\$38.03
2033	\$0.00	\$41.97	\$41.97
2034	\$0.00	\$44.14	\$44.14
2035	\$0.00	\$47.86	\$47.86
2036	\$268.67	(\$8.89)	\$89.64

2018-2032	Nominal Levelized Prices (Nominal) @ 6.57% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh	\$23.04	\$23.04 (3)
2020-2034	15 year Levelized Prices (Nominal) @ 6.57% Discount Rate (1) (3)		
	\$/kW	\$0.00	
	\$/MWh	\$25.59	\$25.59 (3)

Footnotes:

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

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2017.Q2 Sch 38 Wind - 80.0 MW and 31.0% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2018	19.10	24.67	22.02	21.36	17.70	16.04	15.96	18.79	18.86	18.39	18.33	17.92	19.85
2019	19.13	24.15	21.74	17.97	17.71	16.82	15.66	17.39	18.79	19.23	18.61	19.99	21.72
2020	18.39	21.98	20.11	18.11	16.37	15.62	15.21	18.64	19.74	18.45	17.71	18.03	20.04
2021	18.03	20.44	19.62	17.82	15.49	14.87	14.39	16.14	18.95	19.40	18.79	18.92	20.30
2022	19.41	21.04	21.32	20.63	17.41	15.80	15.79	17.55	19.67	20.39	19.16	20.66	22.58
2023	20.50	22.28	22.86	21.34	18.55	16.45	16.07	18.67	20.89	23.06	20.23	21.25	23.29
2024	21.01	21.41	23.83	22.37	18.97	17.86	17.26	20.34	21.73	22.03	20.95	22.70	21.76
2025	21.66	22.11	22.14	22.77	18.87	18.55	18.14	24.61	23.19	23.05	21.45	21.07	22.09
2026	22.67	21.20	25.19	23.40	20.73	19.67	19.07	24.20	23.52	23.62	22.16	23.89	24.15
2027	23.66	25.37	27.20	24.85	21.83	20.07	19.86	23.93	25.99	24.11	22.96	22.52	24.72
2028	25.64	27.65	25.51	25.72	24.45	23.13	22.83	25.39	27.65	27.48	24.53	24.76	27.43
2029	31.25	34.77	32.68	30.91	28.89	27.07	25.08	33.36	33.15	32.23	30.34	32.48	32.27
2030	34.37	38.01	36.76	35.16	31.26	30.55	28.11	35.30	37.33	35.68	33.17	33.31	36.47
2031	36.16	36.94	36.81	34.91	32.52	31.43	30.71	38.05	39.98	37.85	35.67	36.30	39.57
2032	38.03	40.14	39.40	37.33	34.39	32.64	33.10	39.89	41.89	40.30	36.82	36.11	41.53
2033	41.97	44.94	42.68	39.58	38.10	35.93	34.18	43.28	45.55	44.35	41.48	43.10	46.87
2034	44.14	49.31	45.63	43.43	39.25	36.31	35.98	45.37	47.62	44.98	41.76	45.08	51.53
2035	47.86	54.68	52.15	47.14	43.65	38.84	38.36	53.43	51.92	46.57	43.77	47.91	53.25
2036	(8.89)	(8.77)	(23.74)	(28.57)	(30.12)	(16.27)	(10.15)	6.40	10.57	2.16	(1.41)	(9.70)	(14.99)

Table 3
2017 IRP ID Wind Resource
38% Capacity Factor

Year	Estimated Capital Cost	Capital Cost at Real Levelized Rate	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 ID Wind Resource - 38% Capacity Factor									
2016	\$1,811	\$127.99	\$37.57	\$49.74	\$0.00	-	\$49.74	\$165.56	\$0.57
2017		\$131.07	\$38.47	\$50.93	\$0.00	\$0.00	\$50.93	\$169.54	\$0.59
2018		\$133.69	\$39.24	\$51.95	\$0.00	\$0.00	\$51.95	\$172.93	\$0.60
2019		\$136.63	\$40.10	\$53.09	\$0.00	\$0.00	\$53.09	\$176.73	\$0.61
2020		\$139.91	\$41.06	\$54.36	\$0.00	\$0.00	\$54.36	\$180.97	\$0.62
2021		\$143.41	\$42.09	\$55.73	\$0.00	\$0.00	\$55.73	\$185.50	\$0.64
2022		\$147.00	\$43.14	\$57.12	\$0.00	\$0.00	\$57.12	\$190.14	\$0.66
2023		\$150.68	\$44.22	\$58.55	\$0.00	\$0.00	\$58.55	\$194.90	\$0.68
2024		\$154.45	\$45.33	\$60.02	\$0.00	\$0.00	\$60.02	\$199.78	\$0.70
2025		\$158.31	\$46.46	\$61.51	\$0.00	\$0.00	\$61.51	\$204.77	\$0.72
2026		\$162.11	\$47.58	\$62.99	\$0.00	\$0.00	\$62.99	\$209.69	\$0.74
2027		\$166.16	\$48.77	\$64.57	\$0.00	\$0.00	\$64.57	\$214.93	\$0.76
2028		\$170.31	\$49.99	\$66.18	\$0.00	\$0.00	\$66.18	\$220.30	\$0.78
2029		\$174.57	\$51.24	\$67.84	\$0.00	\$0.00	\$67.84	\$225.81	\$0.80
2030		\$178.93	\$52.52	\$69.53	\$0.00	\$0.00	\$69.53	\$231.45	\$0.82
2031		\$183.40	\$53.83	\$71.27	\$0.00	\$0.00	\$71.27	\$237.23	\$0.84
2032		\$187.99	\$55.18	\$73.05	\$0.00	\$0.00	\$73.05	\$243.17	\$0.86
2033		\$192.69	\$56.56	\$74.88	\$0.00	\$0.00	\$74.88	\$249.25	\$0.88
2034		\$197.51	\$57.97	\$76.75	\$0.00	\$0.00	\$76.75	\$255.48	\$0.90
2035		\$202.45	\$59.42	\$78.67	\$0.00	\$0.00	\$78.67	\$261.87	\$0.92
2036		\$207.71	\$60.96	\$80.71	\$0.00	\$0.00	\$80.71	\$268.67	\$0.94
2037		\$212.90	\$62.48	\$82.73	\$0.00	\$0.00	\$82.73	\$275.38	\$0.96
2038		\$218.44	\$64.10	\$84.88	\$0.00	\$0.00	\$84.88	\$282.54	\$0.98
2039		\$224.12	\$65.77	\$87.09	\$0.00	\$0.00	\$87.09	\$289.89	\$1.01
2040		\$229.95	\$67.48	\$89.35	\$0.00	\$0.00	\$89.35	\$297.43	\$1.04
2041		\$235.93	\$69.23	\$91.67	\$0.00	\$0.00	\$91.67	\$305.16	\$1.07
2042		\$242.06	\$71.03	\$94.05	\$0.00	\$0.00	\$94.05	\$313.09	\$1.10

Sources, Inputs and Assumptions

Source: (c)(f) Plant Costs - 2017 IRP - Table 6.1 & 6.2
(a) Plant capacity cost
(b) = (a) x 0.0706748586244695
(d) = ((b) + (c)) / (8.76 x 38.0%)
(g) = (d) + (f)
(h) Plant Costs - 2017 IRP - Table 6.1 & 6.2

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

2016 \$	\$1,811	Plant capacity cost	\$/kW-yr
2016 \$	\$37.57	Fixed O&M, plus on-going capital cost	\$/kW-yr
2016 \$	0.57	Integration Cost	\$/MWH
2016 \$	\$0.00	Variable O&M	\$/MWH
2016 \$		Tax Credit	\$/MWH

7.067% Payment Factor
38% Capacity Factor

Company Official Inflation Forecast Dated June 30, 2017					
2017	2.4%	2026	2.4%	2035	2.5%
2018	2.0%	2027	2.5%	2036	2.6%
2019	2.2%	2028	2.5%	2037	2.5%
2020	2.4%	2029	2.5%	2038	2.6%
2021	2.5%	2030	2.5%	2039	2.6%
2022	2.5%	2031	2.5%	2040	2.6%
2023	2.5%	2032	2.5%	2041	2.6%
2024	2.5%	2033	2.5%	2042	2.6%

Table 4
Burnertip Natural Gas Price Forecast
Utah 2017.Q2 Sch 38 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	\$2.29	\$2.35
2017	\$2.79	\$2.69	\$2.82
2018	\$2.67	\$2.56	\$2.67
2019	\$2.53	\$2.44	\$2.53
2020	\$2.54	\$2.46	\$2.54
2021	\$2.61	\$2.51	\$2.59
2022	\$2.68	\$2.57	\$2.64
2023	\$2.78	\$2.69	\$2.75
2024	\$2.95	\$2.89	\$2.91
2025	\$3.11	\$3.08	\$3.07
2026	\$3.41	\$3.37	\$3.37
2027	\$3.66	\$3.63	\$3.63
2028	\$4.01	\$3.97	\$3.98
2029	\$4.52	\$4.47	\$4.49
2030	\$4.86	\$4.80	\$4.83
2031	\$5.24	\$5.18	\$5.21
2032	\$5.52	\$5.46	\$5.50
2033	\$5.82	\$5.75	\$5.80
2034	\$6.13	\$6.06	\$6.11
2035	\$6.34	\$6.25	\$6.31
2036	\$6.73	\$6.63	\$6.71
2037	\$6.99	\$6.88	\$6.97
2038	\$7.33	\$7.21	\$7.31
2039	\$7.47	\$7.35	\$7.45
2040	\$7.71	\$7.59	\$7.69
2041	\$7.91	\$7.79	\$7.89
2042	\$5.44	\$5.36	\$5.44

Official Forward Price Curve Forecast dated Jun 30, 2017

Table 5
Utah 2017.Q2 Sch 38 Wind - 80.0 MW and 31.0% CF
January 2018 through December 2037
Nominal Avoided Costs Calculated Monthly

15 year starting 2020	\$	53,590,923	\$	-	\$	53,590,923	2,093,965	\$25.59
Nominal NPV at 6.57% Discount Rate								
15 Year	\$	48,231,788	\$	-	\$	48,231,788	2,093,750	\$23.04

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.0% CF	Dollars	MWH	31.0% CF
Jan-18	407,450	-	407,450	16,514	24.67
Feb-18	304,208	-	304,208	13,817	22.02
Mar-18	360,557	-	360,557	16,879	21.36
Apr-18	256,747	-	256,747	14,505	17.70
May-18	229,529	-	229,529	14,311	16.04
Jun-18	286,622	-	286,622	17,961	15.96
Jul-18	388,374	-	388,374	20,667	18.79
Aug-18	405,510	-	405,510	21,506	18.86
Sep-18	388,159	-	388,159	21,102	18.39
Oct-18	370,609	-	370,609	20,214	18.33
Nov-18	361,632	-	361,632	20,178	17.92
Dec-18	394,131	-	394,131	19,857	19.85
Jan-19	398,751	-	398,751	16,514	24.15
Feb-19	300,379	-	300,379	13,817	21.74
Mar-19	303,386	-	303,386	16,879	17.97
Apr-19	256,915	-	256,915	14,505	17.71
May-19	240,779	-	240,779	14,311	16.82
Jun-19	281,323	-	281,323	17,961	15.66
Jul-19	359,317	-	359,317	20,667	17.39
Aug-19	404,046	-	404,046	21,506	18.79
Sep-19	405,888	-	405,888	21,102	19.23
Oct-19	376,268	-	376,268	20,214	18.61
Nov-19	403,394	-	403,394	20,178	19.99
Dec-19	431,211	-	431,211	19,857	21.72
Jan-20	362,897	-	362,897	16,514	21.98
Feb-20	290,735	-	290,735	14,458	20.11
Mar-20	305,663	-	305,663	16,879	18.11
Apr-20	237,456	-	237,456	14,505	16.37
May-20	223,573	-	223,573	14,311	15.62
Jun-20	273,233	-	273,233	17,961	15.21
Jul-20	385,143	-	385,143	20,667	18.64
Aug-20	424,617	-	424,617	21,506	19.74
Sep-20	389,381	-	389,381	21,102	18.45
Oct-20	358,005	-	358,005	20,214	17.71
Nov-20	363,906	-	363,906	20,178	18.03
Dec-20	398,007	-	398,007	19,857	20.04
Jan-21	337,577	-	337,577	16,514	20.44
Feb-21	271,112	-	271,112	13,817	19.62
Mar-21	300,793	-	300,793	16,879	17.82
Apr-21	224,676	-	224,676	14,505	15.49
May-21	212,809	-	212,809	14,311	14.87
Jun-21	258,402	-	258,402	17,961	14.39
Jul-21	333,651	-	333,651	20,667	16.14
Aug-21	407,599	-	407,599	21,506	18.95
Sep-21	409,363	-	409,363	21,102	19.40
Oct-21	379,921	-	379,921	20,214	18.79
Nov-21	381,863	-	381,863	20,178	18.92
Dec-21	403,104	-	403,104	19,857	20.30
Jan-22	347,518	-	347,518	16,514	21.04
Feb-22	294,553	-	294,553	13,817	21.32
Mar-22	348,273	-	348,273	16,879	20.63

Apr-22	252,521	-	252,521	14,505	17.41
May-22	226,055	-	226,055	14,311	15.80
Jun-22	283,564	-	283,564	17,961	15.79
Jul-22	362,792	-	362,792	20,667	17.55
Aug-22	422,933	-	422,933	21,506	19.67
Sep-22	430,316	-	430,316	21,102	20.39
Oct-22	387,288	-	387,288	20,214	19.16
Nov-22	416,797	-	416,797	20,178	20.66
Dec-22	448,410	-	448,410	19,857	22.58
Jan-23	367,846	-	367,846	16,514	22.28
Feb-23	315,799	-	315,799	13,817	22.86
Mar-23	360,291	-	360,291	16,879	21.34
Apr-23	269,096	-	269,096	14,505	18.55
May-23	235,403	-	235,403	14,311	16.45
Jun-23	288,676	-	288,676	17,961	16.07
Jul-23	385,799	-	385,799	20,667	18.67
Aug-23	449,219	-	449,219	21,506	20.89
Sep-23	486,706	-	486,706	21,102	23.06
Oct-23	408,863	-	408,863	20,214	20.23
Nov-23	428,796	-	428,796	20,178	21.25
Dec-23	462,559	-	462,559	19,857	23.29
Jan-24	353,626	-	353,626	16,514	21.41
Feb-24	344,474	-	344,474	14,458	23.83
Mar-24	377,535	-	377,535	16,879	22.37
Apr-24	275,090	-	275,090	14,505	18.97
May-24	255,527	-	255,527	14,311	17.86
Jun-24	310,066	-	310,066	17,961	17.26
Jul-24	420,394	-	420,394	20,667	20.34
Aug-24	467,402	-	467,402	21,506	21.73
Sep-24	464,894	-	464,894	21,102	22.03
Oct-24	423,404	-	423,404	20,214	20.95
Nov-24	458,107	-	458,107	20,178	22.70
Dec-24	431,988	-	431,988	19,857	21.76
Jan-25	365,197	-	365,197	16,514	22.11
Feb-25	305,981	-	305,981	13,817	22.14
Mar-25	384,377	-	384,377	16,879	22.77
Apr-25	273,691	-	273,691	14,505	18.87
May-25	265,446	-	265,446	14,311	18.55
Jun-25	325,838	-	325,838	17,961	18.14
Jul-25	508,700	-	508,700	20,667	24.61
Aug-25	498,705	-	498,705	21,506	23.19
Sep-25	486,449	-	486,449	21,102	23.05
Oct-25	433,584	-	433,584	20,214	21.45
Nov-25	425,207	-	425,207	20,178	21.07
Dec-25	438,660	-	438,660	19,857	22.09
Jan-26	350,158	-	350,158	16,514	21.20
Feb-26	348,060	-	348,060	13,817	25.19
Mar-26	395,058	-	395,058	16,879	23.40
Apr-26	300,735	-	300,735	14,505	20.73
May-26	281,448	-	281,448	14,311	19.67
Jun-26	342,525	-	342,525	17,961	19.07
Jul-26	500,235	-	500,235	20,667	24.20
Aug-26	505,852	-	505,852	21,506	23.52
Sep-26	498,455	-	498,455	21,102	23.62
Oct-26	447,923	-	447,923	20,214	22.16
Nov-26	481,976	-	481,976	20,178	23.89
Dec-26	479,600	-	479,600	19,857	24.15
Jan-27	418,924	-	418,924	16,514	25.37
Feb-27	375,884	-	375,884	13,817	27.20
Mar-27	419,375	-	419,375	16,879	24.85
Apr-27	316,655	-	316,655	14,505	21.83
May-27	287,186	-	287,186	14,311	20.07

Jun-27	356,646	-	356,646	17,961	19.86
Jul-27	494,640	-	494,640	20,667	23.93
Aug-27	558,990	-	558,990	21,506	25.99
Sep-27	508,698	-	508,698	21,102	24.11
Oct-27	464,083	-	464,083	20,214	22.96
Nov-27	454,501	-	454,501	20,178	22.52
Dec-27	490,813	-	490,813	19,857	24.72
Jan-28	456,549	-	456,549	16,514	27.65
Feb-28	368,827	-	368,827	14,458	25.51
Mar-28	434,145	-	434,145	16,879	25.72
Apr-28	354,600	-	354,600	14,505	24.45
May-28	331,066	-	331,066	14,311	23.13
Jun-28	409,988	-	409,988	17,961	22.83
Jul-28	524,712	-	524,712	20,667	25.39
Aug-28	594,536	-	594,536	21,506	27.65
Sep-28	579,839	-	579,839	21,102	27.48
Oct-28	495,795	-	495,795	20,214	24.53
Nov-28	499,519	-	499,519	20,178	24.76
Dec-28	544,755	-	544,755	19,857	27.43
Jan-29	574,152	-	574,152	16,514	34.77
Feb-29	451,512	-	451,512	13,817	32.68
Mar-29	521,802	-	521,802	16,879	30.91
Apr-29	419,024	-	419,024	14,505	28.89
May-29	387,383	-	387,383	14,311	27.07
Jun-29	450,448	-	450,448	17,961	25.08
Jul-29	689,429	-	689,429	20,667	33.36
Aug-29	712,985	-	712,985	21,506	33.15
Sep-29	680,027	-	680,027	21,102	32.23
Oct-29	613,348	-	613,348	20,214	30.34
Nov-29	655,347	-	655,347	20,178	32.48
Dec-29	640,866	-	640,866	19,857	32.27
Jan-30	627,761	-	627,761	16,514	38.01
Feb-30	507,897	-	507,897	13,817	36.76
Mar-30	593,434	-	593,434	16,879	35.16
Apr-30	453,467	-	453,467	14,505	31.26
May-30	437,248	-	437,248	14,311	30.55
Jun-30	504,911	-	504,911	17,961	28.11
Jul-30	729,503	-	729,503	20,667	35.30
Aug-30	802,728	-	802,728	21,506	37.33
Sep-30	752,865	-	752,865	21,102	35.68
Oct-30	670,480	-	670,480	20,214	33.17
Nov-30	672,194	-	672,194	20,178	33.31
Dec-30	724,198	-	724,198	19,857	36.47
Jan-31	610,039	-	610,039	16,514	36.94
Feb-31	508,681	-	508,681	13,817	36.81
Mar-31	589,268	-	589,268	16,879	34.91
Apr-31	471,745	-	471,745	14,505	32.52
May-31	449,801	-	449,801	14,311	31.43
Jun-31	551,651	-	551,651	17,961	30.71
Jul-31	786,413	-	786,413	20,667	38.05
Aug-31	859,884	-	859,884	21,506	39.98
Sep-31	798,663	-	798,663	21,102	37.85
Oct-31	721,105	-	721,105	20,214	35.67
Nov-31	732,451	-	732,451	20,178	36.30
Dec-31	785,697	-	785,697	19,857	39.57
Jan-32	662,849	-	662,849	16,514	40.14
Feb-32	569,694	-	569,694	14,458	39.40
Mar-32	630,136	-	630,136	16,879	37.33
Apr-32	498,856	-	498,856	14,505	34.39
May-32	467,170	-	467,170	14,311	32.64
Jun-32	594,473	-	594,473	17,961	33.10
Jul-32	824,395	-	824,395	20,667	39.89

Aug-32	900,962	-	900,962	21,506	41.89
Sep-32	850,386	-	850,386	21,102	40.30
Oct-32	744,367	-	744,367	20,214	36.82
Nov-32	728,538	-	728,538	20,178	36.11
Dec-32	824,573	-	824,573	19,857	41.53
Jan-33	742,053	-	742,053	16,514	44.94
Feb-33	589,701	-	589,701	13,817	42.68
Mar-33	668,129	-	668,129	16,879	39.58
Apr-33	552,659	-	552,659	14,505	38.10
May-33	514,135	-	514,135	14,311	35.93
Jun-33	613,834	-	613,834	17,961	34.18
Jul-33	894,476	-	894,476	20,667	43.28
Aug-33	979,539	-	979,539	21,506	45.55
Sep-33	935,953	-	935,953	21,102	44.35
Oct-33	838,486	-	838,486	20,214	41.48
Nov-33	869,725	-	869,725	20,178	43.10
Dec-33	930,710	-	930,710	19,857	46.87
Jan-34	814,259	-	814,259	16,514	49.31
Feb-34	630,515	-	630,515	13,817	45.63
Mar-34	733,137	-	733,137	16,879	43.43
Apr-34	569,319	-	569,319	14,505	39.25
May-34	519,591	-	519,591	14,311	36.31
Jun-34	646,135	-	646,135	17,961	35.98
Jul-34	937,631	-	937,631	20,667	45.37
Aug-34	1,024,133	-	1,024,133	21,506	47.62
Sep-34	949,106	-	949,106	21,102	44.98
Oct-34	844,072	-	844,072	20,214	41.76
Nov-34	909,693	-	909,693	20,178	45.08
Dec-34	1,023,164	-	1,023,164	19,857	51.53
Jan-35	902,949	-	902,949	16,514	54.68
Feb-35	720,541	-	720,541	13,817	52.15
Mar-35	795,715	-	795,715	16,879	47.14
Apr-35	633,135	-	633,135	14,505	43.65
May-35	555,827	-	555,827	14,311	38.84
Jun-35	689,002	-	689,002	17,961	38.36
Jul-35	1,104,253	-	1,104,253	20,667	53.43
Aug-35	1,116,549	-	1,116,549	21,506	51.92
Sep-35	982,824	-	982,824	21,102	46.57
Oct-35	884,738	-	884,738	20,214	43.77
Nov-35	966,830	-	966,830	20,178	47.91
Dec-35	1,057,308	-	1,057,308	19,857	53.25
Jan-36	(144,749)	1,791,133	1,646,384	16,514	99.70
Feb-36	(343,248)	1,791,133	1,447,886	14,458	100.14
Mar-36	(482,211)	1,791,133	1,308,922	16,879	77.55
Apr-36	(436,923)	1,791,133	1,354,210	14,505	93.36
May-36	(232,859)	1,791,133	1,558,274	14,311	108.89
Jun-36	(182,298)	1,791,133	1,608,836	17,961	89.58
Jul-36	132,283	1,791,133	1,923,417	20,667	93.07
Aug-36	227,281	1,791,133	2,018,415	21,506	93.85
Sep-36	45,604	1,791,133	1,836,737	21,102	87.04
Oct-36	(28,407)	1,791,133	1,762,727	20,214	87.20
Nov-36	(195,786)	1,791,133	1,595,347	20,178	79.06
Dec-36	(297,663)	1,791,133	1,493,470	19,857	75.21

ROCKY MOUNTAIN POWER

DOCKET 03-035-14 AND DOCKET 17-035-37

STEP STUDY BETWEEN PRIOR FILING AND CURRENT FILING

2017.Q2 - SEPTEMBER 2017

Appendix C

Utah Quarterly Compliance Filing Step Study between 2017.Q2 and 2017.Q1 Compliance Filing Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	Generic Update	OFPC 1706	Queue	Load Forecast	Total Impact
2018	\$ 0.93	\$ (0.23)	\$ 0.30	\$ (0.08)	\$ 0.92
2019	\$ 2.11	\$ (0.08)	\$ 0.54	\$ (0.08)	\$ 2.50
2020	\$ 1.85	\$ 0.25	\$ 0.14	\$ (0.01)	\$ 2.23
2021	\$ 0.76	\$ 0.18	\$ 0.48	\$ (0.01)	\$ 1.41
2022	\$ 2.00	\$ (0.18)	\$ 0.05	\$ 0.29	\$ 2.16
2023	\$ 1.31	\$ (0.84)	\$ 0.16	\$ (0.05)	\$ 0.58
2024	\$ 1.21	\$ (2.38)	\$ 0.89	\$ 0.16	\$ (0.12)
2025	\$ 0.97	\$ (2.77)	\$ 0.53	\$ 0.33	\$ (0.94)
2026	\$ 1.24	\$ (1.96)	\$ 1.15	\$ (0.05)	\$ 0.38
2027	\$ 0.29	\$ (0.97)	\$ 0.45	\$ 0.18	\$ (0.05)
2028	\$ (0.75)	\$ (0.74)	\$ 0.31	\$ 0.15	\$ (1.04)
2029	\$ (0.16)	\$ 0.11	\$ 0.40	\$ (0.11)	\$ 0.23
2030	\$ (0.85)	\$ 0.36	\$ 0.34	\$ (0.28)	\$ (0.44)
2031	\$ (1.79)	\$ 1.36	\$ 0.03	\$ (0.39)	\$ (0.79)
2032	\$ (1.41)	\$ 1.31	\$ (0.24)	\$ (0.26)	\$ (0.61)

Nominal Levelized Payment at 6.570% Discount Rate (3)

2018 - 2032	\$ 0.78	\$ (0.49)	\$ 0.38	\$ 0.00	\$ 0.68
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- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2017
- (3) Discount Rate - 2017 IRP

Appendix C

Utah Quarterly Compliance Filing Step Study between 2017.Q2 and 2017.Q1 Compliance Filing Total Avoided Cost Prices \$/MWH (1) (4)

Year	2017.Q1 As Filed	Generic Update	OFPC 1706	Queue	Load Forecast
2018	\$19.823	\$20.753	\$20.519	\$20.817	\$20.741
2019	\$18.231	\$20.341	\$20.263	\$20.804	\$20.727
2020	\$16.719	\$18.566	\$18.819	\$18.955	\$18.945
2021	\$17.804	\$18.566	\$18.745	\$19.221	\$19.212
2022	\$18.657	\$20.657	\$20.477	\$20.529	\$20.820
2023	\$21.168	\$22.475	\$21.636	\$21.796	\$21.751
2024	\$22.499	\$23.713	\$21.336	\$22.221	\$22.378
2025	\$24.173	\$25.145	\$22.379	\$22.910	\$23.237
2026	\$24.228	\$25.464	\$23.503	\$24.651	\$24.606
2027	\$25.562	\$25.852	\$24.885	\$25.337	\$25.517
2028	\$28.730	\$27.978	\$27.236	\$27.546	\$27.695
2029	\$31.906	\$31.743	\$31.852	\$32.247	\$32.133
2030	\$35.597	\$34.749	\$35.104	\$35.440	\$35.158
2031	\$37.702	\$35.911	\$37.268	\$37.298	\$36.912
2032	\$39.414	\$38.002	\$39.311	\$39.071	\$38.807

Nominal Levelized Payment at 6.570% Discount Rate (3)

2018 - 2032	\$23.690	\$24.473	\$23.987	\$24.368	\$24.371
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- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2017
- (3) Discount Rate - 2017 IRP
- (4) Capacity costs are allocated assuming an 85% capacity factor.

Appendix C

Utah Quarterly Compliance Filing Step Study between 2017.Q2 and 2017.Q1 Compliance Filing GRID Calculated Energy Avoided Cost Prices \$/MWH (1)

Year	2017.Q1 As Filed	Generic Update	OFPC 1706	Queue	Load Forecast
2018	\$19.823	\$20.753	\$20.519	\$20.817	\$20.741
2019	\$18.231	\$20.341	\$20.263	\$20.804	\$20.727
2020	\$16.719	\$18.566	\$18.819	\$18.955	\$18.945
2021	\$17.804	\$18.566	\$18.745	\$19.221	\$19.212
2022	\$18.657	\$20.657	\$20.477	\$20.529	\$20.820
2023	\$21.168	\$22.475	\$21.636	\$21.796	\$21.751
2024	\$22.499	\$23.713	\$21.336	\$22.221	\$22.378
2025	\$24.173	\$25.145	\$22.379	\$22.910	\$23.237
2026	\$24.228	\$25.464	\$23.503	\$24.651	\$24.606
2027	\$25.562	\$25.852	\$24.885	\$25.337	\$25.517
2028	\$28.730	\$27.978	\$27.236	\$27.546	\$27.695
2029	\$31.906	\$31.743	\$31.852	\$32.247	\$32.133
2030	\$35.597	\$34.749	\$35.104	\$35.440	\$35.158
2031	\$37.702	\$35.911	\$37.268	\$37.298	\$36.912
2032	\$39.414	\$38.002	\$39.311	\$39.071	\$38.807

Nominal Levelized Payment at 6.57% Discount Rate (3) (4)

2018 - 2032	\$23.692	\$24.473	\$23.987	\$24.368	\$24.371
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- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2017
- (3) Discount Rate - 2017 IRP
- (4) 15-Year Nominal Levelized Payment (2018-2032)

Appendix C

Utah Quarterly Compliance Filing Step Study between 2017.Q2 and 2017.Q1 Compliance Filing Capacity Avoided Cost Prices

Year	\$/kW-Year		\$/MWH (1)	
	2017.Q1 (3)	2017.Q2 (3)	2017.Q1 (3)	2017.Q2 (3)
2018	-	-	-	-
2019	-	-	-	-
2020	-	-	-	-
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	-	-	-	-
2027	-	-	-	-
2028	-	-	-	-
2029	-	-	-	-
2030	-	-	-	-
2031	-	-	-	-
2032	-	-	-	-

Nominal Levelized Payment at 6.570% Discount Rate (2)

2018 - 2032	\$0.00	\$0.00	\$0.00	\$0.00
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- (1) Capacity costs are allocated assuming an 85% capacity factor.
- (2) Discount Rate - 2017 IRP
- (3) No Capacity costs-All of the 2017 IRP Thermal resources are deferred due to the size of the Queue

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 17-035-37 was served upon the following by email on October 2, 2017.

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