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Salt Lake City, Utah 84116

September 30, 2020

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 Administrator

Re: **Docket No. 03-035-14 – Quarterly Compliance Filing – 2020.Q2 Avoided Cost Input Changes**
Docket No. 20-035-30 – 2020.Q2 Avoided Cost Input Changes Quarterly Compliance Filing

PacifiCorp (dba Rocky Mountain Power) hereby respectfully submits its quarterly Schedule 38 compliance filing. An electronic copy of this filing will be provided to psc@utah.gov.

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 No. 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.

Routine Updates

Appendix A provides a summary of the assumptions used within the GRID model. The Company identifies the following routine updates to its avoided cost inputs since the previous filing:

1. **Official Forward Price Curve (OFPC)**
Update to prices dated June 30, 2020 (2006 OFPC).

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

Update of signed contract queue and current potential QFs. The QF queue was revised to include 2,020 MW nameplate in this filing. The potential queue was 1,114 MW nameplate in the 2020.Q1 filing.

3. **Load Forecast**

Update to the Company's most recent load forecast dated June 20, 2020.

4. **Generic GRID Inputs**

Update to various GRID model inputs, including hydro forecast, thermal outage rates, and coal costs.

Additional Details

Additional detail is provided below:

1. **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 2019 Integrated Resource Plan (IRP) filed with the Commission on October 18, 2019. The 2019 IRP preferred portfolio includes cost-effective solar with storage, wind, wind with storage, stand storage and thermal resources. The thermal QF resource partially displaces summer and winter front office transactions (FOT) during 2020-2025, and the Naughton simple-cycle combustion turbine in 2026. The tracking solar QF resource partially displaces summer and winter FOTs during 2020-2023 and the Utah North and Utah South solar with storage resources in 2024. The wind QF resource partially displaces summer and winter FOTs during 2020-2022 and a Utah wind proxy in 2023, in accordance with the Commission's August 20, 2020 order in docket 19-035-18.
2. **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.
 - a. Avoided costs presented in **Appendix B.1** were calculated assuming a 100 MW 100 percent capacity factor thermal QF resource.
 - b. Avoided costs presented in **Appendix B.2** were calculated assuming an 80 MW 32.3 percent capacity factor single-axis tracking solar QF resource.
 - c. Avoided costs presented in **Appendix B.3** were calculated assuming a 80 MW 29.4 percent capacity factor wind QF resource.
3. **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. 20-035-30)

ROCKY MOUNTAIN POWER
DESCRIPTION OF AVOIDED COST INPUT CHANGES
2020.Q2 – SEPTEMBER 2020

Appendix A

PacifiCorp Avoided Cost (Partial Displacement Differential Revenue Requirement (“PDDRR”)) Model Updates through September 2020 Docket 20-035-30 / Docket 03-035-14

Assumptions that have changed since the 2020.Q1 compliance filing are in **bold and underline**.

GRID Scenario Study Period

- January 1, 2020 through December 31, 2034 - 15-year study.
- Avoided cost prices starting in January 2020.

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

- **Updated to PacifiCorp’s June 30, 2020 OFPC (2006 OFPC)**
- Hourly Market Price Scalars consistent with 2019 Integrated Resource Plan (“IRP”)

Fuel Prices (Coal)

- Average and **incremental coal costs** based on forecast dated **August 2020**.
- Coal burn expense reflects incremental coal costs and coal take or pay minimum burn levels.

IRP Resources

- 2019 IRP filed with the Public Service Commission of Utah (“UPSC”) on October 18, 2019.
- New solar, wind, battery storage, and thermal resources; as well as front office transactions (“FOT”), consistent with 2019 IRP (2019 IRP, Vol 1, Chapter 8).
- Existing plant retirement consistent with 2019 IRP (2019 IRP, Vol 1, Chapter 8).
- Transmission investment and capacity changes consistent with 2019 IRP (2019 IRP, Vol 1, Table 8.16).

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 renewable energy credits (“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

- Hydro forecast prepared **June 2020**.
- 2019 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

- 6.92 percent discount rate - 2019 IRP
- Discount rate is consistent with the Commission’s order in Docket 11-035-T06.

Inflation Rates

- Company’s inflation rate forecast dated June 2020.

Levelized Prices (Nominal) at 6.92 percent Discount Rate

- 15 years 2020 through 2034.
- Levelized prices are for illustrative purposes only.

Load Forecast (Retail)

- 20-year load forecast dated June 20, 2020.

Long-Term Contracts

- Long-term contracts which have prices that are indexed to market are consistent with the 2006 OFPC.
- Contracts are modeled based on 48 months ended December 2019.
- 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 2020.
- 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 June 2020.

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 2019 IRP Flexible Reserve Study.

- Regulation reserve requirements are modified to account for the incremental integration costs specific to the QF and preferred portfolio displacement being evaluated, consistent with the methodology used in the 2019 IRP.

Contingency Reserve Calculation

- Reserve modeling reflects the North American Electric Reliability Corporation / Western Electricity Coordinating Council 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 2022.
- Typical week retail load reserve calculation thereafter.

STF Transactions

- Executed STF contracts as of June 2020.

Size of the Avoided Cost Resource

- The avoided cost thermal resource is 100 megawatt (“MW”) with a 100 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost tracking solar resource is 80 MW with a 32.3 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost wind resource is 80 MW with a 29.4 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 2019.

Wind and Solar Resources

- Existing wind and solar generation profiles modeled using 2018 actual generation shape.¹
- Wind and solar generation shaped to hourly using 2018 actual generation shape.¹
- Non-PTC wind resources that are located in a constrained area and can be curtailed on an economic basis are dispatched within the GRID model.²
- Resource-specific capacity contribution values are calculated for proxy resources and QFs, based on their expected output and the final loss of load probability results in the 2019 IRP.

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.

Transmission

- Short-term transmission modeled based on 48 months ended December 2018.
- Transmission investment and capacity changes consistent with 2019 IRP (2019 IRP, Vol 1, Table 8.16).

IRP Partial Displacements (This Filing)

Provided in the table below are the Contracts that have executed a PPA or are actively negotiating for a PPA. Signed resources are new and were not included in the 2019 IRP.

Contracts Queue						
No.	Signed Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Cypress Creek Renewables - Merrill Solar LLC	-1.5	-10.0		14.9%	2020 01 01
2	OR Solar 5, LLC (Merrill Solar) (ORSOLAR5 PPA QF)	-1.2	-8.0		14.9%	2020 01 01
3	Graphite Solar I	5.7	80.0		7.1%	2022 01 01
4	Mariah Wind	-5.8	-10.0		57.5%	2020 01 01
5	Orem Family wind	-5.8	-10.0		57.5%	2020 01 01
6	Horseshoe Solar	6.2	75.0	29.2%	8.3%	2022 11 01
7	Rocket Solar	6.6	80.0	29.2%	8.2%	2022 11 01
8	Skysol Solar QF	6.4	55.0		11.6%	2023 03 01

Total Signed MW		10.67	252.00			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 538 - OR - Solar	10.70	80.0	33.4%	13.4%	2023 10 01
2	QF - 505 - WY - Solar	57.70	80.0	38.6%	72.1%	2023 01 01
3	QF - 544 - OR - Solar	9.8	80.0	29.3%	12.2%	2023 01 01
4	QF - 545 - WY - Solar	3.1	20.0	31.5%	15.5%	2023 06 01
5	QF - 546 - WY - Solar	3.1	20.0	31.5%	15.5%	2023 06 01
6	QF - 548 - OR - Solar	2.67	20.0	33.0%	13.4%	2023 07 01
7	QF - 549 - OR - Solar	2.57	20.0	31.6%	12.9%	2023 07 01
8	QF - 550 - OR - Solar	8.16	80.0	29.1%	10.2%	2023 07 01
9	QF - 551 - OR - Solar	4.24	33.0	32.0%	12.8%	2023 07 01
10	QF - 552 - OR - Solar	5.75	50.0	27.5%	11.5%	2023 04 01
11	QF - 553 - WA - Solar	1.60	80.0	0.0%	2.0%	2023 12 01
12	QF - 555 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01
13	QF - 556 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01
14	QF - 557 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01
15	QF - 558 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01

16	QF - 559 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01
17	QF - 560 - WY - Solar	4.10	20.0	35.3%	20.5%	2023 08 01
18	QF - 561 - WA - Solar	0.10	5.0	32.1%	2.0%	2023 01 01
19	QF - 562 - OR - Solar	8.99	40.0	30.6%	22.5%	2023 09 01
20	QF - 563 - OR - Solar	8.99	40.0	30.6%	22.5%	2023 09 01
21	QF - 528 - UT - Solar	5.46	78.0	29.9%	7.0%	2023 09 01
22	QF - 435 - UT - Gas	0.00	25.0	85.0%	0.0%	2021 01 01
23	QF - 433 - UT - Gas	0.00	31.8	58.2%	0.0%	2021 01 01
24	QF - 434 - UT - Gas	0.00	6.2	85.0%	0.0%	2021 01 01
25	QF - 566 - UT - Wind	10.84	79.2	27.7%	13.7%	2022 04 01
26	QF - 567 - UT - Wind	6.24	45.6	27.7%	13.7%	2022 05 01
27	QF - 525 - WY - Gas	0.00	98.0	75.0%	0.0%	2020 01 01
28	QF - 568 - WY - Solar	8.43	74.9	30.6%	11.3%	2023 10 01
29	QF - 569 - UT - Gas	0.00	36.0	85.0%	0.0%	2021 01 01
30	QF - 570 - UT - Solar	9.26	80.0	26.1%	11.6%	2023 11 01
31	QF - 571 - UT - Solar	25.36	80.0	25.9%	31.7%	2023 11 01
32	QF - 572 - UT - Solar	24.81	80.0	28.2%	31.0%	2023 11 01
33	QF - 573 - UT - Solar	11.63	80.0	28.4%	14.5%	2023 11 01
34	QF - 574 - UT - Solar	8.71	80.0	28.5%	10.9%	2023 11 01
35	QF - 575 - UT - Solar	14.37	80.0	28.5%	18.0%	2023 11 01
36	QF - 576 - UT - Solar	6.66	45.0	26.1%	14.8%	2023 11 01
Total Potential MW		283.78	1767.69			
Total Partial Displacement		294.45	2019.69			
37	Utah 2020.Q2	100.00	100.0	100.0%	100.0%	2020 01 01
Partial Displacement after QF		394.45	2119.69			

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

- Thermal: Incremental Thermal QF resource displaces FOTs for 2020-2025 and Naughton simple cycle combustion turbine in 2026.
- Tracking Solar: **911** nameplate MW of solar resources are displaced by the QF queue. After degradation and accounting for capacity contribution, the incremental solar QF displaces 8 and 21MW of solar with storage resource located at Utah North and Utah South, respectively, in 2024. The Company retains 100% of the RECs starting in 2024.
- Wind: 95 MW of wind resources are displaced by the QF queue. The incremental wind QF displaces a Utah wind resource in 2023, and the Company retains 100% of the RECs starting in 2023.

Base Case Displacement (Nameplate MW)								
Year	Thermal	Battery	SolarwB	WindwB	Wind	FOT Summer	FOT Winter	FOT Flat
2019	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-
2022	-	-	10	-	-	-	-	-
2023	-	-	13	-	95	104	104	-
2024	-	-	911	-	95	-	-	-
2025	-	-	911	-	95	-	-	-
2026	-	-	911	-	95	-	-	-
2027	-	-	911	-	95	-	-	-
2028	-	-	911	-	95	-	-	-
2029	-	-	911	-	95	-	-	-
2030	-	-	911	-	95	-	-	-
2031	-	-	911	-	95	-	-	-
2032	-	-	911	-	95	-	-	-
2033	-	-	911	-	95	-	-	-
2034	-	-	911	-	95	-	-	-
2035	-	-	911	-	95	-	-	-
2036	-	-	911	-	95	-	-	-
2037	-	-	911	-	95	-	-	-
2038	-	-	911	-	95	-	-	-

IRP Partial Displacements (Previous Filing)

Total partial displacement was 217.31 MW in the base case and 317.31 MW in the avoided cost case as shown in the table below, adjusted for solar degradation:

Contracts Queue						
No.	Signed Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Cypress Creek Renewables - Merrill	-1.5	-10.0		14.9%	2020 01 01
2	OR Solar 5, LLC (Merrill Solar) (OR)	-1.2	-8.0		14.9%	2020 01 01
3	Graphite Solar I	5.7	80.0		7.1%	2022 01 01
4	Mariah Wind	-5.8	-10.0		57.5%	2020 01 01
5	Orem Family wind	-5.8	-10.0		57.5%	2020 01 01
6	Horseshoe Solar	6.2	75.0	29.2%	8.3%	2022 11 01
7	Rocket Solar	6.6	80.0	29.2%	8.2%	2022 11 01
8	Skysol Solar QF	6.4	55.0		11.6%	2023 03 01

Total Signed MW		10.67	252.00			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 516 - WY - Wind	1.88	24.8	33.1%	7.6%	2019 12 01
2	QF - 517 - WY - Wind	0.14	1.8	34.5%	7.8%	2019 12 01
3	QF - 527 - WY - Wind	1.2	16.8	34.5%	7.3%	2020 11 01
4	QF - 538 - OR - Solar	10.70	80.0	33.4%	13.4%	2023 10 01
5	QF - 505 - WY - Solar	57.70	80.0	38.6%	72.1%	2023 01 01
6	QF - 442 - WY - Solar	7.09	80.0	26.7%	8.9%	2023 01 01
7	QF - 506 - WY - Solar	49.92	80.0	38.6%	62.4%	2023 01 01
8	QF - 508 - WY - Solar	29.3	50.0	31.7%	58.6%	2023 01 01
9	QF - 544 - OR - Solar	9.8	80.0	29.3%	12.2%	2023 01 01
10	QF - 545 - WY - Solar	3.1	20.0	0.0%	15.5%	2023 06 01
11	QF - 546 - WY - Solar	3.1	20.0	0.0%	15.5%	2023 06 01
12	QF - 547 - UT - Gas	4.80	6.1	86.4%	78.7%	2022 10 01
13	QF - 548 - OR - Solar	2.67	20.0	33.0%	13.4%	2023 07 01
14	QF - 549 - OR - Solar	2.57	20.0	31.6%	12.9%	2023 07 01
15	QF - 550 - OR - Solar	8.16	80.0	29.1%	10.2%	2023 07 01
16	QF - 551 - OR - Solar	4.24	33.0	32.0%	12.8%	2023 07 01
17	QF - 552 - OR - Solar	5.75	50.0	27.5%	11.5%	2023 04 01
18	QF - 553 - WA - Solar	1.60	80.0	26.5%	2.0%	2023 12 01
19	QF - 554 - UT - Solar	2.95	40.0	28.6%	7.4%	2022 08 01
Total Potential MW		206.64	862.45			

Total Partial Displacement		217.31	1114.45			
20	Utah 2020.Q1	100.00	100.0	100.0%	100.0%	2020 01 01
Partial Displacement after QF		317.31	1214.45			

ROCKY MOUNTAIN POWER

UPDATE IMPACT – UPDATED AVOIDED COST STUDY

2020.Q2 – SEPTEMBER 2020

Appendix B.1
Avoided Cost Prices \$/MWh
Utah 2020.Q2 Sch 38

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q2 100% CF (2)	UT 2020.Q2 31.1% CF (2)	W) UT 2020.Q2 31.0% CF (2)	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	W) UT 2020.Q1 31.0% CF (2)	Difference	Difference	Difference
2020	\$17.12	\$15.40	\$15.32	\$14.22	\$12.50	\$11.48	\$2.89	\$2.90	\$3.84
2021	\$19.21	\$16.15	\$16.39	\$16.69	\$13.33	\$13.62	\$2.52	\$2.82	\$2.77
2022	\$19.42	\$16.35	\$16.96	\$17.72	\$14.22	\$14.82	\$1.70	\$2.13	\$2.15
2023	\$18.91	\$15.97	\$23.88	\$16.86	\$13.52	\$25.40	\$2.05	\$2.45	(\$1.51)
2024	\$14.49	\$13.44	\$24.98	\$12.08	\$13.72	\$26.51	\$2.41	(\$0.28)	(\$1.52)
2025	\$16.01	\$14.32	\$24.90	\$12.71	\$14.25	\$26.79	\$3.30	\$0.07	(\$1.89)
2026	\$30.26	\$14.53	\$25.80	\$29.93	\$14.81	\$27.94	\$0.32	(\$0.29)	(\$2.14)
2027	\$31.93	\$15.86	\$25.96	\$31.96	\$15.66	\$28.34	(\$0.03)	\$0.20	(\$2.38)
2028	\$35.98	\$19.18	\$26.30	\$35.63	\$18.27	\$29.43	\$0.35	\$0.91	(\$3.13)
2029	\$37.44	\$21.07	\$26.06	\$36.96	\$19.58	\$29.71	\$0.48	\$1.49	(\$3.65)
2030	\$37.79	\$19.63	\$26.96	\$36.22	\$18.00	\$30.10	\$1.58	\$1.63	(\$3.13)
2031	\$40.16	\$21.56	\$27.96	\$38.90	\$19.89	\$31.40	\$1.26	\$1.67	(\$3.44)
2032	\$42.02	\$22.27	\$28.43	\$43.63	\$22.90	\$31.88	(\$1.61)	(\$0.63)	(\$3.45)
2033	\$43.43	\$22.35	\$54.94	\$45.65	\$23.18	\$58.45	(\$2.22)	(\$0.84)	(\$3.51)
2034	\$45.15	\$23.81	\$56.27	\$47.22	\$24.32	\$59.55	(\$2.06)	(\$0.51)	(\$3.29)

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2020-2034	\$/MWh	\$27.07	\$17.29	\$25.45	\$25.82	\$16.12	\$26.44	\$1.25	\$1.17	(\$0.99)
							5%	7%		-4%

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2020 - 2034, levelized monthly

Table 1
Avoided Cost Prices
Utah 2020.Q2 - 100.0 MW and 100.0% CF

	Total Price @		
Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	100.0% Capacity Factor \$/MWh
2020	\$0.00	\$17.12	\$17.12
2021	\$0.00	\$19.21	\$19.21
2022	\$0.00	\$19.42	\$19.42
2023	\$0.00	\$18.91	\$18.91
2024	\$0.00	\$14.49	\$14.49
2025	\$0.00	\$16.01	\$16.01
2026	\$113.18	\$17.34	\$30.26
2027	\$115.91	\$18.70	\$31.93
2028	\$118.70	\$22.46	\$35.98
2029	\$121.44	\$23.57	\$37.44
2030	\$124.10	\$23.63	\$37.79
2031	\$126.84	\$25.68	\$40.16
2032	\$129.62	\$27.26	\$42.02
2033	\$132.36	\$28.32	\$43.43
2034	\$135.12	\$29.73	\$45.15
2035	\$137.97	\$31.36	\$47.11
2036	\$140.85	\$33.34	\$49.38
2037	\$143.96	\$35.61	\$52.04
2038	\$147.11	\$38.05	\$54.84

15 Year Ending 2020

Levelized Prices (Nominal) @ 6.92% Discount Rate (1) (3)

\$/kW \$58.72

\$/MWh \$20.37 \$27.07

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2020.Q2 - 100.0 MW and 100.0% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2020	17.12	18.66	15.78	16.10	13.89	14.13	14.62	23.03	23.15	17.34	15.99	15.31	17.07
2021	19.21	28.08	17.23	17.21	14.14	13.25	15.29	31.04	23.39	18.34	16.00	16.83	19.11
2022	19.42	27.14	19.51	17.46	14.11	13.47	15.19	30.21	23.70	19.04	16.43	17.21	19.19
2023	18.91	18.81	19.51	17.11	14.52	14.29	15.87	30.04	24.20	18.49	16.84	17.53	19.52
2024	14.49	18.27	14.00	8.77	6.81	8.31	11.06	36.02	20.38	13.01	10.09	12.00	14.66
2025	16.01	18.50	14.24	9.93	7.88	9.68	12.63	39.59	23.86	14.39	11.18	13.38	16.17
2026	17.34	18.76	17.55	11.74	9.74	11.30	19.23	22.24	22.61	18.57	16.30	19.00	20.92
2027	18.70	20.11	17.42	11.83	10.79	12.91	21.12	24.61	25.10	19.85	17.52	20.13	22.81
2028	22.46	23.64	20.22	16.48	13.65	20.05	23.74	27.92	28.13	23.65	22.50	23.19	26.07
2029	23.57	25.59	22.17	18.36	17.00	16.53	22.04	29.59	29.96	25.26	23.62	25.95	26.56
2030	23.63	27.24	21.65	16.22	14.66	16.09	22.64	30.95	31.13	25.55	23.70	24.55	28.74
2031	25.68	28.10	24.13	19.18	17.22	18.10	24.83	32.51	33.08	27.40	26.06	25.94	31.20
2032	27.26	29.60	25.40	20.93	19.77	18.21	26.10	34.18	34.69	29.00	27.93	28.84	32.19
2033	28.32	30.39	26.51	20.64	19.63	18.58	26.98	35.01	36.28	30.28	29.68	31.07	34.46
2034	29.73	31.67	27.90	22.01	21.11	20.67	28.41	36.72	37.74	31.85	30.33	31.72	36.23
2035	31.36	33.24	29.42	23.51	22.99	21.16	30.31	38.49	39.70	33.22	31.63	34.67	37.66
2036	33.34	35.76	31.45	24.82	23.63	22.20	31.29	40.82	41.71	36.44	35.10	35.88	40.70
2037	35.61	38.57	34.83	27.52	26.58	24.22	33.08	44.63	44.49	37.99	35.30	36.95	42.83

Table 4
Burnertip Natural Gas Price Forecast
Utah 2020.Q2 - 100.0 MW and 100.0% CF

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.78	\$1.79	\$1.97	\$1.71
2021	\$2.39	\$2.40	\$2.49	\$2.23
2022	\$2.19	\$2.20	\$2.27	\$2.03
2023	\$2.18	\$2.19	\$2.25	\$2.03
2024	\$2.31	\$2.32	\$2.31	\$2.16
2025	\$2.44	\$2.45	\$2.40	\$2.29
2026	\$2.57	\$2.58	\$2.49	\$2.41
2027	\$2.81	\$2.82	\$2.68	\$2.66
2028	\$3.07	\$3.08	\$2.93	\$2.91
2029	\$3.30	\$3.31	\$3.18	\$3.14
2030	\$3.52	\$3.53	\$3.41	\$3.35
2031	\$3.70	\$3.71	\$3.57	\$3.53
2032	\$3.89	\$3.90	\$3.74	\$3.72
2033	\$4.06	\$4.07	\$3.91	\$3.89
2034	\$4.27	\$4.28	\$4.13	\$4.10
2035	\$4.50	\$4.51	\$4.34	\$4.33
2036	\$4.70	\$4.71	\$4.51	\$4.52
2037	\$5.03	\$5.04	\$4.84	\$4.85
2038	\$5.32	\$5.33	\$5.09	\$5.14
2039	\$5.67	\$5.68	\$5.44	\$5.49
2040	\$5.81	\$5.82	\$5.56	\$5.63

Official Forward Price Curve Forecast dated Jun 30, 2020

Table 5

Utah 2020.Q2 - 100.0 MW and 100.0% CF

January 2020 through December 2039

Nominal Avoided Costs Calculated Monthly

15 Year Starting 2021	\$	175,087,571	\$	64,529,951	\$	239,617,522	8,273,629	\$28.96
Nominal NPV at 6.92% Discount Rate								
15 Year Ending 2020	\$	168,558,334	\$	55,475,652	\$	224,033,986	8,275,707	\$27.07

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Jan-20	1,388,454	-	1,388,454	74,400	18.66
Feb-20	1,098,084	-	1,098,084	69,600	15.78
Mar-20	1,197,720	-	1,197,720	74,400	16.10
Apr-20	999,767	-	999,767	72,000	13.89
May-20	1,051,454	-	1,051,454	74,400	14.13
Jun-20	1,052,895	-	1,052,895	72,000	14.62
Jul-20	1,713,420	-	1,713,420	74,400	23.03
Aug-20	1,722,706	-	1,722,706	74,400	23.15
Sep-20	1,248,135	-	1,248,135	72,000	17.34
Oct-20	1,189,489	-	1,189,489	74,400	15.99
Nov-20	1,102,485	-	1,102,485	72,000	15.31
Dec-20	1,269,691	-	1,269,691	74,400	17.07
Jan-21	2,089,200	-	2,089,200	74,400	28.08
Feb-21	1,157,821	-	1,157,821	67,200	17.23
Mar-21	1,280,744	-	1,280,744	74,400	17.21
Apr-21	1,018,382	-	1,018,382	72,000	14.14
May-21	985,705	-	985,705	74,400	13.25
Jun-21	1,100,812	-	1,100,812	72,000	15.29
Jul-21	2,309,431	-	2,309,431	74,400	31.04
Aug-21	1,740,523	-	1,740,523	74,400	23.39
Sep-21	1,320,292	-	1,320,292	72,000	18.34
Oct-21	1,190,039	-	1,190,039	74,400	16.00
Nov-21	1,211,598	-	1,211,598	72,000	16.83
Dec-21	1,421,627	-	1,421,627	74,400	19.11
Jan-35	2,472,770	1,149,715	3,622,485	74,400	48.69
Feb-35	1,976,715	1,149,715	3,126,430	67,200	46.52
Mar-35	1,749,358	1,149,715	2,899,073	74,400	38.97
Apr-35	1,655,485	1,149,715	2,805,200	72,000	38.96
May-35	1,574,244	1,149,715	2,723,958	74,400	36.61
Jun-35	2,182,676	1,149,715	3,332,391	72,000	46.28
Jul-35	2,863,649	1,149,715	4,013,363	74,400	53.94
Aug-35	2,953,316	1,149,715	4,103,031	74,400	55.15
Sep-35	2,392,149	1,149,715	3,541,863	72,000	49.19
Oct-35	2,353,294	1,149,715	3,503,009	74,400	47.08
Nov-35	2,496,324	1,149,715	3,646,039	72,000	50.64
Dec-35	2,802,011	1,149,715	3,951,726	74,400	53.11

Table 3
2019 IRP SCCT Resource Costs
Naughton - 185 MW - SCCT Frame "F" x1 - East Side Resource (6,050')

Year	Estimated Capital Cost	Capital Cost at Real Levelized Rate	Fixed O&M	Variable O&M	Total O&M at Expected CF	Total Resource Fixed Costs	Fuel Cost	Total Resource Energy Cost	Total Resource Costs
	\$/kW	\$/kW-yr	\$/kW-yr	\$/MWh	\$/kW-yr	\$/kW-yr	\$/MMBtu	\$/MWh	\$/MWh
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

Naughton - 185 MW - SCCT Frame "F" x1 - East Side Resource (6,050')

2016									
2017									
2018				\$7.76					
2019				\$7.90					
2020				\$7.97					
2021				\$8.04					
2022				\$8.13					
2023				\$8.21					
2024				\$8.32					
2025				\$8.46					
2026	\$719	\$50.01	\$38.05	\$8.64	\$63.03	\$113.04	\$2.58	\$25.25	\$64.35
2027		\$51.21	\$38.97	\$8.85	\$64.55	\$115.76	\$2.82	\$27.60	\$67.64
2028		\$52.44	\$39.91	\$9.06	\$66.10	\$118.54	\$3.08	\$30.14	\$71.15
2029		\$53.65	\$40.83	\$9.27	\$67.63	\$121.28	\$3.31	\$32.39	\$74.34
2030		\$54.83	\$41.73	\$9.47	\$69.11	\$123.94	\$3.53	\$34.54	\$77.41
2031		\$56.04	\$42.65	\$9.68	\$70.63	\$126.67	\$3.71	\$36.31	\$80.13
2032		\$57.27	\$43.59	\$9.89	\$72.18	\$129.45	\$3.90	\$38.17	\$82.95
2033		\$58.47	\$44.51	\$10.10	\$73.71	\$132.18	\$4.07	\$39.83	\$85.55
2034		\$59.70	\$45.44	\$10.31	\$75.24	\$134.94	\$4.28	\$41.88	\$88.56
2035		\$60.95	\$46.39	\$10.53	\$76.83	\$137.78	\$4.51	\$44.13	\$91.79
2036		\$62.23	\$47.36	\$10.75	\$78.44	\$140.67	\$4.71	\$46.09	\$94.75
2037		\$63.60	\$48.40	\$10.99	\$80.17	\$143.77	\$5.04	\$49.32	\$99.05
2038		\$65.00	\$49.46	\$11.23	\$81.92	\$146.92	\$5.33	\$52.16	\$102.98
2039		\$66.37	\$50.50	\$11.47	\$83.66	\$150.03	\$5.68	\$55.58	\$107.48
2040		\$67.83	\$51.61	\$11.72	\$85.49	\$153.32	\$5.82	\$56.95	\$109.99
2041		\$69.32	\$52.75	\$11.98	\$87.38	\$156.70	\$5.95	\$58.23	\$112.44
2042		\$70.85	\$53.91	\$12.24	\$89.29	\$160.14	\$6.08	\$59.50	\$114.90

Sources, Inputs and Assumptions

- Source: (a)(c)(d) Plant Costs - 2019 IRP - Table 6.1 & 6.2
- (b) = (a) x 0.0695884915153164
 - (e) = (d) x (8.76 x 33.0%) + (c)
 - (f) = (b) + (e)
 - (g) Table 4 - Burnertip Natural Gas Price Forecast
 - (h) = 9,786 MMBtu/MWH x \$/MMBtu
 - (i) = (f) / (8.76 x 'Capacity Factor') + (h)

Table 3
2019 IRP SCCT Resource Costs
Naughton - 185 MW - SCCT Frame "F" x1 - East Side Resource (6,050')

Naughton - 185 MW - SCCT Frame "F" x1 - East Side Resource (6,050')						
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CCCT Statistics	MW	Percent	Cap Cost	Fixed
SCCT Dry "F" - Turbine	185	100.0%	\$745	\$31.91
	-	0.0%	\$0	\$0.00
Capacity Weighted	185	100.0%	\$745	\$31.91

CCCT Statistics	MW	CF	aMW	Percent	Variable	Heat Rate
SCCT Dry "F" - Turbine	185	33.0%	61.1	100.0%	\$7.76	9,786
-	-	0.0%	-	0.0%	-	-
Energy Weighted	185	33.0%	61.1	100.0%	\$7.76	9,786

Rounded

SCCT	Duct Firing	Plant Costs - 2019 IRP - Table 6.1 & 6.2
	185	MW Plant Capacity
2018 \$	\$745	Plant Capacity Cost
2018 \$	\$17.01	Fixed O&M & Capitalized O&M
2018 \$	\$14.90	Fixed Pipeline
2018 \$	\$31.91	Fixed O&M Including Fixed Pipeline & Capitalized O&M (\$/kW-Yr)
2018 \$	\$7.76	Variable O&M Costs & Capitalized Variable O&M (\$/MWh)
	9,786	Heat Rate in btu/kWh
	6.959%	Payment Factor
	33%	Capacity Factor
	33.0%	Energy Weighted Capacity Factor

Company Official Inflation Forecast Dated June 30, 2020					
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2017	2.0%	2026	2.1%	2035	2.1%
2018	2.4%	2027	2.4%	2036	2.1%
2019	1.8%	2028	2.4%	2037	2.2%
2020	0.9%	2029	2.3%	2038	2.2%
2021	0.9%	2030	2.2%	2039	2.1%
2022	1.1%	2031	2.2%	2040	2.2%
2023	1.0%	2032	2.2%	2041	2.2%

Appendix B.2
Avoided Cost Prices \$/MWh
Utah 2020.Q2 Sch 38

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q2 100% CF (2)	UT 2020.Q2 31.1% CF (2)	W) UT 2020.Q2 31.0% CF (2)	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	W) UT 2020.Q1 31.0% CF (2)	Difference	Difference	Difference
2020	\$17.12	\$15.40	\$15.32	\$14.22	\$12.50	\$11.48	\$2.89	\$2.90	\$3.84
2021	\$19.21	\$16.15	\$16.39	\$16.69	\$13.33	\$13.62	\$2.52	\$2.82	\$2.77
2022	\$19.42	\$16.35	\$16.96	\$17.72	\$14.22	\$14.82	\$1.70	\$2.13	\$2.15
2023	\$18.91	\$15.97	\$23.88	\$16.86	\$13.52	\$25.40	\$2.05	\$2.45	(\$1.51)
2024	\$14.49	\$13.44	\$24.98	\$12.08	\$13.72	\$26.51	\$2.41	(\$0.28)	(\$1.52)
2025	\$16.01	\$14.32	\$24.90	\$12.71	\$14.25	\$26.79	\$3.30	\$0.07	(\$1.89)
2026	\$30.26	\$14.53	\$25.80	\$29.93	\$14.81	\$27.94	\$0.32	(\$0.29)	(\$2.14)
2027	\$31.93	\$15.86	\$25.96	\$31.96	\$15.66	\$28.34	(\$0.03)	\$0.20	(\$2.38)
2028	\$35.98	\$19.18	\$26.30	\$35.63	\$18.27	\$29.43	\$0.35	\$0.91	(\$3.13)
2029	\$37.44	\$21.07	\$26.06	\$36.96	\$19.58	\$29.71	\$0.48	\$1.49	(\$3.65)
2030	\$37.79	\$19.63	\$26.96	\$36.22	\$18.00	\$30.10	\$1.58	\$1.63	(\$3.13)
2031	\$40.16	\$21.56	\$27.96	\$38.90	\$19.89	\$31.40	\$1.26	\$1.67	(\$3.44)
2032	\$42.02	\$22.27	\$28.43	\$43.63	\$22.90	\$31.88	(\$1.61)	(\$0.63)	(\$3.45)
2033	\$43.43	\$22.35	\$54.94	\$45.65	\$23.18	\$58.45	(\$2.22)	(\$0.84)	(\$3.51)
2034	\$45.15	\$23.81	\$56.27	\$47.22	\$24.32	\$59.55	(\$2.06)	(\$0.51)	(\$3.29)

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2020-2034	\$/MWh	\$27.07	\$17.29	\$25.45	\$25.82	\$16.12	\$26.44	\$1.25	\$1.17	(\$0.99)
							5%	7%	-4%	

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2020 - 2034, levelized monthly

Table 1
Avoided Cost Prices
Utah 2020.Q2_Solar - 80.0 MW and 32.2% CF

Total Price @

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	32.2% Capacity Factor \$/MWh
2020	\$0.00	\$15.40	\$15.40
2021	\$0.00	\$16.15	\$16.15
2022	\$0.00	\$16.35	\$16.35
2023	\$0.00	\$15.97	\$15.97
2024	\$32.35	\$1.76	\$13.44
2025	\$32.90	\$2.35	\$14.32
2026	\$33.59	\$2.25	\$14.53
2027	\$34.40	\$3.23	\$15.86
2028	\$35.23	\$6.21	\$19.18
2029	\$36.04	\$7.70	\$21.07
2030	\$36.84	\$5.89	\$19.63
2031	\$37.65	\$7.45	\$21.56
2032	\$38.47	\$7.82	\$22.27
2033	\$39.28	\$7.48	\$22.35
2034	\$40.11	\$8.55	\$23.81
2035	\$40.95	\$9.22	\$24.88
2036	\$41.81	\$10.81	\$26.83
2037	\$42.73	\$11.08	\$27.58
2038	\$43.67	\$12.65	\$29.60

15 Year Ending 2020

Levelized Prices (Nominal) @ 6.92% Discount Rate (1) (3)

\$/kW \$23.00

\$/MWh \$9.13 \$17.29

15 Year Starting 2021

Levelized Prices (Nominal) @ 6.92% Discount Rate (1) (3)

\$/kW \$26.42

\$/MWh \$8.42 \$17.79

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2020.Q2_Solar - 80.0 MW and 32.2% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2020	15.40	18.58	13.88	14.82	12.17	13.08	14.02	17.67	19.55	16.05	14.96	14.63	15.81
2021	16.15	21.33	15.13	15.28	11.69	11.61	14.27	22.46	21.02	16.25	13.68	14.68	17.52
2022	16.35	21.34	16.62	15.22	11.48	11.67	14.03	22.80	21.39	16.79	14.29	14.72	17.13
2023	15.97	16.60	16.24	15.06	11.56	12.57	14.57	22.63	20.89	15.45	13.64	14.30	17.24
2024	1.76	2.41	1.85	(2.39)	(5.32)	(0.36)	2.41	8.47	7.32	1.52	(1.80)	0.71	4.94
2025	2.35	2.49	1.60	(1.81)	(4.56)	(0.18)	3.45	8.90	8.47	2.33	(1.30)	0.95	6.19
2026	2.25	1.43	1.36	(2.43)	(4.82)	0.26	3.46	8.33	8.49	1.56	(0.36)	2.05	5.66
2027	3.23	2.34	2.69	(1.00)	(3.34)	1.32	3.88	8.89	9.96	2.26	0.90	2.53	6.37
2028	6.21	6.54	6.07	3.81	(0.79)	3.54	6.35	12.65	11.22	5.37	3.42	6.28	10.11
2029	7.70	8.81	6.51	4.10	1.90	3.78	7.28	14.54	14.46	6.57	5.67	8.07	9.98
2030	5.89	6.32	5.60	3.05	1.42	3.51	5.44	11.01	10.56	5.42	3.51	6.63	7.95
2031	7.45	7.44	7.65	6.23	3.91	3.40	7.25	11.97	12.71	6.72	6.30	6.18	9.84
2032	7.82	7.39	6.29	6.32	4.48	3.79	6.71	13.44	12.40	9.29	5.97	6.56	10.45
2033	7.48	8.83	6.89	6.30	3.88	3.08	6.72	13.08	12.25	5.84	6.44	6.89	10.82
2034	8.55	10.06	7.90	7.21	4.51	4.60	7.32	14.05	13.58	7.11	8.61	7.08	11.32
2035	9.22	10.22	9.50	7.34	5.06	4.92	8.06	16.13	14.62	7.25	7.12	9.68	11.50
2036	10.81	11.91	9.96	9.58	5.84	6.22	8.99	17.80	17.29	10.49	6.95	10.16	15.77
2037	11.08	14.19	10.31	8.94	7.48	6.29	10.06	16.52	15.66	9.51	9.01	13.48	14.61

Table 4
Burnertip Natural Gas Price Forecast
Utah 2020.Q2_Solar - 80.0 MW and 32.2% CF

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.78	\$1.79	\$1.97	\$1.71
2021	\$2.39	\$2.40	\$2.49	\$2.23
2022	\$2.19	\$2.20	\$2.27	\$2.03
2023	\$2.18	\$2.19	\$2.25	\$2.03
2024	\$2.31	\$2.32	\$2.31	\$2.16
2025	\$2.44	\$2.45	\$2.40	\$2.29
2026	\$2.57	\$2.58	\$2.49	\$2.41
2027	\$2.81	\$2.82	\$2.68	\$2.66
2028	\$3.07	\$3.08	\$2.93	\$2.91
2029	\$3.30	\$3.31	\$3.18	\$3.14
2030	\$3.52	\$3.53	\$3.41	\$3.35
2031	\$3.70	\$3.71	\$3.57	\$3.53
2032	\$3.89	\$3.90	\$3.74	\$3.72
2033	\$4.06	\$4.07	\$3.91	\$3.89
2034	\$4.27	\$4.28	\$4.13	\$4.10
2035	\$4.50	\$4.51	\$4.34	\$4.33
2036	\$4.70	\$4.71	\$4.51	\$4.52
2037	\$5.03	\$5.04	\$4.84	\$4.85
2038	\$5.32	\$5.33	\$5.09	\$5.14
2039	\$5.67	\$5.68	\$5.44	\$5.49
2040	\$5.81	\$5.82	\$5.56	\$5.63

Official Forward Price Curve Forecast dated Jun 30, 2020

Table 5

**Utah 2020.Q2_Solar - 80.0 MW and 32.2% CF
January 2020 through December 2039
Nominal Avoided Costs Calculated Monthly**

15 Year Starting 2021	\$	17,353,979	\$	19,307,952	\$	36,661,931	2,060,566	\$17.79
Nominal NPV at 6.92% Discount Rate								
15 Year Ending 2020	\$	18,909,488	\$	16,900,031	\$	35,809,519	2,071,444	\$17.29

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Jan-20	231,448	-	231,448	12,454	18.58
Feb-20	177,098	-	177,098	12,755	13.88
Mar-20	250,946	-	250,946	16,934	14.82
Apr-20	244,247	-	244,247	20,073	12.17
May-20	359,299	-	359,299	27,470	13.08
Jun-20	352,845	-	352,845	25,167	14.02
Jul-20	453,662	-	453,662	25,671	17.67
Aug-20	450,360	-	450,360	23,041	19.55
Sep-20	352,846	-	352,846	21,985	16.05
Oct-20	274,854	-	274,854	18,370	14.96
Nov-20	189,923	-	189,923	12,983	14.63
Dec-20	146,668	-	146,668	9,279	15.81
Jan-21	264,282	-	264,282	12,392	21.33
Feb-21	182,862	-	182,862	12,086	15.13
Mar-21	257,468	-	257,468	16,850	15.28
Apr-21	233,570	-	233,570	19,973	11.69
May-21	317,310	-	317,310	27,333	11.61
Jun-21	357,323	-	357,323	25,042	14.27
Jul-21	573,699	-	573,699	25,543	22.46
Aug-21	481,838	-	481,838	22,926	21.02
Sep-21	355,567	-	355,567	21,875	16.25
Oct-21	250,092	-	250,092	18,278	13.68
Nov-21	189,627	-	189,627	12,918	14.68
Dec-21	161,748	-	161,748	9,233	17.52
Jan-35	118,086	273,010	391,096	11,552	33.86
Feb-35	106,988	273,010	379,998	11,267	33.73
Mar-35	115,228	273,010	388,238	15,708	24.72
Apr-35	94,298	273,010	367,308	18,619	19.73
May-35	125,344	273,010	398,354	25,480	15.63
Jun-35	188,266	273,010	461,276	23,344	19.76
Jul-35	384,195	273,010	657,205	23,812	27.60
Aug-35	312,560	273,010	585,570	21,372	27.40
Sep-35	147,810	273,010	420,820	20,393	20.64
Oct-35	121,257	273,010	394,267	17,039	23.14
Nov-35	116,543	273,010	389,553	12,042	32.35
Dec-35	99,003	273,010	372,013	8,607	43.22

**Table 3
2019 IRP Utah South Solar with Storage
33% Capacity Factor**

Year	Estimated Capital Cost \$/kW	Fixed Capital Cost at Real Levelized Rate \$/kW-yr	Fixed O&M \$/kW-yr	Network Upgrade \$/kW-yr	Fixed Costs \$/MWh	Variable O&M \$/MWh	Total Resource Cost \$/MWh	Total Resource Costs \$/kW-yr	Total Fixed Cost \$/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
2016									
2017									
2018			\$24.57			\$0.00			\$24.57
2019			\$25.01			\$0.00			\$25.01
2020			\$25.24			\$0.00			\$25.24
2021			\$25.47			\$0.00			\$25.47
2022			\$25.75			\$0.00			\$25.75
2023			\$26.01			\$0.00			\$26.01
2024	\$1,230	\$62.55	\$26.35	\$1.49	\$31.75	\$0.00	\$31.75	\$90.38	\$90.38
2025		\$63.61	\$26.80	\$1.51	\$32.29	\$0.00	\$32.29	\$91.92	\$91.92
2026		\$64.95	\$27.36	\$1.54	\$32.96	\$0.00	\$32.96	\$93.85	\$93.85
2027		\$66.51	\$28.02	\$1.58	\$33.76	\$0.00	\$33.76	\$96.11	\$96.11
2028		\$68.11	\$28.69	\$1.62	\$34.57	\$0.00	\$34.57	\$98.42	\$98.42
2029		\$69.68	\$29.35	\$1.66	\$35.37	\$0.00	\$35.37	\$100.69	\$100.69
2030		\$71.21	\$30.00	\$1.70	\$36.15	\$0.00	\$36.15	\$102.91	\$102.91
2031		\$72.78	\$30.66	\$1.74	\$36.94	\$0.00	\$36.94	\$105.18	\$105.18
2032		\$74.38	\$31.33	\$1.78	\$37.76	\$0.00	\$37.76	\$107.49	\$107.49
2033		\$75.94	\$31.99	\$1.82	\$38.55	\$0.00	\$38.55	\$109.75	\$109.75
2034		\$77.53	\$32.66	\$1.86	\$39.36	\$0.00	\$39.36	\$112.05	\$112.05
2035		\$79.16	\$33.35	\$1.90	\$40.19	\$0.00	\$40.19	\$114.41	\$114.41
2036		\$80.82	\$34.05	\$1.94	\$41.03	\$0.00	\$41.03	\$116.81	\$116.81
2037		\$82.60	\$34.80	\$1.98	\$41.93	\$0.00	\$41.93	\$119.38	\$119.38
2038		\$84.42	\$35.57	\$2.02	\$42.86	\$0.00	\$42.86	\$122.01	\$122.01
2039		\$86.19	\$36.32	\$2.06	\$43.75	\$0.00	\$43.75	\$124.57	\$124.57
2040		\$88.09	\$37.12	\$2.11	\$44.72	\$0.00	\$44.72	\$127.32	\$127.32
2041		\$90.03	\$37.94	\$2.16	\$45.71	\$0.00	\$45.71	\$130.13	\$130.13
2042		\$92.01	\$38.77	\$2.21	\$46.71	\$0.00	\$46.71	\$132.99	\$132.99
2043		\$94.03	\$39.62	\$2.26	\$47.74	\$0.00	\$47.74	\$135.91	\$135.91

2019 IRP Utah South Solar with Storage - 33% Capacity Factor

Sources, Inputs and Assumptions

- Source: (c)(f) Plant Costs - 2019 IRP Update - Table 6.1 & 6.2
 (a) Plant capacity cost
 (b) = (a) x 0.05085
 (d) = ((b) + (c)) / (8.76 x 32.5%)
 (g) = (e) + (f)
 (h) Plant Costs - 2019 IRP Update - Table 6.1 & 6.2

2019 IRP Utah South Solar with Storage - 33% Capacity Factor		
Wind	Cost and Input Assumptions	
2018 \$	\$1,612	Plant capacity cost
2018 \$	\$24.57	Fixed O&M, plus on-going capital cost
2018 \$	\$0.00	Wheeling (\$ MWh) Variable O&M Tax Credit \$/MWh
2023 \$	1.47	Network Upgrade (\$/kw-yr) Utah S, Transmission Integration 2023
	5.085%	Payment Factor includes 30% ITC
	32.5%	Capacity Factor

COD
230.8 MW

Company Official Inflation Forecast Dated June 30, 2020					
2017	2.0%	2026	2.1%	2035	2.1%
2018	2.4%	2027	2.4%	2036	2.1%
2019	1.8%	2028	2.4%	2037	2.2%
2020	0.9%	2029	2.3%	2038	2.2%
2021	0.9%	2030	2.2%	2039	2.1%
2022	1.1%	2031	2.2%	2040	2.2%
2023	1.0%	2032	2.2%	2041	2.2%
2024	1.3%	2033	2.1%	2042	2.2%
2025	1.7%	2034	2.1%	2043	2.2%

Table 3
2019 IRP Utah North Solar with Storage
30% Capacity Factor

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

2019 IRP Utah North Solar with Storage - 30% Capacity Factor

2016									
2017									
2018			\$24.57			\$0.00			\$24.57
2019			\$25.01			\$0.00			\$25.01
2020			\$25.24			\$0.00			\$25.24
2021			\$25.47			\$0.00			\$25.47
2022			\$25.75			\$0.00			\$25.75
2023			\$26.01			\$0.00			\$26.01
2024	\$1,230	\$62.55	\$26.35	\$2.58	\$34.69	\$0.00	\$34.69	\$91.48	\$91.48
2025		\$63.61	\$26.80	\$2.63	\$35.29	\$0.00	\$35.29	\$93.04	\$93.04
2026		\$64.95	\$27.36	\$2.69	\$36.03	\$0.00	\$36.03	\$95.00	\$95.00
2027		\$66.51	\$28.02	\$2.75	\$36.89	\$0.00	\$36.89	\$97.28	\$97.28
2028		\$68.11	\$28.69	\$2.82	\$37.78	\$0.00	\$37.78	\$99.62	\$99.62
2029		\$69.68	\$29.35	\$2.88	\$38.65	\$0.00	\$38.65	\$101.91	\$101.91
2030		\$71.21	\$30.00	\$2.94	\$39.50	\$0.00	\$39.50	\$104.15	\$104.15
2031		\$72.78	\$30.66	\$3.00	\$40.37	\$0.00	\$40.37	\$106.44	\$106.44
2032		\$74.38	\$31.33	\$3.07	\$41.26	\$0.00	\$41.26	\$108.78	\$108.78
2033		\$75.94	\$31.99	\$3.13	\$42.12	\$0.00	\$42.12	\$111.06	\$111.06
2034		\$77.53	\$32.66	\$3.20	\$43.00	\$0.00	\$43.00	\$113.39	\$113.39
2035		\$79.16	\$33.35	\$3.27	\$43.91	\$0.00	\$43.91	\$115.78	\$115.78
2036		\$80.82	\$34.05	\$3.34	\$44.83	\$0.00	\$44.83	\$118.21	\$118.21
2037		\$82.60	\$34.80	\$3.41	\$45.82	\$0.00	\$45.82	\$120.81	\$120.81
2038		\$84.42	\$35.57	\$3.49	\$46.83	\$0.00	\$46.83	\$123.48	\$123.48
2039		\$86.19	\$36.32	\$3.56	\$47.81	\$0.00	\$47.81	\$126.07	\$126.07
2040		\$88.09	\$37.12	\$3.64	\$48.87	\$0.00	\$48.87	\$128.85	\$128.85
2041		\$90.03	\$37.94	\$3.72	\$49.94	\$0.00	\$49.94	\$131.69	\$131.69
2042		\$92.01	\$38.77	\$3.80	\$51.04	\$0.00	\$51.04	\$134.58	\$134.58
2043		\$94.03	\$39.62	\$3.88	\$52.16	\$0.00	\$52.16	\$137.53	\$137.53
2044		\$94.03	\$39.62	\$3.88	\$52.16	\$0.00	\$52.16	\$137.53	\$137.53
2045		\$94.03	\$39.62	\$3.88	\$52.16	\$0.00	\$52.16	\$137.53	\$137.53
2046		\$94.03	\$39.62	\$3.88	\$52.16	\$0.00	\$52.16	\$137.53	\$137.53
2047		\$94.03	\$39.62	\$3.88	\$52.16	\$0.00	\$52.16	\$137.53	\$137.53

Sources, Inputs and Assumptions

Source: (c)(f) Plant Costs - 2019 IRP Update - Table 6.1 & 6.2
(a) Plant capacity cost
(b) = (a) x 0.05085
(c) = ((b) + (c)) / (8.76 x 30.1%)
(g) = (c) + (f)
(i) Plant Costs - 2019 IRP Update - Table 6.1 & 6.2

2019 IRP Utah North Solar with Storage - 30% Capacity Factor
Wind Cost and Input Assumptions

2018 \$	\$1,609	Plant capacity cost								COD
2018 \$	\$24.57	Fixed O&M, plus on-going capital cost								342.2 MW
2018 \$	\$0.00	Wheeling (\$ MWh)								
		Variable O&M								
		Tax Credit \$/MWh								First Year real levelized
2024\$	2.58	Network Upgrade (\$/kw-yr)		Utah N, Trans	mission Integration					
	5.085%	Payment Factor								includes 30% ITC
	30.1%	Capacity Factor								

Company Official Inflation Forecast Dated June 30, 2020

2017	2.0%	2026	2.1%	2035	2.1%
2018	2.4%	2027	2.4%	2036	2.1%
2019	1.8%	2028	2.4%	2037	2.2%
2020	0.9%	2029	2.3%	2038	2.2%
2021	0.9%	2030	2.2%	2039	2.1%
2022	1.1%	2031	2.2%	2040	2.2%
2023	1.0%	2032	2.2%	2041	2.2%
2024	1.3%	2033	2.1%	2042	2.2%
2025	1.7%	2034	2.1%	2043	2.2%

Appendix B.3
Avoided Cost Prices \$/MWh
Utah 2020.Q2 Sch 38

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q2 100% CF (2)	UT 2020.Q2 31.1% CF (2)	W) UT 2020.Q2 31.0% CF (2)	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	W) UT 2020.Q1 31.0% CF (2)	Difference	Difference	Difference
2020	\$17.12	\$15.40	\$15.32	\$14.22	\$12.50	\$11.48	\$2.89	\$2.90	\$3.84
2021	\$19.21	\$16.15	\$16.39	\$16.69	\$13.33	\$13.62	\$2.52	\$2.82	\$2.77
2022	\$19.42	\$16.35	\$16.96	\$17.72	\$14.22	\$14.82	\$1.70	\$2.13	\$2.15
2023	\$18.91	\$15.97	\$23.88	\$16.86	\$13.52	\$25.40	\$2.05	\$2.45	(\$1.51)
2024	\$14.49	\$13.44	\$24.98	\$12.08	\$13.72	\$26.51	\$2.41	(\$0.28)	(\$1.52)
2025	\$16.01	\$14.32	\$24.90	\$12.71	\$14.25	\$26.79	\$3.30	\$0.07	(\$1.89)
2026	\$30.26	\$14.53	\$25.80	\$29.93	\$14.81	\$27.94	\$0.32	(\$0.29)	(\$2.14)
2027	\$31.93	\$15.86	\$25.96	\$31.96	\$15.66	\$28.34	(\$0.03)	\$0.20	(\$2.38)
2028	\$35.98	\$19.18	\$26.30	\$35.63	\$18.27	\$29.43	\$0.35	\$0.91	(\$3.13)
2029	\$37.44	\$21.07	\$26.06	\$36.96	\$19.58	\$29.71	\$0.48	\$1.49	(\$3.65)
2030	\$37.79	\$19.63	\$26.96	\$36.22	\$18.00	\$30.10	\$1.58	\$1.63	(\$3.13)
2031	\$40.16	\$21.56	\$27.96	\$38.90	\$19.89	\$31.40	\$1.26	\$1.67	(\$3.44)
2032	\$42.02	\$22.27	\$28.43	\$43.63	\$22.90	\$31.88	(\$1.61)	(\$0.63)	(\$3.45)
2033	\$43.43	\$22.35	\$54.94	\$45.65	\$23.18	\$58.45	(\$2.22)	(\$0.84)	(\$3.51)
2034	\$45.15	\$23.81	\$56.27	\$47.22	\$24.32	\$59.55	(\$2.06)	(\$0.51)	(\$3.29)

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2020-2034	\$/MWh	\$27.07	\$17.29	\$25.45	\$25.82	\$16.12	\$26.44	\$1.25	\$1.17	(\$0.99)
							5%	7%		-4%

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2020 - 2034, levelized monthly

Table 1
Avoided Cost Prices
Utah 2020.Q2_Wind - 80.0 MW and 29.4% CF

Total Price @

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh ⁽²⁾	29.4% Capacity Factor \$/MWh
2020	\$0.00	\$15.32	\$15.32
2021	\$0.00	\$16.39	\$16.39
2022	\$0.00	\$16.96	\$16.96
2023	\$120.91	(\$22.98)	\$23.88
2024	\$122.81	(\$22.57)	\$24.98
2025	\$125.09	(\$23.58)	\$24.90
2026	\$127.77	(\$23.72)	\$25.80
2027	\$130.79	(\$24.73)	\$25.96
2028	\$133.90	(\$25.55)	\$26.30
2029	\$136.97	(\$27.02)	\$26.06
2030	\$140.01	(\$27.30)	\$26.96
2031	\$143.13	(\$27.51)	\$27.96
2032	\$146.31	(\$28.23)	\$28.43
2033	\$149.45	(\$2.98)	\$54.94
2034	\$152.66	(\$2.90)	\$56.27
2035	\$155.94	(\$3.47)	\$56.96
2036	\$159.30	(\$4.14)	\$57.55
2037	\$162.83	(\$2.76)	\$60.34
2038	\$166.44	(\$3.06)	\$61.45

15 Year Ending 2020

Levelized Prices (Nominal) @ 6.92% Discount Rate (1) (3)

\$/kW \$94.66

\$/MWh (\$11.31)

\$25.45

15 Year Starting 2021

Levelized Prices (Nominal) @ 6.92% Discount Rate (1) (3)

\$/kW \$107.43

\$/MWh (\$13.91)

\$27.81

Table 2
Avoided Energy Costs - Scheduled Hours (\$/MWh)
Utah 2020.Q2_Wind - 80.0 MW and 29.4% CF

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Energy Only													
2020	15.32	15.73	15.25	15.18	13.14	13.68	13.92	17.16	20.85	15.97	15.36	14.77	16.76
2021	16.39	16.23	16.79	16.40	13.03	12.68	14.68	21.90	24.46	16.72	14.91	16.80	18.97
2022	16.96	18.71	19.00	16.93	12.82	12.58	14.97	21.84	23.46	17.60	15.41	16.90	18.90
2023	(22.98)	(22.85)	(22.96)	(22.71)	(22.34)	(22.22)	(22.59)	(24.63)	(25.19)	(22.80)	(22.73)	(22.75)	(23.86)
2024	(22.57)	(22.29)	(22.69)	(22.21)	(22.19)	(21.93)	(22.17)	(24.59)	(23.99)	(22.42)	(22.66)	(22.42)	(22.95)
2025	(23.58)	(23.18)	(23.43)	(23.21)	(23.09)	(22.99)	(22.64)	(26.13)	(27.01)	(23.73)	(23.41)	(23.34)	(23.56)
2026	(23.72)	(23.10)	(23.68)	(23.21)	(23.34)	(23.22)	(23.42)	(26.14)	(26.00)	(24.05)	(23.39)	(23.54)	(23.94)
2027	(24.73)	(24.12)	(23.87)	(24.18)	(24.51)	(24.17)	(24.38)	(27.96)	(28.33)	(24.86)	(24.23)	(24.42)	(24.98)
2028	(25.55)	(24.23)	(24.66)	(25.07)	(23.99)	(23.88)	(25.06)	(32.08)	(35.45)	(24.79)	(24.75)	(23.68)	(26.27)
2029	(27.02)	(25.05)	(26.45)	(26.62)	(25.68)	(25.65)	(26.87)	(31.83)	(36.94)	(25.80)	(26.46)	(25.93)	(27.69)
2030	(27.30)	(25.61)	(27.04)	(26.05)	(26.07)	(26.07)	(26.21)	(34.31)	(37.23)	(26.45)	(26.60)	(26.57)	(26.99)
2031	(27.51)	(25.64)	(26.49)	(25.78)	(25.87)	(26.45)	(25.46)	(38.23)	(39.25)	(25.66)	(26.68)	(27.29)	(26.97)
2032	(28.23)	(26.38)	(27.64)	(26.34)	(26.14)	(26.96)	(27.69)	(39.02)	(41.50)	(24.10)	(27.95)	(27.34)	(27.52)
2033	(2.98)	(0.60)	(2.75)	(0.86)	(1.44)	(2.11)	(1.83)	(12.77)	(13.63)	(2.60)	(1.46)	(2.15)	(3.10)
2034	(2.90)	(0.65)	(2.68)	(1.31)	(1.48)	(0.84)	(2.94)	(11.80)	(11.97)	(1.65)	(1.28)	(3.80)	(2.79)
2035	(3.47)	(1.41)	(2.59)	(2.61)	(0.85)	0.02	(1.89)	(12.84)	(20.06)	(3.27)	(2.74)	(2.03)	(3.47)
2036	(4.14)	(0.91)	(3.65)	(1.54)	(2.01)	(0.79)	(2.62)	(15.18)	(18.63)	(3.73)	(4.34)	(4.03)	(4.91)
2037	(2.76)	(0.80)	(3.04)	(1.51)	(1.28)	(0.82)	(1.03)	(11.43)	(15.58)	(0.17)	(1.26)	(0.64)	(4.76)

Table 4
Burnertip Natural Gas Price Forecast
Utah 2020.Q2_Wind - 80.0 MW and 29.4% CF

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.78	\$1.79	\$1.97	\$1.71
2021	\$2.39	\$2.40	\$2.49	\$2.23
2022	\$2.19	\$2.20	\$2.27	\$2.03
2023	\$2.18	\$2.19	\$2.25	\$2.03
2024	\$2.31	\$2.32	\$2.31	\$2.16
2025	\$2.44	\$2.45	\$2.40	\$2.29
2026	\$2.57	\$2.58	\$2.49	\$2.41
2027	\$2.81	\$2.82	\$2.68	\$2.66
2028	\$3.07	\$3.08	\$2.93	\$2.91
2029	\$3.30	\$3.31	\$3.18	\$3.14
2030	\$3.52	\$3.53	\$3.41	\$3.35
2031	\$3.70	\$3.71	\$3.57	\$3.53
2032	\$3.89	\$3.90	\$3.74	\$3.72
2033	\$4.06	\$4.07	\$3.91	\$3.89
2034	\$4.27	\$4.28	\$4.13	\$4.10
2035	\$4.50	\$4.51	\$4.34	\$4.33
2036	\$4.70	\$4.71	\$4.51	\$4.52
2037	\$5.03	\$5.04	\$4.84	\$4.85
2038	\$5.32	\$5.33	\$5.09	\$5.14
2039	\$5.67	\$5.68	\$5.44	\$5.49
2040	\$5.81	\$5.82	\$5.56	\$5.63

Official Forward Price Curve Forecast dated Jun 30, 2020

Table 5

**Utah 2020.Q2_Wind - 80.0 MW and 29.4% CF
January 2020 through December 2039
Nominal Avoided Costs Calculated Monthly**

15 Year Starting 2021	\$	(27,195,506)	\$	81,570,480	\$	54,374,974	1,955,351	\$27.81
Nominal NPV at 6.92% Discount Rate								
15 Year Ending 2020	\$	(22,121,846)	\$	71,880,462	\$	49,758,616	1,955,492	\$25.45

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Jan-20	331,990	-	331,990	21,102	15.73
Feb-20	307,337	-	307,337	20,151	15.25
Mar-20	384,791	-	384,791	25,353	15.18
Apr-20	269,012	-	269,012	20,477	13.14
May-20	280,232	-	280,232	20,492	13.68
Jun-20	230,225	-	230,225	16,540	13.92
Jul-20	206,426	-	206,426	12,030	17.16
Aug-20	200,421	-	200,421	9,611	20.85
Sep-20	199,801	-	199,801	12,511	15.97
Oct-20	269,363	-	269,363	17,534	15.36
Nov-20	226,772	-	226,772	15,352	14.77
Dec-20	258,574	-	258,574	15,432	16.76
Jan-21	342,564	-	342,564	21,102	16.23
Feb-21	335,670	-	335,670	19,988	16.79
Mar-21	415,706	-	415,706	25,353	16.40
Apr-21	266,733	-	266,733	20,477	13.03
May-21	259,917	-	259,917	20,492	12.68
Jun-21	242,885	-	242,885	16,540	14.68
Jul-21	263,390	-	263,390	12,030	21.90
Aug-21	235,123	-	235,123	9,611	24.46
Sep-21	209,203	-	209,203	12,511	16.72
Oct-21	261,443	-	261,443	17,534	14.91
Nov-21	257,961	-	257,961	15,352	16.80
Dec-21	292,689	-	292,689	15,432	18.97
Jan-35	(29,766)	1,039,603	1,009,837	21,102	47.85
Feb-35	(51,790)	1,039,603	987,813	19,988	49.42
Mar-35	(66,099)	1,039,603	973,504	25,353	38.40
Apr-35	(17,459)	1,039,603	1,022,144	20,477	49.92
May-35	348	1,039,603	1,039,952	20,492	50.75
Jun-35	(31,204)	1,039,603	1,008,400	16,540	60.97
Jul-35	(154,495)	1,039,603	885,108	12,030	73.58
Aug-35	(192,796)	1,039,603	846,807	9,611	88.11
Sep-35	(40,970)	1,039,603	998,633	12,511	79.82
Oct-35	(48,042)	1,039,603	991,562	17,534	56.55
Nov-35	(31,093)	1,039,603	1,008,510	15,352	65.69
Dec-35	(53,547)	1,039,603	986,056	15,432	63.90

**Table 3
2019 IRP Utah Wind Resource
30% Capacity Factor**

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized Rate	Fixed O&M	Network Upgrade	Fixed Costs	PTC & Variable O&M	Total Resource Cost	Total Resource Costs	Total Fixed Cost
	\$/kW	\$/kW-yr	\$/kW-yr	\$/kW-yr	\$/MWh	\$/MWh	\$/MWh	\$/kW-yr	\$/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

2019 IRP Utah Wind Resource - 30% Capacity Factor

2016									
2017									
2018						\$0.00			\$0.00
2019						\$0.00			\$0.00
2020						\$0.00			\$0.00
2021						\$0.00			\$0.00
2022						\$0.00			\$0.00
2023	\$1,266	\$87.31	\$32.33	1.47	\$46.87	(\$21.48)	\$25.39	\$65.60	\$121.11
2024		\$88.45	\$33.07	\$1.49	\$47.60	(\$21.48)	\$26.12	\$67.50	\$123.01
2025		\$89.95	\$33.83	\$1.52	\$48.49	(\$22.28)	\$26.21	\$67.73	\$125.30
2026		\$91.84	\$34.59	\$1.55	\$49.53	(\$22.28)	\$27.25	\$70.41	\$127.98
2027		\$94.04	\$35.38	\$1.59	\$50.70	(\$23.07)	\$27.63	\$71.39	\$131.01
2028		\$96.30	\$36.19	\$1.63	\$51.90	(\$23.07)	\$28.83	\$74.50	\$134.12
2029		\$98.51	\$37.01	\$1.67	\$53.09	(\$23.87)	\$29.22	\$75.51	\$137.19
2030		\$100.68	\$37.86	\$1.71	\$54.27	(\$24.67)	\$29.60	\$76.50	\$140.25
2031		\$102.89	\$38.72	\$1.75	\$55.48	(\$24.67)	\$30.81	\$79.62	\$143.36
2032		\$105.15	\$39.61	\$1.79	\$56.71	(\$25.46)	\$31.25	\$80.76	\$146.55
2033		\$107.36	\$40.51	\$1.83	\$57.93	\$0.00	\$57.93	\$149.70	\$149.70
2034		\$109.61	\$41.43	\$1.87	\$59.17	\$0.00	\$59.17	\$152.91	\$152.91
2035		\$111.91	\$42.38	\$1.91	\$60.44	\$0.00	\$60.44	\$156.20	\$156.20
2036		\$114.26	\$43.35	\$1.95	\$61.74	\$0.00	\$61.74	\$159.56	\$159.56
2037		\$116.77	\$44.33	\$1.99	\$63.11	\$0.00	\$63.11	\$163.09	\$163.09
2038		\$119.34	\$45.35	\$2.03	\$64.51	\$0.00	\$64.51	\$166.72	\$166.72
2039		\$121.85	\$46.30	\$2.07	\$65.87	\$0.00	\$65.87	\$170.22	\$170.22
2040		\$124.53	\$47.32	\$2.12	\$67.32	\$0.00	\$67.32	\$173.97	\$173.97
2041		\$127.27	\$48.36	\$2.17	\$68.80	\$0.00	\$68.80	\$177.80	\$177.80
2042		\$130.07	\$49.42	\$2.22	\$70.32	\$0.00	\$70.32	\$181.71	\$181.71
2043		\$132.93	\$50.51	\$2.27	\$71.86	\$0.00	\$71.86	\$185.71	\$185.71

Sources, Inputs and Assumptions

Source:	(c)(f)	Plant Costs - 2019 IRP Update - Table 6.1 & 6.2
	(a)	Plant capacity cost
	(b)	= (a) x 0.0689863805027125
	(e)	= ((b) + (c)) / (8.76 x 29.5%)
	(g)	= (e) + (f)
	(i)	Plant Costs - 2019 IRP Update - Table 6.1 & 6.2

2019 IRP Utah Wind Resource - 30% Capacity Factor		
Wind	Cost and Input Assumptions	

2018 \$	\$1,301	Plant capacity cost
2018 \$	\$28.80	Fixed O&M, plus on-going capital cost
		Wheeling (\$ MWh)
2018 \$	\$0.00	Variable O&M
		Tax Credit \$/MWh
2023\$	1.47	Network Upgrade (\$/kw-yr) Utah S, Transmission Integration 2023
		First Year real levelized
	6.899%	Payment Factor
	29.5%	Capacity Factor

Company Official Inflation Forecast Dated September 30, 2019					
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2017	2.0%	2026	2.1%	2035	2.1%
2018	2.4%	2027	2.4%	2036	2.1%
2019	1.8%	2028	2.4%	2037	2.2%
2020	0.9%	2029	2.3%	2038	2.2%
2021	0.9%	2030	2.2%	2039	2.1%
2022	1.1%	2031	2.2%	2040	2.2%
2023	1.0%	2032	2.2%	2041	2.2%
2024	1.3%	2033	2.1%	2042	2.2%
2025	1.7%	2034	2.1%	2043	2.2%

ROCKY MOUNTAIN POWER

STEP STUDY BETWEEN PRIOR FILING AND CURRENT FILING

2020.Q2 – SEPTEMBER 2020

2020 - 2034, Nominal Levelized Payment at 6.920% Discount Rate

	2020 - 2034	2021 - 2035	2022 - 2036
2020.Q1 As Filed	\$25.85	\$28.05	\$30.24
OFPC	-\$0.68	-\$0.75	-\$0.98
Load Fcst	-\$0.07	\$0.26	\$0.37
Queue	-\$0.33	-\$0.40	-\$0.49
Generic	\$1.93	\$1.69	\$1.61
2020.Q2 As Filed	\$27.10	\$28.99	\$30.87

Appendix C

Utah Quarterly Compliance Filing Step Study between 2020.Q2 and 2020.Q1 Compliance Filing Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	OFPC (2)	Load Fcst	Queue	Generic	Total Impact
2020	\$ (0.37)	\$ (2.73)	\$ 0.23	\$ 3.27	\$ 0.40
2021	\$ 0.82	\$ (0.42)	\$ 0.32	\$ 1.70	\$ 2.43
2022	\$ (0.29)	\$ (0.22)	\$ 0.20	\$ 1.99	\$ 1.69
2023	\$ (0.61)	\$ 0.30	\$ 0.10	\$ 2.66	\$ 2.45
2024	\$ (0.05)	\$ 0.36	\$ (1.01)	\$ 2.46	\$ 1.76
2025	\$ 0.18	\$ 0.42	\$ (0.86)	\$ 3.12	\$ 2.86
2026	\$ (1.12)	\$ 0.28	\$ (0.69)	\$ 1.44	\$ (0.08)
2027	\$ (1.63)	\$ 0.25	\$ (0.72)	\$ 1.60	\$ (0.49)
2028	\$ (1.12)	\$ 0.22	\$ (0.69)	\$ 1.47	\$ (0.12)
2029	\$ (1.56)	\$ 0.25	\$ (0.72)	\$ 2.04	\$ 0.01
2030	\$ (1.24)	\$ 0.38	\$ (0.44)	\$ 2.82	\$ 1.52
2031	\$ (1.18)	\$ 0.42	\$ (0.38)	\$ 2.44	\$ 1.30
2032	\$ (1.32)	\$ 0.50	\$ (0.38)	\$ (0.30)	\$ (1.49)
2033	\$ (1.67)	\$ 0.67	\$ (0.47)	\$ (0.55)	\$ (2.02)
2034	\$ (1.53)	\$ 0.80	\$ (0.47)	\$ (0.53)	\$ (1.73)
2035	\$ (1.87)	\$ 0.93	\$ (0.49)	\$ (0.33)	\$ (1.76)
2036	\$ (1.98)	\$ 0.91	\$ (0.51)	\$ (0.36)	\$ (1.93)

Nominal Levelized Payment at 6.920% Discount Rate (3)

2020 - 2034	\$ (0.68)	\$ (0.07)	\$ (0.33)	\$ 1.93	\$ 0.85
2021 - 2035	\$ (0.75)	\$ 0.26	\$ (0.40)	\$ 1.69	\$ 0.80
2022 - 2036	\$ (0.98)	\$ 0.37	\$ (0.49)	\$ 1.61	\$ 0.51

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2020
- (3) Discount Rate - 2019 IRP - Calculated Annually

Appendix C

**Utah Quarterly Compliance Filing
Step Study between 2020.Q2 and 2020.Q1 Compliance Filing
Total Avoided Cost Prices \$/MWH (1) (4)**

Year	2020.Q1 As Filed	OFPC (2)	Load Fcst	Queue	Generic
2020	\$14.22	\$13.85	\$11.12	\$11.35	\$17.12
2021	\$16.69	\$17.51	\$17.10	\$17.42	\$19.21
2022	\$17.72	\$17.43	\$17.21	\$17.42	\$19.42
2023	\$16.86	\$16.26	\$16.56	\$16.65	\$18.91
2024	\$12.08	\$12.03	\$12.39	\$11.38	\$14.49
2025	\$12.71	\$12.89	\$13.31	\$12.45	\$16.01
2026	\$29.93	\$28.81	\$29.10	\$28.41	\$30.26
2027	\$31.96	\$30.33	\$30.59	\$29.87	\$31.93
2028	\$35.63	\$34.51	\$34.73	\$34.04	\$35.98
2029	\$36.96	\$35.40	\$35.65	\$34.93	\$37.44
2030	\$36.22	\$34.98	\$35.35	\$34.91	\$37.80
2031	\$38.90	\$37.72	\$38.14	\$37.76	\$40.16
2032	\$43.63	\$42.31	\$42.82	\$42.43	\$42.02
2033	\$45.65	\$43.98	\$44.65	\$44.18	\$43.43
2034	\$47.22	\$45.68	\$46.49	\$46.02	\$45.15
2035	\$49.31	\$47.45	\$48.38	\$47.88	\$47.11
2036	\$51.72	\$49.74	\$50.65	\$50.14	\$49.38

Nominal Levelized Payment at 6.920% Discount Rate (3)

2020 - 2034	\$25.85	\$25.17	\$25.10	\$24.77	\$27.10
2021 - 2035	\$28.05	\$27.30	\$27.56	\$27.16	\$28.99
2022 - 2036	\$30.24	\$29.26	\$29.63	\$29.14	\$30.87

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2020
- (3) Discount Rate - 2019 IRP - Calculated Annually
- (4) Capacity costs are allocated based on assumed 100% capacity factor.

Appendix C

Utah Quarterly Compliance Filing Step Study between 2020.Q2 and 2020.Q1 Compliance Filing GRID Calculated Energy Avoided Cost Prices \$/MWH (1)

Year	2020.Q1 As Filed	OFPC (2)	Load Fcst	Queue	Generic
2020	\$14.22	\$13.85	\$11.12	\$11.35	\$17.12
2021	\$16.69	\$17.51	\$17.10	\$17.42	\$19.21
2022	\$17.72	\$17.43	\$17.21	\$17.42	\$19.42
2023	\$16.86	\$16.26	\$16.56	\$16.65	\$18.91
2024	\$12.08	\$12.03	\$12.39	\$11.38	\$14.49
2025	\$12.71	\$12.89	\$13.31	\$12.45	\$16.01
2026	\$16.73	\$15.89	\$16.18	\$15.49	\$17.34
2027	\$18.46	\$17.10	\$17.36	\$16.64	\$18.70
2028	\$21.85	\$20.99	\$21.21	\$20.53	\$22.46
2029	\$22.83	\$21.54	\$21.78	\$21.07	\$23.58
2030	\$21.77	\$20.81	\$21.18	\$20.75	\$23.63
2031	\$24.13	\$23.24	\$23.66	\$23.28	\$25.68
2032	\$28.58	\$27.56	\$28.06	\$27.68	\$27.26
2033	\$30.24	\$28.87	\$29.54	\$29.07	\$28.32
2034	\$31.49	\$30.26	\$31.06	\$30.59	\$29.73
2035	\$33.25	\$31.70	\$32.63	\$32.13	\$31.36
2036	\$35.36	\$33.70	\$34.61	\$34.10	\$33.34

Nominal Levelized Payment at 6.92% Discount Rate (3)

2020 - 2034	\$19.01	\$18.47	\$18.40	\$18.06	\$20.39
2021 - 2035	\$20.10	\$19.50	\$19.76	\$19.36	\$21.19
2022 - 2036	\$21.09	\$20.28	\$20.65	\$20.16	\$21.89

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated June 2020
- (3) Discount Rate - 2019 IRP - Calculated Annually

Appendix C

Utah Quarterly Compliance Filing Step Study between 2020.Q2 and 2020.Q1 Compliance Filing Capacity Avoided Cost Prices

Year	\$/kW-Year		\$/MWH (1)	
	2020.Q1 (3)	2020.Q2 (3)	2020.Q1 (3)	2020.Q2 (3)
2020	-	-	-	-
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	\$ 115.63	\$ 113.18	\$ 13.20	\$ 12.92
2027	\$ 118.28	\$ 115.91	\$ 13.50	\$ 13.23
2028	\$ 121.02	\$ 118.70	\$ 13.78	\$ 13.51
2029	\$ 123.80	\$ 121.44	\$ 14.13	\$ 13.86
2030	\$ 126.54	\$ 124.10	\$ 14.44	\$ 14.17
2031	\$ 129.32	\$ 126.84	\$ 14.76	\$ 14.48
2032	\$ 132.19	\$ 129.62	\$ 15.05	\$ 14.76
2033	\$ 134.94	\$ 132.36	\$ 15.40	\$ 15.11
2034	\$ 137.79	\$ 135.12	\$ 15.73	\$ 15.42
2035	\$ 140.67	\$ 137.97	\$ 16.06	\$ 15.75
2036	\$ 143.64	\$ 140.85	\$ 16.35	\$ 16.04

Nominal Levelized Payment at 6.920% Discount Rate (2)

2020 - 2034	\$59.93	\$58.76	\$6.84	\$6.70
2021 - 2035	\$69.71	\$68.35	\$7.95	\$7.80
2022 - 2036	\$80.29	\$78.72	\$9.16	\$8.98

- (1) Capacity costs are allocated based on assumed 100% capacity factor.
- (2) Discount Rate - 2019 IRP
- (3) No Capacity costs - No deferrable thermal resources

CERTIFICATE OF SERVICE

Docket Nos. 20-035-30/03-035-14

I hereby certify that a true and correct copy of the foregoing **2020.Q2 Avoided Cost Input Changes Quarterly Compliance Filing** was served upon the following by email on September 30, 2020.

Assistant Attorney General

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