



1407 W. North Temple  
Salt Lake City, Utah 84116

March 30, 2021

***VIA ELECTRONIC FILING***

Public Service Commission of Utah  
Heber M. Wells Building, 4<sup>th</sup> 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.Q4 Avoided Cost Input Changes**  
**Docket No. 20-035-30 – 2020.Q4 Avoided Cost Input Changes Quarterly Compliance Filing**

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

Public Service Commission of Utah (Commission) orders dated October 31, 2005, and February 2, 2006, in Docket No. 03-035-14 require the Company to keep a record of any changes, including data inputs, made to the Proxy model and the Generation and Regulation Initiative Decision Tool (GRID) model used in calculating avoided costs. The orders further require the Company to notify the Commission and Division of Public Utilities (DPU) of updates made to the models used in the approved Proxy and Partial Displacement Differential Revenue Requirement (PDDRR) avoided cost methodologies. The Commission order dated June 9, 2015 in Docket 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 December 31, 2020 (2012 OFPC).

## 2. Qualifying Facility (QF) Queue

Update of signed contract queue and current potential QFs. The QF queue was revised to include 1,671 MW nameplate in this filing. The potential queue was 1,968 MW nameplate in the 2020.Q3 filing.

### 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 2021-2025, and the Naughton simple-cycle combustion turbine in 2026. The tracking solar QF resource partially displaces summer and winter FOTs during 2021-2023 and the Utah North and Utah South solar with storage resources in 2024. The wind QF resource partially displaces summer and winter FOTs during 2021-2022 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:

Public Service Commission of Utah

March 30, 2021

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By E-Mail (preferred) : [datarequest@pacificorp.com](mailto: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.Q4 – MARCH 2021**

## Appendix A

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

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Assumptions that have changed since the 2020.Q3 compliance filing are in **bold and underline**.

#### **GRID Scenario Study Period**

- January 1, 2021 through December 31, 2035 - 15-year study.
- Avoided cost prices starting in January 2021.

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

- **Updated to PacifiCorp’s December 31, 2020 OFPC (“2012 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 **December 31, 2020**.

### **Levelized Prices (Nominal) at 6.92 percent Discount Rate**

- 15 years 2021 through 2035.
- 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 **2012 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 **December 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 **December 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 December 2020.

### **Size of the Avoided Cost Resource**

- The avoided cost thermal resource is 100 megawatts (“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.<sup>1</sup>
- Wind and solar generation shaped to hourly using 2018 actual generation shape.<sup>1</sup>
- 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.<sup>2</sup>
- 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.

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<sup>1</sup> 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.

<sup>2</sup> 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	Capacity Contribution	Start Date
1	Cypress Creek Renewables - Merrill Solar LLC	-1.5	-10.0	14.9%	2020 01 01
2	OR Solar 7, LLC (Jacksonville)	-1.5	-10.0	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	8.3%	2022 11 01
7	Rocket Solar	6.6	80.0	8.2%	2022 11 01
8	Skysol Solar QF	6.4	55.0	11.6%	2023 03 01
9	Appaloosa Solar I-A	8.5	120.0	7.1%	2023 10 01
10	Appaloosa Solar I-B	5.7	80.0	7.1%	2023 10 01
11	Birch Creek Hydro QF PPA (pending commission approval)	1.4	2.7	53.1%	2022 04 01
12	Fall Creek Rural Electric Co-op QF PPA (pending commission approval)	4.0	7.5	53.1%	2021 04 01
13	Captain Jack Solar QF PPA	0.4	2.7	14.8%	2021 10 01
14	Elektron Solar PPA 1	1.0	10.2	10.0%	2022 12 31
15	Elektron Solar PPA 2	6.9	69.8	9.9%	2022 12 31
16	Castle Solar, LLC, PPA	2.0	20.0	10.0%	2021 12 31
5	Tesoro Non Firm	0.0	25.0	0.0%	2021 01 01
6	Kennecott Smelter Non Firm	0.0	31.8	0.0%	2021 01 01
7	Kennecott Refinery Non Firm	0.0	6.2	0.0%	2021 01 01
8	Exxon Mobil	0.0	98.0	0.0%	2020 01 01
10	US MagCorp Non-Firm	0.0	36.0	0.0%	2021 01 01
Total Signed MW		40.23	759.80		
No.	Potential QF Contracts	Partial Displacement	Name plate	Capacity Contribution	Start Date



1	QF - 561 - WA - Solar	0.10	4.99	2.0%	2023 01 01
2	QF - 602 - OR - Solar	2.07	20.00	10.4%	2023 09 01
3	QF - 568 - WY - Solar	8.43	74.90	11.3%	2023 10 01
4	QF - 599 - WY - Solar	5.78	20.00	28.9%	2024 01 01
5	QF - 600 - WY - Solar	5.78	20.00	28.9%	2024 01 01
6	QF - 577 - WY - Solar	1.6	20.00	8.0%	2024 01 01
7	QF - 578 - WY - Solar	1.6	20.00	8.0%	2024 01 01
8	QF - 579 - WY - Solar	1.60	20.00	8.0%	2024 01 01
9	QF - 580 - WY - Solar	1.60	20.00	8.0%	2024 01 01
10	QF - 581 - WY - Solar	1.60	20.00	8.0%	2024 01 01
11	QF - 582 - WY - Solar	1.60	20.00	8.0%	2024 01 01
12	QF - 544 - OR - Solar	9.65	80.00	12.1%	2024 01 01
13	QF - 587 - UT - Solar	16.25	52.50	31.0%	2023 12 01
14	QF - 588 - UT - Solar	16.3	52.50	31.0%	2023 12 01
15	QF - 589 - UT - Solar	16.25	52.50	31.0%	2023 12 01
16	QF - 590 - UT - Solar	16.25	52.50	31.0%	2023 12 01
17	QF - 591 - UT - Solar	16.25	52.50	31.0%	2023 12 01
18	QF - 592 - UT - Solar	16.25	52.50	31.0%	2023 12 01
19	QF - 593 - UT - Solar	16.25	52.50	31.0%	2023 12 01
20	QF - 594 - UT - Solar	16.25	52.50	31.0%	2023 12 01
21	QF - 595 - UT - Solar	16.25	52.50	31.0%	2023 12 01
22	QF - 596 - UT - Solar	16.25	52.50	31.0%	2023 12 01
23	QF - 601 - WY - Gas	0.00	30.00	0.0%	2022 01 01
24	QF - 537 - WY - Wind	1.73	16.50	10.5%	2021 04 01
Total Potential MW		205.64	911.39		
Total Partial Displacement		<b>245.87</b>	<b>1671.19</b>		
25	Utah 2020.Q4	100.00	100.0	100.0%	2021 01 01
Partial Displacement after QF		<b>345.87</b>	<b>1771.19</b>		

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: **825** nameplate MW of solar resources are displaced by the QF queue. After degradation and accounting for capacity contribution, the incremental solar QF displaces 29MW of solar with storage resource located at Utah South in 2024. The Company retains 100% of the RECs starting in 2024.
- Wind: **14** 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	-	-	-	-	-	6	6	-
2022	-	-	16	-	-	7	7	-
2023	-	-	19	-	-	14	14	-
2024	-	-	825	-	14	5	5	-
2025	-	-	825	-	14	5	5	-
2026	6	-	825	-	14	-	-	-
2027	6	-	825	-	14	-	-	-
2028	6	-	825	-	14	-	-	-
2029	6	-	825	-	14	-	-	-
2030	6	-	825	-	14	-	-	-
2031	6	-	825	-	14	-	-	-
2032	6	-	825	-	14	-	-	-
2033	6	-	825	-	14	-	-	-
2034	6	-	825	-	14	-	-	-
2035	6	-	825	-	14	-	-	-
2036	6	-	825	-	14	-	-	-
2037	6	-	825	-	14	-	-	-
2038	6	-	825	-	14	-	-	-

## IRP Partial Displacements (Previous Filing)

Total partial displacement was 277.13 MW in the base case and 377.13 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 - Merrill Solar LLC	-1.5	-10.0		14.9%	2020 01 01
2	OR Solar 7, LLC (Jacksonville)	-1.5	-10.0		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		8.3%	2022 11 01
7	Rocket Solar	6.6	80.0		8.2%	2022 11 01
8	Skysol Solar QF	6.4	55.0		11.6%	2023 03 01
9	Appaloosa Solar I-A	8.5	120.0		7.1%	2023 10 01
10	Appaloosa Solar I-B	5.7	80.0		7.1%	2023 10 01
11	Birch Creek Hydro QF PPA (pending commission approval)	1.4	2.7		53.1%	2022 04 01
12	Fall Creek Rural Electric Co-op QF PPA (pending commission approval)	4.0	7.5		53.1%	2021 04 01
13	Captain Jack Solar QF PPA	0.4	2.7		14.8%	2021 10 01
14	Elektron Solar PPA 1	1.0	10.2		10.0%	2022 12 31
15	Elektron Solar PPA 2	6.9	69.8		9.9%	2022 12 31
16	Castle Solar, LLC, PPA	2.0	20.0		10.0%	2021 12 31

Total Signed MW		40.23	562.80			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 548 - OR - Solar	2.67	20.00	33.0%	13.4%	2023 07 01
2	QF - 549 - OR - Solar	2.57	20.00	31.6%	12.9%	2023 07 01
3	QF - 550 - OR - Solar	8.16	80.00	29.1%	10.2%	2023 07 01
4	QF - 551 - OR - Solar	4.24	33.00	32.0%	12.8%	2023 07 01
5	QF - 552 - OR - Solar	5.75	50.00	27.5%	11.5%	2023 04 01
6	QF - 553 - WA - Solar	1.60	80.00	0.0%	2.0%	2023 12 01
7	QF - 561 - WA - Solar	0.10	4.99	32.1%	2.0%	2023 01 01
8	QF - 562 - OR - Solar	8.99	40.00	30.6%	22.5%	2023 09 01
9	QF - 563 - OR - Solar	8.99	40.00	30.6%	22.5%	2023 09 01
10	QF - 435 - UT - Gas	0.00	25.00	85.0%	0.0%	2021 01 01
11	QF - 433 - UT - Gas	0.00	31.80	58.2%	0.0%	2021 01 01
12	QF - 434 - UT - Gas	0.00	6.20	85.0%	0.0%	2021 01 01
13	QF - 525 - WY - Gas	0.00	98.00	75.0%	0.0%	2020 01 01
14	QF - 568 - WY - Solar	8.43	74.90	30.6%	11.3%	2023 10 01

15	QF - 569 - UT - Gas	0.00	36.00	85.0%	0.0%	2021 01 01
16	QF - 583 - WY - Solar	1.8	20.00	29.3%	8.9%	2024 01 01
17	QF - 584 - WY - Solar	1.8	20.00	29.3%	8.9%	2024 01 01
18	QF - 577 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
19	QF - 578 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
20	QF - 579 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
21	QF - 580 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
22	QF - 581 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
23	QF - 582 - WY - Solar	1.60	20.00	32.3%	8.0%	2024 01 01
24	QF - 544 - OR - Solar	9.8	80.00	29.2%	12.2%	2024 01 01
25	QF - 587 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
26	QF - 588 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
27	QF - 589 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
28	QF - 590 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
29	QF - 591 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
30	QF - 592 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
31	QF - 593 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
32	QF - 594 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
33	QF - 595 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
34	QF - 596 - UT - Solar	16.25	52.50	25.5%	31.0%	2023 12 01
Total Potential MW		236.90	1404.89			

Total Partial Displacement		<b>277.13</b>	<b>1967.69</b>			
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35	Utah 2020.Q3	100.00	100.0	100.0%	100.0%	2021 01 01
Partial Displacement after QF		<b>377.13</b>	<b>2067.69</b>			

**ROCKY MOUNTAIN POWER**

**UPDATE IMPACT – UPDATED AVOIDED COST STUDY**

**2020.Q4 – MARCH 2021**

**Appendix B.1**  
**Avoided Cost Prices \$/MWh**  
**Utah 2020.Q4 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q4 100% CF (2)	UT 2020.Q4 31.1% CF (2)	W) UT 2020.Q4 31.0% CF (2)	UT 2020.Q3 100% CF (2)	UT 2020.Q3 31.1% CF (2)	W) UT 2020.Q3 31.0% CF (2)	Difference	Difference	Difference
2021	\$20.33	\$16.87	\$18.60	\$20.69	\$17.21	\$17.53	(\$0.36)	(\$0.33)	\$1.07
2022	\$21.18	\$17.45	\$19.63	\$20.40	\$17.08	\$17.96	\$0.78	\$0.37	\$1.68
2023	\$20.15	\$16.68	\$26.05	\$19.59	\$16.06	\$25.28	\$0.56	\$0.62	\$0.77
2024	\$17.27	\$15.77	\$27.00	\$15.82	\$14.69	\$26.33	\$1.45	\$1.08	\$0.67
2025	\$20.44	\$17.43	\$27.39	\$17.92	\$15.81	\$26.55	\$2.52	\$1.62	\$0.84
2026	\$34.19	\$17.65	\$28.62	\$33.01	\$16.43	\$27.70	\$1.18	\$1.22	\$0.92
2027	\$35.83	\$18.87	\$29.38	\$34.23	\$17.42	\$28.20	\$1.60	\$1.45	\$1.18
2028	\$39.22	\$21.93	\$30.77	\$38.14	\$20.62	\$29.09	\$1.08	\$1.31	\$1.68
2029	\$41.63	\$23.68	\$31.50	\$40.39	\$22.19	\$29.76	\$1.23	\$1.49	\$1.74
2030	\$40.63	\$21.61	\$32.31	\$40.42	\$20.72	\$30.19	\$0.21	\$0.89	\$2.11
2031	\$42.48	\$22.83	\$33.50	\$43.00	\$22.25	\$31.73	(\$0.53)	\$0.58	\$1.77
2032	\$44.70	\$23.98	\$34.51	\$44.71	\$22.74	\$32.48	(\$0.01)	\$1.23	\$2.03
2033	\$45.66	\$24.15	\$62.09	\$45.88	\$23.14	\$59.32	(\$0.22)	\$1.00	\$2.77
2034	\$47.36	\$25.69	\$63.64	\$47.54	\$24.33	\$60.53	(\$0.18)	\$1.36	\$3.11
2035	\$49.26	\$26.58	\$65.80	\$49.07	\$25.05	\$61.81	\$0.20	\$1.53	\$3.98

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2021-2035	\$/MWh	\$31.63	\$19.72	\$31.76	\$30.92	\$18.79	\$30.22	\$0.71	\$0.93	\$1.54
							2%	5%	5%	

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2021 - 2035, levelized monthly

**Table 1**  
**Avoided Cost Prices**  
**Utah 2020.Q4 - 100.0 MW and 100.0% CF**

Total Price @			
Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	100.0% Capacity Factor \$/MWh
2021	\$0.00	\$20.33	\$20.33
2022	\$0.00	\$21.18	\$21.18
2023	\$0.00	\$20.15	\$20.15
2024	\$0.00	\$17.27	\$17.27
2025	\$0.00	\$20.44	\$20.44
2026	\$114.75	\$21.09	\$34.19
2027	\$117.40	\$22.43	\$35.83
2028	\$120.10	\$25.55	\$39.22
2029	\$122.87	\$27.60	\$41.63
2030	\$125.70	\$26.28	\$40.63
2031	\$128.60	\$27.80	\$42.48
2032	\$131.55	\$29.73	\$44.70
2033	\$134.57	\$30.30	\$45.66
2034	\$137.67	\$31.65	\$47.36
2035	\$140.83	\$33.19	\$49.26

15 Year

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

\$/kW	\$69.32		
\$/MWh		\$23.72	\$31.63

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q4 - 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
<b>Energy Only</b>													
2021	20.33	23.14	17.69	16.31	14.87	13.92	15.86	37.41	28.87	20.35	16.93	17.88	20.01
2022	21.18	28.29	20.04	18.28	14.92	14.37	16.88	36.75	27.13	20.90	17.56	17.95	20.57
2023	20.15	19.55	19.73	17.31	14.76	14.58	15.83	34.78	27.45	21.13	17.25	18.56	20.43
2024	17.27	19.33	14.96	10.55	9.97	11.20	12.96	44.18	25.58	15.50	12.18	13.42	16.73
2025	20.44	22.61	16.82	13.65	12.53	12.78	15.71	52.82	31.87	17.04	13.99	15.40	19.05
2026	21.09	18.46	19.06	15.38	12.44	14.26	23.80	30.11	30.35	24.21	20.45	18.69	25.51
2027	22.43	23.03	20.44	17.58	14.94	15.39	24.80	30.75	31.20	24.92	23.59	19.34	22.82
2028	25.55	23.98	24.94	20.83	17.80	18.35	27.08	33.73	34.33	28.66	26.14	23.19	27.35
2029	27.60	26.19	26.41	21.83	20.77	18.44	27.17	36.79	37.52	30.90	28.67	26.21	30.00
2030	26.28	24.12	25.53	19.51	17.15	15.05	26.79	37.44	38.22	29.14	27.50	24.92	29.72
2031	27.80	27.51	27.48	21.44	17.55	14.90	28.33	38.81	39.82	28.49	27.94	25.83	35.04
2032	29.73	29.96	28.43	22.04	20.29	15.76	29.14	40.05	40.73	30.21	31.10	32.40	36.30
2033	30.30	30.96	30.31	22.96	18.20	16.54	29.43	40.16	41.49	31.53	33.23	31.10	37.30
2034	31.65	32.74	31.69	24.63	18.79	17.29	31.69	42.05	43.15	32.02	34.16	32.25	38.93
2035	33.19	33.99	32.75	26.18	21.20	17.51	29.06	43.24	44.51	34.04	35.81	39.45	40.18
2036	34.95	36.97	34.83	27.06	20.71	18.33	31.87	45.66	47.11	37.56	38.15	36.88	43.89
2037	36.81	41.30	38.30	30.40	22.93	20.76	32.64	46.68	48.31	37.23	37.47	40.28	45.15
2038	39.15	44.80	39.38	31.43	25.78	21.77	32.62	50.30	52.22	36.37	40.93	42.88	50.70



**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q4 - 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	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$2.74	\$2.75	\$2.78	\$2.45
2022	\$2.60	\$2.61	\$2.62	\$2.36
2023	\$2.44	\$2.45	\$2.47	\$2.26
2024	\$2.91	\$2.92	\$2.85	\$2.73
2025	\$3.43	\$3.44	\$3.25	\$3.24
2026	\$3.58	\$3.59	\$3.40	\$3.39
2027	\$3.67	\$3.68	\$3.53	\$3.47
2028	\$3.86	\$3.87	\$3.70	\$3.67
2029	\$4.13	\$4.14	\$4.00	\$3.93
2030	\$4.43	\$4.44	\$4.31	\$4.23
2031	\$4.62	\$4.63	\$4.45	\$4.42
2032	\$4.66	\$4.67	\$4.52	\$4.46
2033	\$4.79	\$4.80	\$4.67	\$4.58
2034	\$4.95	\$4.96	\$4.78	\$4.74
2035	\$5.08	\$5.09	\$4.91	\$4.87
2036	\$5.24	\$5.25	\$5.11	\$5.03
2037	\$5.26	\$5.27	\$5.16	\$5.05
2038	\$5.65	\$5.66	\$5.47	\$5.44
2039	\$6.19	\$6.20	\$5.98	\$5.97
2040	\$6.56	\$6.57	\$6.39	\$6.34

Official Forward Price Curve Forecast dated Dec 31, 2020

Table 5

Utah 2020.Q4 - 100.0 MW and 100.0% CF  
January 2021 through December 2035  
Nominal Avoided Costs Calculated Monthly

Nominal NPV at 6.92% Discount Rate  
15 Year \$ 196,236,118 \$ 65,467,274 \$ 261,703,392 8,273,629 \$31.63

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Jan-21	1,721,987	-	1,721,987	74,400	23.14
Feb-21	1,188,873	-	1,188,873	67,200	17.69
Mar-21	1,213,767	-	1,213,767	74,400	16.31
Apr-21	1,070,827	-	1,070,827	72,000	14.87
May-21	1,035,976	-	1,035,976	74,400	13.92
Jun-21	1,141,958	-	1,141,958	72,000	15.86
Jul-21	2,783,414	-	2,783,414	74,400	37.41
Aug-21	2,147,559	-	2,147,559	74,400	28.87
Sep-21	1,464,844	-	1,464,844	72,000	20.35
Oct-21	1,259,599	-	1,259,599	74,400	16.93
Nov-21	1,287,524	-	1,287,524	72,000	17.88
Dec-21	1,488,960	-	1,488,960	74,400	20.01
Jan-22	2,104,455	-	2,104,455	74,400	28.29
Feb-22	1,346,826	-	1,346,826	67,200	20.04
Mar-22	1,359,941	-	1,359,941	74,400	18.28
Apr-22	1,074,476	-	1,074,476	72,000	14.92
May-22	1,069,283	-	1,069,283	74,400	14.37
Jun-22	1,215,365	-	1,215,365	72,000	16.88
Jul-22	2,734,127	-	2,734,127	74,400	36.75
Aug-22	2,018,583	-	2,018,583	74,400	27.13
Sep-22	1,504,793	-	1,504,793	72,000	20.90
Oct-22	1,306,224	-	1,306,224	74,400	17.56
Nov-22	1,292,516	-	1,292,516	72,000	17.95
Dec-22	1,530,082	-	1,530,082	74,400	20.57
Jan-23	1,454,511	-	1,454,511	74,400	19.55
Feb-23	1,326,168	-	1,326,168	67,200	19.73
Mar-23	1,287,885	-	1,287,885	74,400	17.31
Apr-23	1,062,976	-	1,062,976	72,000	14.76
May-23	1,084,457	-	1,084,457	74,400	14.58
Jun-23	1,139,700	-	1,139,700	72,000	15.83
Jul-23	2,587,832	-	2,587,832	74,400	34.78
Aug-23	2,042,309	-	2,042,309	74,400	27.45
Sep-23	1,521,629	-	1,521,629	72,000	21.13
Oct-23	1,283,569	-	1,283,569	74,400	17.25
Nov-23	1,336,143	-	1,336,143	72,000	18.56
Dec-23	1,520,098	-	1,520,098	74,400	20.43
Jan-24	1,438,373	-	1,438,373	74,400	19.33
Feb-24	1,041,474	-	1,041,474	69,600	14.96
Mar-24	784,842	-	784,842	74,400	10.55
Apr-24	718,145	-	718,145	72,000	9.97
May-24	833,000	-	833,000	74,400	11.20
Jun-24	933,450	-	933,450	72,000	12.96
Jul-24	3,286,980	-	3,286,980	74,400	44.18
Aug-24	1,903,519	-	1,903,519	74,400	25.58
Sep-24	1,115,785	-	1,115,785	72,000	15.50
Oct-24	905,888	-	905,888	74,400	12.18
Nov-24	966,316	-	966,316	72,000	13.42
Dec-24	1,244,934	-	1,244,934	74,400	16.73
Jan-25	1,682,415	-	1,682,415	74,400	22.61
Feb-25	1,130,271	-	1,130,271	67,200	16.82
Mar-25	1,015,924	-	1,015,924	74,400	13.65
Apr-25	902,472	-	902,472	72,000	12.53
May-25	951,005	-	951,005	74,400	12.78
Jun-25	1,131,211	-	1,131,211	72,000	15.71
Jul-25	3,930,024	-	3,930,024	74,400	52.82
Aug-25	2,370,831	-	2,370,831	74,400	31.87
Sep-25	1,226,990	-	1,226,990	72,000	17.04
Oct-25	1,040,572	-	1,040,572	74,400	13.99
Nov-25	1,108,779	-	1,108,779	72,000	15.40
Dec-25	1,417,173	-	1,417,173	74,400	19.05
Jan-26	1,373,267	956,247	2,329,515	74,400	31.31
Feb-26	1,280,663	956,247	2,236,910	67,200	33.29
Mar-26	1,144,584	956,247	2,100,831	74,400	28.24
Apr-26	895,392	956,247	1,851,639	72,000	25.72
May-26	1,061,130	956,247	2,017,378	74,400	27.12
Jun-26	1,713,309	956,247	2,669,557	72,000	37.08
Jul-26	2,239,910	956,247	3,196,157	74,400	42.96
Aug-26	2,257,787	956,247	3,214,035	74,400	43.20
Sep-26	1,743,065	956,247	2,699,312	72,000	37.49
Oct-26	1,521,605	956,247	2,477,852	74,400	33.30
Nov-26	1,345,690	956,247	2,301,937	72,000	31.97
Dec-26	1,898,158	956,247	2,854,405	74,400	38.37
Jan-35	2,528,519	1,173,612	3,702,130	74,400	49.76
Feb-35	2,200,784	1,173,612	3,374,395	67,200	50.21
Mar-35	1,947,507	1,173,612	3,121,119	74,400	41.95
Apr-35	1,526,417	1,173,612	2,700,029	72,000	37.50
May-35	1,302,392	1,173,612	2,476,003	74,400	33.28
Jun-35	2,091,985	1,173,612	3,265,597	72,000	45.36
Jul-35	3,216,780	1,173,612	4,390,392	74,400	59.01
Aug-35	3,311,470	1,173,612	4,485,082	74,400	60.28
Sep-35	2,451,158	1,173,612	3,624,770	72,000	50.34
Oct-35	2,664,633	1,173,612	3,838,245	74,400	51.59
Nov-35	2,840,372	1,173,612	4,013,984	72,000	55.75
Dec-35	2,989,267	1,173,612	4,162,879	74,400	55.95

**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				\$7.99					
2021				\$8.14					
2022				\$8.32					
2023				\$8.49					
2024				\$8.66					
2025				\$8.84					
2026	\$719	\$50.01	\$38.05	\$9.03	\$64.16	\$114.17	\$3.59	\$35.13	\$74.62
2027		\$51.16	\$38.93	\$9.24	\$65.64	\$116.80	\$3.68	\$36.01	\$76.41
2028		\$52.34	\$39.83	\$9.45	\$67.15	\$119.49	\$3.87	\$37.87	\$79.20
2029		\$53.54	\$40.75	\$9.67	\$68.70	\$122.24	\$4.14	\$40.51	\$82.80
2030		\$54.77	\$41.69	\$9.89	\$70.28	\$125.05	\$4.44	\$43.45	\$86.71
2031		\$56.03	\$42.65	\$10.12	\$71.90	\$127.93	\$4.63	\$45.31	\$89.56
2032		\$57.32	\$43.63	\$10.35	\$73.55	\$130.87	\$4.67	\$45.70	\$90.97
2033		\$58.64	\$44.63	\$10.59	\$75.24	\$133.88	\$4.80	\$46.97	\$93.28
2034		\$59.99	\$45.66	\$10.83	\$76.97	\$136.96	\$4.96	\$48.54	\$95.92
2035		\$61.37	\$46.71	\$11.08	\$78.74	\$140.11	\$5.09	\$49.81	\$98.28
2036		\$62.78	\$47.78	\$11.33	\$80.53	\$143.31	\$5.25	\$51.38	\$100.95
2037		\$64.22	\$48.88	\$11.59	\$82.38	\$146.60	\$5.27	\$51.57	\$102.28
2038		\$65.70	\$50.00	\$11.86	\$84.28	\$149.98	\$5.66	\$55.39	\$107.27
2039		\$67.21	\$51.15	\$12.13	\$86.22	\$153.43	\$6.20	\$60.67	\$113.75
2040		\$68.76	\$52.33	\$12.41	\$88.20	\$156.96	\$6.57	\$64.29	\$118.59
2041		\$70.34	\$53.53	\$12.70	\$90.24	\$160.58	\$6.72	\$65.76	\$121.31
2042		\$71.96	\$54.76	\$12.99	\$92.31	\$164.27	\$6.87	\$67.23	\$124.06

**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')**

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

CCCT Statistics	MW	Percent	Cap Cost	Fixed
SCCT Dry "F" - Turbine	185	100.0%	\$745	\$31.91
	<u>-</u>	<u>0.0%</u>	<u>\$0</u>	<u>\$0.00</u>
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
-	<u>-</u>	<u>0.0%</u>	<u>-</u>	<u>0.0%</u>	<u>-</u>	<u>-</u>
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 \$	<u>\$14.90</u>		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

<b>Company Official Inflation Forecast Dated December 31, 2020</b>
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2017	2.0%	2026	2.2%	2035	2.3%
2018	2.4%	2027	2.3%	2036	2.3%
2019	1.8%	2028	2.3%	2037	2.3%
2020	1.2%	2029	2.3%	2038	2.3%
2021	1.9%	2030	2.3%	2039	2.3%
2022	2.2%	2031	2.3%	2040	2.3%
2023	2.0%	2032	2.3%	2041	2.3%

**Appendix B.2**  
**Avoided Cost Prices \$/MWh**  
**Utah 2020.Q4 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q4 100% CF (2)	UT 2020.Q4 31.1% CF (2)	W) UT 2020.Q4 31.0% CF (2)	UT 2020.Q3 100% CF (2)	UT 2020.Q3 31.1% CF (2)	W) UT 2020.Q3 31.0% CF (2)	Difference	Difference	Difference
2021	\$20.33	\$16.87	\$18.60	\$20.69	\$17.21	\$17.53	(\$0.36)	(\$0.33)	\$1.07
2022	\$21.18	\$17.45	\$19.63	\$20.40	\$17.08	\$17.96	\$0.78	\$0.37	\$1.68
2023	\$20.15	\$16.68	\$26.05	\$19.59	\$16.06	\$25.28	\$0.56	\$0.62	\$0.77
2024	\$17.27	\$15.77	\$27.00	\$15.82	\$14.69	\$26.33	\$1.45	\$1.08	\$0.67
2025	\$20.44	\$17.43	\$27.39	\$17.92	\$15.81	\$26.55	\$2.52	\$1.62	\$0.84
2026	\$34.19	\$17.65	\$28.62	\$33.01	\$16.43	\$27.70	\$1.18	\$1.22	\$0.92
2027	\$35.83	\$18.87	\$29.38	\$34.23	\$17.42	\$28.20	\$1.60	\$1.45	\$1.18
2028	\$39.22	\$21.93	\$30.77	\$38.14	\$20.62	\$29.09	\$1.08	\$1.31	\$1.68
2029	\$41.63	\$23.68	\$31.50	\$40.39	\$22.19	\$29.76	\$1.23	\$1.49	\$1.74
2030	\$40.63	\$21.61	\$32.31	\$40.42	\$20.72	\$30.19	\$0.21	\$0.89	\$2.11
2031	\$42.48	\$22.83	\$33.50	\$43.00	\$22.25	\$31.73	(\$0.53)	\$0.58	\$1.77
2032	\$44.70	\$23.98	\$34.51	\$44.71	\$22.74	\$32.48	(\$0.01)	\$1.23	\$2.03
2033	\$45.66	\$24.15	\$62.09	\$45.88	\$23.14	\$59.32	(\$0.22)	\$1.00	\$2.77
2034	\$47.36	\$25.69	\$63.64	\$47.54	\$24.33	\$60.53	(\$0.18)	\$1.36	\$3.11
2035	\$49.26	\$26.58	\$65.80	\$49.07	\$25.05	\$61.81	\$0.20	\$1.53	\$3.98

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2021-2035	\$/MWh	\$31.63	\$19.72	\$31.76	\$30.92	\$18.79	\$30.22	\$0.71	\$0.93	\$1.54
							2%	5%	5%	

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2021 - 2035, levelized monthly

**Table 1**  
**Avoided Cost Prices**  
**Utah 2020.Q4\_Solar - 80.0 MW and 32.2% CF**

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	Total Price @ 32.2% Capacity Factor \$/MWh
2021	\$0.00	\$16.87	\$16.87
2022	\$0.00	\$17.45	\$17.45
2023	\$0.00	\$16.68	\$16.68
2024	\$32.80	\$4.00	\$15.77
2025	\$33.49	\$5.31	\$17.43
2026	\$34.22	\$5.20	\$17.65
2027	\$35.01	\$6.07	\$18.87
2028	\$35.82	\$8.81	\$21.93
2029	\$36.64	\$10.16	\$23.68
2030	\$37.48	\$7.70	\$21.61
2031	\$38.34	\$8.53	\$22.83
2032	\$39.23	\$9.32	\$23.98
2033	\$40.13	\$9.03	\$24.15
2034	\$41.05	\$10.15	\$25.69
2035	\$41.99	\$10.60	\$26.58

15 Year

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

\$/kW            \$26.78

\$/MWh                            \$10.23                            \$19.72

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q4\_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
<b>Energy Only</b>													
2021	16.87	19.18	15.40	14.37	12.53	12.50	14.64	24.39	23.01	16.90	14.95	15.67	18.05
2022	17.45	22.36	16.65	15.62	12.41	12.44	15.60	25.35	22.60	17.29	15.33	15.46	18.61
2023	16.68	17.38	16.18	14.79	12.05	12.60	13.91	24.74	21.98	17.03	14.60	15.53	18.85
2024	4.00	4.55	2.47	0.16	(1.07)	3.40	3.96	9.83	8.73	3.85	0.65	2.18	6.76
2025	5.31	5.33	4.87	2.53	0.96	3.84	5.60	10.48	10.10	5.04	1.68	3.65	7.87
2026	5.20	4.50	4.26	2.95	(0.83)	4.02	6.11	10.04	9.77	4.37	2.50	5.36	7.91
2027	6.07	4.58	4.91	5.24	2.08	5.02	5.98	10.14	12.14	4.30	2.68	5.75	8.16
2028	8.81	8.66	8.46	6.27	3.50	6.62	8.71	15.28	14.72	7.14	5.32	7.98	11.78
2029	10.16	9.53	9.04	6.23	4.85	6.23	9.10	18.23	19.21	8.88	6.19	9.63	12.38
2030	7.70	7.57	6.74	6.33	3.58	3.96	7.50	12.35	13.95	6.98	5.43	7.50	10.28
2031	8.53	8.02	7.22	8.26	4.61	4.69	8.66	13.84	13.82	7.92	6.44	6.90	11.08
2032	9.32	8.70	8.20	7.38	5.92	4.10	8.09	16.11	15.17	10.85	6.22	8.91	11.08
2033	9.03	9.12	7.74	7.18	4.10	4.10	7.94	15.64	16.87	7.75	7.17	8.60	11.80
2034	10.15	9.98	8.72	8.23	4.05	4.86	9.35	17.08	18.72	9.30	7.75	9.89	13.40
2035	10.60	12.53	11.23	8.57	4.39	4.57	8.77	17.79	19.55	9.21	7.94	10.94	13.14
2036	12.28	11.96	10.27	9.84	5.67	5.02	10.31	20.38	23.33	11.80	9.60	13.61	15.92
2037	12.85	15.41	13.98	10.45	6.52	5.26	11.33	20.52	19.77	12.33	9.62	14.91	18.84
2038	14.19	19.38	15.87	10.83	6.61	5.09	12.03	21.42	24.64	12.20	10.59	18.49	20.13

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q4\_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	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$2.74	\$2.75	\$2.78	\$2.45
2022	\$2.60	\$2.61	\$2.62	\$2.36
2023	\$2.44	\$2.45	\$2.47	\$2.26
2024	\$2.91	\$2.92	\$2.85	\$2.73
2025	\$3.43	\$3.44	\$3.25	\$3.24
2026	\$3.58	\$3.59	\$3.40	\$3.39
2027	\$3.67	\$3.68	\$3.53	\$3.47
2028	\$3.86	\$3.87	\$3.70	\$3.67
2029	\$4.13	\$4.14	\$4.00	\$3.93
2030	\$4.43	\$4.44	\$4.31	\$4.23
2031	\$4.62	\$4.63	\$4.45	\$4.42
2032	\$4.66	\$4.67	\$4.52	\$4.46
2033	\$4.79	\$4.80	\$4.67	\$4.58
2034	\$4.95	\$4.96	\$4.78	\$4.74
2035	\$5.08	\$5.09	\$4.91	\$4.87
2036	\$5.24	\$5.25	\$5.11	\$5.03
2037	\$5.26	\$5.27	\$5.16	\$5.05
2038	\$5.65	\$5.66	\$5.47	\$5.44
2039	\$6.19	\$6.20	\$5.98	\$5.97
2040	\$6.56	\$6.57	\$6.39	\$6.34

Official Forward Price Curve Forecast dated Dec 31, 2020





**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			\$25.31			\$0.00			\$25.31
2021			\$25.79			\$0.00			\$25.79
2022			\$26.36			\$0.00			\$26.36
2023			\$26.89			\$0.00			\$26.89
2024	\$1,230	\$62.55	\$27.43	\$1.50	\$32.13	\$0.00	\$32.13	\$91.47	\$91.47
2025		\$63.86	\$28.01	\$1.53	\$32.81	\$0.00	\$32.81	\$93.40	\$93.40
2026		\$65.26	\$28.63	\$1.56	\$33.53	\$0.00	\$33.53	\$95.45	\$95.45
2027		\$66.76	\$29.29	\$1.60	\$34.30	\$0.00	\$34.30	\$97.65	\$97.65
2028		\$68.30	\$29.96	\$1.64	\$35.09	\$0.00	\$35.09	\$99.90	\$99.90
2029		\$69.87	\$30.65	\$1.68	\$35.90	\$0.00	\$35.90	\$102.20	\$102.20
2030		\$71.48	\$31.35	\$1.72	\$36.72	\$0.00	\$36.72	\$104.55	\$104.55
2031		\$73.12	\$32.07	\$1.76	\$37.57	\$0.00	\$37.57	\$106.95	\$106.95
2032		\$74.80	\$32.81	\$1.80	\$38.43	\$0.00	\$38.43	\$109.41	\$109.41
2033		\$76.52	\$33.56	\$1.84	\$39.31	\$0.00	\$39.31	\$111.92	\$111.92
2034		\$78.28	\$34.33	\$1.88	\$40.21	\$0.00	\$40.21	\$114.49	\$114.49
2035		\$80.08	\$35.12	\$1.92	\$41.14	\$0.00	\$41.14	\$117.12	\$117.12
2036		\$81.92	\$35.93	\$1.96	\$42.08	\$0.00	\$42.08	\$119.81	\$119.81
2037		\$83.80	\$36.76	\$2.01	\$43.05	\$0.00	\$43.05	\$122.57	\$122.57
2038		\$85.73	\$37.61	\$2.06	\$44.05	\$0.00	\$44.05	\$125.40	\$125.40
2039		\$87.70	\$38.48	\$2.11	\$45.06	\$0.00	\$45.06	\$128.29	\$128.29
2040		\$89.72	\$39.37	\$2.16	\$46.10	\$0.00	\$46.10	\$131.25	\$131.25
2041		\$91.78	\$40.28	\$2.21	\$47.16	\$0.00	\$47.16	\$134.27	\$134.27
2042		\$93.89	\$41.21	\$2.26	\$48.25	\$0.00	\$48.25	\$137.36	\$137.36
2043		\$96.14	\$42.20	\$2.31	\$49.40	\$0.00	\$49.40	\$140.65	\$140.65

**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) <b>Utah S, Transmission Integration 2023</b>
	5.085%	Payment Factor includes 30% ITC
	32.5%	Capacity Factor

COD  
230.8 MW

Company Official Inflation Forecast Dated December 31, 2020					
2017	2.0%	2026	2.2%	2035	2.3%
2018	2.4%	2027	2.3%	2036	2.3%
2019	1.8%	2028	2.3%	2037	2.3%
2020	1.2%	2029	2.3%	2038	2.3%
2021	1.9%	2030	2.3%	2039	2.3%
2022	2.2%	2031	2.3%	2040	2.3%
2023	2.0%	2032	2.3%	2041	2.3%
2024	2.0%	2033	2.3%	2042	2.3%
2025	2.1%	2034	2.3%	2043	2.4%

**Appendix B.3**  
**Avoided Cost Prices \$/MWh**  
**Utah 2020.Q4 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT	Thermal	Solar Tracking	Wind (Defers UT
	UT 2020.Q4 100% CF (2)	UT 2020.Q4 31.1% CF (2)	W) UT 2020.Q4 31.0% CF (2)	UT 2020.Q3 100% CF (2)	UT 2020.Q3 31.1% CF (2)	W) UT 2020.Q3 31.0% CF (2)	Difference	Difference	Difference
2021	\$20.33	\$16.87	\$18.60	\$20.69	\$17.21	\$17.53	(\$0.36)	(\$0.33)	\$1.07
2022	\$21.18	\$17.45	\$19.63	\$20.40	\$17.08	\$17.96	\$0.78	\$0.37	\$1.68
2023	\$20.15	\$16.68	\$26.05	\$19.59	\$16.06	\$25.28	\$0.56	\$0.62	\$0.77
2024	\$17.27	\$15.77	\$27.00	\$15.82	\$14.69	\$26.33	\$1.45	\$1.08	\$0.67
2025	\$20.44	\$17.43	\$27.39	\$17.92	\$15.81	\$26.55	\$2.52	\$1.62	\$0.84
2026	\$34.19	\$17.65	\$28.62	\$33.01	\$16.43	\$27.70	\$1.18	\$1.22	\$0.92
2027	\$35.83	\$18.87	\$29.38	\$34.23	\$17.42	\$28.20	\$1.60	\$1.45	\$1.18
2028	\$39.22	\$21.93	\$30.77	\$38.14	\$20.62	\$29.09	\$1.08	\$1.31	\$1.68
2029	\$41.63	\$23.68	\$31.50	\$40.39	\$22.19	\$29.76	\$1.23	\$1.49	\$1.74
2030	\$40.63	\$21.61	\$32.31	\$40.42	\$20.72	\$30.19	\$0.21	\$0.89	\$2.11
2031	\$42.48	\$22.83	\$33.50	\$43.00	\$22.25	\$31.73	(\$0.53)	\$0.58	\$1.77
2032	\$44.70	\$23.98	\$34.51	\$44.71	\$22.74	\$32.48	(\$0.01)	\$1.23	\$2.03
2033	\$45.66	\$24.15	\$62.09	\$45.88	\$23.14	\$59.32	(\$0.22)	\$1.00	\$2.77
2034	\$47.36	\$25.69	\$63.64	\$47.54	\$24.33	\$60.53	(\$0.18)	\$1.36	\$3.11
2035	\$49.26	\$26.58	\$65.80	\$49.07	\$25.05	\$61.81	\$0.20	\$1.53	\$3.98

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)										
2021-2035	\$/MWh	\$31.63	\$19.72	\$31.76	\$30.92	\$18.79	\$30.22	\$0.71	\$0.93	\$1.54
							2%	5%	5%	

Footnotes:

- (1) Discount Rate - 2019 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2021 - 2035, levelized monthly

**Table 1**  
**Avoided Cost Prices**  
**Utah 2020.Q4\_Wind - 80.0 MW and 29.5% CF**

Total Price @			
Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	29.5% Capacity Factor \$/MWh
2021	\$0.00	\$18.60	\$18.60
2022	\$0.00	\$19.63	\$19.63
2023	\$122.85	(\$21.56)	\$26.05
2024	\$125.41	(\$21.56)	\$27.00
2025	\$128.10	(\$22.26)	\$27.39
2026	\$130.94	(\$22.12)	\$28.62
2027	\$133.94	(\$22.53)	\$29.38
2028	\$137.03	(\$22.29)	\$30.77
2029	\$140.18	(\$22.82)	\$31.50
2030	\$143.39	(\$23.27)	\$32.31
2031	\$146.69	(\$23.34)	\$33.50
2032	\$150.05	(\$23.60)	\$34.51
2033	\$153.49	\$2.61	\$62.09
2034	\$157.02	\$2.79	\$63.64
2035	\$160.61	\$3.55	\$65.80

15 Year

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

\$/kW \$110.21

\$/MWh (\$10.95) \$31.76

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q4\_Wind - 80.0 MW and 29.5% CF**

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Energy Only</b>													
2021	18.60	21.27	17.14	15.70	13.94	13.49	15.43	33.39	29.09	18.63	16.32	19.02	22.04
2022	19.63	26.62	19.89	17.69	14.03	13.70	16.76	32.97	24.91	19.46	17.16	18.05	22.14
2023	(21.56)	(20.85)	(21.68)	(21.84)	(21.93)	(21.97)	(21.94)	(21.57)	(20.99)	(21.77)	(21.66)	(21.57)	(20.55)
2024	(21.56)	(21.82)	(21.93)	(21.85)	(21.67)	(21.93)	(21.93)	(19.93)	(18.72)	(21.35)	(21.66)	(21.84)	(22.02)
2025	(22.26)	(22.71)	(22.63)	(22.57)	(22.60)	(22.78)	(22.56)	(20.12)	(18.17)	(22.44)	(22.42)	(22.76)	(22.58)
2026	(22.12)	(22.71)	(22.60)	(22.57)	(22.48)	(22.75)	(22.63)	(19.76)	(16.43)	(22.34)	(22.46)	(22.59)	(22.48)
2027	(22.53)	(23.57)	(23.47)	(23.21)	(23.37)	(23.61)	(23.32)	(18.53)	(10.97)	(23.41)	(23.29)	(23.35)	(23.26)
2028	(22.29)	(23.50)	(23.20)	(23.02)	(23.23)	(23.50)	(22.53)	(14.98)	(17.41)	(22.27)	(23.11)	(23.24)	(21.98)
2029	(22.82)	(24.41)	(23.71)	(23.79)	(24.14)	(24.20)	(23.93)	(15.36)	(13.04)	(23.14)	(23.67)	(23.82)	(22.86)
2030	(23.27)	(25.05)	(24.42)	(24.49)	(24.45)	(24.98)	(24.83)	(16.38)	(5.49)	(23.93)	(24.44)	(24.62)	(25.01)
2031	(23.34)	(24.94)	(24.34)	(24.69)	(24.94)	(24.81)	(24.63)	(13.22)	(12.11)	(24.57)	(24.16)	(24.46)	(24.08)
2032	(23.60)	(26.07)	(24.97)	(25.47)	(25.76)	(25.86)	(25.52)	(13.60)	(6.19)	(21.26)	(25.15)	(25.41)	(24.36)
2033	2.61	0.12	0.74	0.71	0.25	0.07	0.53	13.65	27.12	1.25	0.64	0.81	1.54
2034	2.79	0.20	0.78	0.32	(0.01)	(0.09)	1.44	14.14	28.12	2.09	0.55	1.69	1.50
2035	3.55	0.57	1.33	0.29	0.14	0.09	0.58	16.57	37.03	2.64	2.04	0.75	2.45
2036	3.48	0.78	1.38	0.55	0.34	(0.17)	0.79	18.13	30.77	3.08	2.05	0.78	2.78
2037	2.50	(0.06)	1.00	0.45	(0.11)	(0.01)	0.15	14.00	26.39	1.50	0.88	(0.14)	2.08
2038	2.41	0.40	(0.59)	(0.35)	(0.11)	(0.21)	0.43	15.97	28.47	0.47	0.15	(0.06)	2.28

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q4\_Wind - 80.0 MW and 29.5% 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	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$2.74	\$2.75	\$2.78	\$2.45
2022	\$2.60	\$2.61	\$2.62	\$2.36
2023	\$2.44	\$2.45	\$2.47	\$2.26
2024	\$2.91	\$2.92	\$2.85	\$2.73
2025	\$3.43	\$3.44	\$3.25	\$3.24
2026	\$3.58	\$3.59	\$3.40	\$3.39
2027	\$3.67	\$3.68	\$3.53	\$3.47
2028	\$3.86	\$3.87	\$3.70	\$3.67
2029	\$4.13	\$4.14	\$4.00	\$3.93
2030	\$4.43	\$4.44	\$4.31	\$4.23
2031	\$4.62	\$4.63	\$4.45	\$4.42
2032	\$4.66	\$4.67	\$4.52	\$4.46
2033	\$4.79	\$4.80	\$4.67	\$4.58
2034	\$4.95	\$4.96	\$4.78	\$4.74
2035	\$5.08	\$5.09	\$4.91	\$4.87
2036	\$5.24	\$5.25	\$5.11	\$5.03
2037	\$5.26	\$5.27	\$5.16	\$5.05
2038	\$5.65	\$5.66	\$5.47	\$5.44
2039	\$6.19	\$6.20	\$5.98	\$5.97
2040	\$6.56	\$6.57	\$6.39	\$6.34

Official Forward Price Curve Forecast dated Dec 31, 2020

Table 5

Utah 2020.Q4\_Wind - 80.0 MW and 29.5% CF  
January 2021 through December 2035  
Nominal Avoided Costs Calculated Monthly

Nominal NPV at 6.92% Discount Rate

15 Year \$ (21,417,835) \$ 83,520,090 \$ 62,102,255 1,955,427 \$31.76

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Jan-21	448,801	-	448,801	21,103	21.27
Feb-21	342,631	-	342,631	19,989	17.14
Mar-21	397,992	-	397,992	25,354	15.70
Apr-21	285,554	-	285,554	20,477	13.94
May-21	276,440	-	276,440	20,492	13.49
Jun-21	255,195	-	255,195	16,540	15.43
Jul-21	401,628	-	401,628	12,030	33.39
Aug-21	279,558	-	279,558	9,611	29.09
Sep-21	233,096	-	233,096	12,512	18.63
Oct-21	286,098	-	286,098	17,535	16.32
Nov-21	291,945	-	291,945	15,352	19.02
Dec-21	340,199	-	340,199	15,433	22.04
Jan-22	561,821	-	561,821	21,103	26.62
Feb-22	397,613	-	397,613	19,989	19.89
Mar-22	448,507	-	448,507	25,354	17.69
Apr-22	287,341	-	287,341	20,477	14.03
May-22	280,848	-	280,848	20,492	13.70
Jun-22	277,192	-	277,192	16,540	16.76
Jul-22	396,640	-	396,640	12,030	32.97
Aug-22	239,460	-	239,460	9,611	24.91
Sep-22	243,459	-	243,459	12,512	19.46
Oct-22	300,955	-	300,955	17,535	17.16
Nov-22	277,115	-	277,115	15,352	18.05
Dec-22	341,682	-	341,682	15,433	22.14
Jan-23	(439,947)	819,007	379,060	21,103	17.96
Feb-23	(433,397)	819,007	385,609	19,989	19.29
Mar-23	(553,610)	819,007	265,396	25,354	10.47
Apr-23	(449,126)	819,007	369,881	20,477	18.06
May-23	(450,162)	819,007	368,844	20,492	18.00
Jun-23	(362,944)	819,007	456,063	16,540	27.57
Jul-23	(259,426)	819,007	559,580	12,030	46.52
Aug-23	(201,758)	819,007	617,248	9,611	64.22
Sep-23	(272,345)	819,007	546,662	12,512	43.69
Oct-23	(379,845)	819,007	439,161	17,535	25.05
Nov-23	(331,118)	819,007	487,889	15,352	31.78
Dec-23	(317,171)	819,007	501,836	15,433	32.52
Jan-24	(460,561)	836,050	375,489	21,103	17.79
Feb-24	(441,921)	836,050	394,129	20,152	19.56
Mar-24	(553,894)	836,050	282,156	25,354	11.13
Apr-24	(443,683)	836,050	392,367	20,477	19.16
May-24	(449,471)	836,050	386,579	20,492	18.86
Jun-24	(362,755)	836,050	473,295	16,540	28.61
Jul-24	(239,732)	836,050	596,318	12,030	49.57
Aug-24	(179,899)	836,050	656,151	9,611	68.27
Sep-24	(267,146)	836,050	568,904	12,512	45.47
Oct-24	(379,836)	836,050	456,214	17,535	26.02
Nov-24	(335,297)	836,050	500,753	15,352	32.62
Dec-24	(339,880)	836,050	496,170	15,433	32.15
Jan-25	(479,159)	853,995	374,836	21,103	17.76
Feb-25	(452,292)	853,995	401,703	19,989	20.10
Mar-25	(572,131)	853,995	281,864	25,354	11.12
Apr-25	(462,712)	853,995	391,283	20,477	19.11
May-25	(466,779)	853,995	387,216	20,492	18.90
Jun-25	(373,091)	853,995	480,904	16,540	29.07
Jul-25	(242,048)	853,995	611,946	12,030	50.87
Aug-25	(174,639)	853,995	679,356	9,611	70.68
Sep-25	(280,773)	853,995	573,222	12,512	45.82
Oct-25	(393,048)	853,995	460,947	17,535	26.29
Nov-25	(349,498)	853,995	504,497	15,352	32.86
Dec-25	(348,445)	853,995	505,550	15,433	32.76
Jan-35	11,992	1,070,734	1,082,726	21,103	51.31
Feb-35	26,571	1,070,734	1,097,305	19,989	54.90
Mar-35	7,337	1,070,734	1,078,071	25,354	42.52
Apr-35	2,923	1,070,734	1,073,657	20,477	52.43
May-35	1,823	1,070,734	1,072,557	20,492	52.34
Jun-35	9,565	1,070,734	1,080,299	16,540	65.31
Jul-35	199,356	1,070,734	1,270,090	12,030	105.58
Aug-35	355,873	1,070,734	1,426,607	9,611	148.43
Sep-35	33,038	1,070,734	1,103,772	12,512	88.22
Oct-35	35,831	1,070,734	1,106,565	17,535	63.11
Nov-35	11,579	1,070,734	1,082,313	15,352	70.50
Dec-35	37,840	1,070,734	1,108,574	15,433	71.83

**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		\$89.06	\$33.07	\$1.50	\$47.84	(\$21.48)	\$26.36	\$68.12	\$123.63
2025		\$90.93	\$33.83	\$1.53	\$48.87	(\$22.28)	\$26.59	\$68.72	\$126.29
2026		\$92.93	\$34.59	\$1.56	\$49.95	(\$22.28)	\$27.67	\$71.51	\$129.08
2027		\$95.07	\$35.38	\$1.60	\$51.10	(\$23.07)	\$28.03	\$72.43	\$132.05
2028		\$97.26	\$36.19	\$1.64	\$52.27	(\$23.07)	\$29.20	\$75.47	\$135.09
2029		\$99.50	\$37.01	\$1.68	\$53.48	(\$23.87)	\$29.61	\$76.51	\$138.19
2030		\$101.79	\$37.86	\$1.72	\$54.70	(\$24.67)	\$30.04	\$77.62	\$141.37
2031		\$104.13	\$38.72	\$1.76	\$55.96	(\$24.67)	\$31.30	\$80.87	\$144.61
2032		\$106.52	\$39.61	\$1.80	\$57.24	(\$25.46)	\$31.79	\$82.14	\$147.93
2033		\$108.97	\$40.51	\$1.84	\$58.55	\$0.00	\$58.55	\$151.32	\$151.32
2034		\$111.48	\$41.43	\$1.88	\$59.90	\$0.00	\$59.90	\$154.79	\$154.79
2035		\$114.04	\$42.38	\$1.92	\$61.27	\$0.00	\$61.27	\$158.34	\$158.34
2036		\$116.66	\$43.35	\$1.96	\$62.68	\$0.00	\$62.68	\$161.97	\$161.97
2037		\$119.34	\$44.33	\$2.01	\$64.11	\$0.00	\$64.11	\$165.68	\$165.68
2038		\$122.08	\$45.35	\$2.06	\$65.59	\$0.00	\$65.59	\$169.49	\$169.49
2039		\$124.89	\$46.39	\$2.11	\$67.10	\$0.00	\$67.10	\$173.39	\$173.39
2040		\$127.76	\$47.46	\$2.16	\$68.64	\$0.00	\$68.64	\$177.38	\$177.38
2041		\$130.70	\$48.55	\$2.21	\$70.22	\$0.00	\$70.22	\$181.46	\$181.46
2042		\$133.71	\$49.67	\$2.26	\$71.84	\$0.00	\$71.84	\$185.64	\$185.64
2043		\$136.92	\$50.86	\$2.31	\$73.56	\$0.00	\$73.56	\$190.09	\$190.09

**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
	6.899%	Payment Factor
	29.5%	Capacity Factor

Company Official Inflation Forecast Dated September 30, 2019					
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2017	2.0%	2026	2.2%	2035	2.3%
2018	2.4%	2027	2.3%	2036	2.3%
2019	1.8%	2028	2.3%	2037	2.3%
2020	1.2%	2029	2.3%	2038	2.3%
2021	1.9%	2030	2.3%	2039	2.3%
2022	2.2%	2031	2.3%	2040	2.3%
2023	2.0%	2032	2.3%	2041	2.3%
2024	2.0%	2033	2.3%	2042	2.3%
2025	2.1%	2034	2.3%	2043	2.4%



**ROCKY MOUNTAIN POWER**

**STEP STUDY BETWEEN PRIOR FILING AND CURRENT FILING**

**2020.Q4 – MARCH 2021**

**2021 - 2035, Nominal Levelized Payment at 6.920% Discount Rate**

	<b>2021 - 2035</b>	<b>2022 - 2036</b>	<b>2023 - 2037</b>
2020.Q3 As Filed	\$30.95	\$32.89	\$35.05
Queue	\$0.45	\$0.49	\$0.56
OFPC	\$0.27	\$0.32	\$0.25
2020.Q4 As Filed	\$31.67	\$33.70	\$35.86

## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2020.Q4 and 2020.Q3 Compliance Filing Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	Queue (2)	OFPC	Total Impact
2021	\$ 0.15	\$ (0.51)	\$ (0.36)
2022	\$ 0.07	\$ 0.71	\$ 0.78
2023	\$ 0.29	\$ 0.27	\$ 0.56
2024	\$ 0.71	\$ 0.74	\$ 1.45
2025	\$ 0.79	\$ 1.73	\$ 2.52
2026	\$ 0.59	\$ 0.58	\$ 1.17
2027	\$ 0.61	\$ 0.99	\$ 1.60
2028	\$ 0.55	\$ 0.56	\$ 1.11
2029	\$ 0.51	\$ 0.77	\$ 1.28
2030	\$ 0.53	\$ (0.26)	\$ 0.27
2031	\$ 0.46	\$ (0.94)	\$ (0.48)
2032	\$ 0.44	\$ (0.41)	\$ 0.02
2033	\$ 0.48	\$ (0.69)	\$ (0.22)
2034	\$ 0.47	\$ (0.68)	\$ (0.21)
2035	\$ 0.45	\$ (0.32)	\$ 0.14
2036	\$ 0.42	\$ (0.56)	\$ (0.14)
2037	\$ 1.21	\$ (0.45)	\$ 0.77

#### Nominal Levelized Payment at 6.920% Discount Rate (3)

2021 - 2035	\$ 0.45	\$ 0.27	\$ 0.72
2022 - 2036	\$ 0.49	\$ 0.32	\$ 0.81
2023 - 2037	\$ 0.56	\$ 0.25	\$ 0.81

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

## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2020.Q4 and 2020.Q3 Compliance Filing Total Avoided Cost Prices \$/MWH (1) (4)

Year	2020.Q3 As Filed	Queue (2)	OFPC
<b>2021</b>	\$20.69	\$20.83	\$20.33
<b>2022</b>	\$20.40	\$20.47	\$21.18
<b>2023</b>	\$19.59	\$19.88	\$20.15
<b>2024</b>	\$15.83	\$16.54	\$17.27
<b>2025</b>	\$17.93	\$18.71	\$20.44
<b>2026</b>	\$33.01	\$33.60	\$34.18
<b>2027</b>	\$34.23	\$34.85	\$35.84
<b>2028</b>	\$38.15	\$38.70	\$39.25
<b>2029</b>	\$40.40	\$40.90	\$41.67
<b>2030</b>	\$40.42	\$40.95	\$40.69
<b>2031</b>	\$43.00	\$43.46	\$42.52
<b>2032</b>	\$44.71	\$45.15	\$44.73
<b>2033</b>	\$45.88	\$46.35	\$45.66
<b>2034</b>	\$47.54	\$48.01	\$47.34
<b>2035</b>	\$49.07	\$49.52	\$49.21
<b>2036</b>	\$51.41	\$51.83	\$51.26
<b>2037</b>	\$52.75	\$53.96	\$53.51

#### Nominal Levelized Payment at 6.920% Discount Rate (3)

2021 - 2035	\$30.95	\$31.40	\$31.67
2022 - 2036	\$32.89	\$33.38	\$33.70
2023 - 2037	\$35.05	\$35.61	\$35.86

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated December 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.Q4 and 2020.Q3 Compliance Filing GRID Calculated Energy Avoided Cost Prices \$/MWH (1)

Year	2020.Q3 As Filed	Queue (2)	OFPC
<b>2021</b>	\$20.69	\$20.83	\$20.33
<b>2022</b>	\$20.40	\$20.47	\$21.18
<b>2023</b>	\$19.59	\$19.88	\$20.15
<b>2024</b>	\$15.83	\$16.54	\$17.27
<b>2025</b>	\$17.93	\$18.71	\$20.44
<b>2026</b>	\$19.92	\$20.51	\$21.09
<b>2027</b>	\$20.83	\$21.44	\$22.43
<b>2028</b>	\$24.44	\$24.99	\$25.55
<b>2029</b>	\$26.32	\$26.83	\$27.60
<b>2030</b>	\$26.01	\$26.54	\$26.28
<b>2031</b>	\$28.28	\$28.74	\$27.80
<b>2032</b>	\$29.70	\$30.14	\$29.73
<b>2033</b>	\$30.51	\$30.99	\$30.30
<b>2034</b>	\$31.86	\$32.32	\$31.65
<b>2035</b>	\$33.05	\$33.50	\$33.19
<b>2036</b>	\$35.10	\$35.52	\$34.95
<b>2037</b>	\$36.05	\$37.26	\$36.81

#### Nominal Levelized Payment at 6.92% Discount Rate (3)

2021 - 2035	\$23.03	\$23.48	\$23.76
2022 - 2036	\$23.77	\$24.25	\$24.58
2023 - 2037	\$24.63	\$25.19	\$25.44

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

### Appendix C

#### Utah Quarterly Compliance Filing Step Study between 2020.Q4 and 2020.Q3 Compliance Filing Capacity Avoided Cost Prices

Year	\$/kW-Year		\$/MWH (1)	
	2020.Q3 (3)	2020.Q4 (3)	2020.Q3 (3)	2020.Q4 (3)
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	\$ 114.67	\$ 114.67	\$ 13.09	\$ 13.09
2027	\$ 117.44	\$ 117.44	\$ 13.41	\$ 13.41
2028	\$ 120.37	\$ 120.37	\$ 13.70	\$ 13.70
2029	\$ 123.27	\$ 123.27	\$ 14.07	\$ 14.07
2030	\$ 126.22	\$ 126.22	\$ 14.41	\$ 14.41
2031	\$ 128.99	\$ 128.99	\$ 14.73	\$ 14.73
2032	\$ 131.82	\$ 131.82	\$ 15.01	\$ 15.01
2033	\$ 134.59	\$ 134.59	\$ 15.36	\$ 15.36
2034	\$ 137.42	\$ 137.42	\$ 15.69	\$ 15.69
2035	\$ 140.33	\$ 140.33	\$ 16.02	\$ 16.02
2036	\$ 143.27	\$ 143.27	\$ 16.31	\$ 16.31
2037	\$ 146.29	\$ 146.29	\$ 16.70	\$ 16.70

Nominal Levelized Payment at 6.920% Discount Rate (2)

2021 - 2035	\$69.41	\$69.41	\$7.92	\$7.92
2022 - 2036	\$79.95	\$79.95	\$9.12	\$9.12
2023 - 2037	\$91.34	\$91.34	\$10.42	\$10.42

- (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.Q4 Avoided Cost Input Changes Quarterly Compliance Filing** was served upon the following by email on March 30, 2021.

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Katie Savarin  
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