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Salt Lake City, Utah 84116

June 30, 2020

***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 Secretary

Re: **Docket No. 03-035-14 – Quarterly Compliance Filing – 2020.Q1 Avoided Cost Input Changes**  
**Docket No. 20-035-30– 2020.Q1 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.

Utah Clean Energy (UCE) has filed challenges to two main aspects of a prior compliance filing, specifically the modeling of the 2019 Integrated Resource Plan (IRP) and the Company's proposed non-routine update to the assumed resource deferral for Utah wind QFs. A procedural schedule has been established in Docket No. 19-035-18 to review these issues. To provide additional clarity on the pending non-routine change, the Company has provided indicative avoided cost pricing for wind resources using both the approved methodology and the proposed non-routine change.

## **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 March 31, 2020 (2003 OFPC).
2. **Qualifying Facility (QF) Queue**  
Update of signed contract queue and current potential QFs. The QF queue was revised to include 1,114 MW nameplate in this filing. The potential queue was 1,906 MW nameplate in the 2019.Q4 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 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 solar with storage resource in 2024. Consistent with the Company’s proposed non-routine change, the wind QF resource would partially displaces summer and winter FOTs during 2020-2022 and the entire Utah wind resource in 2023. Under the current approved methodology, the wind QF resource would partially displaces summer and winter FOTs during 2020-2023 and the Wyoming wind resource and associated transmission in 2024.
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 69 MW 29.4 percent capacity factor wind QF resource and reflect the Company’s proposed non-routine change.
  - d. Avoided costs presented in **Appendix B.4** were calculated assuming an 80 MW 29.4 percent capacity factor wind QF resource and reflect the current approved methodology.

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](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. 19-035-18)

**ROCKY MOUNTAIN POWER**  
**DESCRIPTION OF AVOIDED COST INPUT CHANGES**  
**2020.Q1 – JUNE 2020**

## Appendix A

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

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Assumptions that have changed since the 2019.Q4 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 March 31, 2020 OFPC (2003 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 2019.
- 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 March 2019.
- 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 March 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, 2019.

### **Long-Term Contracts**

- Long-term contracts which have prices that are indexed to market are consistent with the 2003 OFPC.
- Contracts are modeled based on 48 months ended December 2018.
- Qualifying Facility (QF) power purchase agreements (PPA) are assumed to terminate and not renew at the end of their current PPA term.
- Incorporates signed PPAs.

### **Market Capacity**

- Capacity set at 48-month average of all short-term firm (“STF”) sales ended March 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 March 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 March 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 has a 29.4 percent capacity factor and is located in the Utah North transmission bubble. Under the Company’s proposed non-routine change, a 69 MW QF resource is assumed, equal to the Utah wind assumed to be deferred. Under the current approved methodology, an 80 MW QF resource is assumed.

### **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 2018.

### **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>

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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.

- 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.

## 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	-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		<b>217.31</b>	<b>1114.45</b>			
20	Utah 2020.Q1	100.00	100.0	100.0%	100.0%	2020 01 01
Partial Displacement after QF		<b>317.31</b>	<b>1214.45</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: **1,085** nameplate MW of solar resources are displaced by the QF queue. After degradation and accounting for capacity contribution, the incremental solar QF displaces 29 MW of solar with storage resource located at Utah North in 2024. The Company retains 100% of the RECs starting in 2024.
- Wind: 25 MW of wind resources are displaced by the QF queue. Based on the Company's proposed non-routine change, the incremental wind QF displaces the Utah wind resource in 2023, and the Company retains 100% of the RECs starting in 2023. Based on the current approved methodology, the incremental wind QF displaces the Wyoming wind resource in 2024, and the Company retains 100% of the RECs starting in 2024.

Base Case Displacement (Nameplate MW)							
Thermal	Battery	SolarwB	WindwB	Wind	FOT Summer	FOT Winter	FOT Flat
-	-	-	-	-	-	-	-
-	-	-	-	-	2	2	-
-	-	-	-	-	3	3	-
-	-	10	-	-	3	3	-
-	-	13	-	-	201	201	-
-	-	698	-	25	5	5	-
-	-	698	-	25	5	5	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-
5	-	698	-	25	-	-	-

## IRP Partial Displacements (Previous Filing)

Total partial displacement was 1,784 MW in the base case and 1,884 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 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	4.9	80.0		6.1%	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

Total Signed MW		-9.28	42.00			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 249 - OR - Solar	4.52	40.0	29.1%	11.3%	2019 12 31
2	QF - 279 - OR - Solar	4.52	40.0	31.0%	11.3%	2019 12 31
3	QF - 280 - OR - Solar	2.26	20.0	27.9%	11.3%	2019 01 01
4	QF - 514 - WY - Gas	0.00	30.0	85.0%	0.0%	2020 01 01
5	QF - 541 - WY - Solar	6.17	80.0	27.2%	7.7%	2022 06 01
6	QF - 542 - WY - Solar	6.17	80.0	27.2%	7.7%	2022 06 01
7	QF - 516 - WY - Wind	1.56	24.8	33.1%	6.3%	2019 12 01
8	QF - 517 - WY - Wind	0.11	1.8	34.5%	6.1%	2019 12 01
9	QF - 519 - WY - Solar	6.03	80.0	28.6%	7.5%	2022 09 01
10	QF - 520 - WY - Solar	6.03	80.0	28.6%	7.5%	2022 09 01
11	QF - 433 - UT - Gas	0.00	31.8	58.2%	0.0%	2020 01 01
12	QF - 434 - UT - Gas	0.00	6.2	85.0%	0.0%	2020 01 01
13	QF - 435 - UT - Gas	0.00	25.0	85.0%	0.0%	2020 01 01
14	QF - 521 - OR - Solar	7.99	80.0	26.7%	10.0%	2022 12 01
15	QF - 522 - OR - Solar	7.99	80.0	26.7%	10.0%	2022 12 01
16	QF - 523 - OR - Solar	8.61	80.0	26.7%	10.8%	2022 12 01
17	QF - 524 - OR - Solar	8.61	80.0	26.7%	10.8%	2022 12 01
18	QF - 525 - WY - Gas	0.00	98.0	75.0%	0.0%	2020 01 01
19	QF - 527 - WY - Wind	1.2	16.8	34.5%	7.3%	2020 11 01
20	QF - 528 - UT - Solar	4.5	78.0	29.9%	5.7%	2022 09 01
21	QF - 538 - OR - Solar	10.40	80.0	33.4%	13.0%	2023 10 01
22	QF - 537 - WY - Wind	1.67	16.5	29.5%	10.1%	2019 09 01

23	QF - 540 - UT - Solar	2.32	35.0	34.5%	6.6%	2022 10 01
24	QF - 254 - OR - Solar	6.21	55.0	29.4%	11.3%	2021 01 01
25	QF - 505 - WY - Solar	51.72	80.0	38.6%	64.7%	2023 01 01
26	QF - 442 - WY - Solar	6.54	80.0	26.7%	8.2%	2023 01 01
27	QF - 506 - WY - Solar	51.72	80.0	38.6%	64.7%	2023 01 01
28	QF - 507 - UT - Solar	48.20	80.0	38.6%	60.3%	2023 01 01
29	QF - 509 - UT - Solar	48	80.0	38.6%	60.3%	2023 01 01
30	QF - 508 - WY - Solar	29.3	50.0	31.7%	58.6%	2023 01 01
31	QF - 542 - UT - Solar	4.9	74.0	32.7%	6.6%	2023 02 01
32	QF - 543 - UT - Solar	1.4	21.0	32.8%	6.6%	2023 02 01
33	QF - 544 - OR - Solar	9.5	80.0	29.3%	11.9%	2023 01 01
Total Potential MW		348.36	1863.85			

Total Partial Displacement	<b>339.08</b>	<b>1905.85</b>
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**ROCKY MOUNTAIN POWER**

**UPDATE IMPACT – UPDATED AVOIDED COST STUDY**

**2020.Q1 – JUNE 2020**

**Appendix B.1**

**Avoided Cost Prices \$/MWh**

**Utah 2020.Q1 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT W)	Wind (Defers WYAE W)	Thermal	Solar Tracking	Wind	Thermal	Solar Tracking	Wind (Defers UT W)
	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2019.Q4 100% CF (2)	UT 2019.Q4 31.1% CF (2)	UT 2019.Q4 31.0% CF (2)	Difference	Difference	Difference
2020	\$14.22	\$12.50	\$11.48	\$12.54	\$13.96	\$12.63	\$11.60	\$0.26	(\$0.13)	(\$0.13)
2021	\$16.69	\$13.33	\$13.62	\$14.89	\$12.90	\$10.04	\$10.34	\$3.79	\$3.29	\$3.28
2022	\$17.72	\$14.22	\$14.82	\$15.98	\$16.09	\$13.00	\$14.59	\$1.63	\$1.22	\$0.22
2023	\$16.86	\$13.52	\$25.40	\$15.28	\$14.01	\$11.19	\$23.79	\$2.86	\$2.33	\$1.60
2024	\$12.08	\$13.72	\$26.51	\$67.81	\$7.36	\$8.62	\$23.58	\$4.72	\$5.11	\$2.93
2025	\$12.71	\$14.25	\$26.79	\$68.98	\$8.35	\$9.26	\$24.00	\$4.36	\$4.99	\$2.79
2026	\$29.93	\$14.81	\$27.94	\$71.01	\$28.15	\$9.89	\$25.15	\$1.78	\$4.92	\$2.79
2027	\$31.96	\$15.66	\$28.34	\$71.14	\$29.32	\$10.80	\$25.62	\$2.64	\$4.86	\$2.72
2028	\$35.63	\$18.27	\$29.43	\$68.61	\$33.74	\$14.56	\$27.43	\$1.89	\$3.70	\$2.00
2029	\$36.96	\$19.58	\$29.71	\$68.39	\$36.24	\$16.58	\$28.23	\$0.72	\$3.00	\$1.48
2030	\$36.22	\$18.00	\$30.10	\$74.44	\$36.60	\$16.18	\$28.08	(\$0.38)	\$1.81	\$2.01
2031	\$38.90	\$19.89	\$31.40	\$74.74	\$40.94	\$19.18	\$29.76	(\$2.04)	\$0.71	\$1.64
2032	\$43.63	\$22.90	\$31.88	\$70.09	\$46.08	\$21.46	\$30.66	(\$2.46)	\$1.43	\$1.23
2033	\$45.65	\$23.18	\$58.45	\$69.79	\$46.91	\$22.13	\$54.09	(\$1.26)	\$1.06	\$4.36
2034	\$47.22	\$24.32	\$59.55	\$126.90	\$48.55	\$22.76	\$55.14	(\$1.34)	\$1.56	\$4.41

2020-2034	15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)									
	\$/MWh	\$25.82	\$16.12	\$26.44	\$51.79	\$24.25	\$13.40	\$24.39	\$1.57	\$2.72
								6%	20%	8%

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.Q1 - 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
2020	\$0.00	\$14.22	\$14.22
2021	\$0.00	\$16.69	\$16.69
2022	\$0.00	\$17.72	\$17.72
2023	\$0.00	\$16.86	\$16.86
2024	\$0.00	\$12.08	\$12.08
2025	\$0.00	\$12.71	\$12.71
2026	\$115.63	\$16.73	\$29.93
2027	\$118.28	\$18.46	\$31.96
2028	\$121.02	\$21.85	\$35.63
2029	\$123.80	\$22.82	\$36.96
2030	\$126.54	\$21.77	\$36.22
2031	\$129.32	\$24.13	\$38.90
2032	\$132.19	\$28.58	\$43.63
2033	\$134.94	\$30.24	\$45.65
2034	\$137.79	\$31.49	\$47.22
2035	\$140.67	\$33.25	\$49.31
2036	\$143.64	\$35.36	\$51.71
2037	\$146.64	\$36.25	\$52.99
2038	\$149.73	\$37.87	\$54.96
2039	\$152.85	\$38.66	\$56.11
2040	\$156.09	\$39.48	\$57.29
2041	\$159.36	\$40.31	\$58.55
2042	\$162.71	\$41.15	\$59.78

15 Year Starting 2020

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

\$/kW	\$59.90		
\$/MWh		\$18.99	\$25.82

15 Year Starting 2022

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

\$/kW	\$80.25		
\$/MWh		\$21.06	\$30.22

15 Year Starting 2023

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

\$/kW	\$91.66		
\$/MWh		\$22.03	\$32.49

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q1 - 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>													
2020	14.22	13.60	12.22	12.37	11.67	11.51	13.07	27.62	20.40	12.30	11.04	11.65	12.83
2021	16.69	25.47	14.14	13.63	11.91	11.81	12.10	31.66	19.70	16.72	13.18	13.47	15.82
2022	17.72	24.62	16.39	14.04	12.83	12.81	13.69	33.42	21.44	18.29	14.14	14.06	16.38
2023	16.86	16.35	16.79	14.21	12.71	13.07	13.53	32.03	20.84	17.35	14.29	14.37	16.49
2024	12.08	15.35	11.15	7.14	6.03	8.06	8.83	32.72	15.54	10.88	8.49	9.58	10.69
2025	12.71	16.20	10.56	7.49	6.74	8.49	9.76	34.44	17.65	11.48	8.54	9.47	11.05
2026	16.73	17.72	15.29	10.09	11.68	14.76	18.43	21.87	21.97	18.02	15.36	16.38	19.00
2027	18.46	19.14	15.53	10.75	14.48	16.58	20.68	24.11	24.11	19.53	17.62	18.47	20.18
2028	21.85	23.21	18.54	15.88	14.23	19.06	23.22	28.08	28.45	23.61	21.87	21.61	24.10
2029	22.82	22.61	19.45	16.19	17.11	17.32	22.16	29.96	30.72	24.71	22.90	24.64	25.71
2030	21.77	21.83	20.11	14.73	14.13	14.03	20.76	29.73	30.69	24.39	22.92	21.27	26.32
2031	24.13	24.32	22.14	17.16	16.56	18.19	23.13	31.62	32.34	26.55	25.60	23.37	28.20
2032	28.58	31.18	25.81	21.70	22.38	20.63	27.24	35.88	36.55	30.36	28.96	29.54	32.40
2033	30.24	33.72	27.20	23.32	21.55	20.21	29.17	37.19	37.84	31.99	31.18	33.58	35.54
2034	31.49	34.43	29.71	24.50	22.92	21.71	30.05	38.91	39.27	33.32	31.24	34.00	37.44
2035	33.25	36.69	30.93	25.63	25.95	23.22	31.58	40.29	41.68	34.38	33.85	35.44	39.00
2036	35.36	39.02	33.45	27.56	25.21	24.04	33.03	42.89	42.99	38.07	36.57	38.46	42.72
2037	36.25	40.60	34.51	28.58	27.23	24.10	33.26	46.07	45.58	37.68	35.43	37.90	43.60



**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q1 - 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	\$1.71	\$1.72	\$1.89	\$1.60
2021	\$2.22	\$2.23	\$2.32	\$2.07
2022	\$2.16	\$2.17	\$2.22	\$2.03
2023	\$2.25	\$2.26	\$2.30	\$2.13
2024	\$2.38	\$2.39	\$2.40	\$2.25
2025	\$2.55	\$2.56	\$2.50	\$2.42
2026	\$2.68	\$2.69	\$2.60	\$2.55
2027	\$2.94	\$2.95	\$2.80	\$2.80
2028	\$3.20	\$3.21	\$3.05	\$3.06
2029	\$3.43	\$3.44	\$3.30	\$3.30
2030	\$3.67	\$3.68	\$3.55	\$3.53
2031	\$3.85	\$3.86	\$3.72	\$3.71
2032	\$4.04	\$4.05	\$3.89	\$3.89
2033	\$4.22	\$4.23	\$4.06	\$4.07
2034	\$4.43	\$4.44	\$4.28	\$4.28
2035	\$4.66	\$4.67	\$4.49	\$4.51
2036	\$4.85	\$4.86	\$4.66	\$4.70
2037	\$5.18	\$5.19	\$4.99	\$5.03
2038	\$5.48	\$5.49	\$5.24	\$5.32
2039	\$5.82	\$5.83	\$5.58	\$5.66
2040	\$5.95	\$5.96	\$5.69	\$5.78

Official Forward Price Curve Forecast dated Mar 31, 2020

**Table 5**

**Utah 2020.Q1 - 100.0 MW and 100.0% CF  
January 2020 through December 2039**

**Nominal Avoided Costs Calculated Monthly**

<b>15 Year Starting 2023</b>	\$ 182,263,289	\$ 86,590,285	\$ 268,853,574	8,275,277	\$32.49
<b>Nominal NPV at 6.92% Discount Rate</b>					
<b>15 Year Starting 2022</b>	\$ 174,236,069	\$ 75,801,502	\$ 250,037,571	8,274,875	\$30.22
<b>15 Year Starting 2020</b>	\$ 157,120,530	\$ 56,583,954	\$ 213,704,484	8,275,707	\$25.82

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Jan-20	1,011,569	-	1,011,569	74,400	13.60
Feb-20	850,359	-	850,359	69,600	12.22
Mar-20	920,119	-	920,119	74,400	12.37
Apr-20	840,515	-	840,515	72,000	11.67
May-20	856,633	-	856,633	74,400	11.51
Jun-20	941,317	-	941,317	72,000	13.07
Jul-20	2,054,782	-	2,054,782	74,400	27.62
Aug-20	1,517,818	-	1,517,818	74,400	20.40
Sep-20	885,638	-	885,638	72,000	12.30
Oct-20	821,254	-	821,254	74,400	11.04
Nov-20	838,691	-	838,691	72,000	11.65
Dec-20	954,513	-	954,513	74,400	12.83
Jan-21	1,894,598	-	1,894,598	74,400	25.47
Feb-21	950,362	-	950,362	67,200	14.14
Mar-21	1,013,902	-	1,013,902	74,400	13.63
Apr-21	857,163	-	857,163	72,000	11.91
May-21	878,806	-	878,806	74,400	11.81
Jun-21	871,221	-	871,221	72,000	12.10
Jul-21	2,355,663	-	2,355,663	74,400	31.66
Aug-21	1,465,368	-	1,465,368	74,400	19.70
Sep-21	1,203,902	-	1,203,902	72,000	16.72
Oct-21	980,774	-	980,774	74,400	13.18
Nov-21	969,787	-	969,787	72,000	13.47
Dec-21	1,176,949	-	1,176,949	74,400	15.82
Jan-22	1,831,621	-	1,831,621	74,400	24.62
Feb-22	1,101,348	-	1,101,348	67,200	16.39
Mar-22	1,044,482	-	1,044,482	74,400	14.04
Apr-22	924,053	-	924,053	72,000	12.83
May-22	953,262	-	953,262	74,400	12.81
Jun-22	985,379	-	985,379	72,000	13.69
Jul-22	2,486,783	-	2,486,783	74,400	33.42
Aug-22	1,595,328	-	1,595,328	74,400	21.44
Sep-22	1,316,611	-	1,316,611	72,000	18.29
Oct-22	1,051,755	-	1,051,755	74,400	14.14
Nov-22	1,012,354	-	1,012,354	72,000	14.06
Dec-22	1,218,504	-	1,218,504	74,400	16.38
Jan-23	1,216,552	-	1,216,552	74,400	16.35
Feb-23	1,128,390	-	1,128,390	67,200	16.79
Mar-23	1,057,473	-	1,057,473	74,400	14.21
Apr-23	915,437	-	915,437	72,000	12.71
May-23	972,755	-	972,755	74,400	13.07
Jun-23	974,046	-	974,046	72,000	13.53
Jul-23	2,383,338	-	2,383,338	74,400	32.03
Aug-23	1,550,865	-	1,550,865	74,400	20.84
Sep-23	1,249,073	-	1,249,073	72,000	17.35
Oct-23	1,063,500	-	1,063,500	74,400	14.29
Nov-23	1,034,757	-	1,034,757	72,000	14.37
Dec-23	1,226,572	-	1,226,572	74,400	16.49
Jan-24	1,141,671	-	1,141,671	74,400	15.35

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Feb-24	776,335	-	776,335	69,600	11.15
Mar-24	531,321	-	531,321	74,400	7.14
Apr-24	434,023	-	434,023	72,000	6.03
May-24	599,710	-	599,710	74,400	8.06
Jun-24	635,430	-	635,430	72,000	8.83
Jul-24	2,434,611	-	2,434,611	74,400	32.72
Aug-24	1,155,823	-	1,155,823	74,400	15.54
Sep-24	783,355	-	783,355	72,000	10.88
Oct-24	631,770	-	631,770	74,400	8.49
Nov-24	689,764	-	689,764	72,000	9.58
Dec-24	795,604	-	795,604	74,400	10.69
Jan-25	1,205,404	-	1,205,404	74,400	16.20
Feb-25	709,625	-	709,625	67,200	10.56
Mar-25	556,967	-	556,967	74,400	7.49
Apr-25	485,105	-	485,105	72,000	6.74
May-25	631,717	-	631,717	74,400	8.49
Jun-25	702,486	-	702,486	72,000	9.76
Jul-25	2,562,517	-	2,562,517	74,400	34.44
Aug-25	1,312,818	-	1,312,818	74,400	17.65
Sep-25	826,273	-	826,273	72,000	11.48
Oct-25	635,474	-	635,474	74,400	8.54
Nov-25	681,949	-	681,949	72,000	9.47
Dec-25	822,326	-	822,326	74,400	11.05
Jan-26	1,318,512	963,554	2,282,066	74,400	30.67
Feb-26	1,027,238	963,554	1,990,792	67,200	29.62
Mar-26	751,043	963,554	1,714,597	74,400	23.05
Apr-26	840,987	963,554	1,804,540	72,000	25.06
May-26	1,098,499	963,554	2,062,053	74,400	27.72
Jun-26	1,326,893	963,554	2,290,447	72,000	31.81
Jul-26	1,627,151	963,554	2,590,705	74,400	34.82
Aug-26	1,634,891	963,554	2,598,445	74,400	34.93
Sep-26	1,297,160	963,554	2,260,714	72,000	31.40
Oct-26	1,143,034	963,554	2,106,588	74,400	28.31
Nov-26	1,179,437	963,554	2,142,991	72,000	29.76
Dec-26	1,413,557	963,554	2,377,111	74,400	31.95
Jan-27	1,424,302	985,703	2,410,005	74,400	32.39
Feb-27	1,043,554	985,703	2,029,257	67,200	30.20
Mar-27	799,527	985,703	1,785,230	74,400	24.00
Apr-27	1,042,445	985,703	2,028,148	72,000	28.17
May-27	1,233,437	985,703	2,219,141	74,400	29.83
Jun-27	1,489,041	985,703	2,474,744	72,000	34.37
Jul-27	1,793,815	985,703	2,779,518	74,400	37.36
Aug-27	1,794,072	985,703	2,779,775	74,400	37.36
Sep-27	1,406,254	985,703	2,391,957	72,000	33.22
Oct-27	1,310,818	985,703	2,296,522	74,400	30.87
Nov-27	1,329,586	985,703	2,315,289	72,000	32.16
Dec-27	1,501,630	985,703	2,487,333	74,400	33.43
Jan-28	1,727,060	1,008,483	2,735,542	74,400	36.77
Feb-28	1,290,460	1,008,483	2,298,943	69,600	33.03
Mar-28	1,181,811	1,008,483	2,190,293	74,400	29.44
Apr-28	1,024,329	1,008,483	2,032,812	72,000	28.23
May-28	1,417,875	1,008,483	2,426,357	74,400	32.61
Jun-28	1,671,931	1,008,483	2,680,414	72,000	37.23
Jul-28	2,089,399	1,008,483	3,097,882	74,400	41.64
Aug-28	2,116,450	1,008,483	3,124,932	74,400	42.00
Sep-28	1,699,839	1,008,483	2,708,322	72,000	37.62
Oct-28	1,627,145	1,008,483	2,635,628	74,400	35.43
Nov-28	1,555,795	1,008,483	2,564,278	72,000	35.61
Dec-28	1,792,889	1,008,483	2,801,372	74,400	37.65
Jan-29	1,682,250	1,031,692	2,713,942	74,400	36.48

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWh	100.0% CF
Feb-29	1,307,259	1,031,692	2,338,951	67,200	34.81
Mar-29	1,204,666	1,031,692	2,236,358	74,400	30.06
Apr-29	1,231,950	1,031,692	2,263,642	72,000	31.44
May-29	1,288,386	1,031,692	2,320,078	74,400	31.18
Jun-29	1,595,205	1,031,692	2,626,896	72,000	36.48
Jul-29	2,229,325	1,031,692	3,261,017	74,400	43.83
Aug-29	2,285,728	1,031,692	3,317,420	74,400	44.59
Sep-29	1,779,005	1,031,692	2,810,696	72,000	39.04
Oct-29	1,703,431	1,031,692	2,735,123	74,400	36.76
Nov-29	1,773,970	1,031,692	2,805,662	72,000	38.97
Dec-29	1,913,159	1,031,692	2,944,851	74,400	39.58
Jan-30	1,624,122	1,054,471	2,678,594	74,400	36.00
Feb-30	1,351,177	1,054,471	2,405,649	67,200	35.80
Mar-30	1,095,788	1,054,471	2,150,259	74,400	28.90
Apr-30	1,017,258	1,054,471	2,071,729	72,000	28.77
May-30	1,044,158	1,054,471	2,098,629	74,400	28.21
Jun-30	1,494,743	1,054,471	2,549,214	72,000	35.41
Jul-30	2,211,588	1,054,471	3,266,059	74,400	43.90
Aug-30	2,283,043	1,054,471	3,337,514	74,400	44.86
Sep-30	1,755,933	1,054,471	2,810,404	72,000	39.03
Oct-30	1,705,298	1,054,471	2,759,769	74,400	37.09
Nov-30	1,531,723	1,054,471	2,586,194	72,000	35.92
Dec-30	1,958,099	1,054,471	3,012,570	74,400	40.49
Jan-31	1,809,776	1,077,680	2,887,457	74,400	38.81
Feb-31	1,487,585	1,077,680	2,565,266	67,200	38.17
Mar-31	1,276,414	1,077,680	2,354,095	74,400	31.64
Apr-31	1,192,567	1,077,680	2,270,248	72,000	31.53
May-31	1,353,243	1,077,680	2,430,924	74,400	32.67
Jun-31	1,665,257	1,077,680	2,742,938	72,000	38.10
Jul-31	2,352,784	1,077,680	3,430,464	74,400	46.11
Aug-31	2,406,281	1,077,680	3,483,962	74,400	46.83
Sep-31	1,911,489	1,077,680	2,989,169	72,000	41.52
Oct-31	1,904,898	1,077,680	2,982,578	74,400	40.09
Nov-31	1,682,516	1,077,680	2,760,197	72,000	38.34
Dec-31	2,097,838	1,077,680	3,175,518	74,400	42.68
Jan-32	2,319,755	1,101,577	3,421,332	74,400	45.99
Feb-32	1,796,622	1,101,577	2,898,199	69,600	41.64
Mar-32	1,614,382	1,101,577	2,715,960	74,400	36.50
Apr-32	1,611,283	1,101,577	2,712,860	72,000	37.68
May-32	1,534,849	1,101,577	2,636,426	74,400	35.44
Jun-32	1,961,635	1,101,577	3,063,212	72,000	42.54
Jul-32	2,669,217	1,101,577	3,770,795	74,400	50.68
Aug-32	2,719,391	1,101,577	3,820,968	74,400	51.36
Sep-32	2,185,663	1,101,577	3,287,241	72,000	45.66
Oct-32	2,154,460	1,101,577	3,256,037	74,400	43.76
Nov-32	2,126,543	1,101,577	3,228,120	72,000	44.83
Dec-32	2,410,582	1,101,577	3,512,160	74,400	47.21
Jan-33	2,509,113	1,124,529	3,633,642	74,400	48.84
Feb-33	1,827,695	1,124,529	2,952,223	67,200	43.93
Mar-33	1,734,764	1,124,529	2,859,293	74,400	38.43
Apr-33	1,551,470	1,124,529	2,675,998	72,000	37.17
May-33	1,503,988	1,124,529	2,628,517	74,400	35.33
Jun-33	2,100,374	1,124,529	3,224,902	72,000	44.79
Jul-33	2,766,582	1,124,529	3,891,110	74,400	52.30
Aug-33	2,815,095	1,124,529	3,939,624	74,400	52.95
Sep-33	2,302,921	1,124,529	3,427,449	72,000	47.60
Oct-33	2,319,677	1,124,529	3,444,205	74,400	46.29
Nov-33	2,417,533	1,124,529	3,542,062	72,000	49.20
Dec-33	2,644,171	1,124,529	3,768,700	74,400	50.65
Jan-34	2,561,605	1,148,253	3,709,858	74,400	49.86

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWh	100.0% CF
Feb-34	1,996,480	1,148,253	3,144,733	67,200	46.80
Mar-34	1,822,581	1,148,253	2,970,835	74,400	39.93
Apr-34	1,650,412	1,148,253	2,798,666	72,000	38.87
May-34	1,614,890	1,148,253	2,763,144	74,400	37.14
Jun-34	2,163,417	1,148,253	3,311,670	72,000	46.00
Jul-34	2,894,830	1,148,253	4,043,084	74,400	54.34
Aug-34	2,921,405	1,148,253	4,069,658	74,400	54.70
Sep-34	2,399,180	1,148,253	3,547,433	72,000	49.27
Oct-34	2,324,008	1,148,253	3,472,262	74,400	46.67
Nov-34	2,448,174	1,148,253	3,596,427	72,000	49.95
Dec-34	2,785,568	1,148,253	3,933,821	74,400	52.87
Jan-35	2,729,460	1,172,236	3,901,697	74,400	52.44
Feb-35	2,078,746	1,172,236	3,250,982	67,200	48.38
Mar-35	1,906,597	1,172,236	3,078,834	74,400	41.38
Apr-35	1,868,226	1,172,236	3,040,463	72,000	42.23
May-35	1,727,350	1,172,236	2,899,587	74,400	38.97
Jun-35	2,274,025	1,172,236	3,446,261	72,000	47.86
Jul-35	2,997,914	1,172,236	4,170,150	74,400	56.05
Aug-35	3,100,878	1,172,236	4,273,114	74,400	57.43
Sep-35	2,475,123	1,172,236	3,647,359	72,000	50.66
Oct-35	2,518,200	1,172,236	3,690,436	74,400	49.60
Nov-35	2,551,994	1,172,236	3,724,230	72,000	51.73
Dec-35	2,901,321	1,172,236	4,073,558	74,400	54.75
Jan-36	2,903,348	1,196,993	4,100,341	74,400	55.11
Feb-36	2,328,405	1,196,993	3,525,398	69,600	50.65
Mar-36	2,050,191	1,196,993	3,247,183	74,400	43.64
Apr-36	1,815,275	1,196,993	3,012,268	72,000	41.84
May-36	1,788,657	1,196,993	2,985,650	74,400	40.13
Jun-36	2,377,863	1,196,993	3,574,856	72,000	49.65
Jul-36	3,190,687	1,196,993	4,387,680	74,400	58.97
Aug-36	3,198,791	1,196,993	4,395,784	74,400	59.08
Sep-36	2,740,947	1,196,993	3,937,940	72,000	54.69
Oct-36	2,720,760	1,196,993	3,917,753	74,400	52.66
Nov-36	2,769,327	1,196,993	3,966,320	72,000	55.09
Dec-36	3,178,209	1,196,993	4,375,202	74,400	58.81
Jan-37	3,020,661	1,222,007	4,242,668	74,400	57.03
Feb-37	2,319,048	1,222,007	3,541,055	67,200	52.69
Mar-37	2,126,412	1,222,007	3,348,419	74,400	45.01
Apr-37	1,960,519	1,222,007	3,182,527	72,000	44.20
May-37	1,793,291	1,222,007	3,015,299	74,400	40.53
Jun-37	2,394,675	1,222,007	3,616,682	72,000	50.23
Jul-37	3,427,628	1,222,007	4,649,635	74,400	62.50
Aug-37	3,391,288	1,222,007	4,613,295	74,400	62.01
Sep-37	2,712,965	1,222,007	3,934,972	72,000	54.65
Oct-37	2,635,924	1,222,007	3,857,931	74,400	51.85
Nov-37	2,728,942	1,222,007	3,950,949	72,000	54.87
Dec-37	3,243,990	1,222,007	4,465,997	74,400	60.03
Jan-38	3,162,334	1,247,709	4,410,043	74,400	59.27
Feb-38	2,448,471	1,247,709	3,696,180	67,200	55.00
Mar-38	2,310,190	1,247,709	3,557,899	74,400	47.82
Apr-38	2,046,632	1,247,709	3,294,341	72,000	45.75
May-38	1,875,990	1,247,709	3,123,699	74,400	41.99
Jun-38	2,387,049	1,247,709	3,634,759	72,000	50.48
Jul-38	3,535,201	1,247,709	4,782,910	74,400	64.29
Aug-38	3,626,969	1,247,709	4,874,678	74,400	65.52
Sep-38	2,736,863	1,247,709	3,984,572	72,000	55.34
Oct-38	2,840,628	1,247,709	4,088,337	74,400	54.95
Nov-38	2,827,153	1,247,709	4,074,862	72,000	56.60
Dec-38	3,374,869	1,247,709	4,622,578	74,400	62.13
Jan-39	3,228,743	1,273,755	4,502,498	74,400	60.52

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Feb-39	2,499,889	1,273,755	3,773,644	67,200	56.16
Mar-39	2,358,704	1,273,755	3,632,459	74,400	48.82
Apr-39	2,089,612	1,273,755	3,363,367	72,000	46.71
May-39	1,915,386	1,273,755	3,189,141	74,400	42.86
Jun-39	2,437,177	1,273,755	3,710,932	72,000	51.54
Jul-39	3,609,440	1,273,755	4,883,195	74,400	65.63
Aug-39	3,703,135	1,273,755	4,976,890	74,400	66.89
Sep-39	2,794,337	1,273,755	4,068,092	72,000	56.50
Oct-39	2,900,281	1,273,755	4,174,036	74,400	56.10
Nov-39	2,886,523	1,273,755	4,160,278	72,000	57.78
Dec-39	3,445,741	1,273,755	4,719,496	74,400	63.43
Jan-40	3,296,547	1,300,746	4,597,293	74,400	61.79
Feb-40	2,552,386	1,300,746	3,853,133	67,200	57.34
Mar-40	2,408,236	1,300,746	3,708,983	74,400	49.85
Apr-40	2,133,493	1,300,746	3,434,240	72,000	47.70
May-40	1,955,609	1,300,746	3,256,355	74,400	43.77
Jun-40	2,488,358	1,300,746	3,789,105	72,000	52.63
Jul-40	3,685,238	1,300,746	4,985,985	74,400	67.02
Aug-40	3,780,901	1,300,746	5,081,647	74,400	68.30
Sep-40	2,853,018	1,300,746	4,153,765	72,000	57.69
Oct-40	2,961,187	1,300,746	4,261,934	74,400	57.28
Nov-40	2,947,140	1,300,746	4,247,886	72,000	59.00
Dec-40	3,518,102	1,300,746	4,818,849	74,400	64.77
Jan-41	3,365,774	1,327,996	4,693,770	74,400	63.09
Feb-41	2,516,125	1,327,996	3,844,121	64,883	59.25

**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				\$8.05					
2021				\$8.21					
2022				\$8.42					
2023				\$8.63					
2024				\$8.84					
2025				\$9.04					
2026	\$719	\$50.01	\$38.05	\$9.25	\$64.79	\$114.80	\$2.69	\$26.32	\$66.03
2027		\$51.16	\$38.93	\$9.46	\$66.28	\$117.44	\$2.95	\$28.87	\$69.50
2028		\$52.34	\$39.83	\$9.68	\$67.81	\$120.15	\$3.21	\$31.41	\$72.97
2029		\$53.54	\$40.75	\$9.90	\$69.37	\$122.91	\$3.44	\$33.66	\$76.18
2030		\$54.72	\$41.65	\$10.12	\$70.90	\$125.62	\$3.68	\$36.01	\$79.47
2031		\$55.92	\$42.57	\$10.34	\$72.46	\$128.38	\$3.86	\$37.77	\$82.18
2032		\$57.15	\$43.51	\$10.57	\$74.07	\$131.22	\$4.05	\$39.63	\$85.02
2033		\$58.35	\$44.42	\$10.79	\$75.61	\$133.96	\$4.23	\$41.39	\$87.73
2034		\$59.58	\$45.35	\$11.02	\$77.21	\$136.79	\$4.44	\$43.45	\$90.77
2035		\$60.83	\$46.30	\$11.25	\$78.82	\$139.65	\$4.67	\$45.70	\$94.01
2036		\$62.11	\$47.27	\$11.49	\$80.49	\$142.60	\$4.86	\$47.56	\$96.89
2037		\$63.41	\$48.26	\$11.73	\$82.17	\$145.58	\$5.19	\$50.79	\$101.15
2038		\$64.74	\$49.27	\$11.98	\$83.90	\$148.64	\$5.49	\$53.73	\$105.15
2039		\$66.10	\$50.30	\$12.23	\$85.65	\$151.75	\$5.83	\$57.05	\$109.54
2040		\$67.49	\$51.36	\$12.49	\$87.47	\$154.96	\$5.96	\$58.32	\$111.92
2041		\$68.91	\$52.44	\$12.75	\$89.30	\$158.21	\$6.09	\$59.60	\$114.33
2042		\$70.36	\$53.54	\$13.02	\$91.18	\$161.54	\$6.22	\$60.87	\$116.75

**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>
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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
2018 \$ 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

<b>Company Official Inflation Forecast Dated March 31, 2020</b>					
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2017	2.0%	2026	2.3%	2035	2.1%
2018	2.4%	2027	2.3%	2036	2.1%
2019	1.8%	2028	2.3%	2037	2.1%
2020	1.9%	2029	2.3%	2038	2.1%
2021	2.0%	2030	2.2%	2039	2.1%
2022	2.5%	2031	2.2%	2040	2.1%
2023	2.5%	2032	2.2%	2041	2.1%



**Appendix B.2**

**Avoided Cost Prices \$/MWh**

**Utah 2020.Q1 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT W)	Wind (Defers WYAE W)	Thermal	Solar Tracking	Wind	Thermal	Solar Tracking	Wind (Defers UT W)
	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2019.Q4 100% CF (2)	UT 2019.Q4 31.1% CF (2)	UT 2019.Q4 31.0% CF (2)	Difference	Difference	Difference
2020	\$14.22	\$12.50	\$11.48	\$12.54	\$13.96	\$12.63	\$11.60	\$0.26	(\$0.13)	(\$0.13)
2021	\$16.69	\$13.33	\$13.62	\$14.89	\$12.90	\$10.04	\$10.34	\$3.79	\$3.29	\$3.28
2022	\$17.72	\$14.22	\$14.82	\$15.98	\$16.09	\$13.00	\$14.59	\$1.63	\$1.22	\$0.22
2023	\$16.86	\$13.52	\$25.40	\$15.28	\$14.01	\$11.19	\$23.79	\$2.86	\$2.33	\$1.60
2024	\$12.08	\$13.72	\$26.51	\$67.81	\$7.36	\$8.62	\$23.58	\$4.72	\$5.11	\$2.93
2025	\$12.71	\$14.25	\$26.79	\$68.98	\$8.35	\$9.26	\$24.00	\$4.36	\$4.99	\$2.79
2026	\$29.93	\$14.81	\$27.94	\$71.01	\$28.15	\$9.89	\$25.15	\$1.78	\$4.92	\$2.79
2027	\$31.96	\$15.66	\$28.34	\$71.14	\$29.32	\$10.80	\$25.62	\$2.64	\$4.86	\$2.72
2028	\$35.63	\$18.27	\$29.43	\$68.61	\$33.74	\$14.56	\$27.43	\$1.89	\$3.70	\$2.00
2029	\$36.96	\$19.58	\$29.71	\$68.39	\$36.24	\$16.58	\$28.23	\$0.72	\$3.00	\$1.48
2030	\$36.22	\$18.00	\$30.10	\$74.44	\$36.60	\$16.18	\$28.08	(\$0.38)	\$1.81	\$2.01
2031	\$38.90	\$19.89	\$31.40	\$74.74	\$40.94	\$19.18	\$29.76	(\$2.04)	\$0.71	\$1.64
2032	\$43.63	\$22.90	\$31.88	\$70.09	\$46.08	\$21.46	\$30.66	(\$2.46)	\$1.43	\$1.23
2033	\$45.65	\$23.18	\$58.45	\$69.79	\$46.91	\$22.13	\$54.09	(\$1.26)	\$1.06	\$4.36
2034	\$47.22	\$24.32	\$59.55	\$126.90	\$48.55	\$22.76	\$55.14	(\$1.34)	\$1.56	\$4.41

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)

2020-2034	\$/MWh	\$25.82	\$16.12	\$26.44	\$51.79	\$24.25	\$13.40	\$24.39	\$1.57	\$2.72	\$2.05
									6%	20%	8%

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.Q1\_Solar - 80.0 MW and 32.2% CF**

Total Price @

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	32.2% Capacity Factor \$/MWh
2020	\$0.00	\$12.50	\$12.50
2021	\$0.00	\$13.33	\$13.33
2022	\$0.00	\$14.22	\$14.22
2023	\$0.00	\$13.52	\$13.52
2024	\$33.22	\$1.74	\$13.72
2025	\$33.98	\$1.90	\$14.25
2026	\$34.76	\$2.11	\$14.81
2027	\$35.56	\$2.60	\$15.66
2028	\$36.38	\$4.87	\$18.27
2029	\$37.21	\$5.77	\$19.58
2030	\$38.03	\$3.82	\$18.00
2031	\$38.86	\$5.33	\$19.89
2032	\$39.72	\$7.98	\$22.90
2033	\$40.55	\$7.83	\$23.18
2034	\$41.40	\$8.57	\$24.32
2035	\$42.27	\$8.71	\$24.87
2036	\$43.16	\$10.36	\$26.90
2037	\$44.07	\$9.57	\$26.59
2038	\$44.99	\$11.07	\$28.53
2039	\$45.94	\$11.30	\$29.13

15 Year Starting 2020

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

\$/kW \$23.74

\$/MWh

\$7.70

\$16.12

15 Year Starting 2022

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

\$/kW \$31.09

\$/MWh

\$6.62

\$17.65

15 Year Starting 2023

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

\$/kW \$35.25

\$/MWh

\$5.85

\$18.38

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q1\_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>													
2020	12.50	15.31	11.52	12.42	10.82	10.50	12.71	16.62	15.43	10.13	11.08	12.80	8.64
2021	13.33	18.60	11.94	11.66	9.24	10.19	11.17	20.34	16.58	13.29	11.17	11.91	14.12
2022	14.22	19.03	13.76	11.39	10.20	11.04	12.76	21.32	17.79	14.07	12.02	12.58	14.12
2023	13.52	14.29	13.57	11.92	9.52	11.37	12.42	20.34	16.06	13.58	11.00	12.47	14.37
2024	1.74	3.62	1.68	(1.91)	(3.24)	1.14	1.70	5.77	4.74	1.93	(0.31)	2.07	3.11
2025	1.90	3.85	0.73	(1.65)	(2.59)	1.27	2.65	5.30	5.14	2.54	(0.61)	1.41	3.39
2026	2.11	3.69	0.52	(2.42)	(2.88)	1.36	2.74	6.09	5.91	1.81	0.63	2.82	3.78
2027	2.60	3.79	1.41	(1.47)	(1.65)	1.89	2.80	5.95	6.52	1.93	1.58	3.26	4.46
2028	4.87	6.69	4.50	2.52	0.18	3.68	4.89	8.97	7.51	4.26	3.26	5.88	6.24
2029	5.77	7.97	5.28	2.23	1.94	3.96	5.04	10.22	9.68	4.72	3.86	7.42	7.50
2030	3.82	5.81	3.62	2.98	2.23	2.08	3.22	6.34	6.04	3.30	1.84	3.86	5.72
2031	5.33	7.33	3.57	6.07	4.15	4.03	4.26	7.15	7.03	5.41	3.40	5.15	7.51
2032	7.98	8.72	6.67	6.38	5.61	4.58	7.19	13.01	11.20	7.76	6.47	8.48	9.87
2033	7.83	10.96	5.27	7.66	4.40	4.24	6.93	13.09	11.67	6.23	6.65	8.29	9.28
2034	8.57	11.35	7.26	7.50	4.51	4.65	8.05	14.00	12.32	7.26	7.14	9.22	10.88
2035	8.71	12.08	8.57	7.91	3.79	5.39	8.12	14.27	11.16	7.23	7.35	10.01	10.84
2036	10.36	13.85	10.44	9.35	5.80	6.28	9.72	14.83	13.96	9.35	6.86	14.14	13.73
2037	9.57	13.94	10.89	8.67	6.40	4.88	8.57	14.82	11.71	7.75	7.19	12.26	12.58

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q1\_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	\$1.71	\$1.72	\$1.89	\$1.60
2021	\$2.22	\$2.23	\$2.32	\$2.07
2022	\$2.16	\$2.17	\$2.22	\$2.03
2023	\$2.25	\$2.26	\$2.30	\$2.13
2024	\$2.38	\$2.39	\$2.40	\$2.25
2025	\$2.55	\$2.56	\$2.50	\$2.42
2026	\$2.68	\$2.69	\$2.60	\$2.55
2027	\$2.94	\$2.95	\$2.80	\$2.80
2028	\$3.20	\$3.21	\$3.05	\$3.06
2029	\$3.43	\$3.44	\$3.30	\$3.30
2030	\$3.67	\$3.68	\$3.55	\$3.53
2031	\$3.85	\$3.86	\$3.72	\$3.71
2032	\$4.04	\$4.05	\$3.89	\$3.89
2033	\$4.22	\$4.23	\$4.06	\$4.07
2034	\$4.43	\$4.44	\$4.28	\$4.28
2035	\$4.66	\$4.67	\$4.49	\$4.51
2036	\$4.85	\$4.86	\$4.66	\$4.70
2037	\$5.18	\$5.19	\$4.99	\$5.03
2038	\$5.48	\$5.49	\$5.24	\$5.32
2039	\$5.82	\$5.83	\$5.58	\$5.66
2040	\$5.95	\$5.96	\$5.69	\$5.78

Official Forward Price Curve Forecast dated Mar 31, 2020

**Table 5**

**Utah 2020.Q1\_Solar - 80.0 MW and 32.2% CF  
January 2020 through December 2039**

**Nominal Avoided Costs Calculated Monthly**

<b>15 Year Starting 2023</b>	\$ 11,988,794	\$ 25,510,086	\$ 37,498,880	2,040,415	\$18.38
<b>Nominal NPV at 6.92% Discount Rate</b>					
<b>15 Year Starting 2022</b>	\$ 13,575,088	\$ 22,612,614	\$ 36,187,701	2,050,563	\$17.65
<b>15 Year Starting 2020</b>	\$ 15,946,336	\$ 17,442,840	\$ 33,389,176	2,071,444	\$16.12

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Jan-20	190,733	-	190,733	12,454	15.31
Feb-20	146,957	-	146,957	12,755	11.52
Mar-20	210,294	-	210,294	16,934	12.42
Apr-20	217,185	-	217,185	20,073	10.82
May-20	288,303	-	288,303	27,470	10.50
Jun-20	319,963	-	319,963	25,167	12.71
Jul-20	426,703	-	426,703	25,671	16.62
Aug-20	355,590	-	355,590	23,041	15.43
Sep-20	222,705	-	222,705	21,985	10.13
Oct-20	203,533	-	203,533	18,370	11.08
Nov-20	166,159	-	166,159	12,983	12.80
Dec-20	80,137	-	80,137	9,279	8.64
Jan-21	230,514	-	230,514	12,392	18.60
Feb-21	144,320	-	144,320	12,086	11.94
Mar-21	196,427	-	196,427	16,850	11.66
Apr-21	184,452	-	184,452	19,973	9.24
May-21	278,463	-	278,463	27,333	10.19
Jun-21	279,814	-	279,814	25,042	11.17
Jul-21	519,669	-	519,669	25,543	20.34
Aug-21	380,031	-	380,031	22,926	16.58
Sep-21	290,746	-	290,746	21,875	13.29
Oct-21	204,236	-	204,236	18,278	11.17
Nov-21	153,850	-	153,850	12,918	11.91
Dec-21	130,358	-	130,358	9,233	14.12
Jan-22	234,688	-	234,688	12,330	19.03
Feb-22	165,491	-	165,491	12,026	13.76
Mar-22	190,876	-	190,876	16,765	11.39
Apr-22	202,619	-	202,619	19,873	10.20
May-22	300,213	-	300,213	27,196	11.04
Jun-22	318,037	-	318,037	24,916	12.76
Jul-22	541,842	-	541,842	25,415	21.32
Aug-22	405,828	-	405,828	22,811	17.79
Sep-22	306,287	-	306,287	21,766	14.07
Oct-22	218,569	-	218,569	18,186	12.02
Nov-22	161,708	-	161,708	12,853	12.58
Dec-22	129,734	-	129,734	9,186	14.12
Jan-23	175,366	-	175,366	12,268	14.29
Feb-23	162,377	-	162,377	11,966	13.57
Mar-23	198,874	-	198,874	16,681	11.92
Apr-23	188,246	-	188,246	19,774	9.52
May-23	307,663	-	307,663	27,060	11.37
Jun-23	308,031	-	308,031	24,792	12.42
Jul-23	514,381	-	514,381	25,288	20.34
Aug-23	364,587	-	364,587	22,697	16.06
Sep-23	294,086	-	294,086	21,657	13.58
Oct-23	199,033	-	199,033	18,095	11.00
Nov-23	159,414	-	159,414	12,789	12.47
Dec-23	131,335	-	131,335	9,140	14.37
Jan-24	44,202	221,435	265,636	12,207	21.76

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Feb-24	21,003	221,435	242,437	12,502	19.39
Mar-24	(31,729)	221,435	189,706	16,598	11.43
Apr-24	(63,819)	221,435	157,616	19,675	8.01
May-24	30,685	221,435	252,120	26,925	9.36
Jun-24	41,991	221,435	263,425	24,668	10.68
Jul-24	145,172	221,435	366,607	25,162	14.57
Aug-24	107,050	221,435	328,485	22,584	14.55
Sep-24	41,603	221,435	263,038	21,549	12.21
Oct-24	(5,668)	221,435	215,767	18,005	11.98
Nov-24	26,318	221,435	247,753	12,725	19.47
Dec-24	28,241	221,435	249,675	9,095	27.45
Jan-25	46,811	226,528	273,339	12,146	22.50
Feb-25	8,611	226,528	235,139	11,847	19.85
Mar-25	(27,260)	226,528	199,268	16,515	12.07
Apr-25	(50,644)	226,528	175,884	19,577	8.98
May-25	34,143	226,528	260,671	26,790	9.73
Jun-25	65,132	226,528	291,660	24,544	11.88
Jul-25	132,760	226,528	359,288	25,036	14.35
Aug-25	115,535	226,528	342,063	22,471	15.22
Sep-25	54,428	226,528	280,956	21,441	13.10
Oct-25	(10,991)	226,528	215,537	17,915	12.03
Nov-25	17,844	226,528	244,372	12,661	19.30
Dec-25	30,664	226,528	257,193	9,049	28.42
Jan-26	44,570	231,736	276,306	12,085	22.86
Feb-26	6,149	231,736	237,886	11,787	20.18
Mar-26	(39,841)	231,736	191,896	16,432	11.68
Apr-26	(56,161)	231,736	175,575	19,479	9.01
May-26	36,211	231,736	267,948	26,656	10.05
Jun-26	66,948	231,736	298,684	24,422	12.23
Jul-26	151,739	231,736	383,475	24,911	15.39
Aug-26	132,217	231,736	363,953	22,359	16.28
Sep-26	38,705	231,736	270,441	21,334	12.68
Oct-26	11,166	231,736	242,902	17,825	13.63
Nov-26	35,517	231,736	267,253	12,598	21.21
Dec-26	34,001	231,736	265,737	9,004	29.51
Jan-27	45,599	237,064	282,662	12,025	23.51
Feb-27	16,480	237,064	253,544	11,728	21.62
Mar-27	(24,049)	237,064	213,015	16,350	13.03
Apr-27	(31,913)	237,064	205,150	19,381	10.58
May-27	50,257	237,064	287,320	26,523	10.83
Jun-27	67,939	237,064	305,002	24,300	12.55
Jul-27	147,420	237,064	384,483	24,786	15.51
Aug-27	144,950	237,064	382,013	22,247	17.17
Sep-27	41,001	237,064	278,065	21,227	13.10
Oct-27	28,023	237,064	265,087	17,736	14.95
Nov-27	40,896	237,064	277,960	12,535	22.17
Dec-27	39,999	237,064	277,062	8,959	30.93
Jan-28	80,068	242,510	322,578	11,965	26.96
Feb-28	55,177	242,510	297,687	12,253	24.29
Mar-28	41,056	242,510	283,566	16,269	17.43
Apr-28	3,514	242,510	246,024	19,284	12.76
May-28	97,029	242,510	339,539	26,390	12.87
Jun-28	118,254	242,510	360,764	24,178	14.92
Jul-28	221,287	242,510	463,797	24,662	18.81
Aug-28	166,183	242,510	408,693	22,136	18.46
Sep-28	89,903	242,510	332,413	21,121	15.74
Oct-28	57,464	242,510	299,973	17,648	17.00
Nov-28	73,320	242,510	315,830	12,472	25.32
Dec-28	55,594	242,510	298,103	8,914	33.44
Jan-29	94,931	248,075	343,006	11,905	28.81

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Feb-29	61,266	248,075	309,341	11,611	26.64
Mar-29	36,170	248,075	284,245	16,187	17.56
Apr-29	37,314	248,075	285,389	19,188	14.87
May-29	104,050	248,075	352,125	26,258	13.41
Jun-29	121,294	248,075	369,369	24,057	15.35
Jul-29	250,742	248,075	498,817	24,539	20.33
Aug-29	213,207	248,075	461,282	22,025	20.94
Sep-29	99,259	248,075	347,334	21,015	16.53
Oct-29	67,832	248,075	315,907	17,559	17.99
Nov-29	92,027	248,075	340,102	12,410	27.41
Dec-29	66,515	248,075	314,590	8,870	35.47
Jan-30	68,794	253,521	322,315	11,845	27.21
Feb-30	41,775	253,521	295,296	11,553	25.56
Mar-30	48,076	253,521	301,598	16,106	18.73
Apr-30	42,634	253,521	296,155	19,092	15.51
May-30	54,374	253,521	307,895	26,127	11.78
Jun-30	77,041	253,521	330,562	23,937	13.81
Jul-30	154,748	253,521	408,269	24,416	16.72
Aug-30	132,353	253,521	385,875	21,915	17.61
Sep-30	68,912	253,521	322,433	20,910	15.42
Oct-30	32,146	253,521	285,667	17,471	16.35
Nov-30	47,707	253,521	301,228	12,348	24.40
Dec-30	50,463	253,521	303,984	8,825	34.44
Jan-31	86,346	259,086	345,432	11,786	29.31
Feb-31	40,988	259,086	300,074	11,496	26.10
Mar-31	97,233	259,086	356,319	16,026	22.23
Apr-31	78,872	259,086	337,958	18,997	17.79
May-31	104,863	259,086	363,950	25,996	14.00
Jun-31	101,455	259,086	360,541	23,817	15.14
Jul-31	173,664	259,086	432,750	24,294	17.81
Aug-31	153,236	259,086	412,322	21,805	18.91
Sep-31	112,460	259,086	371,546	20,806	17.86
Oct-31	59,088	259,086	318,175	17,384	18.30
Nov-31	63,301	259,086	322,387	12,286	26.24
Dec-31	65,982	259,086	325,068	8,781	37.02
Jan-32	102,254	264,794	367,048	11,727	31.30
Feb-32	80,092	264,794	344,886	12,010	28.72
Mar-32	101,798	264,794	366,592	15,946	22.99
Apr-32	106,024	264,794	370,818	18,902	19.62
May-32	118,552	264,794	383,346	25,866	14.82
Jun-32	170,415	264,794	435,209	23,698	18.36
Jul-32	314,562	264,794	579,356	24,173	23.97
Aug-32	243,023	264,794	507,817	21,696	23.41
Sep-32	160,723	264,794	425,517	20,702	20.55
Oct-32	111,975	264,794	376,769	17,297	21.78
Nov-32	103,650	264,794	368,444	12,225	30.14
Dec-32	86,271	264,794	351,065	8,737	40.18
Jan-33	127,889	270,335	398,224	11,668	34.13
Feb-33	59,996	270,335	330,331	11,381	29.03
Mar-33	121,582	270,335	391,918	15,866	24.70
Apr-33	82,691	270,335	353,027	18,807	18.77
May-33	109,120	270,335	379,455	25,737	14.74
Jun-33	163,487	270,335	433,822	23,580	18.40
Jul-33	314,904	270,335	585,239	24,052	24.33
Aug-33	251,863	270,335	522,199	21,588	24.19
Sep-33	128,237	270,335	398,573	20,598	19.35
Oct-33	114,410	270,335	384,746	17,211	22.36
Nov-33	100,831	270,335	371,166	12,164	30.51
Dec-33	80,636	270,335	350,972	8,694	40.37
Jan-34	131,771	276,019	407,791	11,610	35.12

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Feb-34	82,246	276,019	358,266	11,324	31.64
Mar-34	118,473	276,019	394,493	15,787	24.99
Apr-34	84,333	276,019	360,353	18,713	19.26
May-34	119,024	276,019	395,043	25,608	15.43
Jun-34	188,863	276,019	464,882	23,462	19.81
Jul-34	335,021	276,019	611,040	23,931	25.53
Aug-34	264,725	276,019	540,744	21,480	25.17
Sep-34	148,849	276,019	424,868	20,495	20.73
Oct-34	122,268	276,019	398,287	17,125	23.26
Nov-34	111,565	276,019	387,584	12,103	32.02
Dec-34	94,073	276,019	370,092	8,650	42.78
Jan-35	139,491	281,822	421,313	11,552	36.47
Feb-35	96,533	281,822	378,355	11,267	33.58
Mar-35	124,199	281,822	406,021	15,708	25.85
Apr-35	70,644	281,822	352,466	18,619	18.93
May-35	137,233	281,822	419,056	25,480	16.45
Jun-35	189,555	281,822	471,377	23,344	20.19
Jul-35	339,694	281,822	621,517	23,812	26.10
Aug-35	238,561	281,822	520,383	21,372	24.35
Sep-35	147,382	281,822	429,204	20,393	21.05
Oct-35	125,240	281,822	407,062	17,039	23.89
Nov-35	120,571	281,822	402,393	12,042	33.42
Dec-35	93,317	281,822	375,139	8,607	43.59
Jan-36	159,160	287,744	446,904	11,494	38.88
Feb-36	122,892	287,744	410,637	11,772	34.88
Mar-36	146,143	287,744	433,887	15,629	27.76
Apr-36	107,520	287,744	395,264	18,526	21.34
May-36	159,192	287,744	446,936	25,353	17.63
Jun-36	225,768	287,744	513,513	23,228	22.11
Jul-36	351,430	287,744	639,174	23,693	26.98
Aug-36	296,917	287,744	584,661	21,266	27.49
Sep-36	189,692	287,744	477,436	20,291	23.53
Oct-36	116,384	287,744	404,128	16,954	23.84
Nov-36	169,448	287,744	457,193	11,982	38.16
Dec-36	117,571	287,744	405,315	8,564	47.33
Jan-37	159,396	293,785	453,181	11,437	39.62
Feb-37	121,464	293,785	415,249	11,155	37.23
Mar-37	134,792	293,785	428,577	15,551	27.56
Apr-37	118,047	293,785	411,831	18,434	22.34
May-37	123,192	293,785	416,976	25,226	16.53
Jun-37	198,055	293,785	491,840	23,112	21.28
Jul-37	349,335	293,785	643,120	23,574	27.28
Aug-37	247,782	293,785	541,567	21,159	25.59
Sep-37	156,413	293,785	450,198	20,189	22.30
Oct-37	121,289	293,785	415,074	16,869	24.61
Nov-37	146,170	293,785	439,955	11,922	36.90
Dec-37	107,234	293,785	401,019	8,521	47.06
Jan-38	191,686	299,945	491,631	11,380	43.20
Feb-38	136,202	299,945	436,147	11,099	39.30
Mar-38	170,465	299,945	470,410	15,473	30.40
Apr-38	114,604	299,945	414,549	18,342	22.60
May-38	150,546	299,945	450,490	25,100	17.95
Jun-38	200,635	299,945	500,579	22,996	21.77
Jul-38	346,095	299,945	646,040	23,456	27.54
Aug-38	298,871	299,945	598,816	21,053	28.44
Sep-38	177,392	299,945	477,336	20,088	23.76
Oct-38	171,605	299,945	471,549	16,785	28.09
Nov-38	183,809	299,945	483,754	11,863	40.78
Dec-38	138,745	299,945	438,690	8,478	51.74
Jan-39	195,711	306,247	501,958	11,380	44.11



Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	31.8% CF	Dollars	MWH	31.8% CF
Feb-39	139,063	306,247	445,309	11,099	40.12
Mar-39	174,045	306,247	480,292	15,473	31.04
Apr-39	117,011	306,247	423,258	18,342	23.08
May-39	153,707	306,247	459,954	25,100	18.32
Jun-39	204,848	306,247	511,095	22,996	22.23
Jul-39	353,363	306,247	659,610	23,456	28.12
Aug-39	305,148	306,247	611,395	21,053	29.04
Sep-39	181,117	306,247	487,364	20,088	24.26
Oct-39	175,209	306,247	481,455	16,785	28.68
Nov-39	187,669	306,247	493,916	11,863	41.64
Dec-39	141,659	306,247	447,906	8,478	52.83
Jan-40					
Feb-40					
Mar-40					
Apr-40					
May-40					
Jun-40					
Jul-40					
Aug-40					
Sep-40					
Oct-40					
Nov-40					
Dec-40					
Jan-41					
Feb-41					

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

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized Rate	Fixed O&M	Network Upgrade	Fixed Costs	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 North Solar with Storage - 30% Capacity Factor**

2016									
2017									
2018			\$24.57			\$0.00			\$24.57
2019			\$25.01			\$0.00			\$25.01
2020			\$25.49			\$0.00			\$25.49
2021			\$26.00			\$0.00			\$26.00
2022			\$26.65			\$0.00			\$26.65
2023			\$27.32			\$0.00			\$27.32
2024	\$1,230	\$62.55	\$27.98	\$2.58	\$35.31	\$0.00	\$35.31	\$93.11	\$93.11
2025		\$63.99	\$28.62	\$2.64	\$36.12	\$0.00	\$36.12	\$95.25	\$95.25
2026		\$65.46	\$29.28	\$2.70	\$36.95	\$0.00	\$36.95	\$97.44	\$97.44
2027		\$66.97	\$29.95	\$2.76	\$37.80	\$0.00	\$37.80	\$99.68	\$99.68
2028		\$68.51	\$30.64	\$2.82	\$38.67	\$0.00	\$38.67	\$101.97	\$101.97
2029		\$70.09	\$31.34	\$2.88	\$39.56	\$0.00	\$39.56	\$104.31	\$104.31
2030		\$71.63	\$32.03	\$2.94	\$40.43	\$0.00	\$40.43	\$106.60	\$106.60
2031		\$73.21	\$32.73	\$3.00	\$41.32	\$0.00	\$41.32	\$108.94	\$108.94
2032		\$74.82	\$33.45	\$3.07	\$42.23	\$0.00	\$42.23	\$111.34	\$111.34
2033		\$76.39	\$34.15	\$3.13	\$43.11	\$0.00	\$43.11	\$113.67	\$113.67
2034		\$77.99	\$34.87	\$3.20	\$44.02	\$0.00	\$44.02	\$116.06	\$116.06
2035		\$79.63	\$35.60	\$3.27	\$44.94	\$0.00	\$44.94	\$118.50	\$118.50
2036		\$81.30	\$36.35	\$3.34	\$45.89	\$0.00	\$45.89	\$120.99	\$120.99
2037		\$83.01	\$37.11	\$3.41	\$46.85	\$0.00	\$46.85	\$123.53	\$123.53
2038		\$84.75	\$37.89	\$3.48	\$47.83	\$0.00	\$47.83	\$126.12	\$126.12
2039		\$86.53	\$38.69	\$3.55	\$48.84	\$0.00	\$48.84	\$128.77	\$128.77
2040		\$88.35	\$39.50	\$3.62	\$49.86	\$0.00	\$49.86	\$131.47	\$131.47
2041		\$90.21	\$40.33	\$3.70	\$50.91	\$0.00	\$50.91	\$134.24	\$134.24
2042		\$92.10	\$41.18	\$3.78	\$51.98	\$0.00	\$51.98	\$137.06	\$137.06
2043		\$94.03	\$42.04	\$3.86	\$53.07	\$0.00	\$53.07	\$139.93	\$139.93
2044		\$94.03	\$42.04	\$3.86	\$53.07	\$0.00	\$53.07	\$139.93	\$139.93
2045		\$94.03	\$42.04	\$3.86	\$53.07	\$0.00	\$53.07	\$139.93	\$139.93
2046		\$94.03	\$42.04	\$3.86	\$53.07	\$0.00	\$53.07	\$139.93	\$139.93
2047		\$94.03	\$42.04	\$3.86	\$53.07	\$0.00	\$53.07	\$139.93	\$139.93

**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
	(e)	= ((b) + (c)) / (8.76 x 30.1%)
	(g)	= (e) + (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
2018 \$	\$24.57 Fixed O&M, plus on-going capital cost
2018 \$	\$0.00 Wheeling (\$ MWh)
	Variable O&M
	Tax Credit \$/MWh
2024\$	2.58 Network Upgrade (\$/kw-yr) <span style="float:right">Utah N, Transmission Integration</span>
	5.085% Payment Factor <span style="float:right">includes 30% ITC</span>
	30.1% Capacity Factor

COD  
342.2 MW

Company Official Inflation Forecast Dated March 31, 2020					
2017	2.0%	2026	2.3%	2035	2.1%
2018	2.4%	2027	2.3%	2036	2.1%
2019	1.8%	2028	2.3%	2037	2.1%
2020	1.9%	2029	2.3%	2038	2.1%
2021	2.0%	2030	2.2%	2039	2.1%
2022	2.5%	2031	2.2%	2040	2.1%
2023	2.5%	2032	2.2%	2041	2.1%
2024	2.4%	2033	2.1%	2042	2.1%
2025	2.3%	2034	2.1%	2043	2.1%

**Appendix B.3**

**Avoided Cost Prices \$/MWh**

**Utah 2020.Q1 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT W)	Wind (Defers WYAE W)	Thermal	Solar Tracking	Wind	Thermal	Solar Tracking	Wind (Defers UT W)
	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2019.Q4 100% CF (2)	UT 2019.Q4 31.1% CF (2)	UT 2019.Q4 31.0% CF (2)	Difference	Difference	Difference
2020	\$14.22	\$12.50	\$11.48	\$12.54	\$13.96	\$12.63	\$11.60	\$0.26	(\$0.13)	(\$0.13)
2021	\$16.69	\$13.33	\$13.62	\$14.89	\$12.90	\$10.04	\$10.34	\$3.79	\$3.29	\$3.28
2022	\$17.72	\$14.22	\$14.82	\$15.98	\$16.09	\$13.00	\$14.59	\$1.63	\$1.22	\$0.22
2023	\$16.86	\$13.52	\$25.40	\$15.28	\$14.01	\$11.19	\$23.79	\$2.86	\$2.33	\$1.60
2024	\$12.08	\$13.72	\$26.51	\$67.81	\$7.36	\$8.62	\$23.58	\$4.72	\$5.11	\$2.93
2025	\$12.71	\$14.25	\$26.79	\$68.98	\$8.35	\$9.26	\$24.00	\$4.36	\$4.99	\$2.79
2026	\$29.93	\$14.81	\$27.94	\$71.01	\$28.15	\$9.89	\$25.15	\$1.78	\$4.92	\$2.79
2027	\$31.96	\$15.66	\$28.34	\$71.14	\$29.32	\$10.80	\$25.62	\$2.64	\$4.86	\$2.72
2028	\$35.63	\$18.27	\$29.43	\$68.61	\$33.74	\$14.56	\$27.43	\$1.89	\$3.70	\$2.00
2029	\$36.96	\$19.58	\$29.71	\$68.39	\$36.24	\$16.58	\$28.23	\$0.72	\$3.00	\$1.48
2030	\$36.22	\$18.00	\$30.10	\$74.44	\$36.60	\$16.18	\$28.08	(\$0.38)	\$1.81	\$2.01
2031	\$38.90	\$19.89	\$31.40	\$74.74	\$40.94	\$19.18	\$29.76	(\$2.04)	\$0.71	\$1.64
2032	\$43.63	\$22.90	\$31.88	\$70.09	\$46.08	\$21.46	\$30.66	(\$2.46)	\$1.43	\$1.23
2033	\$45.65	\$23.18	\$58.45	\$69.79	\$46.91	\$22.13	\$54.09	(\$1.26)	\$1.06	\$4.36
2034	\$47.22	\$24.32	\$59.55	\$126.90	\$48.55	\$22.76	\$55.14	(\$1.34)	\$1.56	\$4.41

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)

2020-2034	\$/MWh	\$25.82	\$16.12	\$26.44	\$51.79	\$24.25	\$13.40	\$24.39	\$1.57	\$2.72	\$2.05
									6%	20%	8%

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.Q1\_Wind - 69.2 MW and 29.4% CF**

Total Price @

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	29.4% Capacity Factor \$/MWh
2020	\$0.00	\$11.48	\$11.48
2021	\$0.00	\$13.62	\$13.62
2022	\$0.00	\$14.82	\$14.82
2023	\$121.11	(\$21.55)	\$25.40
2024	\$123.98	(\$21.51)	\$26.51
2025	\$126.83	(\$22.36)	\$26.79
2026	\$129.73	(\$22.35)	\$27.94
2027	\$132.71	(\$23.10)	\$28.34
2028	\$135.76	(\$23.15)	\$29.43
2029	\$138.87	(\$24.12)	\$29.71
2030	\$141.96	(\$24.93)	\$30.10
2031	\$145.11	(\$24.84)	\$31.40
2032	\$148.34	(\$25.56)	\$31.88
2033	\$151.53	(\$0.28)	\$58.45
2034	\$154.78	(\$0.44)	\$59.55
2035	\$158.11	(\$0.34)	\$60.94
2036	\$161.51	(\$0.11)	\$62.44
2037	\$164.97	(\$0.30)	\$63.64
2038	\$168.52	(\$0.28)	\$65.04
2039	\$172.05	(\$0.28)	\$66.40

15 Year Starting 2020

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

\$/kW	\$95.83		
\$/MWh		(\$10.78)	\$26.44

15 Year Starting 2022

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

\$/kW	\$122.72		
\$/MWh		(\$15.17)	\$32.49

15 Year Starting 2023

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

\$/kW	\$137.78		
\$/MWh		(\$17.85)	\$35.66

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q1\_Wind - 69.2 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
<b>Energy Only</b>													
2020	11.48	9.63	12.06	12.48	11.08	11.15	12.12	13.11	15.12	10.73	11.21	11.22	9.51
2021	13.62	14.03	13.68	12.90	10.54	11.07	11.72	20.31	19.76	15.09	12.33	13.70	14.87
2022	14.82	15.67	15.73	13.88	11.50	12.12	13.27	20.88	20.34	16.77	13.36	14.30	16.05
2023	(21.55)	(21.58)	(21.55)	(21.53)	(21.47)	(21.49)	(21.45)	(21.74)	(21.72)	(21.57)	(21.55)	(21.46)	(21.58)
2024	(21.51)	(22.29)	(20.41)	(21.54)	(21.28)	(21.51)	(21.46)	(21.86)	(21.75)	(21.69)	(21.62)	(21.37)	(21.62)
2025	(22.36)	(22.31)	(22.28)	(22.36)	(22.32)	(22.31)	(22.33)	(22.76)	(22.70)	(22.41)	(22.37)	(22.16)	(22.35)
2026	(22.35)	(22.32)	(22.32)	(22.32)	(22.33)	(22.19)	(22.26)	(22.66)	(22.79)	(22.40)	(22.26)	(22.34)	(22.32)
2027	(23.10)	(23.14)	(22.97)	(23.20)	(23.11)	(23.07)	(23.14)	(23.90)	(21.70)	(23.24)	(23.13)	(23.11)	(23.08)
2028	(23.15)	(23.04)	(21.84)	(23.30)	(23.10)	(23.10)	(23.21)	(23.78)	(24.31)	(23.38)	(23.22)	(23.18)	(23.30)
2029	(24.12)	(23.85)	(23.76)	(24.04)	(23.97)	(23.98)	(24.16)	(25.16)	(24.95)	(23.92)	(24.32)	(23.94)	(24.16)
2030	(24.93)	(24.78)	(24.60)	(24.87)	(24.74)	(24.79)	(24.74)	(25.95)	(26.42)	(25.17)	(24.80)	(24.74)	(24.65)
2031	(24.84)	(24.77)	(24.57)	(24.64)	(24.73)	(24.64)	(24.67)	(25.66)	(26.03)	(24.93)	(24.96)	(24.51)	(25.01)
2032	(25.56)	(25.60)	(24.91)	(25.70)	(25.38)	(25.50)	(25.59)	(26.35)	(28.46)	(23.33)	(25.57)	(25.51)	(25.90)
2033	(0.28)	0.01	(0.22)	(0.23)	(0.09)	(0.13)	(0.38)	(1.25)	0.11	(0.47)	(0.45)	(0.28)	(0.37)
2034	(0.44)	(0.31)	(0.11)	(0.40)	(0.05)	(0.22)	(0.12)	(2.17)	(1.84)	(0.27)	(0.50)	(0.42)	(0.11)
2035	(0.34)	0.12	0.02	(0.24)	(0.20)	(0.49)	(0.19)	(0.46)	(2.61)	(0.31)	(0.44)	(0.30)	(0.19)
2036	(0.11)	0.82	0.72	(0.15)	(0.21)	(0.15)	0.03	(1.15)	(1.26)	(0.43)	(0.10)	(0.48)	(0.28)
2037	(0.30)	0.10	0.33	0.03	(0.43)	0.08	0.04	(1.05)	(1.22)	(0.77)	(0.65)	(0.52)	(0.79)

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q1\_Wind - 69.2 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	\$1.71	\$1.72	\$1.89	\$1.60
2021	\$2.22	\$2.23	\$2.32	\$2.07
2022	\$2.16	\$2.17	\$2.22	\$2.03
2023	\$2.25	\$2.26	\$2.30	\$2.13
2024	\$2.38	\$2.39	\$2.40	\$2.25
2025	\$2.55	\$2.56	\$2.50	\$2.42
2026	\$2.68	\$2.69	\$2.60	\$2.55
2027	\$2.94	\$2.95	\$2.80	\$2.80
2028	\$3.20	\$3.21	\$3.05	\$3.06
2029	\$3.43	\$3.44	\$3.30	\$3.30
2030	\$3.67	\$3.68	\$3.55	\$3.53
2031	\$3.85	\$3.86	\$3.72	\$3.71
2032	\$4.04	\$4.05	\$3.89	\$3.89
2033	\$4.22	\$4.23	\$4.06	\$4.07
2034	\$4.43	\$4.44	\$4.28	\$4.28
2035	\$4.66	\$4.67	\$4.49	\$4.51
2036	\$4.85	\$4.86	\$4.66	\$4.70
2037	\$5.18	\$5.19	\$4.99	\$5.03
2038	\$5.48	\$5.49	\$5.24	\$5.32
2039	\$5.82	\$5.83	\$5.58	\$5.66
2040	\$5.95	\$5.96	\$5.69	\$5.78

Official Forward Price Curve Forecast dated Mar 31, 2020

**Table 5**

**Utah 2020.Q1\_Wind - 69.2 MW and 29.4% CF  
January 2020 through December 2039**

**Nominal Avoided Costs Calculated Monthly**

<b>15 Year Starting 2023</b>	\$ (30,188,528)	\$ 90,497,447	\$ 60,308,918	1,691,328	\$35.66
<b>Nominal NPV at 6.92% Discount Rate</b>					
<b>15 Year Starting 2022</b>	\$ (25,657,705)	\$ 80,604,107	\$ 54,946,402	1,691,304	\$32.49
<b>15 Year Starting 2020</b>	\$ (18,231,951)	\$ 62,944,210	\$ 44,712,259	1,691,353	\$26.44

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Jan-20	175,853	-	175,853	18,252	9.63
Feb-20	210,253	-	210,253	17,429	12.06
Mar-20	273,708	-	273,708	21,929	12.48
Apr-20	196,231	-	196,231	17,711	11.08
May-20	197,687	-	197,687	17,724	11.15
Jun-20	173,365	-	173,365	14,306	12.12
Jul-20	136,369	-	136,369	10,405	13.11
Aug-20	125,671	-	125,671	8,313	15.12
Sep-20	116,125	-	116,125	10,821	10.73
Oct-20	169,989	-	169,989	15,165	11.21
Nov-20	148,917	-	148,917	13,278	11.22
Dec-20	126,870	-	126,870	13,347	9.51
Jan-21	256,046	-	256,046	18,252	14.03
Feb-21	236,510	-	236,510	17,289	13.68
Mar-21	282,889	-	282,889	21,929	12.90
Apr-21	186,615	-	186,615	17,711	10.54
May-21	196,238	-	196,238	17,724	11.07
Jun-21	167,719	-	167,719	14,306	11.72
Jul-21	211,359	-	211,359	10,405	20.31
Aug-21	164,269	-	164,269	8,313	19.76
Sep-21	163,277	-	163,277	10,821	15.09
Oct-21	186,917	-	186,917	15,165	12.33
Nov-21	181,920	-	181,920	13,278	13.70
Dec-21	198,501	-	198,501	13,347	14.87
Jan-22	285,965	-	285,965	18,252	15.67
Feb-22	271,905	-	271,905	17,289	15.73
Mar-22	304,449	-	304,449	21,929	13.88
Apr-22	203,717	-	203,717	17,711	11.50
May-22	214,847	-	214,847	17,724	12.12
Jun-22	189,780	-	189,780	14,306	13.27
Jul-22	217,253	-	217,253	10,405	20.88
Aug-22	169,043	-	169,043	8,313	20.34
Sep-22	181,445	-	181,445	10,821	16.77
Oct-22	202,642	-	202,642	15,165	13.36
Nov-22	189,870	-	189,870	13,278	14.30
Dec-22	214,240	-	214,240	13,347	16.05
Jan-23	(393,912)	698,413	304,501	18,252	16.68
Feb-23	(372,517)	698,413	325,897	17,289	18.85
Mar-23	(472,175)	698,413	226,238	21,929	10.32
Apr-23	(380,234)	698,413	318,179	17,711	17.97
May-23	(380,936)	698,413	317,477	17,724	17.91
Jun-23	(306,892)	698,413	391,522	14,306	27.37
Jul-23	(226,192)	698,413	472,221	10,405	45.39
Aug-23	(180,576)	698,413	517,837	8,313	62.29
Sep-23	(233,459)	698,413	464,954	10,821	42.97
Oct-23	(326,777)	698,413	371,636	15,165	24.51
Nov-23	(284,913)	698,413	413,500	13,278	31.14
Dec-23	(288,096)	698,413	410,317	13,347	30.74
Jan-24	(406,864)	714,966	308,101	18,252	16.88

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-24	(355,774)	714,966	359,192	17,429	20.61
Mar-24	(472,300)	714,966	242,665	21,929	11.07
Apr-24	(376,836)	714,966	338,130	17,711	19.09
May-24	(381,196)	714,966	333,769	17,724	18.83
Jun-24	(307,026)	714,966	407,940	14,306	28.52
Jul-24	(227,443)	714,966	487,522	10,405	46.86
Aug-24	(180,835)	714,966	534,130	8,313	64.25
Sep-24	(234,742)	714,966	480,224	10,821	44.38
Oct-24	(327,825)	714,966	387,140	15,165	25.53
Nov-24	(283,769)	714,966	431,196	13,278	32.47
Dec-24	(288,593)	714,966	426,372	13,347	31.94
Jan-25	(407,179)	731,364	324,185	18,252	17.76
Feb-25	(385,181)	731,364	346,182	17,289	20.02
Mar-25	(490,407)	731,364	240,957	21,929	10.99
Apr-25	(395,298)	731,364	336,066	17,711	18.98
May-25	(395,501)	731,364	335,863	17,724	18.95
Jun-25	(319,452)	731,364	411,912	14,306	28.79
Jul-25	(236,760)	731,364	494,604	10,405	47.54
Aug-25	(188,662)	731,364	542,702	8,313	65.29
Sep-25	(242,464)	731,364	488,900	10,821	45.18
Oct-25	(339,252)	731,364	392,111	15,165	25.86
Nov-25	(294,282)	731,364	437,081	13,278	32.92
Dec-25	(298,347)	731,364	433,017	13,347	32.44
Jan-26	(407,446)	748,134	340,688	18,252	18.67
Feb-26	(385,799)	748,134	362,334	17,289	20.96
Mar-26	(489,482)	748,134	258,652	21,929	11.80
Apr-26	(395,488)	748,134	352,646	17,711	19.91
May-26	(393,369)	748,134	354,765	17,724	20.02
Jun-26	(318,512)	748,134	429,621	14,306	30.03
Jul-26	(235,729)	748,134	512,405	10,405	49.25
Aug-26	(189,464)	748,134	558,670	8,313	67.21
Sep-26	(242,389)	748,134	505,745	10,821	46.74
Oct-26	(337,654)	748,134	410,480	15,165	27.07
Nov-26	(296,654)	748,134	451,480	13,278	34.00
Dec-26	(297,953)	748,134	450,181	13,347	33.73
Jan-27	(422,363)	765,276	342,913	18,252	18.79
Feb-27	(397,171)	765,276	368,105	17,289	21.29
Mar-27	(508,645)	765,276	256,631	21,929	11.70
Apr-27	(409,381)	765,276	355,895	17,711	20.09
May-27	(408,908)	765,276	356,367	17,724	20.11
Jun-27	(331,072)	765,276	434,204	14,306	30.35
Jul-27	(248,643)	765,276	516,633	10,405	49.65
Aug-27	(180,388)	765,276	584,888	8,313	70.36
Sep-27	(251,475)	765,276	513,801	10,821	47.48
Oct-27	(350,768)	765,276	414,508	15,165	27.33
Nov-27	(306,885)	765,276	458,391	13,278	34.52
Dec-27	(308,060)	765,276	457,216	13,347	34.25
Jan-28	(420,433)	782,873	362,440	18,252	19.86
Feb-28	(380,626)	782,873	402,248	17,429	23.08
Mar-28	(510,912)	782,873	271,962	21,929	12.40
Apr-28	(409,047)	782,873	373,826	17,711	21.11
May-28	(409,491)	782,873	373,383	17,724	21.07
Jun-28	(332,011)	782,873	450,862	14,306	31.52
Jul-28	(247,431)	782,873	535,443	10,405	51.46
Aug-28	(202,116)	782,873	580,757	8,313	69.86
Sep-28	(253,021)	782,873	529,852	10,821	48.96
Oct-28	(352,071)	782,873	430,803	15,165	28.41
Nov-28	(307,782)	782,873	475,092	13,278	35.78
Dec-28	(311,059)	782,873	471,814	13,347	35.35
Jan-29	(435,362)	800,843	365,481	18,252	20.02



Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-29	(410,738)	800,843	390,105	17,289	22.56
Mar-29	(527,115)	800,843	273,728	21,929	12.48
Apr-29	(424,611)	800,843	376,232	17,711	21.24
May-29	(424,999)	800,843	375,844	17,724	21.21
Jun-29	(345,700)	800,843	455,143	14,306	31.82
Jul-29	(261,832)	800,843	539,011	10,405	51.80
Aug-29	(207,375)	800,843	593,468	8,313	71.39
Sep-29	(258,856)	800,843	541,987	10,821	50.09
Oct-29	(368,897)	800,843	431,946	15,165	28.48
Nov-29	(317,901)	800,843	482,942	13,278	36.37
Dec-29	(322,422)	800,843	478,421	13,347	35.84
Jan-30	(452,255)	818,608	366,353	18,252	20.07
Feb-30	(425,303)	818,608	393,305	17,289	22.75
Mar-30	(545,448)	818,608	273,159	21,929	12.46
Apr-30	(438,179)	818,608	380,429	17,711	21.48
May-30	(439,460)	818,608	379,148	17,724	21.39
Jun-30	(353,912)	818,608	464,695	14,306	32.48
Jul-30	(270,005)	818,608	548,602	10,405	52.73
Aug-30	(219,589)	818,608	599,019	8,313	72.06
Sep-30	(272,406)	818,608	546,202	10,821	50.48
Oct-30	(376,140)	818,608	442,467	15,165	29.18
Nov-30	(328,433)	818,608	490,175	13,278	36.92
Dec-30	(328,983)	818,608	489,625	13,347	36.68
Jan-31	(452,010)	836,828	384,817	18,252	21.08
Feb-31	(424,723)	836,828	412,105	17,289	23.84
Mar-31	(540,312)	836,828	296,516	21,929	13.52
Apr-31	(437,928)	836,828	398,900	17,711	22.52
May-31	(436,742)	836,828	400,085	17,724	22.57
Jun-31	(352,893)	836,828	483,934	14,306	33.83
Jul-31	(266,989)	836,828	569,839	10,405	54.77
Aug-31	(216,346)	836,828	620,482	8,313	74.64
Sep-31	(269,751)	836,828	567,077	10,821	52.40
Oct-31	(378,565)	836,828	458,262	15,165	30.22
Nov-31	(325,435)	836,828	511,393	13,278	38.51
Dec-31	(333,831)	836,828	502,997	13,347	37.68
Jan-32	(467,200)	855,420	388,219	18,252	21.27
Feb-32	(434,168)	855,420	421,252	17,429	24.17
Mar-32	(563,608)	855,420	291,812	21,929	13.31
Apr-32	(449,435)	855,420	405,985	17,711	22.92
May-32	(452,034)	855,420	403,386	17,724	22.76
Jun-32	(366,127)	855,420	489,292	14,306	34.20
Jul-32	(274,194)	855,420	581,226	10,405	55.86
Aug-32	(236,558)	855,420	618,862	8,313	74.45
Sep-32	(252,439)	855,420	602,981	10,821	55.72
Oct-32	(387,707)	855,420	467,713	15,165	30.84
Nov-32	(338,687)	855,420	516,733	13,278	38.92
Dec-32	(345,722)	855,420	509,698	13,347	38.19
Jan-33	198	873,807	874,005	18,252	47.89
Feb-33	(3,812)	873,807	869,995	17,289	50.32
Mar-33	(5,097)	873,807	868,710	21,929	39.62
Apr-33	(1,632)	873,807	872,175	17,711	49.25
May-33	(2,372)	873,807	871,435	17,724	49.17
Jun-33	(5,368)	873,807	868,440	14,306	60.71
Jul-33	(13,049)	873,807	860,758	10,405	82.73
Aug-33	937	873,807	874,744	8,313	105.23
Sep-33	(5,098)	873,807	868,709	10,821	80.28
Oct-33	(6,782)	873,807	867,025	15,165	57.17
Nov-33	(3,667)	873,807	870,140	13,278	65.53
Dec-33	(4,914)	873,807	868,893	13,347	65.10
Jan-34	(5,693)	892,592	886,899	18,252	48.59

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-34	(1,957)	892,592	890,636	17,289	51.52
Mar-34	(8,750)	892,592	883,843	21,929	40.31
Apr-34	(906)	892,592	891,686	17,711	50.35
May-34	(3,817)	892,592	888,775	17,724	50.15
Jun-34	(1,728)	892,592	890,864	14,306	62.27
Jul-34	(22,567)	892,592	870,025	10,405	83.62
Aug-34	(15,265)	892,592	877,327	8,313	105.54
Sep-34	(2,906)	892,592	889,687	10,821	82.22
Oct-34	(7,653)	892,592	884,939	15,165	58.35
Nov-34	(5,563)	892,592	887,029	13,278	66.81
Dec-34	(1,528)	892,592	891,065	13,347	66.76
Jan-35	2,246	911,749	913,996	18,252	50.08
Feb-35	315	911,749	912,064	17,289	52.76
Mar-35	(5,171)	911,749	906,578	21,929	41.34
Apr-35	(3,616)	911,749	908,134	17,711	51.28
May-35	(8,664)	911,749	903,086	17,724	50.95
Jun-35	(2,747)	911,749	909,003	14,306	63.54
Jul-35	(4,796)	911,749	906,954	10,405	87.17
Aug-35	(21,713)	911,749	890,036	8,313	107.07
Sep-35	(3,382)	911,749	908,368	10,821	83.94
Oct-35	(6,724)	911,749	905,025	15,165	59.68
Nov-35	(4,040)	911,749	907,709	13,278	68.36
Dec-35	(2,471)	911,749	909,278	13,347	68.12
Jan-36	15,009	931,362	946,371	18,252	51.85
Feb-36	12,478	931,362	943,840	17,429	54.15
Mar-36	(3,334)	931,362	928,028	21,929	42.32
Apr-36	(3,669)	931,362	927,693	17,711	52.38
May-36	(2,621)	931,362	928,741	17,724	52.40
Jun-36	421	931,362	931,783	14,306	65.13
Jul-36	(12,004)	931,362	919,358	10,405	88.36
Aug-36	(10,497)	931,362	920,865	8,313	110.78
Sep-36	(4,682)	931,362	926,679	10,821	85.64
Oct-36	(1,496)	931,362	929,865	15,165	61.31
Nov-36	(6,314)	931,362	925,048	13,278	69.67
Dec-36	(3,778)	931,362	927,584	13,347	69.50
Jan-37	1,814	951,346	953,160	18,252	52.22
Feb-37	5,672	951,346	957,018	17,289	55.36
Mar-37	672	951,346	952,018	21,929	43.41
Apr-37	(7,642)	951,346	943,705	17,711	53.28
May-37	1,468	951,346	952,815	17,724	53.76
Jun-37	521	951,346	951,867	14,306	66.54
Jul-37	(10,963)	951,346	940,384	10,405	90.38
Aug-37	(10,159)	951,346	941,187	8,313	113.22
Sep-37	(8,312)	951,346	943,034	10,821	87.15
Oct-37	(9,916)	951,346	941,430	15,165	62.08
Nov-37	(6,969)	951,346	944,378	13,278	71.12
Dec-37	(10,544)	951,346	940,802	13,347	70.49
Jan-38	(874)	971,786	970,912	18,252	53.20
Feb-38	(5,689)	971,786	966,097	17,289	55.88
Mar-38	(3,215)	971,786	968,571	21,929	44.17
Apr-38	(794)	971,786	970,992	17,711	54.82
May-38	1,315	971,786	973,101	17,724	54.90
Jun-38	(3,469)	971,786	968,317	14,306	67.69
Jul-38	(15,495)	971,786	956,291	10,405	91.91
Aug-38	(10,850)	971,786	960,937	8,313	115.60
Sep-38	6,212	971,786	977,998	10,821	90.38
Oct-38	(746)	971,786	971,041	15,165	64.03
Nov-38	(7,795)	971,786	963,991	13,278	72.60
Dec-38	(7,759)	971,786	964,027	13,347	72.23
Jan-39	(892)	992,155	991,263	18,252	54.31

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-39	(5,808)	992,155	986,347	17,289	57.05
Mar-39	(3,282)	992,155	988,873	21,929	45.10
Apr-39	(811)	992,155	991,344	17,711	55.97
May-39	1,342	992,155	993,497	17,724	56.05
Jun-39	(3,542)	992,155	988,613	14,306	69.11
Jul-39	(15,820)	992,155	976,335	10,405	93.84
Aug-39	(11,077)	992,155	981,078	8,313	118.02
Sep-39	6,342	992,155	998,497	10,821	92.27
Oct-39	(761)	992,155	991,394	15,165	65.37
Nov-39	(7,959)	992,155	984,196	13,278	74.12
Dec-39	(7,922)	992,155	984,233	13,347	73.74
Jan-40					
Feb-40					
Mar-40					
Apr-40					
May-40					
Jun-40					
Jul-40					
Aug-40					
Sep-40					
Oct-40					
Nov-40					
Dec-40					
Jan-41					
Feb-41					

**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)
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		\$89.41	\$33.07	\$1.50	\$47.98	(\$21.48)	\$26.50	\$68.47	\$123.98
2025		\$91.47	\$33.83	\$1.53	\$49.08	(\$22.28)	\$26.80	\$69.26	\$126.83
2026		\$93.57	\$34.59	\$1.57	\$50.20	(\$22.28)	\$27.92	\$72.16	\$129.73
2027		\$95.72	\$35.38	\$1.61	\$51.35	(\$23.07)	\$28.28	\$73.09	\$132.71
2028		\$97.92	\$36.19	\$1.65	\$52.53	(\$23.07)	\$29.46	\$76.14	\$135.76
2029		\$100.17	\$37.01	\$1.69	\$53.74	(\$23.87)	\$29.87	\$77.19	\$138.87
2030		\$102.37	\$37.86	\$1.73	\$54.93	(\$24.67)	\$30.27	\$78.21	\$141.96
2031		\$104.62	\$38.72	\$1.77	\$56.15	(\$24.67)	\$31.49	\$81.37	\$145.11
2032		\$106.92	\$39.61	\$1.81	\$57.40	(\$25.46)	\$31.94	\$82.55	\$148.34
2033		\$109.17	\$40.51	\$1.85	\$58.64	\$0.00	\$58.64	\$151.53	\$151.53
2034		\$111.46	\$41.43	\$1.89	\$59.90	\$0.00	\$59.90	\$154.78	\$154.78
2035		\$113.80	\$42.38	\$1.93	\$61.18	\$0.00	\$61.18	\$158.11	\$158.11
2036		\$116.19	\$43.35	\$1.97	\$62.50	\$0.00	\$62.50	\$161.51	\$161.51
2037		\$118.63	\$44.33	\$2.01	\$63.84	\$0.00	\$63.84	\$164.97	\$164.97
2038		\$121.12	\$45.35	\$2.05	\$65.21	\$0.00	\$65.21	\$168.52	\$168.52
2039		\$123.66	\$46.30	\$2.09	\$66.58	\$0.00	\$66.58	\$172.05	\$172.05
2040		\$126.26	\$47.27	\$2.13	\$67.97	\$0.00	\$67.97	\$175.66	\$175.66
2041		\$128.91	\$48.26	\$2.17	\$69.40	\$0.00	\$69.40	\$179.34	\$179.34
2042		\$131.62	\$49.27	\$2.22	\$70.86	\$0.00	\$70.86	\$183.11	\$183.11
2043		\$134.38	\$50.30	\$2.27	\$72.34	\$0.00	\$72.34	\$186.95	\$186.95

**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	First Year real levelized
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	2.3%	2035	2.1%
2018	2.4%	2027	2.3%	2036	2.1%
2019	1.8%	2028	2.3%	2037	2.1%
2020	1.9%	2029	2.3%	2038	2.1%
2021	2.0%	2030	2.2%	2039	2.1%
2022	2.5%	2031	2.2%	2040	2.1%
2023	2.5%	2032	2.2%	2041	2.1%
2024	2.4%	2033	2.1%	2042	2.1%
2025	2.3%	2034	2.1%	2043	2.1%

**Appendix B.4**

**Avoided Cost Prices \$/MWh**

**Utah 2020.Q1 Sch 38**

Year	Thermal	Solar Tracking	Wind (Defers UT W)	Wind (Defers WYAE W)	Thermal	Solar Tracking	Wind	Thermal	Solar Tracking	Wind (Defers UT W)
	UT 2020.Q1 100% CF (2)	UT 2020.Q1 31.1% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2020.Q1 31.0% CF (2)	UT 2019.Q4 100% CF (2)	UT 2019.Q4 31.1% CF (2)	UT 2019.Q4 31.0% CF (2)	Difference	Difference	Difference
2020	\$14.22	\$12.50	\$11.48	\$12.54	\$13.96	\$12.63	\$11.60	\$0.26	(\$0.13)	(\$0.13)
2021	\$16.69	\$13.33	\$13.62	\$14.89	\$12.90	\$10.04	\$10.34	\$3.79	\$3.29	\$3.28
2022	\$17.72	\$14.22	\$14.82	\$15.98	\$16.09	\$13.00	\$14.59	\$1.63	\$1.22	\$0.22
2023	\$16.86	\$13.52	\$25.40	\$15.28	\$14.01	\$11.19	\$23.79	\$2.86	\$2.33	\$1.60
2024	\$12.08	\$13.72	\$26.51	\$67.81	\$7.36	\$8.62	\$23.58	\$4.72	\$5.11	\$2.93
2025	\$12.71	\$14.25	\$26.79	\$68.98	\$8.35	\$9.26	\$24.00	\$4.36	\$4.99	\$2.79
2026	\$29.93	\$14.81	\$27.94	\$71.01	\$28.15	\$9.89	\$25.15	\$1.78	\$4.92	\$2.79
2027	\$31.96	\$15.66	\$28.34	\$71.14	\$29.32	\$10.80	\$25.62	\$2.64	\$4.86	\$2.72
2028	\$35.63	\$18.27	\$29.43	\$68.61	\$33.74	\$14.56	\$27.43	\$1.89	\$3.70	\$2.00
2029	\$36.96	\$19.58	\$29.71	\$68.39	\$36.24	\$16.58	\$28.23	\$0.72	\$3.00	\$1.48
2030	\$36.22	\$18.00	\$30.10	\$74.44	\$36.60	\$16.18	\$28.08	(\$0.38)	\$1.81	\$2.01
2031	\$38.90	\$19.89	\$31.40	\$74.74	\$40.94	\$19.18	\$29.76	(\$2.04)	\$0.71	\$1.64
2032	\$43.63	\$22.90	\$31.88	\$70.09	\$46.08	\$21.46	\$30.66	(\$2.46)	\$1.43	\$1.23
2033	\$45.65	\$23.18	\$58.45	\$69.79	\$46.91	\$22.13	\$54.09	(\$1.26)	\$1.06	\$4.36
2034	\$47.22	\$24.32	\$59.55	\$126.90	\$48.55	\$22.76	\$55.14	(\$1.34)	\$1.56	\$4.41

15-Year Levelized Prices (Nominal) @ 6.920% Discount Rate (1) (3)

2020-2034	\$/MWh	\$25.82	\$16.12	\$26.44	\$51.79	\$24.25	\$13.40	\$24.39	\$1.57	\$2.72	\$2.05
									6%	20%	8%

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.Q1\_Wind - 80.0 MW and 29.4% CF**

Total Price @

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	29.4% Capacity Factor \$/MWh
2020	\$0.00	\$12.54	\$12.54
2021	\$0.00	\$14.89	\$14.89
2022	\$0.00	\$15.98	\$15.98
2023	\$0.00	\$15.28	\$15.28
2024	\$300.20	(\$48.45)	\$67.81
2025	\$307.10	(\$50.05)	\$68.98
2026	\$314.15	(\$50.75)	\$71.01
2027	\$321.36	(\$53.42)	\$71.14
2028	\$328.76	(\$58.71)	\$68.61
2029	\$336.32	(\$61.97)	\$68.39
2030	\$343.76	(\$58.79)	\$74.44
2031	\$351.38	(\$61.45)	\$74.74
2032	\$359.15	(\$69.00)	\$70.09
2033	\$366.79	(\$72.38)	\$69.79
2034	\$374.60	(\$18.29)	\$126.90
2035	\$382.56	(\$18.62)	\$129.66
2036	\$390.71	(\$21.60)	\$129.72
2037	\$399.03	(\$22.19)	\$132.48
2038	\$407.52	(\$25.07)	\$132.88
2039	\$416.07	(\$25.59)	\$135.67

15 Year Starting 2020

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

\$/kW	\$207.65		
\$/MWh		(\$28.85)	\$51.79

15 Year Starting 2022

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

\$/kW	\$269.25		
\$/MWh		(\$37.72)	\$66.84

15 Year Starting 2023

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

\$/kW	\$303.77		
\$/MWh		(\$42.96)	\$75.01

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2020.Q1\_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
<b>Energy Only</b>													
2020	12.54	14.57	12.07	12.52	11.13	11.16	12.21	21.55	15.74	10.96	11.24	11.22	9.53
2021	14.89	20.43	13.71	12.95	10.57	11.07	11.74	30.15	20.04	15.20	12.39	13.67	14.96
2022	15.98	20.86	15.74	13.92	11.54	12.12	13.28	30.76	20.65	16.86	13.37	14.27	16.48
2023	15.28	17.01	15.63	13.83	11.17	12.38	13.23	29.62	18.03	16.08	13.36	14.45	15.78
2024	(48.45)	(63.50)	(43.21)	(33.35)	(33.74)	(35.41)	(34.25)	(49.89)	(68.77)	(53.70)	(39.41)	(71.08)	(81.28)
2025	(50.05)	(65.43)	(44.09)	(33.33)	(34.42)	(38.04)	(37.58)	(50.07)	(72.30)	(55.61)	(39.68)	(72.77)	(85.12)
2026	(50.75)	(64.43)	(43.59)	(33.40)	(33.70)	(38.10)	(38.43)	(49.82)	(72.69)	(56.23)	(43.76)	(77.10)	(86.81)
2027	(53.42)	(66.35)	(45.92)	(35.10)	(36.03)	(39.26)	(39.89)	(58.85)	(78.75)	(58.75)	(46.32)	(78.50)	(90.67)
2028	(58.71)	(70.71)	(47.38)	(39.61)	(39.37)	(42.56)	(43.97)	(66.62)	(98.48)	(66.36)	(49.32)	(84.86)	(98.94)
2029	(61.97)	(73.26)	(49.23)	(40.53)	(41.90)	(43.77)	(46.35)	(67.34)	(111.22)	(70.06)	(52.98)	(90.19)	(106.48)
2030	(58.79)	(70.23)	(47.53)	(41.59)	(41.54)	(43.83)	(44.76)	(65.39)	(94.46)	(69.59)	(48.83)	(82.02)	(95.92)
2031	(61.45)	(74.17)	(49.29)	(42.34)	(42.88)	(45.64)	(47.82)	(65.36)	(102.32)	(70.21)	(54.43)	(83.98)	(101.39)
2032	(69.00)	(85.86)	(57.21)	(47.60)	(47.26)	(49.53)	(48.65)	(71.32)	(108.04)	(74.45)	(57.99)	(103.49)	(120.71)
2033	(72.38)	(92.26)	(57.38)	(49.87)	(48.91)	(50.45)	(51.37)	(73.99)	(113.04)	(79.46)	(60.33)	(109.81)	(128.47)
2034	(18.29)	(28.23)	(10.41)	(4.61)	(4.70)	(6.95)	(7.52)	(27.99)	(52.27)	(18.78)	(11.09)	(34.85)	(44.65)
2035	(18.62)	(27.62)	(10.22)	(5.75)	(6.29)	(6.24)	(6.43)	(27.09)	(53.45)	(21.44)	(9.55)	(37.74)	(44.92)
2036	(21.60)	(30.16)	(10.90)	(6.01)	(6.51)	(8.39)	(8.85)	(32.76)	(56.66)	(26.45)	(9.47)	(43.82)	(57.89)
2037	(22.19)	(35.15)	(12.35)	(5.19)	(6.81)	(7.62)	(9.50)	(30.27)	(48.16)	(23.20)	(14.07)	(42.55)	(64.13)

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2020.Q1\_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	\$1.71	\$1.72	\$1.89	\$1.60
2021	\$2.22	\$2.23	\$2.32	\$2.07
2022	\$2.16	\$2.17	\$2.22	\$2.03
2023	\$2.25	\$2.26	\$2.30	\$2.13
2024	\$2.38	\$2.39	\$2.40	\$2.25
2025	\$2.55	\$2.56	\$2.50	\$2.42
2026	\$2.68	\$2.69	\$2.60	\$2.55
2027	\$2.94	\$2.95	\$2.80	\$2.80
2028	\$3.20	\$3.21	\$3.05	\$3.06
2029	\$3.43	\$3.44	\$3.30	\$3.30
2030	\$3.67	\$3.68	\$3.55	\$3.53
2031	\$3.85	\$3.86	\$3.72	\$3.71
2032	\$4.04	\$4.05	\$3.89	\$3.89
2033	\$4.22	\$4.23	\$4.06	\$4.07
2034	\$4.43	\$4.44	\$4.28	\$4.28
2035	\$4.66	\$4.67	\$4.49	\$4.51
2036	\$4.85	\$4.86	\$4.66	\$4.70
2037	\$5.18	\$5.19	\$4.99	\$5.03
2038	\$5.48	\$5.49	\$5.24	\$5.32
2039	\$5.82	\$5.83	\$5.58	\$5.66
2040	\$5.95	\$5.96	\$5.69	\$5.78

Official Forward Price Curve Forecast dated Mar 31, 2020



**Table 5**

**Utah 2020.Q1\_Wind - 80.0 MW and 29.4% CF  
January 2020 through December 2039**

**Nominal Avoided Costs Calculated Monthly**

<b>15 Year Starting 2023</b>	\$ (83,999,934)	\$ 230,658,787	\$ 146,658,854	1,955,289	\$75.01
<b>Nominal NPV at 6.92% Discount Rate</b>					
<b>15 Year Starting 2022</b>	\$ (73,760,400)	\$ 204,443,963	\$ 130,683,563	1,955,262	\$66.84
<b>15 Year Starting 2020</b>	\$ (56,410,613)	\$ 157,680,421	\$ 101,269,807	1,955,318	\$51.79

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Jan-20	307,508	-	307,508	21,100	14.57
Feb-20	243,263	-	243,263	20,150	12.07
Mar-20	317,465	-	317,465	25,351	12.52
Apr-20	227,821	-	227,821	20,475	11.13
May-20	228,748	-	228,748	20,490	11.16
Jun-20	201,898	-	201,898	16,539	12.21
Jul-20	259,253	-	259,253	12,029	21.55
Aug-20	151,303	-	151,303	9,610	15.74
Sep-20	137,058	-	137,058	12,510	10.96
Oct-20	197,057	-	197,057	17,532	11.24
Nov-20	172,193	-	172,193	15,350	11.22
Dec-20	147,094	-	147,094	15,430	9.53
Jan-21	430,992	-	430,992	21,100	20.43
Feb-21	274,111	-	274,111	19,987	13.71
Mar-21	328,395	-	328,395	25,351	12.95
Apr-21	216,475	-	216,475	20,475	10.57
May-21	226,772	-	226,772	20,490	11.07
Jun-21	194,091	-	194,091	16,539	11.74
Jul-21	362,644	-	362,644	12,029	30.15
Aug-21	192,624	-	192,624	9,610	20.04
Sep-21	190,169	-	190,169	12,510	15.20
Oct-21	217,177	-	217,177	17,532	12.39
Nov-21	209,907	-	209,907	15,350	13.67
Dec-21	230,908	-	230,908	15,430	14.96
Jan-22	440,217	-	440,217	21,100	20.86
Feb-22	314,614	-	314,614	19,987	15.74
Mar-22	352,863	-	352,863	25,351	13.92
Apr-22	236,226	-	236,226	20,475	11.54
May-22	248,408	-	248,408	20,490	12.12
Jun-22	219,606	-	219,606	16,539	13.28
Jul-22	370,029	-	370,029	12,029	30.76
Aug-22	198,485	-	198,485	9,610	20.65
Sep-22	210,891	-	210,891	12,510	16.86
Oct-22	234,472	-	234,472	17,532	13.37
Nov-22	219,094	-	219,094	15,350	14.27
Dec-22	254,291	-	254,291	15,430	16.48
Jan-23	358,816	-	358,816	21,100	17.01
Feb-23	312,485	-	312,485	19,987	15.63
Mar-23	350,513	-	350,513	25,351	13.83
Apr-23	228,796	-	228,796	20,475	11.17
May-23	253,605	-	253,605	20,490	12.38
Jun-23	218,776	-	218,776	16,539	13.23
Jul-23	356,256	-	356,256	12,029	29.62
Aug-23	173,286	-	173,286	9,610	18.03
Sep-23	201,129	-	201,129	12,510	16.08
Oct-23	234,234	-	234,234	17,532	13.36
Nov-23	221,782	-	221,782	15,350	14.45
Dec-23	243,552	-	243,552	15,430	15.78
Jan-24	(1,339,785)	2,001,316	661,531	21,100	31.35

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-24	(870,583)	2,001,316	1,130,733	20,150	56.12
Mar-24	(845,478)	2,001,316	1,155,838	25,351	45.59
Apr-24	(690,780)	2,001,316	1,310,536	20,475	64.01
May-24	(725,486)	2,001,316	1,275,830	20,490	62.27
Jun-24	(566,416)	2,001,316	1,434,900	16,539	86.76
Jul-24	(600,152)	2,001,316	1,401,164	12,029	116.49
Aug-24	(660,902)	2,001,316	1,340,414	9,610	139.48
Sep-24	(671,760)	2,001,316	1,329,556	12,510	106.28
Oct-24	(690,985)	2,001,316	1,310,330	17,532	74.74
Nov-24	(1,091,105)	2,001,316	910,211	15,350	59.30
Dec-24	(1,254,156)	2,001,316	747,160	15,430	48.42
Jan-25	(1,380,647)	2,047,351	666,704	21,100	31.60
Feb-25	(881,200)	2,047,351	1,166,151	19,987	58.35
Mar-25	(844,972)	2,047,351	1,202,379	25,351	47.43
Apr-25	(704,642)	2,047,351	1,342,709	20,475	65.58
May-25	(779,539)	2,047,351	1,267,812	20,490	61.87
Jun-25	(621,493)	2,047,351	1,425,859	16,539	86.21
Jul-25	(602,276)	2,047,351	1,445,076	12,029	120.14
Aug-25	(694,821)	2,047,351	1,352,530	9,610	140.74
Sep-25	(695,626)	2,047,351	1,351,725	12,510	108.05
Oct-25	(695,623)	2,047,351	1,351,729	17,532	77.10
Nov-25	(1,117,081)	2,047,351	930,270	15,350	60.60
Dec-25	(1,313,484)	2,047,351	733,867	15,430	47.56
Jan-26	(1,359,538)	2,094,320	734,782	21,100	34.82
Feb-26	(871,275)	2,094,320	1,223,045	19,987	61.19
Mar-26	(846,837)	2,094,320	1,247,483	25,351	49.21
Apr-26	(690,009)	2,094,320	1,404,311	20,475	68.59
May-26	(780,772)	2,094,320	1,313,548	20,490	64.11
Jun-26	(635,594)	2,094,320	1,458,726	16,539	88.20
Jul-26	(599,273)	2,094,320	1,495,047	12,029	124.29
Aug-26	(698,569)	2,094,320	1,395,751	9,610	145.24
Sep-26	(703,431)	2,094,320	1,390,889	12,510	111.18
Oct-26	(767,278)	2,094,320	1,327,042	17,532	75.69
Nov-26	(1,183,546)	2,094,320	910,774	15,350	59.33
Dec-26	(1,339,485)	2,094,320	754,835	15,430	48.92
Jan-27	(1,399,962)	2,142,414	742,452	21,100	35.19
Feb-27	(917,723)	2,142,414	1,224,692	19,987	61.28
Mar-27	(889,757)	2,142,414	1,252,657	25,351	49.41
Apr-27	(737,691)	2,142,414	1,404,724	20,475	68.61
May-27	(804,500)	2,142,414	1,337,915	20,490	65.30
Jun-27	(659,656)	2,142,414	1,482,759	16,539	89.65
Jul-27	(707,916)	2,142,414	1,434,498	12,029	119.26
Aug-27	(756,796)	2,142,414	1,385,618	9,610	144.18
Sep-27	(734,912)	2,142,414	1,407,502	12,510	112.51
Oct-27	(812,184)	2,142,414	1,330,230	17,532	75.87
Nov-27	(1,204,936)	2,142,414	937,478	15,350	61.07
Dec-27	(1,399,003)	2,142,414	743,411	15,430	48.18
Jan-28	(1,492,039)	2,191,715	699,675	21,100	33.16
Feb-28	(954,716)	2,191,715	1,236,999	20,150	61.39
Mar-28	(1,004,184)	2,191,715	1,187,531	25,351	46.84
Apr-28	(806,007)	2,191,715	1,385,708	20,475	67.68
May-28	(872,082)	2,191,715	1,319,633	20,490	64.40
Jun-28	(727,211)	2,191,715	1,464,504	16,539	88.55
Jul-28	(801,386)	2,191,715	1,390,329	12,029	115.59
Aug-28	(946,433)	2,191,715	1,245,282	9,610	129.58
Sep-28	(830,220)	2,191,715	1,361,495	12,510	108.83
Oct-28	(864,773)	2,191,715	1,326,942	17,532	75.69
Nov-28	(1,302,531)	2,191,715	889,183	15,350	57.93
Dec-28	(1,526,742)	2,191,715	664,973	15,430	43.10
Jan-29	(1,545,759)	2,242,127	696,368	21,100	33.00

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-29	(983,861)	2,242,127	1,258,266	19,987	62.95
Mar-29	(1,027,511)	2,242,127	1,214,616	25,351	47.91
Apr-29	(857,910)	2,242,127	1,384,217	20,475	67.61
May-29	(896,815)	2,242,127	1,345,312	20,490	65.66
Jun-29	(766,549)	2,242,127	1,475,578	16,539	89.22
Jul-29	(809,980)	2,242,127	1,432,147	12,029	119.06
Aug-29	(1,068,876)	2,242,127	1,173,251	9,610	122.09
Sep-29	(876,476)	2,242,127	1,365,651	12,510	109.17
Oct-29	(928,884)	2,242,127	1,313,243	17,532	74.90
Nov-29	(1,384,392)	2,242,127	857,735	15,350	55.88
Dec-29	(1,643,100)	2,242,127	599,027	15,430	38.82
Jan-30	(1,481,893)	2,291,716	809,823	21,100	38.38
Feb-30	(950,049)	2,291,716	1,341,666	19,987	67.13
Mar-30	(1,054,370)	2,291,716	1,237,346	25,351	48.81
Apr-30	(850,431)	2,291,716	1,441,285	20,475	70.39
May-30	(898,140)	2,291,716	1,393,576	20,490	68.01
Jun-30	(740,222)	2,291,716	1,551,494	16,539	93.81
Jul-30	(786,576)	2,291,716	1,505,139	12,029	125.13
Aug-30	(907,746)	2,291,716	1,383,970	9,610	144.01
Sep-30	(870,595)	2,291,716	1,421,121	12,510	113.60
Oct-30	(856,081)	2,291,716	1,435,635	17,532	81.89
Nov-30	(1,259,059)	2,291,716	1,032,657	15,350	67.27
Dec-30	(1,480,120)	2,291,716	811,596	15,430	52.60
Jan-31	(1,564,938)	2,342,511	777,573	21,100	36.85
Feb-31	(985,207)	2,342,511	1,357,304	19,987	67.91
Mar-31	(1,073,385)	2,342,511	1,269,126	25,351	50.06
Apr-31	(878,009)	2,342,511	1,464,502	20,475	71.53
May-31	(935,128)	2,342,511	1,407,383	20,490	68.69
Jun-31	(790,809)	2,342,511	1,551,702	16,539	93.82
Jul-31	(786,192)	2,342,511	1,556,318	12,029	129.39
Aug-31	(983,292)	2,342,511	1,359,219	9,610	141.44
Sep-31	(878,329)	2,342,511	1,464,182	12,510	117.04
Oct-31	(954,280)	2,342,511	1,388,231	17,532	79.18
Nov-31	(1,289,134)	2,342,511	1,053,377	15,350	68.62
Dec-31	(1,564,516)	2,342,511	777,995	15,430	50.42
Jan-32	(1,811,684)	2,394,337	582,653	21,100	27.61
Feb-32	(1,152,706)	2,394,337	1,241,631	20,150	61.62
Mar-32	(1,206,571)	2,394,337	1,187,766	25,351	46.85
Apr-32	(967,727)	2,394,337	1,426,610	20,475	69.68
May-32	(1,014,844)	2,394,337	1,379,493	20,490	67.32
Jun-32	(804,566)	2,394,337	1,589,771	16,539	96.12
Jul-32	(857,908)	2,394,337	1,536,429	12,029	127.73
Aug-32	(1,038,278)	2,394,337	1,356,059	9,610	141.11
Sep-32	(931,422)	2,394,337	1,462,915	12,510	116.94
Oct-32	(1,016,779)	2,394,337	1,377,558	17,532	78.57
Nov-32	(1,588,561)	2,394,337	805,776	15,350	52.49
Dec-32	(1,862,575)	2,394,337	531,762	15,430	34.46
Jan-33	(1,946,625)	2,445,239	498,615	21,100	23.63
Feb-33	(1,146,817)	2,445,239	1,298,422	19,987	64.96
Mar-33	(1,264,302)	2,445,239	1,180,937	25,351	46.58
Apr-33	(1,001,495)	2,445,239	1,443,744	20,475	70.51
May-33	(1,033,664)	2,445,239	1,411,576	20,490	68.89
Jun-33	(849,525)	2,445,239	1,595,714	16,539	96.48
Jul-33	(889,993)	2,445,239	1,555,247	12,029	129.30
Aug-33	(1,086,290)	2,445,239	1,358,950	9,610	141.41
Sep-33	(993,995)	2,445,239	1,451,244	12,510	116.01
Oct-33	(1,057,689)	2,445,239	1,387,550	17,532	79.14
Nov-33	(1,685,636)	2,445,239	759,604	15,350	49.49
Dec-33	(1,982,407)	2,445,239	462,832	15,430	29.99
Jan-34	(595,740)	2,497,348	1,901,608	21,100	90.12

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-34	(208,124)	2,497,348	2,289,224	19,987	114.54
Mar-34	(116,886)	2,497,348	2,380,462	25,351	93.90
Apr-34	(96,298)	2,497,348	2,401,050	20,475	117.27
May-34	(142,445)	2,497,348	2,354,903	20,490	114.93
Jun-34	(124,356)	2,497,348	2,372,992	16,539	143.48
Jul-34	(336,667)	2,497,348	2,160,681	12,029	179.63
Aug-34	(502,358)	2,497,348	1,994,990	9,610	207.59
Sep-34	(234,941)	2,497,348	2,262,407	12,510	180.85
Oct-34	(194,422)	2,497,348	2,302,926	17,532	131.35
Nov-34	(534,896)	2,497,348	1,962,452	15,350	127.85
Dec-34	(688,987)	2,497,348	1,808,361	15,430	117.19
Jan-35	(582,789)	2,550,392	1,967,603	21,100	93.25
Feb-35	(204,330)	2,550,392	2,346,062	19,987	117.38
Mar-35	(145,682)	2,550,392	2,404,710	25,351	94.86
Apr-35	(128,841)	2,550,392	2,421,551	20,475	118.27
May-35	(127,852)	2,550,392	2,422,541	20,490	118.23
Jun-35	(106,394)	2,550,392	2,443,998	16,539	147.77
Jul-35	(325,833)	2,550,392	2,224,559	12,029	184.94
Aug-35	(513,679)	2,550,392	2,036,713	9,610	211.93
Sep-35	(268,168)	2,550,392	2,282,224	12,510	182.43
Oct-35	(167,520)	2,550,392	2,382,873	17,532	135.91
Nov-35	(579,380)	2,550,392	1,971,013	15,350	128.40
Dec-35	(693,067)	2,550,392	1,857,325	15,430	120.37
Jan-36	(636,380)	2,604,737	1,968,357	21,100	93.29
Feb-36	(219,722)	2,604,737	2,385,015	20,150	118.37
Mar-36	(152,388)	2,604,737	2,452,349	25,351	96.74
Apr-36	(133,276)	2,604,737	2,471,461	20,475	120.71
May-36	(171,863)	2,604,737	2,432,874	20,490	118.73
Jun-36	(146,442)	2,604,737	2,458,295	16,539	148.64
Jul-36	(394,079)	2,604,737	2,210,658	12,029	183.78
Aug-36	(544,498)	2,604,737	2,060,239	9,610	214.38
Sep-36	(330,910)	2,604,737	2,273,827	12,510	181.76
Oct-36	(166,015)	2,604,737	2,438,722	17,532	139.10
Nov-36	(672,686)	2,604,737	1,932,051	15,350	125.87
Dec-36	(893,260)	2,604,737	1,711,477	15,430	110.92
Jan-37	(741,630)	2,660,199	1,918,568	21,100	90.93
Feb-37	(246,909)	2,660,199	2,413,289	19,987	120.74
Mar-37	(131,544)	2,660,199	2,528,654	25,351	99.75
Apr-37	(139,390)	2,660,199	2,520,809	20,475	123.12
May-37	(156,083)	2,660,199	2,504,116	20,490	122.21
Jun-37	(157,149)	2,660,199	2,503,050	16,539	151.35
Jul-37	(364,163)	2,660,199	2,296,036	12,029	190.88
Aug-37	(462,830)	2,660,199	2,197,369	9,610	228.65
Sep-37	(290,214)	2,660,199	2,369,985	12,510	189.45
Oct-37	(246,631)	2,660,199	2,413,568	17,532	137.66
Nov-37	(653,071)	2,660,199	2,007,127	15,350	130.76
Dec-37	(989,503)	2,660,199	1,670,695	15,430	108.27
Jan-38	(861,511)	2,716,781	1,855,270	21,100	87.93
Feb-38	(272,702)	2,716,781	2,444,078	19,987	122.28
Mar-38	(155,225)	2,716,781	2,561,556	25,351	101.04
Apr-38	(139,740)	2,716,781	2,577,040	20,475	125.86
May-38	(176,933)	2,716,781	2,539,848	20,490	123.95
Jun-38	(164,621)	2,716,781	2,552,160	16,539	154.31
Jul-38	(447,428)	2,716,781	2,269,352	12,029	188.66
Aug-38	(624,349)	2,716,781	2,092,432	9,610	217.73
Sep-38	(303,013)	2,716,781	2,413,768	12,510	192.95
Oct-38	(210,214)	2,716,781	2,506,567	17,532	142.97
Nov-38	(737,996)	2,716,781	1,978,784	15,350	128.91
Dec-38	(1,080,206)	2,716,781	1,636,574	15,430	106.06
Jan-39	(879,602)	2,773,809	1,894,207	21,100	89.77

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	29.4% CF	Dollars	MWH	29.4% CF
Feb-39	(278,429)	2,773,809	2,495,380	19,987	124.85
Mar-39	(158,485)	2,773,809	2,615,324	25,351	103.17
Apr-39	(142,675)	2,773,809	2,631,134	20,475	128.51
May-39	(180,649)	2,773,809	2,593,161	20,490	126.56
Jun-39	(168,078)	2,773,809	2,605,731	16,539	157.55
Jul-39	(456,824)	2,773,809	2,316,985	12,029	192.62
Aug-39	(637,460)	2,773,809	2,136,349	9,610	222.30
Sep-39	(309,376)	2,773,809	2,464,433	12,510	197.00
Oct-39	(214,628)	2,773,809	2,559,181	17,532	145.97
Nov-39	(753,494)	2,773,809	2,020,315	15,350	131.62
Dec-39	(1,102,891)	2,773,809	1,670,918	15,430	108.29
Jan-40					
Feb-40					
Mar-40					
Apr-40					
May-40					
Jun-40					
Jul-40					
Aug-40					
Sep-40					
Oct-40					
Nov-40					
Dec-40					
Jan-41					
Feb-41					

**Table 3**  
**2019 IRP Wyoming Wind Resource**  
**44% Capacity Factor**

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized Rate	Fixed O&M	Network Upgrade	Fixed Costs	Variable O&M	40% PTC	Total Resource Cost	Total Resource Costs	Total Fixed Cost
	\$/kW	\$/kW-yr	\$/kW-yr	\$/kW-yr	\$/MWh	\$/MWh	\$/MWh	\$/MWh	\$/kW-yr	\$/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)
<b>2019 IRP Wyoming Wind Resource - 44% Capacity Factor</b>										
2016										
2017										
2018										\$0.00
2019										\$0.00
2020										\$0.00
2021										\$0.00
2022										\$0.00
2023										\$0.00
2024	\$1,253	\$86.43	\$32.97	47.87	\$43.80		(\$20.48)	\$23.32	\$89.05	\$167.27
2025		\$88.42	\$33.73	\$48.97	\$44.80		(\$20.95)	\$23.85	\$91.10	\$171.12
2026		\$90.45	\$34.49	\$50.10	\$45.83		(\$21.43)	\$24.40	\$93.19	\$175.04
2027		\$92.53	\$35.28	\$51.25	\$46.88	1.00	(\$21.92)	\$25.96	\$99.16	\$179.06
2028		\$94.66	\$36.09	\$52.43	\$47.96	1.00	(\$22.42)	\$26.54	\$101.37	\$183.18
2029		\$96.84	\$36.91	\$53.64	\$49.06	1.00	(\$22.94)	\$27.12	\$103.59	\$187.39
2030		\$98.97	\$37.75	\$54.82	\$50.15	1.00	(\$23.44)	\$27.71	\$105.83	\$191.54
2031		\$101.15	\$38.61	\$56.03	\$51.26	1.00	(\$23.96)	\$28.30	\$108.10	\$195.79
2032		\$103.38	\$39.49	\$57.26	\$52.40	1.00	(\$24.49)	\$28.91	\$110.41	\$200.13
2033		\$105.55	\$40.39	\$58.46	\$53.52	1.00	(\$25.00)	\$29.52	\$112.74	\$204.40
2034		\$107.77	\$41.31	\$59.69	\$54.66	1.00		\$55.66	\$212.59	\$208.77
2035		\$110.03	\$42.25	\$60.94	\$55.83	1.00		\$56.83	\$217.04	\$213.22
2036		\$112.34	\$43.22	\$62.22	\$57.02	1.00		\$58.02	\$221.60	\$217.78
2037		\$114.70	\$44.20	\$63.53	\$58.24	1.00		\$59.24	\$226.25	\$222.43
2038		\$117.11	\$45.21	\$64.86	\$59.48	1.00		\$60.48	\$231.00	\$227.18
2039		\$119.57	\$46.16	\$66.22	\$60.73	1.00		\$61.73	\$235.77	\$231.95
2040		\$122.08	\$47.13	\$67.61	\$62.01	1.00		\$63.01	\$240.64	\$236.82
2041		\$124.64	\$48.12	\$69.03	\$63.31	1.00		\$64.31	\$245.61	\$241.79
2042		\$127.26	\$49.13	\$70.48	\$64.64	1.00		\$65.64	\$250.69	\$246.87
2043		\$129.93	\$50.16	\$71.96	\$65.99	1.00		\$66.99	\$255.87	\$252.05

**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 43.6%)
	(h)	= (e) + (f) + (g)
	(i)	Plant Costs - 2019 IRP Update - Table 6.1 & 6.2

2019 IRP Wyoming Wind Resource - 44% 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 \$	\$0.65	Variable O&M
	(6.22)	Tax Credit \$/MWh
2024\$	47.87	Network Upgrade (\$/kw-yr)
		WY wind Tax
		Acelus Wyoming - to - Utah S, Expansion
	6.899%	Payment Factor
	43.6%	Capacity Factor

COD  
1,920 MW

Company Official Inflation Forecast Dated March 31, 2020					
2017	2.0%	2026	2.3%	2035	2.1%
2018	2.4%	2027	2.3%	2036	2.1%
2019	1.8%	2028	2.3%	2037	2.1%
2020	1.9%	2029	2.3%	2038	2.1%
2021	2.0%	2030	2.2%	2039	2.1%
2022	2.5%	2031	2.2%	2040	2.1%
2023	2.5%	2032	2.2%	2041	2.1%
2024	2.4%	2033	2.1%	2042	2.1%
2025	2.3%	2034	2.1%	2043	2.1%

**ROCKY MOUNTAIN POWER**

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

**2020.Q1 – JUNE 2020**

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

	<b>2020 - 2034</b>	<b>2021 - 2035</b>	<b>2022 - 2036</b>
2019.Q4 As Filed	\$24.28	\$26.47	\$28.99
OFPC	-\$0.30	-\$0.27	-\$0.60
Queue	\$1.87	\$1.85	\$1.85
2020.Q1 As Filed	\$25.85	\$28.05	\$30.24



## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2020.Q1 and 2019.Q4 Compliance Filing Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	OFPC (2)	Queue	Total Impact
<b>2020</b>	\$ (1.19)	\$ 1.45	\$ 0.26
<b>2021</b>	\$ 2.34	\$ 1.45	\$ 3.79
<b>2022</b>	\$ (0.65)	\$ 2.28	\$ 1.63
<b>2023</b>	\$ (0.10)	\$ 2.95	\$ 2.86
<b>2024</b>	\$ 0.37	\$ 4.35	\$ 4.72
<b>2025</b>	\$ 0.80	\$ 3.56	\$ 4.36
<b>2026</b>	\$ 0.01	\$ 1.77	\$ 1.78
<b>2027</b>	\$ 1.06	\$ 1.58	\$ 2.64
<b>2028</b>	\$ 0.57	\$ 1.32	\$ 1.89
<b>2029</b>	\$ (0.39)	\$ 1.12	\$ 0.72
<b>2030</b>	\$ (1.38)	\$ 1.00	\$ (0.38)
<b>2031</b>	\$ (2.53)	\$ 0.49	\$ (2.05)
<b>2032</b>	\$ (3.15)	\$ 0.69	\$ (2.46)
<b>2033</b>	\$ (1.92)	\$ 0.66	\$ (1.26)
<b>2034</b>	\$ (2.03)	\$ 0.69	\$ (1.34)
<b>2035</b>	\$ (2.03)	\$ 0.59	\$ (1.45)
<b>2036</b>	\$ (1.17)	\$ 0.58	\$ (0.59)

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

2020 - 2034	\$ (0.30)	\$ 1.87	\$ 1.57
2021 - 2035	\$ (0.27)	\$ 1.85	\$ 1.58
2022 - 2036	\$ (0.60)	\$ 1.85	\$ 1.25

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

## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2020.Q1 and 2019.Q4 Compliance Filing Total Avoided Cost Prices \$/MWH (1) (4)

Year	2019.Q4 As Filed	OFPC (2)	Queue
<b>2020</b>	\$13.96	\$12.77	\$14.22
<b>2021</b>	\$12.90	\$15.24	\$16.69
<b>2022</b>	\$16.09	\$15.44	\$17.72
<b>2023</b>	\$14.01	\$13.91	\$16.86
<b>2024</b>	\$7.36	\$7.72	\$12.08
<b>2025</b>	\$8.35	\$9.15	\$12.71
<b>2026</b>	\$28.15	\$28.17	\$29.93
<b>2027</b>	\$29.32	\$30.38	\$31.96
<b>2028</b>	\$33.74	\$34.31	\$35.63
<b>2029</b>	\$36.24	\$35.84	\$36.96
<b>2030</b>	\$36.60	\$35.22	\$36.22
<b>2031</b>	\$40.94	\$38.41	\$38.90
<b>2032</b>	\$46.09	\$42.94	\$43.63
<b>2033</b>	\$46.91	\$44.99	\$45.65
<b>2034</b>	\$48.55	\$46.53	\$47.22
<b>2035</b>	\$50.76	\$48.72	\$49.31
<b>2036</b>	\$52.30	\$51.14	\$51.72

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

2020 - 2034	\$24.28	\$23.98	\$25.85
2021 - 2035	\$26.47	\$26.20	\$28.05
2022 - 2036	\$28.99	\$28.39	\$30.24

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated March 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.Q1 and 2019.Q4 Compliance Filing GRID Calculated Energy Avoided Cost Prices \$/MWH (1)

Year	2019.Q4 As Filed	OFPC (2)	Queue (2)
<b>2020</b>	\$13.96	\$12.77	\$14.22
<b>2021</b>	\$12.90	\$15.24	\$16.69
<b>2022</b>	\$16.09	\$15.44	\$17.72
<b>2023</b>	\$14.01	\$13.91	\$16.86
<b>2024</b>	\$7.36	\$7.72	\$12.08
<b>2025</b>	\$8.35	\$9.15	\$12.71
<b>2026</b>	\$14.96	\$14.97	\$16.73
<b>2027</b>	\$15.82	\$16.88	\$18.46
<b>2028</b>	\$19.96	\$20.53	\$21.85
<b>2029</b>	\$22.10	\$21.71	\$22.83
<b>2030</b>	\$22.16	\$20.77	\$21.77
<b>2031</b>	\$26.18	\$23.64	\$24.13
<b>2032</b>	\$31.04	\$27.89	\$28.58
<b>2033</b>	\$31.50	\$29.59	\$30.24
<b>2034</b>	\$32.83	\$30.80	\$31.49
<b>2035</b>	\$34.70	\$32.67	\$33.25
<b>2036</b>	\$35.95	\$34.79	\$35.36

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

2020 - 2034	\$17.44	\$17.14	\$19.01
2021 - 2035	\$18.52	\$18.24	\$20.10
2022 - 2036	\$19.83	\$19.23	\$21.09

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

**Appendix C**

**Utah Quarterly Compliance Filing  
Step Study between 2020.Q1 and 2019.Q4 Compliance Filing  
Capacity Avoided Cost Prices**

Year	\$/kW-Year		\$/MWH (1)	
	2019.Q4 (3)	2020.Q1 (3)	2019.Q4 (3)	2020.Q1 (3)
<b>2020</b>	-	-	-	-
<b>2021</b>	-	-	-	-
<b>2022</b>	-	-	-	-
<b>2023</b>	-	-	-	-
<b>2024</b>	-	-	-	-
<b>2025</b>	-	-	-	-
<b>2026</b>	\$ 115.63	\$ 115.63	\$ 13.20	\$ 13.20
<b>2027</b>	\$ 118.28	\$ 118.28	\$ 13.50	\$ 13.50
<b>2028</b>	\$ 121.02	\$ 121.02	\$ 13.78	\$ 13.78
<b>2029</b>	\$ 123.80	\$ 123.80	\$ 14.13	\$ 14.13
<b>2030</b>	\$ 126.54	\$ 126.54	\$ 14.44	\$ 14.44
<b>2031</b>	\$ 129.32	\$ 129.32	\$ 14.76	\$ 14.76
<b>2032</b>	\$ 132.19	\$ 132.19	\$ 15.05	\$ 15.05
<b>2033</b>	\$ 134.94	\$ 134.94	\$ 15.40	\$ 15.40
<b>2034</b>	\$ 137.79	\$ 137.79	\$ 15.73	\$ 15.73
<b>2035</b>	\$ 140.67	\$ 140.67	\$ 16.06	\$ 16.06
<b>2036</b>	\$ 143.64	\$ 143.64	\$ 16.35	\$ 16.35

Nominal Levelized Payment at 6.920% Discount Rate (2)

2020 - 2034	\$59.93	\$59.93	\$6.84	\$6.84
2021 - 2035	\$69.71	\$69.71	\$7.95	\$7.95
2022 - 2036	\$80.29	\$80.29	\$9.16	\$9.16

- (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 No. 19-035-18

I hereby certify that a true and correct copy of the foregoing **2020.Q1 Avoided Cost Input Changes Quarterly Compliance Filing** was served upon the following by email on June 30, 2020.

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A handwritten signature in black ink that reads "Katie Savarin". The signature is written in a cursive style with a horizontal line underneath it.

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Katie Savarin  
Coordinator, Regulatory Operations