



1407 W. North Temple  
Salt Lake City, Utah 84116

March 31, 2022

***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 03-035-14 – Quarterly Compliance Filing – 2021.Q4 Avoided Cost Input Changes**  
**Docket 21-035-44 – 2021.Q4 Avoided Cost Input Changes Quarterly Compliance Filing**

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

Public Service Commission of Utah (“Commission”) orders dated October 31, 2005, and February 2, 2006, in Docket 03-035-14 require the Company to keep a record of any changes, including data inputs, made to the Proxy model and the Generation and Regulation Initiative Decision Tool (“GRID”) model used in calculating avoided costs. The orders further require the Company to notify the Commission and Division of Public Utilities (“DPU”) of updates made to the models used in the approved Proxy and Partial Displacement Differential Revenue Requirement (“PDDRR”) avoided cost methodologies. The Commission order dated June 9, 2015 in Docket 14-035-140 requires the Company to identify routine and non-routine updates or modeling changes. Non-routine updates will become effective in three weeks if the update is unchallenged by any party or upon resolution by settlement or Commission action if challenged by any party.

**Routine Updates**

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

1. **Official Forward Price Curve (OFPC)** - Update to prices dated December 31, 2021 (2112 OFPC).
2. **Qualifying Facility (QF) Queue** – Update of signed contract queue and current potential QFs. The QF queue was revised to include 794 MW nameplate in this filing. The potential queue was 845 MW nameplate in the 2021.Q3 filing.

### **Additional Details**

Additional detail is provided below:

1. **Proxy / Partial Displacement Differential Revenue Requirement (PDDRR) Avoided Cost Methodology** – The proxy resources used in the PDDRR avoided cost methodology are consistent with the Company’s 2021 Integrated Resource Plan (IRP) filed with the Commission on September 1, 2021. The 2021 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 (FOTs) during 2022-2032, and the Utah North Non Emitting Peaker Resource in 2033. The tracking solar QF resource partially displaces summer and winter FOTs during 2022-2025 and the Borah solar with storage resource in 2026. The wind QF resource partially displaces summer and winter FOTs during 2022-2025 and a Portland North Coast wind resource in 2026.
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 32.1 percent capacity factor single-axis tracking solar QF resource.
  - c. Avoided costs presented in **Appendix B.3** were calculated assuming an 80 MW 29.5 percent capacity factor wind QF resource.
3. **Major Changes from the Prior Study** – Provided as **Appendix C** is a \$/MWh step impact study of the routine updates from the prior study. Also provided in **Appendix C** is the incremental impact of each change from the prior step.

### **Work Papers**

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

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

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

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

Public Service Commission of Utah

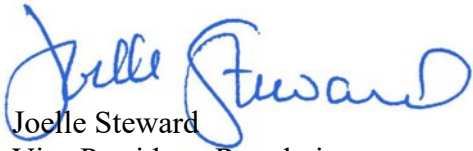
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By Regular Mail:                   Data Request Response Center  
  PacifiCorp  
  825 NE Multnomah Street, Suite 2000  
  Portland, OR 97232

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

Very truly yours,



Joelle Steward  
Vice President, Regulation

cc:     Service List (Docket No. 03-035-14)  
       Service List (Docket No. 21-035-44)

**ROCKY MOUNTAIN POWER**  
**DESCRIPTION OF AVOIDED COST INPUT CHANGES**  
**2021.Q4 – MARCH 2022**

## Appendix A

### **PacifiCorp Avoided Cost (Partial Displacement Differential Revenue Requirement (“PDDRR”)) Model Updates through March 2022 Docket 21-035-44 / Docket 03-035-14**

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Assumptions that have changed since the 2021.Q3 compliance filing are in **bold and underline**.

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

- January 1, 2022 through December 31, 2036 - 15-year study.
- Avoided cost prices starting in January 2022.

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

- **Updated to PacifiCorp’s December 31, 2021 OFPC (“2112 OFPC”)**
- Hourly Market Price Scalars consistent with 2021 Integrated Resource Plan (“IRP”)

#### **Fuel Prices (Coal)**

- Average and incremental coal costs consistent with 2021 Integrated Resource Plan (“IRP”).
- Coal burn expense reflects incremental coal costs and coal take or pay minimum burn levels.

#### **IRP Resources**

- 2021 IRP filed with the Public Service Commission of Utah (“UPSC”) on September 1, 2021.
- New solar, wind, battery storage, and thermal resources; as well as front office transactions (“FOT”), consistent with 2021 IRP (2021 IRP, Vol 1, Chapter 9).
- Existing plant retirement consistent with 2021 IRP (2019 IRP, Vol 1, Chapter 9).
- Transmission investment and capacity changes consistent with 2021 IRP (2021 IRP, Vol 1, Chapter 9 Table 9.16).

#### **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 April 2021.
- 2020 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**

- 6.88 percent discount rate - 2021 IRP
- Discount rate is consistent with the Commission’s order in Docket 11-035-T06.

### **Inflation Rates**

- 2.155% percent inflation rate - 2021 IRP

### **Levelized Prices (Nominal) at 6.88 percent Discount Rate**

- 15 years 2022 through 2036.
- Levelized prices are for illustrative purposes only.

### **Load Forecast (Retail)**

- 20-year load forecast dated August 10, 2021.

### **Long-Term Contracts**

- Long-term contracts which have prices that are indexed to market are consistent with the 2112 OFPC.
- Contracts are modeled based on 48 months ended December 2020.
- 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 November 2021.
- Mid-C and Palo Verde (“PV”) markets uncapped.
- Additional heavy load hour (“HLH”) and light load hour (“LLH”) sales limited to historical 48-month average less monthly executed STF contracts as of December 31, 2021.

### **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 2021 IRP (2021 IRP, Vol II, Appendix F: Flexible Reserve Study).

- The Company’s 2021 IRP included a study of wind and solar integration requirements and costs, and was used to develop a portfolio-specific reserve requirement. The resulting regulation reserve requirements from the 2021 IRP were incorporated in the GRID model. As a result, the cost of reserve requirements is incorporated in the net power cost result.

### **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 November 2021.

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

- The avoided cost thermal resource is 100 megawatts (“MW”) with a 100 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost tracking solar resource is 80 MW with a 32.1 percent capacity factor and is located in the Utah North transmission bubble.
- The avoided cost wind resource is 80 MW with a 29.5 percent capacity factor and is located in the Utah North transmission bubble.

### **Thermal Resources**

- Thermal resource operating characteristics updated to be consistent with current Company official characteristics.
- Forced outage, planned outage, and heat rate levels based on 48 months ended December 2019.

### **Wind and Solar Resources**

- Existing wind and solar generation profiles modeled using generation shapes derived from 2018 actuals as modeled in the 2021 IRP.<sup>1,2</sup>
- Wind and solar generation shaped to hourly using generation shapes derived from 2018 actuals as modeled in the 2021 IRP.<sup>1,2</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> In the 2021 IRP, wind and solar profiles were aligned with load based on the historical relationship, see 2021 IRP, Vol II, Appendix K: Capacity Contribution.

- Non-PTC wind and solar resources can be curtailed on an economic basis within the GRID model.<sup>3</sup>
- Resource-specific capacity contribution values are calculated for proxy resources and QFs, based on their expected output and the final loss of load probability results in the 2021 IRP (2021 IRP, Vol II, Appendix K: Capacity Contribution).

## Transmission

- Short-term transmission modeled based on 48 months ended December 2020.
- Transmission investment and capacity changes consistent with 2021 IRP (2021 IRP, Vol 1, Table 9.16).

## 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 2021 IRP.

Contracts Queue						
No.	Signed Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	Kennecott Smelter Non Firm	0.0	31.8	58.2%	0.0%	2022 01 01
2	Kennecott Refinery Non Firm	0.0	6.2	85.0%	0.0%	2022 01 01
3	Tesoro Non Firm	0.0	25.0	85.0%	0.0%	2022 01 01
4	Exxon Mobil	0.0	98.0	75.0%	0.0%	2022 01 01
5	Simplot Phosphates	0.0	13.3	85.0%	0.0%	2022 01 01
Total Signed MW		0.00	174.30			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 643 - WA - Solar	1.60	80.00	34.2%	2.0%	2023 12 01
2	QF - 645 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
3	QF - 646 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
4	QF - 647 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
5	QF - 648 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
6	QF - 649 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
7	QF - 650 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
8	QF - 651 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
9	QF - 652 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
10	QF - 653 - UT - Solar	12.14	52.50	25.5%	23.1%	2023 12 01
11	QF - 655 - OR - Wind	2.63	8.00	37.0%	32.9%	2022 02 01
12	QF - 657 - UT - Solar	10.80	60.00	26.3%	18.0%	2024 01 01
Total Potential MW		124.29	620.50			
Total Partial Displacement		<b>124.29</b>	<b>794.80</b>			
13	Utah 2021.Q4	100.00	100.0	100.0%	100.0%	2022 01 01
Partial Displacement after QF		<b>224.29</b>	<b>894.80</b>			

<sup>3</sup> Wind dispatch was identified as a non-routine change in the 2018.Q2 compliance filing.



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 2022-2032 and Utah north non-emitting peaker resource in 2033.
- Tracking Solar: 178 nameplate MW of solar resources are displaced by the QF queue. After degradation and accounting for capacity contribution, the incremental solar QF displaces 13MW of solar with storage resource located in Borah in 2026 along with associated transmission, specifically the Boardman-to-Hemingway project. The Company retains 100% of the RECs starting in 2026.
- Wind: 66 MW of wind resources are displaced by the QF queue. The wind QF displaces the 2026 wind resource located in Portland North Coast from 2021 IRP preferred portfolio. The Company retains 100% of the RECs starting in 2026.

Year	IRP Additions (Nameplate MW)						Base Case Displacement (Nameplate MW)				
	IRP Thermal	IRP Std Alone Battery	IRP Solar	IRP Wind	IRP FOT Summer	IRP FOT Winter	Thermal	Solar	Wind	FOT Summer	FOT Winter
2022	-	-	-	-	972	62	-	-	-	3	3
2023	-	-	-	-	232	5	-	-	-	3	3
2024	-	-	-	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-	-	-	-
2026	-	-	600	745	-	-	-	145	6	-	-
2027	-	-	600	745	-	-	-	145	6	-	-
2028	-	-	683	745	-	-	-	145	6	-	-
2029	-	549	683	745	-	-	-	145	6	-	-
2030	-	550	1,240	1,394	-	-	-	145	6	-	-
2031	-	550	2,060	1,394	-	-	-	145	6	-	-
2032	-	550	2,060	1,844	-	-	-	145	6	-	-
2033	402	550	3,160	1,844	-	-	-	145	6	-	-
2034	402	550	3,160	1,844	-	-	-	145	6	-	-
2035	402	550	3,160	1,844	-	-	-	145	6	-	-
2036	402	550	3,160	1,844	-	-	-	145	6	-	-
2037	402	1,200	4,169	1,844	-	-	-	145	6	-	-
2038	2,020	1,200	4,169	1,844	-	280	-	145	6	-	-
2039	2,020	1,200	4,169	1,844	-	30	-	145	6	-	-
2040	2,226	1,200	4,324	1,904	-	210	-	145	6	-	-
2041	2,226	1,200	4,324	1,904	-	-	-	145	6	-	-

## IRP Partial Displacements (Previous Filing)

Total partial displacement was 186 MW in the base case and 286 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
Total Signed MW		0.00	0.00			
No.	Potential QF Contracts	Partial Displacement	Name plate	CF	Capacity Contribution	Start Date
1	QF - 635 - UT - Gas	11.20	11.20	99.9%	100.0%	2022 03 01
2	QF - 637 - WY - Solar	11.90	74.90	31.8%	15.9%	2023 11 01
3	QF - 639 - WY - Solar	13.16	74.90	34.4%	17.6%	2024 01 01
4	QF - 640 - UT - Wind	27.22	79.80	44.2%	34.1%	2024 08 01
5	QF - 643 - WA - Solar	1.60	80.00	34.2%	2.0%	2023 12 01
6	QF - 644 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
7	QF - 645 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
8	QF - 646 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
9	QF - 647 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
10	QF - 648 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
11	QF - 649 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
12	QF - 650 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
13	QF - 651 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
14	QF - 652 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
15	QF - 653 - UT - Solar	12.14	52.50	25.5%	23.1%	2024 12 01
Total Potential MW		186.48	845.80			
Total Partial Displacement		<b>186.48</b>	<b>845.80</b>			
16	Utah 2021.Q3	100.00	100.0	100.0%	100.0%	2022 01 01
Partial Displacement after QF		<b>286.48</b>	<b>945.80</b>			

**ROCKY MOUNTAIN POWER**

**UPDATE IMPACT – UPDATED AVOIDED COST STUDY**

**2021.Q4 – MARCH 2022**

**Table 1**  
**Avoided Cost Prices**  
**Utah 2021.Q4 - 100.0 MW and 100.0% CF**

Total Price @			
Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	100.0% Capacity Factor \$/MWh
2022	\$0.00	\$34.18	\$34.18
2023	\$0.00	\$30.23	\$30.23
2024	\$0.00	\$32.16	\$32.16
2025	\$0.00	\$27.85	\$27.85
2026	\$0.00	\$36.21	\$36.21
2027	\$0.00	\$37.33	\$37.33
2028	\$0.00	\$39.95	\$39.95
2029	\$0.00	\$40.67	\$40.67
2030	\$0.00	\$40.11	\$40.11
2031	\$0.00	\$36.91	\$36.91
2032	\$0.00	\$36.87	\$36.87
2033	\$119.86	\$36.47	\$50.15
2034	\$122.44	\$38.58	\$52.56
2035	\$125.09	\$39.52	\$53.79
2036	\$127.78	\$42.16	\$56.71

15 Year

Levelized Prices (Nominal) @ 6.88% Discount Rate (1) (3)

\$/kW            \$21.98

\$/MWh

\$35.71

\$38.22

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2021.Q4 - 100.0 MW and 100.0% CF**

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Energy Only</b>													
2022	34.18	66.09	23.32	21.01	19.19	16.54	19.70	77.50	52.51	35.12	24.41	22.92	29.49
2023	30.23	20.26	25.20	23.35	19.96	18.61	20.90	76.38	45.74	36.70	22.89	23.01	28.60
2024	32.16	30.00	32.78	26.01	19.17	17.88	18.99	48.51	51.62	39.55	26.43	32.34	42.12
2025	27.85	17.17	25.64	20.84	18.24	16.29	17.20	43.81	52.34	34.98	21.52	31.40	34.29
2026	36.21	33.78	34.72	27.07	21.24	15.99	16.71	52.77	74.55	44.64	26.74	39.26	46.20
2027	37.33	41.74	36.10	26.90	18.94	19.02	17.82	54.12	70.86	44.92	26.64	42.78	47.22
2028	39.95	35.52	34.10	28.20	19.43	16.57	16.22	60.51	80.73	54.43	29.41	44.51	58.59
2029	40.67	41.41	37.83	29.55	20.05	18.51	18.77	58.90	77.89	53.78	28.61	40.79	60.69
2030	40.11	45.81	37.04	29.67	17.92	14.26	17.36	58.80	77.57	52.31	29.83	47.70	51.98
2031	36.91	42.94	35.38	27.19	16.76	14.81	16.48	53.94	72.35	45.63	25.86	43.40	47.16
2032	36.87	43.53	32.64	27.24	15.43	12.51	14.18	53.72	72.92	46.10	27.98	43.07	51.97
2033	36.47	44.25	38.46	25.84	13.65	12.62	12.95	51.15	69.33	44.05	26.76	43.62	54.13
2034	38.58	57.71	39.90	28.47	14.36	11.92	12.51	50.44	72.20	47.04	27.27	43.96	56.17
2035	39.52	57.32	41.07	27.89	14.93	13.15	15.51	56.87	68.27	47.36	27.38	45.42	58.03
2036	42.16	61.04	36.23	29.00	14.57	12.64	15.54	56.13	80.49	54.01	32.68	54.30	57.95
2037	48.74	74.85	51.11	32.77	14.59	13.21	16.86	61.35	93.12	66.17	37.14	56.69	65.97
2038	47.14	68.39	48.29	31.10	12.44	9.99	13.39	64.85	91.32	63.96	35.96	56.67	68.10
2039	51.47	74.99	50.79	33.27	12.24	11.95	14.89	70.08	100.49	77.05	40.48	59.46	70.53

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2021.Q4 - 100.0 MW and 100.0% CF**

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$4.15	\$4.16	\$4.03	\$6.36
2022	\$4.12	\$4.13	\$3.85	\$3.62
2023	\$3.41	\$3.42	\$3.18	\$3.16
2024	\$3.10	\$3.11	\$2.94	\$2.92
2025	\$2.97	\$2.98	\$2.89	\$2.81
2026	\$2.85	\$2.86	\$2.85	\$2.68
2027	\$2.85	\$2.87	\$2.88	\$2.69
2028	\$2.92	\$2.93	\$2.96	\$2.76
2029	\$2.99	\$3.00	\$3.09	\$2.83
2030	\$3.16	\$3.17	\$3.23	\$3.00
2031	\$3.31	\$3.32	\$3.33	\$3.14
2032	\$3.37	\$3.38	\$3.39	\$3.21
2033	\$3.36	\$3.37	\$3.39	\$3.20
2034	\$3.51	\$3.52	\$3.52	\$3.34
2035	\$3.62	\$3.63	\$3.58	\$3.45
2036	\$3.69	\$3.70	\$3.64	\$3.52
2037	\$3.80	\$3.81	\$3.76	\$3.63
2038	\$3.98	\$3.99	\$3.92	\$3.80
2039	\$4.17	\$4.18	\$4.13	\$4.00
2040	\$4.33	\$4.34	\$4.30	\$4.15

Official Forward Price Curve Forecast dated Dec 31, 2021

Table 5

Utah 2021.Q4 - 100.0 MW and 100.0% CF  
 January 2022 through December 2036  
 Nominal Avoided Costs Calculated Monthly

Study Name:

Start 44,562  
 End Jan-22  
 Dec-36  
 Discount Rate - 2021 IRP  
 6.88% 0.556%

Utah 2021.Q4  
 Resource Capacity  
 100.0 MW  
 100.00% CF

15 Year Starting 2025	15 Year Starting 2024	15 Year Starting 2023	15 Year
49	37	25	13
228	216	204	192

Nominal NPV at 6.88% Discount Rate  
 \$ 296,192,984 \$ 20,816,512 \$ 317,009,496 8,294,447 \$38.22

15 Year

Month	Energy	Capacity \$	Total	Total	AC Price
	Avoided \$	100.0% CF	Dollars	MWH	100.0% CF
Jan-22	4,916,816	-	4,916,816	74,400	66.09
Feb-22	1,566,922	-	1,566,922	67,200	23.32
Mar-22	1,563,241	-	1,563,241	74,400	21.01
Apr-22	1,381,803	-	1,381,803	72,000	19.19
May-22	1,230,910	-	1,230,910	74,400	16.54
Jun-22	1,418,125	-	1,418,125	72,000	19.70
Jul-22	5,765,732	-	5,765,732	74,400	77.50
Aug-22	3,906,705	-	3,906,705	74,400	52.51
Sep-22	2,528,341	-	2,528,341	72,000	35.12
Oct-22	1,816,250	-	1,816,250	74,400	24.41
Nov-22	1,650,295	-	1,650,295	72,000	22.92
Dec-22	2,193,810	-	2,193,810	74,400	29.49
Jan-36	4,541,271	1,064,864	5,606,135	74,400	75.35
Feb-36	2,521,732	1,064,864	3,586,596	69,600	51.53
Mar-36	2,157,408	1,064,864	3,222,272	74,400	43.31
Apr-36	1,048,964	1,064,864	2,113,829	72,000	29.36
May-36	940,467	1,064,864	2,005,332	74,400	26.95
Jun-36	1,119,088	1,064,864	2,183,952	72,000	30.33
Jul-36	4,175,872	1,064,864	5,240,737	74,400	70.44
Aug-36	5,988,088	1,064,864	7,052,952	74,400	94.80
Sep-36	3,889,032	1,064,864	4,953,896	72,000	68.80
Oct-36	2,431,516	1,064,864	3,496,380	74,400	46.99
Nov-36	3,909,555	1,064,864	4,974,419	72,000	69.09
Dec-36	4,311,139	1,064,864	5,376,003	74,400	72.26

Offset	Year	Date Test	Offset
1	2022	Jan-22	384 Net Power Cost
2	2022	Feb-22	502 Avoided Cost Resource
3	2022	Mar-22	
4	2022	Apr-22	2022 29,938,951
5	2022	May-22	2023 26,480,574
6	2022	Jun-22	2024 28,253,308
7	2022	Jul-22	2025 24,399,079
8	2022	Aug-22	2026 31,722,720
9	2022	Sep-22	2027 32,703,356
10	2022	Oct-22	2028 35,092,859
11	2022	Nov-22	2029 35,624,118
12	2022	Dec-22	2030 35,138,931
53	2036	Jan-36	
54	2036	Feb-36	
55	2036	Mar-36	
56	2036	Apr-36	
57	2036	May-36	
58	2036	Jun-36	
59	2036	Jul-36	
60	2036	Aug-36	
61	2036	Sep-36	
62	2036	Oct-36	
63	2036	Nov-36	
64	2036	Dec-36	

Total	energy	capacity
-	876,000	34.18
-	876,000	30.23
-	878,400	32.16
-	876,000	27.85
-	876,000	36.21
-	876,000	37.33
-	878,400	39.95
-	876,000	40.67
-	876,000	40.11

**Table 3**  
**2021 IRP Non Emitting UTN Peaker Resource Costs**  
**Non Emitting - 206 MW- East Side Resource (5,050')**

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized	Network Upgrade	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	Total Fixed Cost
	\$/kW	\$/kW-yr	\$/kW-yr	\$/kW-yr	\$/MWh	\$/kW-yr	\$/kW-yr	\$/MMBtu	\$/MWh	\$/MWh	\$/kW-yr
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(j)

**Non Emitting - 206 MW- East Side Resource (5,050')**

2020					\$ 21.294			\$ 26.72			
2021					\$21.75			\$27.30			
2022					\$22.22			\$27.89			
2023					\$22.70			\$28.49			
2024					\$23.19			\$29.10			
2025					\$23.69			\$29.73			
2026					\$24.20			\$30.37			
2027					\$24.72			\$31.02			
2028					\$25.25			\$31.69			
2029					\$25.79			\$32.37			
2030					\$26.35			\$33.07			
2031			12.46		\$26.92			\$33.78			
2032			\$12.72		\$27.50			\$34.51			
2033	\$1,319.93	\$98.96	\$12.99	\$0.00	\$28.09	\$81.20	\$193.15	\$35.25	\$350.24	\$417.06	\$111.95
2034		\$101.09	\$13.27	\$0.00	\$28.70	\$82.97	\$197.33	\$36.01	\$357.80	\$426.06	\$114.36
2035		\$103.27	\$13.56	\$0.00	\$29.32	\$84.76	\$201.59	\$36.79	\$365.55	\$435.29	\$116.83
2036		\$105.50	\$13.85	\$0.00	\$29.95	\$86.58	\$205.93	\$37.58	\$373.39	\$444.63	\$119.35
2037		\$107.77	\$14.15	\$0.00	\$30.60	\$88.46	\$210.38	\$38.39	\$381.44	\$454.22	\$121.92
2038		\$110.09	\$14.45	\$0.00	\$31.26	\$90.37	\$214.91	\$39.22	\$389.69	\$464.03	\$124.54
2039		\$112.46	\$14.76	\$0.00	\$31.93	\$92.30	\$219.52	\$40.07	\$398.14	\$474.08	\$127.22
2040		\$114.88	\$15.08	\$0.00	\$32.62	\$94.30	\$224.26	\$40.93	\$406.68	\$484.26	\$129.96
2041		\$117.36	\$15.40	\$0.00	\$33.32	\$96.32	\$229.08	\$41.81	\$415.42	\$494.66	\$132.76
2042		\$119.89	\$15.73	\$0.00	\$34.04	\$98.40	\$234.02	\$42.71	\$424.37	\$505.32	\$135.62

**Sources, Inputs and Assumptions**

- Source: (a)(c)(d) Plant Costs - 2019 IRP - Table 7.1 & 7.2
- (b) = (a) x 0.0749741404851062
  - (f) = (e) x (8.76 x 33.0%) + (d)
  - (g) = (b) + (f)
  - (h) Table 4 - Burnertip Natural Gas Price Forecast
  - (i) = 9,936 MMBtu/MWH x \$/MMBtu
  - (i) = (g) / (8.76 x 'Capacity Factor') + (i)



**Table 3**  
**2021 IRP Non Emitting UTN Peaker Resource Costs**  
**Non Emitting - 206 MW- East Side Resource (5,050')**

<b>Non Emitting - 206 MW- East Side Resource (5,050')</b>
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CCCT Statistics	MW	Percent	Cap Cost	Fixed
SCCT Dry "F" - Turbine	206	100.0%	\$1,320	\$0.00
	-	0.0%	\$0	\$0.00
Capacity Weighted	206	100.0%	\$1,320	\$0.00

CCCT Statistics	MW	CF	aMW	Percent	Variable	Heat Rate
SCCT Dry "F" - Turbine	206	33.0%	68.0	100.0%	\$21.29	9,936
	-	0.0%	-	0.0%	-	-
Energy Weighted	206	33.0%	68.0	100.0%	\$21.29	9,936

Rounded

	SCCT	Duct Firing		Plant Costs - 2019 IRP - Table 7.1 & 7.2
	206			MW Plant Capacity
2033 \$	\$1,320			Plant Capacity Cost
	\$0.00			Fixed O&M & Capitalized O&M
	\$0.00			Fixed Pipeline
2020 \$	\$0.00			Fixed O&M Including Fixed Pipeline & Capitalized O&M (\$/kW-Yr)
2020 \$	\$ 21.29			Variable O&M Costs & Capitalized Variable O&M (\$/MWh)
	9,936			Heat Rate in btu/kWh
	7.497%			Payment Factor
	33%			Capacity Factor
		33.0%		Energy Weighted Capacity Factor
2031\$	12.46	Network Upgr	Utah N, Transmission Integration	
	26.72		Fuel Cost (\$/mmBtu)	

**Appendix B.2**  
**Avoided Cost Prices \$/MWh**  
**Utah 2021.Q4 Sch 38**

Year	Thermal UT 2021.Q4 100% CF (2)	Solar Tracking UT 2021.Q4 31.1% CF (2)	Wind UT 2021.4 29.4% CF (2)	Thermal UT 2021.Q3 100% CF (2)	Solar Tracking UT 2021.Q3 31.1% CF (2)	Wind UT 2021.Q3 29.4% CF (2)	Thermal Difference	Solar Tracking Difference	Wind Difference
2022	\$34.18	\$33.39	\$39.42	\$33.35	\$24.60	\$30.86	\$0.83	\$8.79	\$8.56
2023	\$30.23	\$20.97	\$27.04	\$30.36	\$20.95	\$27.12	(\$0.13)	\$0.01	(\$0.08)
2024	\$32.16	\$18.76	\$29.21	\$31.58	\$19.42	\$28.66	\$0.59	(\$0.65)	\$0.54
2025	\$27.85	\$14.72	\$24.91	\$21.21	\$12.23	\$19.41	\$6.65	\$2.49	\$5.50
2026	\$36.21	\$25.27	\$33.47	\$19.41	\$22.10	\$29.21	\$16.80	\$3.17	\$4.26
2027	\$37.33	\$25.93	\$34.16	\$20.04	\$22.87	\$29.72	\$17.29	\$3.06	\$4.45
2028	\$39.95	\$28.21	\$35.07	\$21.08	\$23.75	\$30.64	\$18.87	\$4.46	\$4.43
2029	\$40.67	\$31.83	\$36.62	\$22.17	\$25.94	\$31.75	\$18.49	\$5.89	\$4.86
2030	\$40.11	\$31.06	\$37.16	\$22.33	\$25.97	\$32.21	\$17.78	\$5.09	\$4.95
2031	\$36.91	\$30.80	\$37.47	\$21.68	\$26.11	\$32.97	\$15.23	\$4.69	\$4.49
2032	\$36.87	\$31.00	\$38.67	\$21.90	\$26.53	\$33.86	\$14.97	\$4.48	\$4.80
2033	\$50.15	\$30.81	\$39.18	\$34.76	\$26.61	\$34.16	\$15.39	\$4.20	\$5.02
2034	\$52.56	\$30.76	\$41.10	\$35.84	\$26.81	\$35.20	\$16.72	\$3.94	\$5.90
2035	\$53.79	\$31.92	\$41.83	\$36.76	\$27.51	\$35.72	\$17.04	\$4.40	\$6.11
2036	\$56.71	\$36.29	\$59.00	\$38.23	\$29.84	\$52.65	\$18.48	\$6.45	\$6.35

15-Year Levelized Prices (Nominal) @ 6.88% Discount Rate (1) (3)										
2022-2036	\$/MWh	\$38.22	\$27.02	\$35.44	\$26.85	\$23.18	\$30.94	\$11.37	\$3.84	\$4.50
								42%	17%	15%

Footnotes:

- (1) Discount Rate - 2021 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2022 - 2036, levelized monthly

**Table 1**  
**Avoided Cost Prices**  
**Utah 2021.Q4\_Solar - 80.0 MW and 32.2% CF**

Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	32.2% Capacity Factor \$/MWh
2022	\$0.00	\$33.39	\$33.39
2023	\$0.00	\$20.97	\$20.97
2024	\$0.00	\$18.76	\$18.76
2025	\$0.00	\$14.72	\$14.72
2026	\$39.69	\$10.93	\$25.27
2027	\$40.57	\$11.20	\$25.93
2028	\$41.47	\$13.12	\$28.21
2029	\$42.39	\$16.29	\$31.83
2030	\$43.31	\$15.10	\$31.06
2031	\$44.26	\$14.41	\$30.80
2032	\$45.23	\$14.21	\$31.00
2033	\$46.22	\$13.52	\$30.81
2034	\$47.23	\$13.00	\$30.76
2035	\$48.27	\$13.68	\$31.92
2036	\$49.32	\$17.61	\$36.29

15 Year

Levelized Prices (Nominal) @ 6.88% Discount Rate (1) (3)

\$/kW            \$28.32

\$/MWh                            \$16.99                            \$27.02

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2021.Q4\_Solar - 80.0 MW and 32.2% CF**

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Energy Only</b>													
2022	33.39	216.10	15.44	16.62	15.64	14.84	17.37	42.77	37.95	24.36	17.58	16.35	19.00
2023	20.97	15.47	16.16	17.06	15.25	15.70	17.39	40.48	28.65	22.16	16.44	16.43	18.94
2024	18.76	17.17	16.49	16.59	14.01	14.18	14.96	28.16	25.20	19.33	16.36	18.98	23.15
2025	14.72	9.84	11.43	10.82	9.80	11.24	12.36	24.09	24.65	15.12	9.53	15.35	17.83
2026	10.93	8.00	6.02	8.52	6.15	7.93	8.86	19.78	21.31	7.74	7.80	10.94	13.95
2027	11.20	8.33	7.06	9.16	6.37	9.26	9.16	19.55	19.85	8.40	8.39	11.80	12.76
2028	13.12	4.52	7.48	9.76	6.24	8.08	7.41	25.52	28.99	13.34	9.53	13.45	16.30
2029	16.29	15.11	11.77	11.86	8.53	9.92	10.30	27.28	31.42	17.26	11.94	13.17	26.24
2030	15.10	15.88	10.72	10.98	7.41	6.74	7.47	25.21	30.34	16.10	12.93	17.89	21.36
2031	14.41	10.91	10.51	11.99	6.95	6.65	6.88	23.59	33.34	13.80	11.41	14.86	22.32
2032	14.21	12.88	11.32	10.40	5.35	4.37	6.23	24.15	31.31	15.12	13.04	17.64	22.15
2033	13.52	9.99	12.64	11.57	4.54	3.96	5.82	22.17	28.11	14.16	13.06	18.96	22.85
2034	13.00	14.57	12.63	10.30	4.22	2.44	4.30	21.31	28.80	13.38	11.73	16.58	24.19
2035	13.68	14.58	12.89	9.95	4.29	3.09	3.58	28.64	25.43	13.65	11.21	18.26	26.88
2036	17.61	16.90	13.09	12.03	5.20	2.89	4.57	29.71	40.87	20.80	17.82	26.57	28.78
2037	21.20	26.53	17.17	14.41	6.18	3.89	6.79	31.60	45.36	29.66	19.93	30.15	35.41
2038	20.63	23.37	15.10	10.52	5.12	2.47	3.87	34.91	45.26	32.79	19.27	29.47	35.94
2039	23.90	25.63	16.41	13.22	4.91	3.27	6.58	39.40	54.28	40.50	22.52	29.65	36.75

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2021.Q4\_Solar - 80.0 MW and 32.2% CF**

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$4.15	\$4.16	\$4.03	\$6.36
2022	\$4.12	\$4.13	\$3.85	\$3.62
2023	\$3.41	\$3.42	\$3.18	\$3.16
2024	\$3.10	\$3.11	\$2.94	\$2.92
2025	\$2.97	\$2.98	\$2.89	\$2.81
2026	\$2.85	\$2.86	\$2.85	\$2.68
2027	\$2.85	\$2.87	\$2.88	\$2.69
2028	\$2.92	\$2.93	\$2.96	\$2.76
2029	\$2.99	\$3.00	\$3.09	\$2.83
2030	\$3.16	\$3.17	\$3.23	\$3.00
2031	\$3.31	\$3.32	\$3.33	\$3.14
2032	\$3.37	\$3.38	\$3.39	\$3.21
2033	\$3.36	\$3.37	\$3.39	\$3.20
2034	\$3.51	\$3.52	\$3.52	\$3.34
2035	\$3.62	\$3.63	\$3.58	\$3.45
2036	\$3.69	\$3.70	\$3.64	\$3.52
2037	\$3.80	\$3.81	\$3.76	\$3.63
2038	\$3.98	\$3.99	\$3.92	\$3.80
2039	\$4.17	\$4.18	\$4.13	\$4.00
2040	\$4.33	\$4.34	\$4.30	\$4.15

Official Forward Price Curve Forecast dated Dec 31, 2021

Table 5

Utah 2021 Q4 Solar - 80.0 MW and 32.2% CF  
January 2022 through December 2036  
Nominal Avoided Costs Calculated Monthly

15 Year

Nominal NPV at 6.88% Discount Rate \$ 35,337,902 \$ 20,852,883 \$ 56,190,784 2,079,706 \$27.02

Start	4,562	Study Name	Utah 2021 Q4 Solar	15 Year	15 Year	15 Year
End	Jan-22	Resource Capacity	80.0 MW	Starting 2022	Starting 2023	Starting 2024
Discount Rate	6.88%	NPV at 6.88% Discount Rate	20,852,883	2022	2023	2024
NPV at 6.88% Discount Rate	56,190,784	NPV at 6.88% Discount Rate	20,852,883	2022	2023	2024

Month	Energy Avoided \$	Capacity \$ 31.8% CF	Total Dollars	Total MW	AC Price \$/MWh	Offset	Year	Date Test	Net Power Cost	Total	energy	capacity
Jan-22	2,724,209	-	2,724,209	2,081.33	216.13	1	2022	Jan-22	-	-	-	-
Feb-22	187,545	-	187,545	12,147	15.44	2	2022	Feb-22	502	QF - Sch. 1 - UT - Solar	-	-
Mar-22	203,156	-	203,156	17,034	16.62	3	2022	Mar-22	2022	7,546,171	225,984	33.39
Apr-22	314,049	-	314,049	20,073	15.64	4	2022	Apr-22	2022	11,414,511	224,854	20.97
May-22	407,581	-	407,581	27,470	14.84	5	2022	May-22	2023	2,421,210	221,498	25.37
Jun-22	437,204	-	437,204	35,157	12.44	6	2022	Jun-22	2023	3,276,794	222,611	14.72
Jul-22	1,097,969	-	1,097,969	29,671	42.77	7	2022	Jul-22	2025	3,175,164	220,920	15.93
Aug-22	874,467	-	874,467	23,041	37.97	8	2022	Aug-22	2026	3,245,557	220,390	13.20
Sep-22	535,559	-	535,559	21,985	24.36	9	2022	Sep-22	2027	3,317,474	219,889	11.32
Oct-22	322,871	-	322,871	19,370	17.58	10	2022	Oct-22	2028	3,300,658	218,150	10.54
Nov-22	212,264	-	212,264	17,863	16.35	11	2022	Nov-22	2029	3,465,029	217,101	31.63
Dec-22	182,196	-	182,196	9,988	18.60	12	2022	Dec-22	2030	3,687,580	215,524	16.79
Jan-23	191,940	-	191,940	12,350	15.57	13	2023	Jan-23	2031	3,778,687	214,260	17.29
Feb-23	195,261	-	195,261	12,086	16.16	14	2023	Feb-23	2032	3,861,381	212,728	18.24
Mar-23	299,072	-	299,072	16,448	17.58	15	2023	Mar-23	2033	3,945,829	211,246	19.24
Apr-23	429,215	-	429,215	19,973	21.52	16	2023	Apr-23	2034	4,032,279	209,616	20.29
May-23	435,465	-	435,465	27,353	15.93	17	2023	May-23	2035	4,120,462	208,568	21.29
Jun-23	435,465	-	435,465	25,042	17.39	18	2023	Jun-23	2036	4,209,012	207,525	22.29
Jul-23	1,034,051	-	1,034,051	25,543	40.48	19	2023	Jul-23	2037	4,297,981	206,550	23.29
Aug-23	656,684	-	656,684	22,905	28.65	20	2023	Aug-23	2038	4,387,581	205,625	24.29
Sep-23	484,712	-	484,712	21,875	22.16	21	2023	Sep-23	2039	4,478,191	204,744	25.29
Oct-23	300,496	-	300,496	18,278	16.44	22	2023	Oct-23	2040	4,569,829	203,900	26.29
Nov-23	212,225	-	212,225	12,918	16.43	23	2023	Nov-23	2041	4,662,501	203,100	27.29
Dec-23	180,700	-	180,700	9,540	18.84	24	2023	Dec-23	2042	4,756,581	202,339	28.29
Jan-24	211,759	-	211,759	12,330	17.17	25	2024	Jan-24	2043	-	-	#DIV/0!
Feb-24	208,429	-	208,429	12,638	16.49	26	2024	Feb-24	2044	-	-	#DIV/0!
Mar-24	278,765	-	278,765	16,864	16.59	27	2024	Mar-24	2045	-	-	#DIV/0!
Apr-24	278,375	-	278,375	19,873	14.01	28	2024	Apr-24	2046	-	-	#DIV/0!
May-24	385,648	-	385,648	14,18	27.18	29	2024	May-24	2047	-	-	#DIV/0!
Jun-24	372,825	-	372,825	24,916	14.96	30	2024	Jun-24	2048	-	-	#DIV/0!
Jul-24	374,685	-	374,685	25,415	14.74	31	2024	Jul-24	-	-	-	-
Aug-24	574,942	-	574,942	29,911	19.20	32	2024	Aug-24	-	-	-	-
Sep-24	420,741	-	420,741	27,788	15.15	33	2024	Sep-24	-	-	-	-
Oct-24	297,520	-	297,520	18,186	16.36	34	2024	Oct-24	-	-	-	-
Nov-24	243,508	-	243,508	12,853	18.98	35	2024	Nov-24	-	-	-	-
Dec-24	219,792	-	219,792	8,693	23.33	36	2024	Dec-24	-	-	-	-
Jan-25	120,722	-	120,722	12,288	9.84	37	2025	Jan-25	-	-	-	-
Feb-25	150,911	-	150,911	11,866	11.43	38	2025	Feb-25	-	-	-	-
Mar-25	181,571	-	181,571	16,779	10.82	39	2025	Mar-25	-	-	-	-
Apr-25	237,691	-	237,691	19,714	9.86	40	2025	Apr-25	-	-	-	-
May-25	304,100	-	304,100	27,000	11.24	41	2025	May-25	-	-	-	-
Jun-25	347,507	-	347,507	34,287	12.36	42	2025	Jun-25	-	-	-	-
Jul-25	609,228	-	609,228	25,288	24.09	43	2025	Jul-25	-	-	-	-
Aug-25	509,599	-	509,599	22,697	22.45	44	2025	Aug-25	-	-	-	-
Sep-25	327,467	-	327,467	17,657	18.52	45	2025	Sep-25	-	-	-	-
Oct-25	172,488	-	172,488	18,095	9.53	46	2025	Oct-25	-	-	-	-
Nov-25	182,908	-	182,908	12,769	15.36	47	2025	Nov-25	-	-	-	-
Dec-25	188,367	-	188,367	9,445	17.83	48	2025	Dec-25	-	-	-	-
Jan-26	272,244	264,597	536,841	27,243	20.07	49	2026	Jan-26	-	-	-	-
Feb-26	71,626	264,597	336,223	11,936	28.24	50	2026	Feb-26	-	-	-	-
Mar-26	142,290	264,597	406,887	16,686	24.37	51	2026	Mar-26	-	-	-	-
Apr-26	121,015	264,597	385,612	19,673	19.63	52	2026	Apr-26	-	-	-	-
May-26	213,424	264,597	478,021	26,255	17.75	53	2026	May-26	-	-	-	-
Jun-26	218,642	264,597	483,239	24,668	19.59	54	2026	Jun-26	-	-	-	-
Jul-26	497,669	264,597	762,266	25,162	30.29	55	2026	Jul-26	-	-	-	-
Aug-26	487,980	264,597	752,577	22,344	33.63	56	2026	Aug-26	-	-	-	-
Sep-26	166,765	264,597	431,362	21,549	20.02	57	2026	Sep-26	-	-	-	-
Oct-26	183,625	264,597	448,220	18,855	23.36	58	2026	Oct-26	-	-	-	-
Nov-26	139,265	264,597	403,862	12,725	31.74	59	2026	Nov-26	-	-	-	-
Dec-26	131,127	264,597	395,724	9,398	42.11	60	2026	Dec-26	-	-	-	-
Jan-27	101,156	270,463	371,619	12,149	30.63	61	2027	Jan-27	-	-	-	-
Feb-27	83,679	270,463	354,142	11,847	29.89	62	2027	Feb-27	-	-	-	-
Mar-27	107,181	270,463	377,644	16,612	24.44	63	2027	Mar-27	-	-	-	-
Apr-27	124,782	270,463	395,245	19,577	20.19	64	2027	Apr-27	-	-	-	-
May-27	247,979	270,463	524,442	19,343	27.35	65	2027	May-27	-	-	-	-
Jun-27	224,775	270,463	495,238	24,544	20.18	66	2027	Jun-27	-	-	-	-
Jul-27	446,086	270,463	716,549	22,471	31.89	67	2027	Jul-27	-	-	-	-
Aug-27	180,111	270,463	450,574	22,641	21.01	68	2027	Aug-27	-	-	-	-
Sep-27	210,410	270,463	480,873	17,915	24.89	69	2027	Sep-27	-	-	-	-
Oct-27	149,368	270,463	419,831	12,461	33.76	70	2027	Oct-27	-	-	-	-
Nov-27	270,463	270,463	540,926	9,351	57.86	71	2027	Nov-27	-	-	-	-
Dec-27	270,463	270,463	540,926	9,351	57.86	72	2027	Dec-27	-	-	-	-
Jan-28	54,683	276,456	331,139	12,685	27.40	73	2028	Jan-28	-	-	-	-
Feb-28	176,456	276,456	452,912	12,367	36.69	74	2028	Feb-28	-	-	-	-
Mar-28	161,270	276,456	437,726	16,529	26.48	75	2028	Mar-28	-	-	-	-
Apr-28	121,478	276,456	397,934	19,479	20.43	76	2028	Apr-28	-	-	-	-
May-28	217,456	276,456	493,912	16,662	29.65	77	2028	May-28	-	-	-	-
Jun-28	181,087	276,456	457,543	24,422	18.74	78	2028	Jun-28	-	-	-	-
Jul-28	328,833	276,456	605,289	24,911	24.62	79	2028	Jul-28	-	-	-	-
Aug-28	648,107	276,456	924,563	22,359	41.35	80	2028	Aug-28	-	-	-	-
Sep-28	284,891	276,456	561,347	21,334	26.30	81	2028	Sep-28	-	-	-	-
Oct-28	199,838	276,456	476,294	17,825	25.04	82	2028	Oct-28	-	-	-	-
Nov-28	159,414	276,456	435,868	12,388	35.99	83	2028	Nov-28	-	-	-	-
Dec-28	151,621	276,456	428,078	9,304	45.01	84	2028	Dec-28	-	-	-	-
Jan-29	181,691	282,572	464,262	12,025	38.61	85	2029	Jan-29	-	-	-	-
Feb-29	138,070	282,572	420,642	11,728	35.87	86	2029	Feb-29	-	-	-	-
Mar-29	195,001	282,57										

**Table 3**  
**2021 IRP Borah Solar with Storage**  
**28% Capacity Factor**

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

**2021 IRP Borah Solar with Storage - 28% Capacity Factor**

2016								
2017								
2018								\$0.00
2019								\$0.00
2020								\$0.00
2021								\$0.00
2022								\$0.00
2023								\$0.00
2024								\$0.00
2025								\$0.00
2026	\$2,696	\$146.08	\$37.57	\$75.14		\$75.14	\$183.64	\$183.64
2027		\$149.23	\$38.38	\$76.76		\$76.76	\$187.61	\$187.61
2028		\$152.45	\$39.21	\$78.42		\$78.42	\$191.66	\$191.66
2029		\$155.74	\$40.05	\$80.11		\$80.11	\$195.79	\$195.79
2030		\$159.10	\$40.91	\$81.84		\$81.84	\$200.01	\$200.01
2031		\$162.53	\$41.79	\$83.60		\$83.60	\$204.32	\$204.32
2032		\$166.03	\$42.69	\$85.40		\$85.40	\$208.72	\$208.72
2033		\$169.61	\$43.61	\$87.24		\$87.24	\$213.22	\$213.22
2034		\$173.27	\$44.55	\$89.12		\$89.12	\$217.82	\$217.82
2035		\$177.00	\$45.51	\$91.04		\$91.04	\$222.51	\$222.51
2036		\$180.81	\$46.49	\$93.00		\$93.00	\$227.30	\$227.30
2037		\$184.71	\$47.49	\$95.01		\$95.01	\$232.20	\$232.20
2038		\$188.69	\$48.51	\$97.05		\$97.05	\$237.20	\$237.20
2039		\$192.76	\$49.56	\$99.15		\$99.15	\$242.32	\$242.32
2040		\$196.91	\$50.63	\$101.28		\$101.28	\$247.54	\$247.54
2041		\$201.15	\$51.72	\$103.46		\$103.46	\$252.87	\$252.87
2042		\$205.48	\$52.83	\$105.69		\$105.69	\$258.31	\$258.31
2043		\$209.91	\$53.97	\$107.97		\$107.97	\$263.88	\$263.88

**Sources, Inputs and Assumptions**

Source:	(c)(f)	Plant Costs - 2021 IRP Update - Table 7.1 & 7.2
	(a)	Plant capacity cost
	(b)	= (a) x 0.0541878056575824
	(d)	= ((b) + (c)) / (8.76 x 27.9%)
	(g)	= (e) + (f)
	(h)	Plant Costs - 2021 IRP Update - Table 7.1 & 7.2

2021 IRP Borah Solar with Storage - 28% Capacity Factor	
Wind	Cost and Input Assumptions

2020 \$		Plant capacity cost	
2020 \$		Fixed O&M, plus on-going capital cost	
		Wheeling (\$ MWh)	
2020 \$		Variable O&M	
		Tax Credit \$/MWh	First Year real levelized
2026\$	54.44	Network Upgrade (\$/kw-yr)	
	5.419%	Payment Factor	
	27.9%	Capacity Factor	

**Appendix B.3**  
**Avoided Cost Prices \$/MWh**  
**Utah 2021.Q4 Sch 38**

Year	Thermal UT 2021.Q4 100% CF (2)	Solar Tracking UT 2021.Q4 31.1% CF (2)	Wind UT 2021.4 29.4% CF (2)	Thermal UT 2021.Q3 100% CF (2)	Solar Tracking UT 2021.Q3 31.1% CF (2)	Wind UT 2021.Q3 29.4% CF (2)	Thermal Difference	Solar Tracking Difference	Wind Difference
2022	\$34.18	\$33.39	\$39.42	\$33.35	\$24.60	\$30.86	\$0.83	\$8.79	\$8.56
2023	\$30.23	\$20.97	\$27.04	\$30.36	\$20.95	\$27.12	(\$0.13)	\$0.01	(\$0.08)
2024	\$32.16	\$18.76	\$29.21	\$31.58	\$19.42	\$28.66	\$0.59	(\$0.65)	\$0.54
2025	\$27.85	\$14.72	\$24.91	\$21.21	\$12.23	\$19.41	\$6.65	\$2.49	\$5.50
2026	\$36.21	\$25.27	\$33.47	\$19.41	\$22.10	\$29.21	\$16.80	\$3.17	\$4.26
2027	\$37.33	\$25.93	\$34.16	\$20.04	\$22.87	\$29.72	\$17.29	\$3.06	\$4.45
2028	\$39.95	\$28.21	\$35.07	\$21.08	\$23.75	\$30.64	\$18.87	\$4.46	\$4.43
2029	\$40.67	\$31.83	\$36.62	\$22.17	\$25.94	\$31.75	\$18.49	\$5.89	\$4.86
2030	\$40.11	\$31.06	\$37.16	\$22.33	\$25.97	\$32.21	\$17.78	\$5.09	\$4.95
2031	\$36.91	\$30.80	\$37.47	\$21.68	\$26.11	\$32.97	\$15.23	\$4.69	\$4.49
2032	\$36.87	\$31.00	\$38.67	\$21.90	\$26.53	\$33.86	\$14.97	\$4.48	\$4.80
2033	\$50.15	\$30.81	\$39.18	\$34.76	\$26.61	\$34.16	\$15.39	\$4.20	\$5.02
2034	\$52.56	\$30.76	\$41.10	\$35.84	\$26.81	\$35.20	\$16.72	\$3.94	\$5.90
2035	\$53.79	\$31.92	\$41.83	\$36.76	\$27.51	\$35.72	\$17.04	\$4.40	\$6.11
2036	\$56.71	\$36.29	\$59.00	\$38.23	\$29.84	\$52.65	\$18.48	\$6.45	\$6.35

2022-2036	15-Year Levelized Prices (Nominal) @ 6.88% Discount Rate (1) (3)	\$/MWh	\$38.22	\$27.02	\$35.44	\$26.85	\$23.18	\$30.94	\$11.37	\$3.84	\$4.50
									42%	17%	15%

Footnotes:

- (1) Discount Rate - 2021 IRP
- (2) Total Avoided Costs with Capacity, based on stated CF
- (3) 15-Years: 2022 - 2036, levelized monthly



**Table 1**  
**Avoided Cost Prices**  
**Utah 2021.Q4\_Wind - 80.0 MW and 29.5% CF**

Total Price @			
Year	Capacity Price \$/kW-yr	Energy Only Price \$/MWh <sup>(2)</sup>	29.5% Capacity Factor \$/MWh
2022	\$0.00	\$39.42	\$39.42
2023	\$0.00	\$27.04	\$27.04
2024	\$0.00	\$29.21	\$29.21
2025	\$0.00	\$24.91	\$24.91
2026	\$87.98	(\$0.63)	\$33.47
2027	\$89.88	(\$0.67)	\$34.16
2028	\$91.81	(\$0.41)	\$35.07
2029	\$93.80	\$0.27	\$36.62
2030	\$95.82	\$0.03	\$37.16
2031	\$97.88	(\$0.47)	\$37.47
2032	\$99.99	\$0.04	\$38.67
2033	\$102.14	(\$0.41)	\$39.18
2034	\$104.35	\$0.66	\$41.10
2035	\$106.59	\$0.52	\$41.83
2036	\$108.89	\$16.93	\$59.00

15 Year

Levelized Prices (Nominal) @ 6.88% Discount Rate (1) (3)

\$/kW \$60.69

\$/MWh

\$11.92

\$35.44

**Table 2**  
**Avoided Energy Costs - Scheduled Hours (\$/MWh)**  
**Utah 2021.Q4\_Wind - 80.0 MW and 29.5% CF**

Year	Annual	Winter Season					Summer Season				Winter Season		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Energy Only</b>													
2022	39.42	146.83	22.36	20.43	18.68	15.90	18.37	74.24	51.96	32.02	24.55	22.69	32.19
2023	27.04	20.43	24.10	22.59	19.34	17.63	19.70	74.65	49.26	32.43	22.43	22.42	31.23
2024	29.21	31.64	32.05	23.97	17.78	17.11	17.74	47.11	48.84	37.17	26.44	29.70	43.91
2025	24.91	18.77	25.10	20.18	15.78	15.73	15.67	45.32	48.11	32.53	21.35	29.34	37.56
2026	(0.63)	18.69	12.78	4.24	(2.93)	(7.95)	(15.59)	(26.59)	(42.27)	(7.75)	3.60	8.36	16.37
2027	(0.67)	23.19	14.30	3.90	(4.21)	(7.71)	(16.30)	(32.81)	(43.05)	(8.57)	2.71	8.51	17.33
2028	(0.41)	19.92	12.31	4.17	(4.05)	(8.31)	(15.33)	(30.50)	(37.35)	(11.67)	4.57	8.72	21.26
2029	0.27	24.10	15.17	6.56	(3.45)	(8.31)	(13.81)	(33.68)	(36.17)	(11.77)	3.14	6.38	20.88
2030	0.03	27.86	14.71	3.80	(5.31)	(9.39)	(13.68)	(33.33)	(38.96)	(11.70)	3.55	10.00	18.85
2031	(0.47)	25.09	14.57	5.11	(5.40)	(9.32)	(14.41)	(30.83)	(37.37)	(10.54)	1.89	7.40	15.30
2032	0.04	25.93	11.67	3.62	(5.92)	(9.96)	(11.96)	(29.02)	(37.28)	(8.97)	4.07	10.30	17.41
2033	(0.41)	26.27	16.67	1.72	(6.82)	(10.35)	(13.63)	(28.36)	(39.81)	(12.06)	2.62	9.41	17.83
2034	0.66	33.28	16.77	2.27	(6.46)	(10.12)	(13.04)	(30.27)	(34.75)	(11.93)	2.43	9.31	18.59
2035	0.52	34.96	16.33	2.83	(6.35)	(10.76)	(12.42)	(30.70)	(37.37)	(12.29)	0.53	9.40	18.55
2036	16.93	45.21	23.25	16.27	6.90	7.17	9.48	(1.94)	(13.50)	13.69	18.27	26.39	31.84
2037	19.92	53.49	33.31	18.06	7.12	7.15	10.81	2.26	(18.19)	19.69	20.86	28.19	33.39
2038	18.48	49.65	33.34	14.90	5.63	5.73	9.03	2.03	(24.18)	16.99	20.12	29.39	36.11
2039	20.52	54.25	34.62	17.84	6.12	6.53	9.47	7.33	(17.20)	17.29	22.34	29.39	37.03

**Table 4**  
**Burnertip Natural Gas Price Forecast**  
**Utah 2021.Q4\_Wind - 80.0 MW and 29.5% CF**

Year	PacifiCorp			
	Delivered IRP - Utah Greenfield Fuel Cost	Delivered Naughton Fuel Cost	Delivered IRP West Side Fuel Cost	Delivered IRP - Wyo NE Fuel Cost
2019	\$2.42	\$2.43	\$4.31	\$2.09
2020	\$1.98	\$1.99	\$2.17	\$1.79
2021	\$4.15	\$4.16	\$4.03	\$6.36
2022	\$4.12	\$4.13	\$3.85	\$3.62
2023	\$3.41	\$3.42	\$3.18	\$3.16
2024	\$3.10	\$3.11	\$2.94	\$2.92
2025	\$2.97	\$2.98	\$2.89	\$2.81
2026	\$2.85	\$2.86	\$2.85	\$2.68
2027	\$2.85	\$2.87	\$2.88	\$2.69
2028	\$2.92	\$2.93	\$2.96	\$2.76
2029	\$2.99	\$3.00	\$3.09	\$2.83
2030	\$3.16	\$3.17	\$3.23	\$3.00
2031	\$3.31	\$3.32	\$3.33	\$3.14
2032	\$3.37	\$3.38	\$3.39	\$3.21
2033	\$3.36	\$3.37	\$3.39	\$3.20
2034	\$3.51	\$3.52	\$3.52	\$3.34
2035	\$3.62	\$3.63	\$3.58	\$3.45
2036	\$3.69	\$3.70	\$3.64	\$3.52
2037	\$3.80	\$3.81	\$3.76	\$3.63
2038	\$3.98	\$3.99	\$3.92	\$3.80
2039	\$4.17	\$4.18	\$4.13	\$4.00
2040	\$4.33	\$4.34	\$4.30	\$4.15

Official Forward Price Curve Forecast dated Dec 31, 2021

Table 5

Utah 2021.Q4\_Wind - 80.0 MW and 29.5% CF  
 January 2022 through December 2036  
 Nominal Avoided Costs Calculated Monthly

Study Name: Utah 2021.Q4\_Wind  
 Start 44,562  
 End Jan-22 Dec-36  
 Resource Capacity 80.0 MW  
 29.45% CF  
 Discount Rate - 2021 IRP  
 6.88% 0.556%

15 Year Starting 2025 49 228  
 15 Year Starting 2024 37 216  
 15 Year Starting 2023 25 204  
 15 Year 13 192

15 Year Nominal NPV at 6.88% Discount Rate  
 \$ 23,369,614 \$ 46,128,030 \$ 69,497,644 1,961,058 \$35.44

Month	Energy	Capacity	Total	Total	AC Price
	Avoided \$	29.5% CF			
Jan-22	3,069,971	-	3,069,971	20,908	146.83
Feb-22	444,141	-	444,141	19,864	22.36
Mar-22	516,126	-	516,126	25,269	20.43
Apr-22	381,315	-	381,315	20,415	18.68
May-22	326,585	-	326,585	20,545	15.90
Jun-22	306,026	-	306,026	16,657	18.37
Jul-22	908,493	-	908,493	12,238	74.24
Aug-22	510,116	-	510,116	9,818	51.96
Sep-22	405,482	-	405,482	12,664	32.02
Oct-22	429,825	-	429,825	17,510	24.55
Nov-22	345,752	-	345,752	15,239	22.69
Dec-22	492,307	-	492,307	15,292	32.19
Jan-36	945,244	725,914	1,671,158	20,908	79.93
Feb-36	476,473	725,914	1,202,387	20,490	58.68
Mar-36	411,234	725,914	1,137,148	25,269	45.00
Apr-36	140,888	725,914	866,802	20,415	42.46
May-36	147,377	725,914	873,291	20,545	42.51
Jun-36	157,900	725,914	883,814	16,657	53.06
Jul-36	(23,690)	725,914	702,224	12,238	57.38
Aug-36	(132,510)	725,914	593,404	9,818	60.44
Sep-36	173,391	725,914	899,305	12,664	71.01
Oct-36	319,916	725,914	1,045,830	17,510	59.73
Nov-36	402,157	725,914	1,128,071	15,239	74.03
Dec-36	486,828	725,914	1,212,742	15,292	79.30

Offset	Year	Date Test	Net Power Cost	Total	energy	capacity
1	2022	Jan-22	384			
2	2022	Feb-22	502			
3	2022	Mar-22				
4	2022	Apr-22				
5	2022	May-22	2022	8,136,138	-	206,420
6	2022	Jun-22	2024	5,047,645	-	207,045
7	2022	Jul-22	2025	5,141,474	-	206,420
8	2022	Aug-22	2026	(123,053)	7,038,704	206,420
9	2022	Sep-22	2027	(138,595)	7,190,379	206,420
10	2022	Oct-22	2028	(84,192)	7,345,046	207,045
11	2022	Nov-22	2029	54,868	7,503,755	206,420
12	2022	Dec-22	2030	6,060	7,665,402	206,420
53	2036	Jan-36				
54	2036	Feb-36				
55	2036	Mar-36				
56	2036	Apr-36				
57	2036	May-36				
58	2036	Jun-36				
59	2036	Jul-36				
60	2036	Aug-36				
61	2036	Sep-36				
62	2036	Oct-36				
63	2036	Nov-36				
64	2036	Dec-36				

**Table 3  
2021 IRP Portland North Coast Wind Resource  
37% Capacity Factor**

Year	Estimated Capital Cost	Fixed Capital Cost at Real Levelized Rate	Fixed O&M	Network Upgrade	Fixed Costs	Variable O&M	60% 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)

**2021 IRP Portland North Coast Wind Resource - 37% Capacity Factor**

2016										
2017										
2018										
2019										
2020										
2021										
2022										
2023										
2024										
2025										
2026	\$1,418	\$98.97	\$67.89	24.74	\$59.03	\$0.00	(\$22.28)	\$36.75	\$119.29	\$191.59
2027		\$101.10	\$69.35	\$25.27	\$60.30	\$0.00	(\$23.07)	\$37.23	\$120.84	\$195.72
2028		\$103.28	\$70.84	\$25.81	\$61.60	\$0.00	(\$23.07)	\$38.53	\$125.05	\$199.93
2029		\$105.51	\$72.37	\$26.37	\$62.93	\$0.00	(\$23.87)	\$39.06	\$126.78	\$204.25
2030		\$107.78	\$73.93	\$26.94	\$64.29	\$0.00	(\$24.67)	\$39.62	\$128.59	\$208.65
2031		\$110.10	\$75.52	\$27.52	\$65.67	\$0.00	(\$24.67)	\$41.00	\$133.08	\$213.14
2032		\$112.47	\$77.15	\$28.11	\$67.09	\$0.00	(\$25.46)	\$41.63	\$135.10	\$217.73
2033		\$114.89	\$78.81	\$28.72	\$68.53	\$0.00	(\$26.26)	\$42.27	\$137.20	\$222.42
2034		\$117.37	\$80.51	\$29.34	\$70.01	\$0.00	(\$26.26)	\$43.75	\$142.00	\$227.22
2035		\$119.90	\$82.24	\$29.97	\$71.52	\$0.00	(\$27.05)	\$44.46	\$144.30	\$232.11
2036		\$122.48	\$84.01	\$30.62	\$73.06	\$0.00	\$0.00	\$73.06	\$237.11	\$237.11
2037		\$125.12	\$85.82	\$31.28	\$74.63	\$0.00	\$0.00	\$74.63	\$242.22	\$242.22
2038		\$127.82	\$87.67	\$31.95	\$76.24	\$0.00	\$0.00	\$76.24	\$247.44	\$247.44
2039		\$130.57	\$89.56	\$32.64	\$77.88	\$0.00	\$0.00	\$77.88	\$252.77	\$252.77
2040		\$133.38	\$91.49	\$33.34	\$79.56	\$0.00	\$0.00	\$79.56	\$258.21	\$258.21
2041		\$136.25	\$93.46	\$34.06	\$81.27	\$0.00	\$0.00	\$81.27	\$263.77	\$263.77
2042		\$139.19	\$95.47	\$34.79	\$83.02	\$0.00	\$0.00	\$83.02	\$269.45	\$269.45
2043		\$142.19	\$97.53	\$35.54	\$84.81	\$0.00	\$0.00	\$84.81	\$275.26	\$275.26

**Sources, Inputs and Assumptions**

- Source:
- (c)(f) Plant Costs - 2021 IRP Update - Table 7.1 & 7.2
  - (a) Plant capacity cost
  - (b) = (a) x 0.0697927885163824
  - (e) = ((b) + (c)) / (8.76 x 37.0%)
  - (h) = (e) + (f) + (g)
  - (i) Plant Costs - 2021 IRP Update - Table 7.1 & 7.2

2021 IRP Portland North Coast Wind Resource - 37% Capacity Factor	
Wind	Cost and Input Assumptions

2026\$	\$1,418	Plant capacity cost	
2026\$	\$67.89	Fixed O&M, plus on-going capital cost	
		Wheeling (\$ MWh)	
		Variable O&M	
		Tax Credit \$/MWh	First Year real levelized
2026\$	24.74	Network Upgrade (\$/kw-yr)	Portland NC, Transmission Integration
	6.979%	Payment Factor	
	37.0%	Capacity Factor	

**ROCKY MOUNTAIN POWER**

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

**2021.Q4 – MARCH 2022**

**Nominal Levelized Payment at 6.880% Discount Rate**

	<b>2022 - 2036</b>	<b>2023 - 2037</b>	<b>2024 - 2038</b>
2021.Q3 As Filed	\$26.89	\$26.74	\$26.87
OFPC	\$10.88	\$12.75	\$14.51
Queue	\$0.55	\$0.29	\$0.35
2021.Q4 As Filed	\$38.32	\$39.78	\$41.73

## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2021.Q4 and 2021.Q3 Compliance Filing Avoided Cost Impact of Changing Assumptions \$/MWH (1)

Year	OFPC (2)	Queue	Total Impact
<b>2022</b>	\$ (1.91)	\$ 2.74	\$ 0.83
<b>2023</b>	\$ 0.02	\$ (0.14)	\$ (0.13)
<b>2024</b>	\$ 2.12	\$ (1.54)	\$ 0.59
<b>2025</b>	\$ 5.82	\$ 0.83	\$ 6.65
<b>2026</b>	\$ 16.34	\$ 0.47	\$ 16.80
<b>2027</b>	\$ 16.80	\$ 0.49	\$ 17.29
<b>2028</b>	\$ 18.27	\$ 0.60	\$ 18.87
<b>2029</b>	\$ 17.91	\$ 0.59	\$ 18.49
<b>2030</b>	\$ 17.16	\$ 0.62	\$ 17.78
<b>2031</b>	\$ 14.65	\$ 0.58	\$ 15.23
<b>2032</b>	\$ 14.36	\$ 0.62	\$ 14.97
<b>2033</b>	\$ 14.80	\$ 0.59	\$ 15.39
<b>2034</b>	\$ 16.22	\$ 0.50	\$ 16.72
<b>2035</b>	\$ 16.49	\$ 0.55	\$ 17.04
<b>2036</b>	\$ 17.94	\$ 0.55	\$ 18.48
<b>2037</b>	\$ 22.71	\$ 0.30	\$ 23.01
<b>2038</b>	\$ 22.03	\$ 0.50	\$ 22.52

#### Nominal Levelized Payment at 6.880% Discount Rate (3)

2022 - 2036	\$ 10.88	\$ 0.55	\$ 11.43
2023 - 2037	\$ 12.75	\$ 0.29	\$ 13.04
2024 - 2038	\$ 14.51	\$ 0.35	\$ 14.86

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated December 2021
- (3) Discount Rate - 2021 IRP - Calculated Annually
- (4) Capacity costs are allocated based on assumed 100% capacity factor.



**Appendix C**

**Utah Quarterly Compliance Filing  
Step Study between 2021.Q4 and 2021.Q3 Compliance Filing  
Total Avoided Cost Prices \$/MWH (1) (4)**

<b>Year</b>	<b>2021.Q3 As Filed</b>	<b>OFPC (2)</b>	<b>Queue</b>
<b>2022</b>	\$33.35	\$31.44	\$34.18
<b>2023</b>	\$30.36	\$30.37	\$30.23
<b>2024</b>	\$31.58	\$33.70	\$32.17
<b>2025</b>	\$21.21	\$27.02	\$27.85
<b>2026</b>	\$19.41	\$35.75	\$36.21
<b>2027</b>	\$20.04	\$36.85	\$37.33
<b>2028</b>	\$21.08	\$39.35	\$39.95
<b>2029</b>	\$22.17	\$40.08	\$40.67
<b>2030</b>	\$22.33	\$39.49	\$40.11
<b>2031</b>	\$21.68	\$36.33	\$36.91
<b>2032</b>	\$21.90	\$36.26	\$36.87
<b>2033</b>	\$34.76	\$49.56	\$50.15
<b>2034</b>	\$35.84	\$52.06	\$52.56
<b>2035</b>	\$36.76	\$53.25	\$53.79
<b>2036</b>	\$38.23	\$56.16	\$56.71
<b>2037</b>	\$40.63	\$63.34	\$63.64
<b>2038</b>	\$39.84	\$61.87	\$62.36

Nominal Levelized Payment at 6.880% Discount Rate (3)

2022 - 2036	\$26.89	\$37.77	\$38.32
2023 - 2037	\$26.74	\$39.49	\$39.78
2024 - 2038	\$26.87	\$41.38	\$41.73

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated December 2021
- (3) Discount Rate - 2021 IRP - Calculated Annually
- (4) Capacity costs are allocated based on assumed 100% capacity factor.  
2021 IRP Preferred Portfolio.

## Appendix C

### Utah Quarterly Compliance Filing Step Study between 2021.Q4 and 2021.Q3 Compliance Filing GRID Calculated Energy Avoided Cost Prices \$/MWH (1)

Year	2021.Q3 As Filed	OFPC (2)	Queue (4)
<b>2022</b>	\$33.35	\$31.44	\$34.18
<b>2023</b>	\$30.36	\$30.37	\$30.23
<b>2024</b>	\$31.58	\$33.70	\$32.17
<b>2025</b>	\$21.21	\$27.02	\$27.85
<b>2026</b>	\$19.41	\$35.75	\$36.21
<b>2027</b>	\$20.04	\$36.85	\$37.33
<b>2028</b>	\$21.08	\$39.35	\$39.95
<b>2029</b>	\$22.17	\$40.08	\$40.67
<b>2030</b>	\$22.33	\$39.49	\$40.11
<b>2031</b>	\$21.68	\$36.33	\$36.91
<b>2032</b>	\$21.90	\$36.26	\$36.87
<b>2033</b>	\$21.08	\$35.88	\$36.47
<b>2034</b>	\$21.86	\$38.08	\$38.58
<b>2035</b>	\$22.48	\$38.97	\$39.52
<b>2036</b>	\$23.68	\$41.62	\$42.16
<b>2037</b>	\$25.73	\$48.44	\$48.74
<b>2038</b>	\$24.62	\$46.65	\$47.14

#### Nominal Levelized Payment at 6.88% Discount Rate (3)

2022 - 2036	\$24.38	\$35.26	\$35.81
2023 - 2037	\$23.46	\$36.21	\$36.50
2024 - 2038	\$22.75	\$37.26	\$37.62

- (1) Studies are sequential. The order of the studies would affect the price impact.
- (2) Official Forward Price Curve Dated December 2021
- (3) Discount Rate - 2021 IRP - Calculated Annually

**Appendix C**  
**Utah Quarterly Compliance Filing**  
**Step Study between 2021.Q4 and 2021.Q3 Compliance Filing**  
**Capacity Avoided Cost Prices**

Year	\$/kW-Year			\$/MWH (1)		
	2021.Q3	OFPC	2021.Q4	2021.Q3	OFPC	2021.Q4
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
2028	-	-	-	-	-	-
2029	-	-	-	-	-	-
2030	-	-	-	-	-	-
2031	-	-	-	-	-	-
2032	-	-	-	-	-	-
2033	\$ 119.86	\$ 119.86	\$ 119.86	\$ 13.68	\$ 13.68	\$ 13.68
2034	\$ 122.44	\$ 122.44	\$ 122.44	\$ 13.98	\$ 13.98	\$ 13.98
2035	\$ 125.09	\$ 125.09	\$ 125.09	\$ 14.28	\$ 14.28	\$ 14.28
2036	\$ 127.78	\$ 127.78	\$ 127.78	\$ 14.55	\$ 14.55	\$ 14.55
2037	\$ 130.54	\$ 130.54	\$ 130.54	\$ 14.90	\$ 14.90	\$ 14.90
2038	\$ 133.34	\$ 133.34	\$ 133.34	\$ 15.22	\$ 15.22	\$ 15.22

Nominal Levelized Payment at 6.880% Discount Rate (2)

2022 - 2036	\$22.00	\$22.00	\$22.00	\$2.51	\$2.51	\$2.51
2023 - 2037	\$28.75	\$28.75	\$28.75	\$3.28	\$3.28	\$3.28
2024 - 2038	\$36.09	\$36.09	\$36.09	\$4.12	\$4.12	\$4.12

- (1) Capacity costs are allocated based on assumed 100% capacity factor.
- (2) Discount Rate - 2021 IRP
- (3) No Capacity costs - No deferrable thermal resources

## CERTIFICATE OF SERVICE

Docket Nos. 21-035-44/03-035-14

I hereby certify that a true and correct copy of the foregoing **2021.Q4 Avoided Cost Input Changes Quarterly Compliance Filing** was served upon the following by email on March 31, 2022.

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Adviser, Regulatory Operations