ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

1407 W. North Temple, Suite 330
Salt Lake City, UT 84116

September 27, 2023

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attn: Gary Widerburg
Commission Secretary

Re: Docket 03-035-14 – Quarterly Compliance Filing – 2023.Q2 Avoided Cost Input Changes
Docket 23-035-28 – 2023.Q2 Avoided Cost Input Changes Quarterly Compliance Filing

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

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

Routine Updates

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

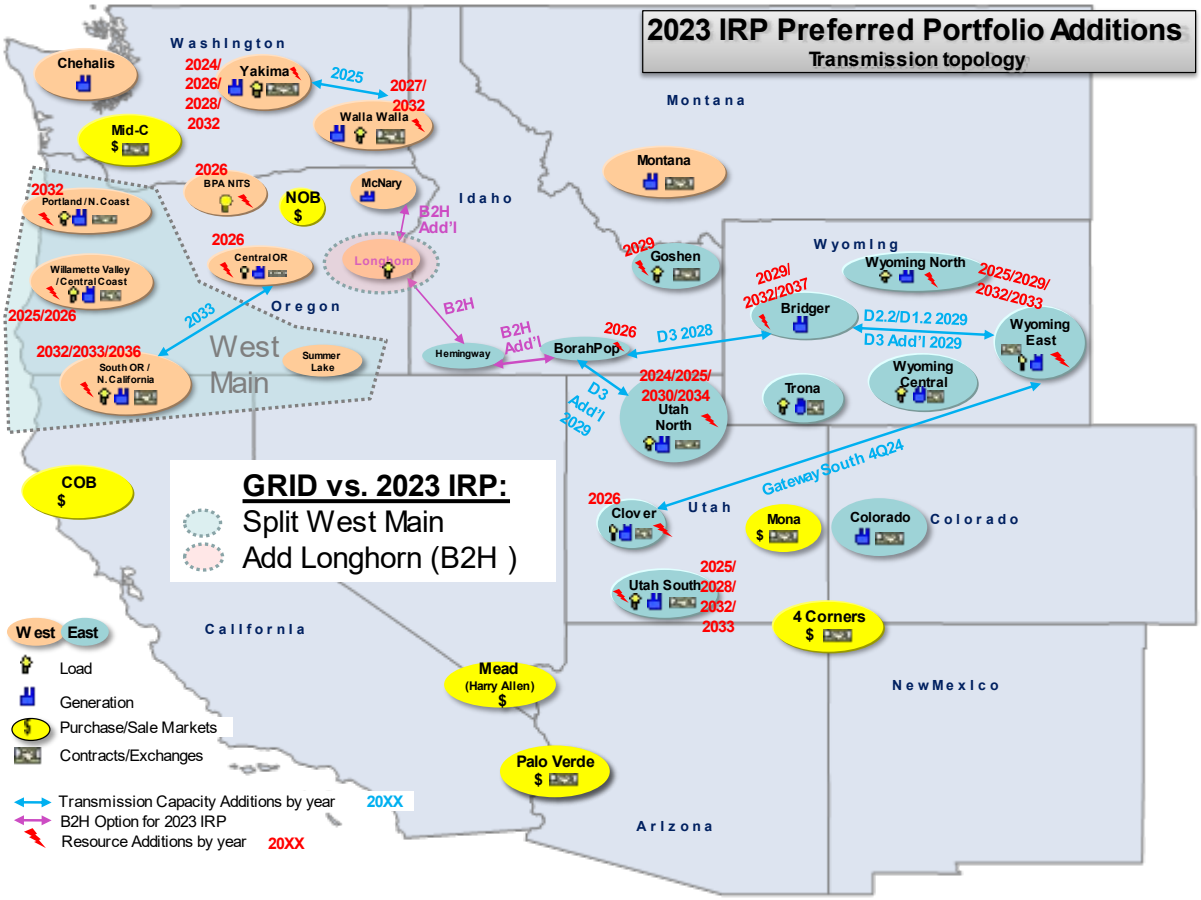
1. **Official Forward Price Curve (OFPC)** – Update to prices dated June 30, 2023 (2306 OFPC).

2. **Qualifying Facility (QF) Queue** – Update of signed contract queue and current potential QFs. The QF queue has decreased to 374 MW nameplate in this filing. The potential QF queue was 352 MW nameplate in the 2023.Q1 filing.

3. **2023 Integrated Resource Plan (IRP)** – Incorporate assumptions from the 2023 IRP, filed on May 31, 2023, including the preferred portfolio, resource costs and tax credits, transmission topology, and load forecast.

Possible Classification as a Non-Routine Update

Incorporating resources and transmission from the 2023 IRP preferred portfolio requires the addition of transmission bubbles to the GRID topology within the state of Oregon. First, a new transmission bubble is necessary to represent the Boardman-To-Hemingway ("B2H") transmission project along with associated contractual arrangements and connections to the rest of PacifiCorp's transmission system. Second, the 2023 IRP identified proxy resource additions at several distinct locations in Oregon that were previously modeled in GRID within a single "West Main" transmission area. A figure showing the changes between GRID and the 2023 IRP transmission topology is provided below.



The designation of Routine and Non-Routine updates was addressed in the Settlement Agreement on Schedule 38 Procedures in Utah Docket No. 14-035-140, which was approved by the Commission on June 9, 2015.[1] The settlement identifies that an update to "the timing and nature of resources in the preferred portfolio reflected in a Commission-

[1] PUBLIC SERVICE COMMISSION OF UTAH, Docket No. 14-035-140. ORDER APPROVING SETTLEMENT AGREEMENT ON SCHEDULE 38 PROCEDURES, June 9, 2015.
http://pscdocs.utah.gov/electric/14docs/14035140/266796140351400asaostep.pdf

filed Integrated Resource Plan ("IRP") or "IRP update" would be considered Routine. The settlement also identifies that an update "adding a transmission bubble to the GRID topology" is considered Non-Routine. The 2023 IRP update thus includes both Routine and Non-Routine aspects. Unfortunately, the Company cannot readily incorporate the 2023 IRP preferred portfolio update without the transmission bubble additions. Because these changes are identified in the filed 2023 IRP and are directly related to resources and transmission selected as part of the preferred portfolio, the Company has classified them as Routine.

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 2023 IRP filed with the Commission on September 30, 2023. The 2023 IRP preferred portfolio includes cost-effective solar with storage, wind, wind with storage, stand-alone storage and thermal resources. The thermal QF resource partially displaces summer and winter front office transactions ("FOTs") during 2024-2029, and the Utah North non-emitting peaking resource in 2030. The tracking solar QF resource partially displaces summer and winter FOTs during 2024 and the Utah South solar resource in 2025. The wind QF resource partially displaces summer and winter FOTs during 2024 and a Utah North wind resource in 2025.

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 32.2 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:

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

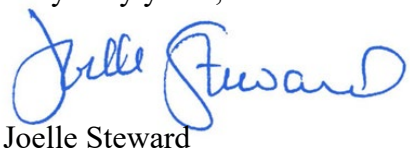
It is respectfully requested that all formal correspondence and requests regarding this compliance filing be addressed to:

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

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

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

Very truly yours,



Joelle Steward
Senior Vice President, Regulation and Customer/Community Solutions

cc: Service List (Docket No. 03-035-14)
Service List (Docket No. 23-035-28)

CERTIFICATE OF SERVICE

Docket No. 23-035-28/ Docket No. 03-035-14

I hereby certify that on September 27, 2023, a true and correct copy of the foregoing was served by electronic mail to the following:

Utah Office of Consumer Services

Michele Beck	mbeck@utah.gov
	ocs@utah.gov

Division of Public Utilities

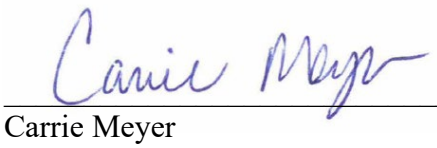
dpudatarequest@utah.gov

Assistant Attorney General

Patricia Schmid	pschmid@agutah.gov
Patrick Grecu	pgrecu@agutah.gov
Robert Moore	rmoore@agutah.gov

Rocky Mountain Power

Data Request Response Center	datarequest@pacificorp.com
Jana Saba	jana.saba@pacificorp.com utahdockets@pacificorp.com
Carla Scarsella	carla.scarsella@pacificorp.com



Carrie Meyer
Adviser, Regulatory Operations

Appendix A

ROCKY MOUNTAIN POWER

DESCRIPTION OF AVOIDED COST INPUT CHANGES

2023.Q2 – September 2023

Appendix A

PacifiCorp Avoided Cost
Partial Displacement Differential Revenue Requirement ("PDDRR")
Model Updates through September 2023
Docket 23-035-28 / Docket 03-035-14

Assumptions that have changed since the 2023.Q1 compliance filing are in **bold and underline.**

GRID Scenario Study Period

- January 1, **2024** through December 31, **2038** - 15-year study.
- Avoided cost prices starting in January 2024.

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

- **Updated to PacifiCorp's June 30, 2023 OFPC ("2306 OFPC")**
- Hourly Market Price Scalars consistent with **2023 Integrated Resource Plan ("IRP")**

Fuel Prices (Coal)

- Average and incremental coal costs consistent with **2023 Integrated Resource Plan ("IRP").**
- Coal burn expense reflects incremental coal costs and coal take or pay minimum burn levels.

IRP Resources

- **2023 IRP filed with the Public Service Commission of Utah ("UPSC") on May 31, 2023.**[1]
- New solar, wind, battery storage, and thermal resources; as well as front office transactions ("FOT"), consistent with **2023 IRP.**
- Existing plant retirements consistent with **2023 IRP**.
- Transmission investment and capacity changes consistent with **2023 IRP (Table 1.1 and 1.2).**[2]

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")

[1]2021 Integrated Resource Plan Update. Available online at: https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2021_IRP_Update.pdf

[2]2023 IRP, Volume I. page 12-13: Table 1.1-1.2.

on behalf of ratepayers. When a QF's avoided capacity costs are not based on the costs of a renewable resource, the QF is entitled to the RECs associated with its output.

Hydro Resources

- Hydro forecast prepared June 2022.
- 2021 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

- **6.77 percent discount rate - 2023 IRP**
- Discount rate is consistent with the Commission's order in Docket 11-035-T06.

Inflation Rates

- **2.27% percent inflation rate - 2023 IRP**

Levelized Prices (Nominal) at 6.77 percent Discount Rate

- 15 years **2024** through **2038**.
- Levelized prices are for illustrative purposes only.

Load Forecast (Retail)

- **20-year load forecast dated June 21, 2023.**

Long-Term Contracts

- Long-term contracts which have prices that are indexed to market are consistent with the **2306 OFPC.**
- Contracts are modeled based on 48 months ended December 2021.
- 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 2023.
- 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 **2023 IRP**.
- The Company's 2023 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 **2023 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 January 2023.

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 32.2 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 reflects 48 months ended June 2022. Planned outages are based on 48 months ended June 2022. Heat rates incorporate historical data plus assumptions from the **2023 IRP**.

Wind and Solar Resources

- Existing wind and solar generation profiles modeled using generation shapes derived from 2018 actuals as modeled in the **2023 IRP**.[1,2]

- Wind and solar generation shaped to hourly using generation shapes derived from 2018 actuals as modeled in the **2023 IRP**.[3,4]
- Non-PTC and PTC wind and solar resources can be curtailed on an economic basis within the GRID model.[5]
- 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 2021.
- Transmission investment and capacity changes consistent with **2023 IRP**.

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 **2023 IRP**.

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 - 658 - UT - Solar	12.05	80.00	29.9%	15.1%	2025 12 01
2	QF - 671 - WY - Solar	29.81	74.90	32.8%	39.8%	2026 01 01
3	QF - 670 - WA - Gas	4.68	9.50	74.1%	49.3%	2026 01 01
4	QF - 656 - UT - Solar	12.88	60.00	25.8%	21.5%	2024 01 01
5	QF - 526 - WY - Gas	0.00	13.30	85.0%	0.0%	2024 01 01
6	QF - 433 - UT - Gas	0.00	31.80	58.2%	0.0%	2024 01 01
7	QF - 434 - UT - Gas	0.00	6.20	85.0%	0.0%	2024 01 01
8	Exxon Mobil	0.00	98.00	75.0%	0.0%	2024 01 01
Total Potential MW		59.42	373.70			
Total Partial Displacement		**59.42**	**373.70**			
9	Utah 2023.Q2	100.00	100.00	100.0%	100.0%	2022 01 01
Partial Displacement after QF		**159.42**	**473.70**			

[3] 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.

[4] 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.

[5] 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 **2024-2029** and Utah North non-emitting Peaker resource in **2030**.
- Tracking Solar: **143 MW nameplate** of solar resources are displaced by the QF queue. After degradation and accounting for capacity contribution, the incremental solar QF displaces **79 MW** of solar resource located in **Utah South in 2025** from the **2023 IRP** preferred portfolio. The Company retains 100% of the RECs starting in **2025**.
- Wind: **0** MW nameplate of wind resources are displaced by the QF queue. The incremental wind QF displaces the **49** MW of **2025** wind resource located in **western Wyoming (Utah North transmission area)** from the **2023 IRP** preferred portfolio. The Company retains 100% of the RECs starting in **2025**.

IRP Partial Displacements (Previous Filing)

Total partial displacement was 352 MW in the base case and 452 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	Capacity Contribution	Start Date	Contract Name	Status	Transmission Bubble	QF Queue Date	Degradation Rate	Degradation Method
1	Sunnyside Solar QF	0.4	4.99	9.0%	2023 09 30		Signed	Yakima			
2	Schumann Wind NonRenewable	2.63	8.00	32.9%	2022 02 01		Signed	West Main			
3	Simplot Phosphates	0.0	13.3	0.0%	2023 01 01		Signed	Wyoming Central			
4	Kennecott Smelter Non Firm	0.0	31.8	0.0%	2023 01 01		Signed	Utah North			
5	Kennecott Refinery Non Firm	0.00	6.20	0.0%	2023 01 01		Signed	Utah North			
6	Tesoro Non Firm	0.0	25.0	0.0%	2023 01 01		Signed	Utah North			
7	Exxon Mobil	0.0	98.0	0.0%	2023 01 01		Signed	Trona			
Total Signed MW		3.08	187.29								
No.	Potential QF Contracts	Partial Displacement	Name plate	Capacity Contribution	Start Date						
1	QF - 658 - UT - Solar	12.05	80.00	15.1%	2025 12 01	QF - 658 - UT - Solar	Active	Utah North	2022 11 18	0.50%	Prior Year
2	QF - 671 - WY - Solar	29.81	74.90	39.8%	2026 01 01	QF - 671 - WY - Solar	Active	Wyoming East	2023 04 25	0.50%	Prior Year
3	QF - 670 - WA - Gas	0.19	9.50	2.0%	2026 01 01	QF - 670 - WA - Gas	Active	Walla Walla	2023 04 26	0.50%	Prior Year
Total Potential MW		42.05	164.40								
Total Partial Displacement		**45.13**	**351.69**								
4	Utah 2023.Q1	100.00	100.00	# 100.0%	2023 01 01	Avoided Cost Resource	Active	Utah North	2018 01 26	0.00%	Prior Year
Partial Displacement after QF		**145.13**	**451.69**								

Appendix B

ROCKY MOUNTAIN POWER

UPDATE IMPACT – UPDATED AVOIDED COST STUDY

2023.Q2 – SEPTEMBER 2023

Appendix B.1

Avoided Cost Prices $/MWh
Utah 2023.Q2 Sch 38

Year	Thermal UT 2023.Q2 100% CF (2)	Solar Tracking UT 2023.Q2 32.25% CF (2)	Wind UT 2023.Q2 29.5% CF (2)	Thermal UT 2023.Q1 100% CF (2)	Solar Tracking UT 2023.Q1 32.25% CF (2)	Wind UT 2023.Q1 29.5% CF (2)	Thermal Difference	Solar Tracking Difference	Wind Difference
2024	$48.39	$31.73	$45.77	$74.14	$38.44	$63.48	($25.75)	($6.71)	($17.71)
2025	$30.44	$11.95	$19.68	$54.84	$26.49	$47.12	($24.40)	($14.54)	($27.44)
2026	$23.47	$11.27	$17.83	$54.32	$28.73	$37.81	($30.85)	($17.46)	($19.97)
2027	$28.04	$11.90	$17.93	$45.38	$29.88	$36.77	($17.34)	($17.98)	($18.84)
2028	$26.06	$31.95	$18.18	$45.01	$33.38	$36.89	($18.95)	($1.43)	($18.72)
2029	$21.39	$31.62	$20.54	$46.15	$35.35	$38.54	($24.76)	($3.74)	($17.99)
2030	$42.79	$36.13	$21.66	$47.36	$36.55	$39.57	($4.57)	($0.42)	($17.91)
2031	$49.09	$40.56	$21.04	$55.04	$36.89	$40.51	($5.95)	$3.67	($19.47)
2032	$29.18	$29.22	$16.90	$53.07	$31.99	$38.31	($23.89)	($2.78)	($21.42)
2033	$35.03	$25.70	$15.95	$49.49	$34.94	$37.89	($14.47)	($9.24)	($21.95)
2034	$34.84	$25.02	$16.23	$50.49	$36.84	$38.44	($15.65)	($11.82)	($22.22)
2035	$44.38	$56.51	$55.36	$51.09	$38.06	$39.70	($6.70)	$18.45	$15.66
2036	$48.71	$64.29	$59.76	$52.79	$41.55	$56.09	($4.08)	$22.73	$3.67
2037	$51.49	$65.76	$63.45	$59.40	$43.78	$56.24	($7.91)	$21.99	$7.21
2038	$54.20	$67.95	$64.32	$61.58	$43.06	$57.12	($7.38)	$24.90	$7.19
15-Year Levelized Prices (Nominal) @ 6.77% Discount Rate (1) (3)									
2024-2038 $/MWh	$36.22	$31.76	$28.87	$54.50	$34.45	$44.59	($18.28)	($2.69)	($15.72)
							-33.5%	-7.8%	-35.3%

Footnotes:
(1) Discount Rate - 2023 IRP
(2) Total Avoided Costs with Capacity, based on stated CF
(3) 15-Years: 2024 - 2038, levelized monthly

Appendix B.2

Avoided Cost Prices $/MWh
Utah 2023.Q2 Sch 38

Year	Thermal UT 2023.Q2 100% CF (2)	Solar Tracking UT 2023.Q2 32.25% CF (2)	Wind UT 2023.Q2 29.5% CF (2)	Thermal UT 2023.Q1 100% CF (2)	Solar Tracking UT 2023.Q1 32.25% CF (2)	Wind UT 2023.Q1 29.5% CF (2)	Thermal Difference	Solar Tracking Difference	Wind Difference
2024	$48.39	$31.73	$45.77	$74.14	$38.44	$63.48	($25.75)	($6.71)	($17.71)
2025	$30.44	$11.95	$19.68	$54.84	$26.49	$47.12	($24.40)	($14.54)	($27.44)
2026	$23.47	$11.27	$17.83	$54.32	$28.73	$37.81	($30.85)	($17.46)	($19.97)
2027	$28.04	$11.90	$17.93	$45.38	$29.88	$36.77	($17.34)	($17.98)	($18.84)
2028	$26.06	$31.95	$18.18	$45.01	$33.38	$36.89	($18.95)	($1.43)	($18.72)
2029	$21.39	$31.62	$20.54	$46.15	$35.35	$38.54	($24.76)	($3.74)	($17.99)
2030	$42.79	$36.13	$21.66	$47.36	$36.55	$39.57	($4.57)	($0.42)	($17.91)
2031	$49.09	$40.56	$21.04	$55.04	$36.89	$40.51	($5.95)	$3.67	($19.47)
2032	$29.18	$29.22	$16.90	$53.07	$31.99	$38.31	($23.89)	($2.78)	($21.42)
2033	$35.03	$25.70	$15.95	$49.49	$34.94	$37.89	($14.47)	($9.24)	($21.95)
2034	$34.84	$25.02	$16.23	$50.49	$36.84	$38.44	($15.65)	($11.82)	($22.22)
2035	$44.38	$56.51	$55.36	$51.09	$38.06	$39.70	($6.70)	$18.45	$15.66
2036	$48.71	$64.29	$59.76	$52.79	$41.55	$56.09	($4.08)	$22.73	$3.67
2037	$51.49	$65.76	$63.45	$59.40	$43.78	$56.24	($7.91)	$21.99	$7.21
2038	$54.20	$67.95	$64.32	$61.58	$43.06	$57.12	($7.38)	$24.90	$7.19
15-Year Levelized Prices (Nominal) @ 6.77% Discount Rate (1) (3)									
2024-2038 $/MWh	$36.22	$31.76	$28.87	$54.50	$34.45	$44.59	($18.28)	($2.69)	($15.72)
							-33.5%	-7.8%	-35.3%

Footnotes:
(1) Discount Rate - 2023 IRP
(2) Total Avoided Costs with Capacity, based on stated CF
(3) 15-Years: 2024 - 2038, levelized monthly

Appendix B.3

Avoided Cost Prices $/MWh
Utah 2023.Q2 Sch 38

Year	Thermal UT 2023.Q2 100% CF (2)	Solar Tracking UT 2023.Q2 32.25% CF (2)	Wind UT 2023.Q2 29.5% CF (2)	Thermal UT 2023.Q1 100% CF (2)	Solar Tracking UT 2023.Q1 32.25% CF (2)	Wind UT 2023.Q1 29.5% CF (2)	Thermal Difference	Solar Tracking Difference	Wind Difference
2024	$48.39	$31.73	$45.77	$74.14	$38.44	$63.48	($25.75)	($6.71)	($17.71)
2025	$30.44	$11.95	$19.68	$54.84	$26.49	$47.12	($24.40)	($14.54)	($27.44)
2026	$23.47	$11.27	$17.83	$54.32	$28.73	$37.81	($30.85)	($17.46)	($19.97)
2027	$28.04	$11.90	$17.93	$45.38	$29.88	$36.77	($17.34)	($17.98)	($18.84)
2028	$26.06	$31.95	$18.18	$45.01	$33.38	$36.89	($18.95)	($1.43)	($18.72)
2029	$21.39	$31.62	$20.54	$46.15	$35.35	$38.54	($24.76)	($3.74)	($17.99)
2030	$42.79	$36.13	$21.66	$47.36	$36.55	$39.57	($4.57)	($0.42)	($17.91)
2031	$49.09	$40.56	$21.04	$55.04	$36.89	$40.51	($5.95)	$3.67	($19.47)
2032	$29.18	$29.22	$16.90	$53.07	$31.99	$38.31	($23.89)	($2.78)	($21.42)
2033	$35.03	$25.70	$15.95	$49.49	$34.94	$37.89	($14.47)	($9.24)	($21.95)
2034	$34.84	$25.02	$16.23	$50.49	$36.84	$38.44	($15.65)	($11.82)	($22.22)
2035	$44.38	$56.51	$55.36	$51.09	$38.06	$39.70	($6.70)	$18.45	$15.66
2036	$48.71	$64.29	$59.76	$52.79	$41.55	$56.09	($4.08)	$22.73	$3.67
2037	$51.49	$65.76	$63.45	$59.40	$43.78	$56.24	($7.91)	$21.99	$7.21
2038	$54.20	$67.95	$64.32	$61.58	$43.06	$57.12	($7.38)	$24.90	$7.19
15-Year Levelized Prices (Nominal) @ 6.77% Discount Rate (1) (3)									
2024-2038 $/MWh	$36.22	$31.76	$28.87	$54.50	$34.45	$44.59	($18.28)	($2.69)	($15.72)
							-33.5%	-7.8%	-35.3%

Footnotes:
(1) Discount Rate - 2023 IRP
(2) Total Avoided Costs with Capacity, based on stated CF
(3) 15-Years: 2024 - 2038, levelized monthly

Appendix C

ROCKY MOUNTAIN POWER

STEP STUDY BETWEEN PRIOR FILING AND CURRENT FILING

2023.Q2 – SEPTEMBER 2023

Appendix C

Utah Quarterly Compliance Filing
Step Study between 2023.Q1 and 2023.Q2 Compliance Filing
Avoided Cost Impact of Changing Assumptions $/MWH (1)

Year	OFPC (2)	Queue	2023IRP	Total Impact
2024	$ (4.57)	$ (0.20)	$ (20.99)	$ (25.75)
2025	$ (3.59)	$ (0.02)	$ (20.79)	$ (24.40)
2026	$ (0.91)	$ (0.61)	$ (29.33)	$ (30.85)
2027	$ 1.46	$ (0.29)	$ (18.51)	$ (17.34)
2028	$ (2.07)	$ (0.09)	$ (16.79)	$ (18.95)
2029	$ (2.31)	$ (0.05)	$ (22.40)	$ (24.76)
2030	$ (1.91)	-	$ (2.66)	$ (4.57)
2031	$ (1.53)	$ 0.04	$ (4.47)	$ (5.95)
2032	$ (1.79)	$ 0.08	$ (22.18)	$ (23.89)
2033	$ (1.34)	$ 0.09	$ (13.22)	$ (14.47)
2034	$ (1.59)	$ 0.11	$ (14.18)	$ (15.65)
2035	$ (2.06)	$ 0.11	$ (4.75)	$ (6.70)
2036	$ (2.18)	$ 0.13	$ (2.03)	$ (4.08)
2037	$ (3.91)	$ 0.10	$ (4.09)	$ (7.91)
2038	$ (3.64)	$ 0.15	$ (3.89)	$ (7.38)
2039	$ (4.33)	$ 0.13	$ (3.65)	$ (7.85)
2040	$ (4.78)	$ 0.12	$ (2.47)	$ (7.13)

Nominal Levelized Payment at 6.770% Discount Rate (3)

2024 - 2038	$ (2.11)	$ (0.07)	$ (15.15)	$ (17.33)
2025 - 2039	$ (1.93)	$ (0.05)	$ (14.05)	$ (16.03)
2026 - 2040	$ (1.86)	$ (0.05)	$ (12.85)	$ (14.76)

(1) Studies are sequential. The order of the studies would affect the price impact.
(2) Official Forward Price Curve Dated June 2023
(3) Discount Rate - 2023 IRP - Calculated Annually
(4) Capacity costs are allocated based on assumed 100% capacity factor.
(5) Avoided Capacity costs are bsed on Partial Displacement of non-emitting Peaker in 2030 from 2023 IRP Preferred Portfolio.

Appendix C

Utah Quarterly Compliance Filing
Step Study between 2023.Q1 and 2023.Q2 Compliance Filing
Total Avoided Cost Prices $/MWH (1) (4)

Year	2023.Q2 As Filed	OFPC (2)	Queue	2023IRP (5)
2024	$74.14	$69.58	$69.38	$48.39
2025	$54.84	$51.25	$51.23	$30.44
2026	$54.32	$53.41	$52.81	$23.47
2027	$45.38	$46.84	$46.55	$28.04
2028	$45.02	$42.95	$42.85	$26.06
2029	$46.15	$43.84	$43.79	$21.39
2030	$47.36	$45.45	$45.45	$42.79
2031	$55.04	$53.52	$53.56	$49.09
2032	$53.08	$51.29	$51.36	$29.19
2033	$49.50	$48.16	$48.25	$35.03
2034	$50.49	$48.90	$49.02	$34.84
2035	$51.09	$49.03	$49.14	$44.38
2036	$52.79	$50.61	$50.74	$48.71
2037	$59.40	$55.49	$55.58	$51.49
2038	$61.58	$57.94	$58.09	$54.20
2039	$64.04	$59.71	$59.84	$56.19
2040	$67.61	$62.83	$62.96	$60.49
Nominal Levelized Payment at 6.770% Discount Rate (3)				
2024 - 2038	$53.62	$51.51	$51.44	$36.29
2025 - 2039	$51.82	$49.89	$49.84	$35.79
2026 - 2040	$52.13	$50.27	$50.22	$37.37

(1) Studies are sequential. The order of the studies would affect the price impact.
(2) Official Forward Price Curve Dated June 2023
(3) Discount Rate - 2023 IRP - Calculated Annually
(4) Capacity costs are allocated based on assumed 100% capacity factor.
(5) Avoided Capacity costs are bsed on Partial Displacement of non-emitting Peaker in 2030 from 2023 IRP Preferred Portfolio.

Discount Rate - 2023 IRP
6.770%

Appendix C

Utah Quarterly Compliance Filing
Step Study between 2023.Q1 and 2023.Q2 Compliance Filing
GRID Calculated Energy Avoided Cost Prices $/MWH (1)

Year	2023.Q2 As Filed	OFPC (2)	Queue	2023IRP (4)
2024	$74.14	$69.58	$69.38	$48.39
2025	$54.84	$51.25	$51.23	$30.44
2026	$54.32	$53.41	$52.81	$23.47
2027	$45.38	$46.84	$46.55	$28.04
2028	$45.02	$42.95	$42.85	$26.06
2029	$46.15	$43.84	$43.79	$21.39
2030	$47.36	$45.45	$45.45	$25.26
2031	$41.43	$39.90	$39.94	$31.16
2032	$39.20	$37.41	$37.49	$10.90
2033	$35.29	$33.95	$34.04	$16.28
2034	$35.98	$34.39	$34.50	$15.66
2035	$36.26	$34.20	$34.31	$24.77
2036	$37.68	$35.50	$35.63	$28.70
2037	$43.93	$40.01	$40.11	$30.98
2038	$45.77	$42.13	$42.28	$33.22
2039	$47.90	$43.56	$43.69	$34.74
2040	$51.16	$46.38	$46.51	$38.60
Nominal Levelized Payment at 6.77% Discount Rate (3)				
2024 - 2038	$47.61	$45.51	$45.44	$27.16
2025 - 2039	$44.75	$42.82	$42.77	$25.17
2026 - 2040	$43.92	$42.06	$42.01	$25.14

(1) Studies are sequential. The order of the studies would affect the price impact.
(2) Official Forward Price Curve Dated June 2023
(3) Discount Rate - 2023 IRP - Calculated Annually

Appendix C

Utah Quarterly Compliance Filing
Step Study between 2023.Q1 and 2023.Q2 Compliance Filing
Capacity Avoided Cost Prices

	$/kW-Year				$/MWH (1)			
Year	**2023.Q2**	**OFPC**	**Queue**	**2023.Q1**	**2023.Q2**	**OFPC**		**2023.Q1**
2024	-	-	-	-	-	-	-	-
2025	-	-	-	-	-	-	-	-
2026	-	-	-	-	-	-	-	-
2027	-	-	-	-	-	-	-	-
2028	-	-	-	-	-	-	-	-
2029	-	-	-	-	-	-	-	-
2030	-	-	-	$ 153.59	-	-	-	$ 17.53
2031	$ 119.29	$ 119.29	$ 119.29	$ 157.08	$ 13.62	$ 13.62	$ 13.62	$ 17.93
2032	$ 121.85	$ 121.85	$ 121.85	$ 160.64	$ 13.87	$ 13.87	$ 13.87	$ 18.29
2033	$ 124.48	$ 124.48	$ 124.48	$ 164.28	$ 14.21	$ 14.21	$ 14.21	$ 18.75
2034	$ 127.16	$ 127.16	$ 127.16	$ 168.02	$ 14.52	$ 14.52	$ 14.52	$ 19.18
2035	$ 129.90	$ 129.90	$ 129.90	$ 171.83	$ 14.83	$ 14.83	$ 14.83	$ 19.62
2036	$ 132.70	$ 132.70	$ 132.70	$ 175.74	$ 15.11	$ 15.11	$ 15.11	$ 20.01
2037	$ 135.56	$ 135.56	$ 135.56	$ 179.72	$ 15.47	$ 15.47	$ 15.47	$ 20.52
2038	$ 138.47	$ 138.47	$ 138.47	$ 183.80	$ 15.81	$ 15.81	$ 15.81	$ 20.98
2039	$ 141.46	$ 141.46	$ 141.46	$ 187.97	$ 16.15	$ 16.15	$ 16.15	$ 21.46
2040	$ 144.51	$ 144.51	$ 144.51	$ 192.24	$ 16.45	$ 16.45	$ 16.45	$ 21.88
Nominal Levelized Payment at 6.770% Discount Rate (2)								
2024 - 2038	$52.65	$52.65	$52.65	$80.09	$6.01	$6.01	$6.01	$9.14
2025 - 2039	$61.94	$61.94	$61.94	$93.13	$7.07	$7.07	$7.07	$10.62
2026 - 2040	$71.99	$71.99	$71.99	$107.22	$8.21	$8.21	$8.21	$12.23

(1) Capacity costs are allocated based on assumed 100% capacity factor.
(2) Official Forward Price Curve Dated June 2023
(3) No Capacity costs - No deferrable thermal resources