Application No. 23-09-___
Exhibit No. PAC/100-C
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Direct Testimony of Ramon J. Mitchell

[PUBLIC VERSION]

September 2023

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ATTACHED EXHIBITS

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, business address, and present position with PacifiCorp d/b/a Pacific Power (PacifiCorp or Company).

A. My name is Ramon J. Mitchell and my business address is 825 NE Multnomah Street, Suite 600, Portland, Oregon 97232. My title is Manager, Net Power Costs.

Q. Briefly describe your education and business experience.

A. I received a Master of Business Administration degree from the University of Portland and a Bachelor of Arts degree in Economics from Reed College. I was first employed by the Company in 2015 and during my time at the Company I have held various positions in the regulation, merchant, and transmission departments. After a brief departure from the Company, in 2021 I returned to the Company as Manager, Net Power Costs. In my current role I am responsible for leading and overseeing various efforts associated with the Company's net power costs (NPC) filings.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have previously provided testimony to the California Public Utilities Commission (Commission), as well as commissions in Oregon, Washington, and Wyoming.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding.

A. I present an overview of the Company's proposed Energy Cost Adjustment Clause (ECAC) for calendar year 2024 (2024 ECAC). Specifically, my testimony:

- Presents an overview of the ECAC and the relevant time periods associated with the ECAC's Offset and Balancing rates;

- Describes how the Company calculates 2024 Projected Net Power Costs (NPC) using the Company's production cost model, Aurora;
- Presents the 2024 Projected NPC, which are used to develop the 2024 Offset Rate;
- Compares the 2024 Projected NPC to the 2023 Projected NPC from the 2023 ECAC;
- Provides supplemental analyses on three coal cycling scenarios and additional fuel source and generation information; and
- Discusses benefits from the Company's participation in the energy imbalance market (EIM) with the California Independent System Operator (CAISO) and that are passed through to customers in each ECAC.

III. OVERVIEW OF PACIFICORP'S ECAC

Q. What is the purpose of the Company's ECAC?

A. Generally, PacifiCorp's ECAC tariff provides dollar-for-dollar recovery of NPC and fuel stock carrying charges, and is trued-up monthly for actual NPC compared to forecasted NPC that are reflected in current ECAC rates. The ECAC provides PacifiCorp the opportunity to recover NPC in a timely and efficient manner, which allows PacifiCorp to continue to provide adequate, safe, and reliable service to its California customers.

Q. What are the main components of the ECAC?

A. PacifiCorp's ECAC includes two primary billing determinants, the ECAC Offset Rate and the ECAC Balancing Rate, that are based on three time periods: the Offset Period, the Balancing Period, and the Intermediate Period. I discuss each billing determinant and time period below.

A. ECAC Offset Rate

Q. What is the purpose of the ECAC Offset Rate?

A. The Offset Rate accounts for forecasted NPC and fuel stock carrying charges that are anticipated for the upcoming ECAC period. The Offset Rate is an unbundled rate that is established either during the most recent California general rate case, or between general rate cases if the new Offset Rate changes by more than 5 percent from current rates. The Offset Rate is equal to the Offset Period's California-allocated Projected NPC plus Other Costs for Recovery, all divided by California projected sales and adjusted for the ECAC billing factor (which is the adjustment rate for franchise fees and uncollectible accounts expenses from the most recent general rate case).

Q. What is Projected NPC?

A. Projected NPC is the total-company sum of forecasted NPC components that are calculated by the Company's power cost model. The Projected NPC spans the entirety of the Intermediate and Offset Periods.

Q. Can you describe what costs are included in Other Costs for Recovery?

A. Other Costs for Recovery are costs other than NPC that the Commission has permitted the Company to recover through the ECAC. These include, on a California allocated basis as necessary: payments (or bill credits) for net surplus compensation expenses; renewable energy production tax credits; California Air Resources Board (CARB) implementation fees; fuel stock carrying charges; purchases of renewable energy certificates for renewables portfolio standard compliance; start-up fuel costs; mandatory reporting and verification costs associated with the annual greenhouse gas emissions report(s) submitted to CARB; EIM body of state regulators costs; and Western Power Pool western resource adequacy program costs.

B. ECAC Balancing Rate

Q. What is the purpose of the ECAC Balancing Rate?

A. The ECAC Balancing Rate either returns to, or recovers from, customers the difference between the actual NPC and the forecasted NPC reflected in PacifiCorp's ECAC balancing account from the previous tracking period. Specifically, the Balancing Rate is the Balancing Period's California-allocated share of the difference between prior ECACs' Projected NPC and Adjusted Actual/Projected NPC, plus Other Costs for Recovery (all adjusted by California actual sales) and divided by California projected sales and adjusted for the ECAC billing factor.

Q. What is Adjusted Actual NPC?

A. NPC are defined as the sum of the Company's fuel expenses, wholesale purchase power expenses, and wheeling expenses, less wholesale sales revenue. Adjusted Actual NPC are the sum of total-company amounts recorded in Federal Energy Regulatory Commission Accounts 501, 503 and 547 (Steam Production Fuel Expense) for the Company's coal, geothermal, and natural gas resources; 555 (Purchased Power); and 565 (Wheeling); less Account 447 (Sales for Resale). Additionally, in the ECAC, the Company proposes to expand the ECAC to include the recovery of future costs from FERC Account 509 (Allowances), as further explained in the testimony of Company witness Jack Painter. These Adjusted Actual NPC amounts are adjusted to: (1) align booked NPC in those accounts with NPC used in the rate setting process, ensuring only comparable costs are used in the deferral calculation; and (2) remove prior-period accounting entries, if any, recorded during the deferral period that are not applicable to the current period.

Q. What is Adjusted Actual/Projected NPC?

A. Adjusted Actual/Projected NPC is the combination of Adjusted Actual NPC for the portion of the Balancing Period for which Adjusted Actual NPC has been recorded and the Projected NPC for the remainder of the Balancing Period (this remainder is the Intermediate Period).

C. ECAC Time Periods

Q. What are the relevant time periods for PacifiCorp's ECAC?

A. PacifiCorp's ECAC includes three relevant time periods: the Offset Period, the Balancing Period, and the Intermediate Period. Each time period establishes the relevant period to determine the Company's Offset or Balancing Rates.

Q. In this filing, what time period does the Offset Period represent?

A. The Offset Period includes the 12-month period beginning January 1, 2024, and extending through December 31, 2024 (i.e., calendar year 2024). The Offset Period is the rate effective period.

Q. In this filing, what time period does the Balancing Period represent?

A. The Balancing Period includes the 24-month period beginning January 1, 2022, and extending through December 31, 2023 (i.e., calendar years 2022 and 2023).

Q. In this filing, what time period does the Intermediate Period represent?

A. The Intermediate Period includes the portion of the Balancing Period from June 1, 2023, through December 31, 2023.

Q. What time periods are relevant to the ECAC Balancing Rate?

A. The ECAC Balancing Rate is based on both the Balancing and Intermediate Periods, which include January 1, 2022, to December 31, 2023.

Q. Which NPC are compared in the Balancing Period for the ECAC Balancing Rate (January 1, 2022, to May 31, 2023)?

A. The Balancing Period (January 1 to May 31, 2022) includes (1) the 2022 Projected NPC from the 2022 ECAC which is compared to the 2022 Adjusted Actual NPC, and (2) the 2023 Projected NPC from the 2023 ECAC which is compared to the 2023 Adjusted Actual NPC.

Q. Which NPCs are compared in the Intermediate Period for the ECAC Balancing Rate (June 1, 2023, to December 31, 2023)?

A. The Intermediate Period, includes the 2023 Projected NPC from the 2023 ECAC compared to the 2023 Projected NPC from this 2024 ECAC filing, for the time period June 1, 2023, to December 31, 2023.

Q. What are the benefits of a Balancing Rate that includes both the Balancing and Intermediate Periods?

A. As opposed to other states that have separate filings for offset and balancing rates, where each filing examines either the Offset Period or the first year of the Balancing Period, California's approach that requires rebalancing and truing up rates within the second year of the Balancing Period provides rate stability and avoids rate shock. For example, if there are significant changes in market prices that impact NPC during the second year of the Balancing period, PacifiCorp's combined re-balance and true-up of rates provides for incremental rate recovery that smooths out the effects from this market volatility. This avoids deferring intra-period rate changes to subsequent years, and potentially avoids accumulation of the deferred balance.

Q. Can you briefly describe how these time periods change each ECAC cycle?

A. Yes. Each year, the three periods advance one period. This means that the Company's: (1) current application includes a new Offset Period that was not included in the previous application; (2) the previous Offset and Intermediate Periods becomes the current application's Intermediate and Balancing Periods; and (3) the previous Balancing Period is no longer relevant to NPC in the current application. Please refer to Table 1 below for a representation of how these time periods change with each ECAC cycle in relation to each ECAC billing determinant.

Table 1 – Comparison of ECAC Billing Determinants and Time Periods

ECAC Rate:	Balancing Rate			Offset Rate
Time Period:	Calendar Year 2022	01/2023 – 05/2023	06/2023 – 12/2023	Calendar Year 2024
ECAC Period:	Balancing Period	Balancing Period	Intermediate Period	Offset Period
Prior ECAC Applications:	2022 Hybrid[1] NPC (2023 ECAC)	2023 (Jan - May) Projected NPC (2023 ECAC)	2023 (Jun - Dec) Projected NPC (2023 ECAC)	N/A
Current ECAC Application:	2022 Adjusted Actual NPC	2023 (Jan - May) Adjusted Actual NPC	2023 (Jun - Dec) Projected NPC	2024 Projected NPC

[1]The "2022 Hybrid NPC (2023 ECAC)" is the combination of the prior ECAC's 2022 (Jan - May) Adjusted Actual NPC and the prior ECAC's 2022 (Jun - Dec) Projected NPC.

IV. OVERVIEW OF PROPOSED RATES

Q. Please provide an overview of the ECAC filing.

A. In this 2024 ECAC filing, the Company is requesting to recover approximately $21.9 million through the Balancing Rate to true-up collection of actual NPC during 2022 and 2023. The change in the Balancing Rate results in a $23.4 million increase on a California-allocated basis compared to rates currently in effect.[1]

[1] Decision (D.) 23-08-030 (Sept. 1, 2023).

As shown in further detail in the testimony of Mr. Painter, the Company also proposes to adjust the Offset Rate to $48.14 per megawatt-hour (MWh), which is an increase of 53.7 percent from the $31.33 per MWh currently effective Offset Rate.[2] This is caused by Projected NPC that are 44 percent greater compared to total-company NPC proposed in the 2023 ECAC, and results in a rate increase of approximately $12.6 million on a California-allocated basis. The Company's proposed change to the Offset Rate for 2024 satisfies the Commission's requirement that only increases or decreases greater than five percent from prior rates are permitted.

Calculations of the Balancing Rate and Offset Rate are provided in the testimony of Mr. Painter (Exhibit PAC/200). If approved, the proposed rates would take effect March 1, 2024. Ms. Judith M. Ridenour provides testimony describing the impact on customer rates (Exhibit PAC/700).

V. 2024 PROJECTED NET POWER COSTS

Q. How does the Company calculate its Projected NPC?

A. Projected NPC are calculated for the Intermediate Period and the Offset Period based on forecasted data using the Aurora model, which is a production cost model that simulates the operation of the Company's power system on an hourly basis.

Q. Is the Company's general approach to the calculation of NPC using the Aurora model the same in this case as in the previous ECAC filing?

A. Yes. The Company used the Aurora model in its prior ECAC filing.

Q. What Aurora inputs were updated for this filing?

[2] *Id.*

A. Aurora model inputs were updated to include:

- Updates to the Company's forward price curves for electricity and natural gas prices with a vintage of March 31, 2023;
- New wholesale electricity sales and purchase transactions (including physical and financial);
- New natural gas sales and purchase transactions (including physical and financial);
- New wheeling contracts and updates to transmission paths and capacities, including on Company-owned transmission;
- Updates to existing contracts for wholesale sales and purchases of electricity and natural gas and for wheeling;
- New and updated coal supply and transportation contracts and costs;
- Updates to the capabilities of the Company's owned generation resources along with the cost to integrate wind generation, solar generation and load on the Company's system; and
- Updates to forecast load and reserve obligations.

Q. What reports does the Aurora model produce?

A. The major output from the Aurora model is the NPC report. The 2024 NPC report is attached as Exhibit PAC/101.

Q. Does the Aurora model appropriately reflect the Company's Projected NPC?

A. Yes. The Aurora model reasonably simulates the operation of the Company's system load and resource portfolio, consistent with the Company's system operation constraints and requirements. Any variances from Projected NPC are handled through the ECAC balancing account, where Projected NPC are trued up to Adjusted Actual NPC on a monthly basis.

Q. What is the Projected NPC for 2024?

A. The Company's Projected NPC for calendar year 2024 is $2.519 billion on a total-company basis, $38.5 million on a California-allocated basis. The Company's 2024 NPC study is provided as Exhibit PAC/101 and the California-allocated NPC is provided as Exhibit PAC/104.

VI. ECAC PROJECTED NPC COMPARISON

Q. Please summarize the major changes in Projected NPC between the 2023 ECAC projection of calendar year 2023, and this filing's projection of calendar year 2024.

A. Confidential Table 2 below details the differences between the calendar year 2023 Projected NPC from the prior filing, and the calendar year 2024 Projected NPC from this filing in dollars, whereas Confidential Table 3 details the differences in MWh.

[Begin Confidential]
Confidential Table 2

[redacted]

Confidential Table 3

[redacted]

[End Confidential]

Compared to the total-company Projected NPC in the 2023 ECAC, total-company Projected NPC in this 2024 ECAC are higher by 44 percent. There is an increase in forecasted wholesale sales revenue of **[Begin Confidential]** [redacted] **[End Confidential]** (which decreases NPC), the totality of which is offset by an increase in purchased power expense of approximately **[Begin Confidential]** [redacted] **[End Confidential]**. Coal fuel expense has decreased by **[Begin Confidential]** [redacted] **[End Confidential]** and natural gas fuel expense has increased by **[Begin Confidential]** [redacted] **End Confidential]**. Finally, wheeling and other expenses have decreased by **[Begin Confidential]** [redacted] **[End Confidential]**. The primary drivers of these changes are increased natural gas fuel prices, coal fuel prices and associated electricity market prices along with a decrease in coal supply availability.

These dynamics are reflected in the MWh changes between last ECAC's forecast of 2023 and this ECAC's forecast of 2024, where coal generation decreases because of decreased coal supply and natural gas generation increases to offset the reduced coal generation. For the remaining balance, wholesale sales decreases and purchased power increases to accommodate the increase in total-company load, the slight decline in other generation, and new environmental compliance requirements. This includes the gas conversion and associated outage at the Jim Bridger generating facility, the Washington Cap and Invest Program, and the deconstruction of multiple hydroelectric projects along the Klamath River.

These comparisons on a line-by-line basis at the monthly granularity are attached as Exhibit PAC/103 and the prior ECAC's 2023 forecast is attached as Exhibit PAC/102.

VII. SUPPLEMENTAL ANALYSES AND INFORMATION

Q. Has the Commission ordered the Company to provide supplemental information for future ECAC applications?

A. Yes. The Commission ordered the Company to: (1) provide additional information to increase transparency around the Company's NPC modeling; (2) provide and explain different coal cycling scenarios when estimating NPC, and consult with stakeholders to receive input on these studies prior to filing with the Commission; and (3) provide additional fuel source and coal generation data.[3] This section discusses these additional analyses and provides the supplemental information.

Q. Regarding the first requirement, can you describe the information that the Commission required to increase transparency around the Company's NPC

[3] D.22-11-008, Ordering Paragraphs 4–6, 8–9.

modeling?

A. Yes. The Commission directed the Company to produce the following information for future ECAC applications: (a) information on the marginal fuel cost assumed for each coal plant, the specific coal plants where adjustments were made to align forecasted generation with minimum take provisions, and the magnitude of adjustments made;[4] and (b) an Aurora model run that depicts the NPC when average fuel costs are utilized to forecast unit dispatch.[5]

Q. Have you provided the information requested by this first requirement?

A. Yes. The Aurora model used by the Company in this Application provides greater flexibility around the modeling of fuel consumption than the GRID model that the Company formerly used. Aurora can model multiple tiered pricing contracts and volumetric contract provisions, and has neither "dispatch tiers" nor "costing tiers" that the GRID model utilized. Consequently adjustments to marginal fuel cost assumed for each coal plant were not made in the preparation for this ECAC. Information on the marginal fuel cost assumed for each coal plant, as well as the Company's Aurora run that depicts NPC when average fuel costs are utilized to forecast unit dispatch, are provided in supporting workpapers.[6]

Q. Regarding the second requirement, can you please explain the coal cycling studies that the Commission directed PacifiCorp to provide?

[4] *Id.,* Ordering Paragraph 8.
[5] *Id.,* Ordering Paragraph 9.
[6] "CA_ECAC_2024_00_Base_NPC_Report CONF" Spreadsheet; "CA_ECAC_2024_01_Average Cost_NPC_Report CONF" Spreadsheet

A. Yes. For NPC purposes, the Commission directed the Company to provide studies that analyze coal cycling: (1) for particular generating units; (2) during particular times of the year; and (3) for all generating units during all times of the year.[7]

Q. Did the Company consult with its stakeholders to receive input on any additional supplemental coal cycling studies prior to filing?

A. Yes. In June of 2023, the Company contacted the parties from the Company's 2023 ECAC proceeding (including the Public Advocates Office and the California Farm Bureau Federation), as well as Sierra Club (who was not a party to the 2023 proceeding, but has historically been a party in the ECAC proceeding), and requested their input on these supplemental studies.

Q. Did any of the Company's stakeholders have any input on provide?

A. No. Because of this lack of interest, the Company subsequently asked whether any of the parties from the 2023 ECAC proceeding objected to the Company requested the Commission to remove these requirements for supplemental coal cycling studies going forward. None objected.

Q. What does the cycling of coal resources refer to?

A. The cycling of coal resources refers to providing the Company's production cost modeling software (Aurora) with the flexibility to evaluate the economic startup or shutdown of coal resources. When Aurora allows for cycling of coal-fired generation resources, it will determine whether or not to startup or shutdown a resource based on the economics of the plant compared to other alternatives. Specifically, Aurora will analyze whether the costs of starting up a coal unit and generating power over the

[7] D.22-11-008, Ordering Paragraph 4.

unit's minimum up time is greater than the next best alternative (other sources of generation or market transactions), while adhering to physical constraints for the unit's operation such as ramp rate, minimum up time, and minimum down time.

Q. Do you have definitions for minimum up and down times, and the ramp rate?

A. Yes. Minimum up time is defined as the number of hours that a unit must remain online after being turned on, and minimum down time is defined as the number of hours a unit must stay offline after it has been shut down. Ramp rate is defined as the speed at which a generator can increase generation within an hour.

Q. Please explain the scenarios that were evaluated.

A. Consistent with D.22-11-008, the Company evaluated the following scenarios: (1) cycling of all coal units during particular times of the year; (2) cycling of particular coal units during all times of the year; and (3) cycling of all coal units during all times of the year.

Q. Can you provide a general overview of the results of each scenario?

A. Yes. Similar to the results of the scenarios analyzed in the 2023 ECAC proceeding, the Company's NPC would substantially increase if PacifiCorp pursued any of the three coal cycling strategies.

For the first scenario, the Company analyzed economic cycling of three of the Company's large coal units (Hunter 3, Huntington 1 and Huntington 2), for the entire test period (2024). This resulted in substantial market purchases, and if PacifiCorp pursued this strategy, would increase NPC by $101.9 million for 2024.

In the second scenario, the Company analyzed economic cycling of all Company-owned coal units between Spring (March-May) and Fall (October-

November) of the test period (2024). If PacifiCorp pursued this strategy, it would result in more market purchases compared to scenario one, and would increase NPC by $139.4 million for 2024.

In the third scenario, the Company analyzed economic cycling of all Company-owned coal units for the entire test period (2024). If PacifiCorp pursued this strategy, it would increase NPC by $270.1 million for 2024.

Please see Confidential Exhibit PAC/105 which elaborates on each scenario, details the NPC impacts, provides an explanation of the results, and includes an appendix that provides additional discussions on how economic cycling can increase NPC in Aurora.

Q. Regarding the third requirement, can you please explain the additional fuel source and coal generation data that the Commission directed PacifiCorp to provide?

A. Yes. The Commission directed the Company to provide the following information for each of the Company's coal units: (1) "minimum take" or "fixed production cost" volume used in the net power cost (NPC) model for the current ECAC cycle year for each fuel source supplying the coal plant; (2) forecast generation volume for coal plants for the current ECAC cycle year; (3) "minimum take" or "fixed production cost" volume used in the net power cost (NPC) model for the past three ECAC cycles for each fuel source supplying the coal plant; and (4) actual generation volume for the coal plant for the three prior ECAC cycle years.[8] This information is included in Confidential Exhibit PAC/106.

[8] *Id.* Ordering Paragraph 8.

VIII. ENERGY IMBALANCE MARKET

Q. Are the benefits from participating in the EIM with the CAISO included in this ECAC?

A. Yes. Participation in the EIM provides benefits to customers in the form of reduced NPC. At the total-company level, while the 2022 ECAC had forecasted EIM benefits of **[Begin Confidential]** [redacted] **End Confidential]**, the actual benefits for customers were even greater at **[Begin Confidential]** [redacted] **[End Confidential]**. In this filing, the 2023 forecasted EIM benefits are **[Begin Confidential]** [redacted] **[End Confidential]** and the 2024 forecasted EIM benefits are **[Begin Confidential]** [redacted] **[Begin Confidential]**.

Q. How does the Company calculate its actual EIM benefits?

A. Using actual information from the EIM, including five- and 15-minute pricing, the Company identifies the incremental resource that could have facilitated the transfer to an adjacent EIM area or the CAISO in each five-minute interval. The benefit is then calculated as the difference between the revenue received less the expense of generation assumed to supply the transfer. In the event of an import, the benefit is equal to the cost of the import minus the avoided expense of the generation that would have otherwise been dispatched.

Q. Does this conclude your direct testimony?

A. Yes.

Application No. 23-09-___
Exhibit No. PAC/101
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Projected 2024 NPC

September 2023

Exhibit PAC/101 PacifiCorp Projected 2024 NPC	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Exhibit PAC/101 Total 2024
						$							
Special Sales For Resale													
Long Term Firm Sales													
Black Hills	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hurricane Sale	$ 2,271	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,271
Leaning Juniper Revenue	$ 21,949	$ 21,007	$ 21,312	$ 16,865	$ 16,681	$ 22,511	$ 50,638	$ 54,348	$ 35,959	$ 20,405	$ 18,100	$ 24,970	$ 324,744
PSCo_Sale	$ 911,135	$ 856,615	$ 882,524	$ 650,060	$ 680,640	$ 872,064	$ 2,208,857	$ 2,250,464	$ 2,059,410	$ 747,395	$ 711,283	$ 718,351	$ 13,548,797
Total Long Term Firm Sales	$ 935,355	$ 877,621	$ 903,836	$ 666,925	$ 697,321	$ 894,575	$ 2,259,495	$ 2,304,812	$ 2,095,368	$ 767,800	$ 729,383	$ 743,321	$ 13,875,811
Short Term Firm Sales													
Borah	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
COB	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Colorado	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Four Corners	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Idaho	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mead	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mid Columbia	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mona	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NOB	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Palo Verde	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SP15	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utah	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Washington	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
West Main	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wyoming	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Short Term Firm Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
System Balancing Sales													
COB	$ 6,329,676	$ 4,507,181	$ 3,120,144	$ 2,993,237	$ 3,087,230	$ 5,647,622	$ 7,294,814	$ 8,844,333	$ 17,629,571	$ 7,739,318	$ 6,993,849	$ 5,989,998	$ 80,176,973
Four Corners	$ 12,838,766	$ 6,182,336	$ 4,266,112	$ 3,678,959	$ 3,229,509	$ 5,466,030	$ 4,298,716	$ 3,235,142	$ 9,925,699	$ 4,326,354	$ 7,348,700	$ 15,601,728	$ 80,398,051
Mead	$ 161,306	$ 65,848	$ 43,913	$ 57,646	$ 79,819	$ 213,438	$ 306,624	$ 161,622	$ 433,055	$ 909,263	$ 67,352	$ (351,269)	$ 2,148,618
Mid Columbia	$ 23,112,048	$ 12,423,395	$ 7,320,034	$ 8,711,119	$ 5,476,957	$ 6,671,889	$ 21,551,484	$ 26,481,618	$ 16,966,652	$ 11,945,817	$ 12,963,419	$ 16,366,679	$ 169,991,111
Mona	$ 3,090,307	$ 2,619,193	$ 990,969	$ 868,504	$ 775,837	$ 1,487,277	$ 2,055,776	$ 2,065,757	$ 3,924,739	$ 1,327,441	$ 1,225,935	$ 2,469,356	$ 22,901,092
NOB	$ 4,847,012	$ 3,823,220	$ 2,394,455	$ 1,334,061	$ 1,632,566	$ 2,474,522	$ 4,217,112	$ 5,717,518	$ 4,933,438	$ 2,282,290	$ 2,854,507	$ 3,574,293	$ 40,084,994
Palo Verde	$ 984,043	$ 460,452	$ 225,258	$ 123,210	$ 149,046	$ 616,364	$ 1,386,037	$ 1,373,039	$ 817,919	$ 489,798	$ 362,356	$ 701,789	$ 7,689,309
Trapped Energy	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total System Balancing Sales	$ 51,363,158	$ 30,081,625	$ 18,360,884	$ 17,766,736	$ 14,430,963	$ 22,577,142	$ 41,110,564	$ 47,879,030	$ 54,631,073	$ 29,020,281	$ 31,816,118	$ 44,352,574	$ 403,390,149
Total Special Sales For Resale	$ 52,298,513	$ 30,959,247	$ 19,264,720	$ 18,433,661	$ 15,128,284	$ 23,471,716	$ 43,370,059	$ 50,183,842	$ 56,726,442	$ 29,788,081	$ 32,545,501	$ 45,095,894	$ 417,265,960

Purchased Power & Net Interchange													
Long Term Firm Purchases													
Appaloosa 1A Solar	$ 562,535	$ 617,749	$ 910,879	$ 983,631	$ 1,151,786	$ 1,216,593	$ 1,065,782	$ 1,038,366	$ 979,390	$ 779,343	$ 579,150	$ 479,999	$ 10,365,204
Appaloosa 1B Solar	$ 375,023	$ 411,832	$ 607,253	$ 655,754	$ 767,857	$ 811,062	$ 710,522	$ 692,244	$ 652,927	$ 519,562	$ 386,100	$ 319,999	$ 6,910,136
Castle Solar UoU	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Castle Solar IHC	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cedar Springs Wind	$ 1,348,848	$ 1,136,654	$ 1,032,244	$ 1,016,035	$ 830,825	$ 743,881	$ 742,782	$ 585,990	$ 827,498	$ 1,090,534	$ 1,068,343	$ 1,341,093	$ 11,764,725
Cedar Springs Wind III	$ 1,025,293	$ 863,560	$ 784,236	$ 772,111	$ 631,271	$ 565,347	$ 564,366	$ 445,199	$ 628,829	$ 828,668	$ 811,823	$ 1,018,881	$ 8,939,587
Cedar Springs Wind IV	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Combine Hills Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cove Mountain Solar	$ 183,114	$ 199,253	$ 335,342	$ 365,062	$ 420,185	$ 451,894	$ 438,350	$ 414,770	$ 355,679	$ 286,322	$ 205,725	$ 169,135	$ 3,824,831
Cove Mountain Solar II	$ 453,001	$ 492,928	$ 829,598	$ 903,121	$ 1,039,489	$ 1,117,932	$ 1,084,426	$ 1,026,092	$ 879,908	$ 708,326	$ 506,098	$ 416,084	$ 9,457,003
Deseret Purchase	$ 3,228,408	$ 3,115,246	$ 2,944,088	$ 2,880,434	$ 2,774,345	$ 2,719,178	$ 3,228,408	$ 3,228,408	$ 3,194,459	$ -	$ -	$ -	$ 27,312,976
Eagle Mountain - UAMPS/UMPA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Elektron Solar 20yr	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Elektron Solar 25yr	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gemstate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Graphite Solar	$ 311,883	$ 365,922	$ 557,963	$ 612,332	$ 686,777	$ 704,723	$ 687,351	$ 642,989	$ 576,256	$ 480,478	$ 355,140	$ 265,665	$ 6,247,480
Hermiston Purchase	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Horseshoe Solar	$ 268,027	$ 344,622	$ 502,043	$ 568,585	$ 677,881	$ 750,557	$ 737,711	$ 699,020	$ 581,446	$ 467,167	$ 288,744	$ 229,279	$ 6,115,081
Hunter Solar	$ 369,331	$ 433,652	$ 637,866	$ 665,722	$ 759,120	$ 785,546	$ 746,797	$ 702,015	$ 654,578	$ 558,601	$ 396,190	$ 321,788	$ 7,031,207
Hurricane Purchase	$ 46,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 46,925
MagCorp Buythru	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MagCorp Reserves	$ 272,680	$ 264,660	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 272,680	$ 3,264,140
Milican Solar	$ 95,313	$ 150,647	$ 222,859	$ 280,511	$ 332,937	$ 362,395	$ 408,109	$ 360,617	$ 290,222	$ 190,032	$ 121,715	$ 83,523	$ 2,898,880
Milford Solar	$ 350,630	$ 418,195	$ 595,592	$ 662,485	$ 778,851	$ 821,177	$ 731,293	$ 704,005	$ 656,707	$ 529,625	$ 385,321	$ 303,612	$ 6,937,492
Nucor	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 594,150	$ 7,129,800
Old Mill Solar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monsanto Reserves	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 1,716,667	$ 20,600,000
Pavant III Solar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PGE Cove	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 13,672	$ 164,065
Prineville Solar	$ 65,430	$ 103,415	$ 148,062	$ 186,364	$ 221,194	$ 240,766	$ 271,137	$ 239,584	$ 192,816	$ 126,252	$ 80,864	$ 55,491	$ 1,931,376
Rocket Solar	$ 295,778	$ 369,445	$ 537,993	$ 609,687	$ 712,494	$ 800,701	$ 820,796	$ 742,700	$ 624,428	$ 474,844	$ 290,098	$ 239,725	$ 6,518,690
Sigurd Solar	$ 308,030	$ 356,200	$ 507,232	$ 553,807	$ 636,517	$ 699,580	$ 650,415	$ 596,230	$ 556,646	$ 451,695	$ 317,435	$ 266,651	$ 5,900,441
Skysol Solar	$ 322,157	$ 365,293	$ 530,598	$ 561,018	$ 620,581	$ 804,541	$ 862,576	$ 762,459	$ 552,791	$ 484,197	$ 285,081	$ 277,856	$ 6,429,148
Small Purchases east	$ 5,531	$ 5,198	$ 6,394	$ 4,636	$ 3,869	$ 3,916	$ 3,691	$ 4,013	$ 5,487	$ 4,428	$ 4,478	$ 5,355	$ 56,994
Small Purchases west	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Soda Lake Geothermal	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Three Buttes Wind	$ 2,782,809	$ 1,915,027	$ 2,129,777	$ 1,611,562	$ 1,423,643	$ 1,202,365	$ 803,345	$ 946,962	$ 1,181,835	$ 1,730,465	$ 2,346,165	$ 2,564,905	$ 20,638,860
Top of the World Wind	$ 3,211,949	$ 3,004,727	$ 3,211,949	$ 3,108,338	$ 3,211,949	$ 3,108,338	$ 3,211,949	$ 3,211,949	$ 3,108,338	$ 3,211,949	$ 3,108,338	$ 3,211,949	$ 37,921,726
Wolverine Creek Wind	$ 789,484	$ 937,544	$ 1,175,634	$ 1,081,742	$ 816,828	$ 877,518	$ 695,099	$ 661,159	$ 780,865	$ 859,564	$ 999,302	$ 1,003,367	$ 10,678,106
Glen Canyon	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,616	$ 325,678	$ 337,293
Rush Lake	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fremont Solar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Green River Energy Center	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Anticline Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,483	$ 18,483
Boswell Springs Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Two River Wind LLC	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cedar Creek	$ -	$ -	$ -	$ -	$ -	$ 19,440	$ 1,368,669	$ 1,082,327	$ 1,300,232	$ 2,171,667	$ 2,121,175	$ 1,704,296	$ 9,767,806
OR Schedule 126 CSP	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UT Schedule Adjustment	$ (1,680,691)	$ (2,018,190)	$ (3,360,173)	$ (3,749,047)	$ (4,450,727)	$ (4,535,849)	$ (4,239,494)	$ (3,966,063)	$ (3,437,166)	$ (2,845,889)	$ (1,819,486)	$ (1,363,469)	$ (37,466,244)
Long Term Firm Purchases Total	$ 17,315,978	$ 16,178,067	$ 17,444,600	$ 16,931,058	$ 16,644,843	$ 16,868,771	$ 18,191,250	$ 17,418,206	$ 17,741,342	$ 15,705,000	$ 15,446,583	$ 15,856,512	$ 201,742,209

Confidential per WAC 480-07-160

Qualifying Facilities													
QF California	$ 144,138	$ 144,080	$ 156,633	$ 157,919	$ 137,956	$ 134,286	$ 135,609	$ 134,441	$ 129,611	$ 135,806	$ 142,268	$ 139,098	$ 1,691,846
QF Idaho	$ 605,201	$ 543,397	$ 628,658	$ 669,151	$ 756,864	$ 745,232	$ 653,778	$ 555,366	$ 520,800	$ 585,228	$ 559,512	$ 561,253	$ 7,384,439
QF Oregon	$ 2,282,896	$ 2,731,056	$ 3,654,769	$ 4,549,011	$ 4,603,695	$ 4,747,221	$ 4,926,335	$ 4,249,316	$ 3,536,881	$ 2,762,393	$ 1,960,706	$ 1,581,696	$ 41,585,975
QF Utah	$ 359,738	$ 403,638	$ 480,494	$ 577,328	$ 633,629	$ 651,580	$ 593,828	$ 598,393	$ 589,272	$ 510,766	$ 383,475	$ 307,746	$ 6,089,886
QF Washington	$ -	$ -	$ -	$ 22,559	$ 23,311	$ 44,799	$ 46,293	$ 46,293	$ 44,799	$ 3,283	$ -	$ -	$ 231,336
QF Wyoming	$ 24,584	$ 18,617	$ 23,206	$ 19,704	$ 18,046	$ 6,756	$ 10,630	$ 11,984	$ 17,488	$ 16,668	$ 18,738	$ 13,681	$ 200,103
Biomass One QF	$ 1,669,991	$ 1,503,089	$ 1,600,266	$ 1,569,336	$ 1,761,538	$ 1,692,832	$ 1,567,580	$ 1,622,548	$ 1,601,615	$ 1,636,336	$ 1,646,005	$ 857,607	$ 18,728,743
Chopin Wind QF	$ 193,044	$ 216,789	$ 168,226	$ 188,753	$ 161,939	$ 177,933	$ 160,795	$ 152,387	$ 133,330	$ 156,651	$ 177,435	$ 165,528	$ 2,052,812
DCFP QF	$ 3,732	$ 1,487	$ 1,273	$ 2,265	$ 4,211	$ 7,319	$ 35,101	$ 40,867	$ 30,521	$ 11,304	$ 9,753	$ 11,623	$ 159,456
Enterprise Solar I QF	$ 605,776	$ 772,740	$ 956,940	$ 1,100,161	$ 1,246,936	$ 1,367,030	$ 1,552,309	$ 1,503,979	$ 1,167,844	$ 940,221	$ 689,473	$ 531,699	$ 12,435,106
Escalante Solar I QF	$ 556,159	$ 702,390	$ 861,800	$ 1,001,202	$ 1,180,119	$ 1,278,616	$ 1,437,770	$ 1,392,853	$ 1,080,012	$ 857,708	$ 627,972	$ 496,091	$ 11,472,692
Escalante Solar II QF	$ 522,020	$ 659,365	$ 811,762	$ 941,605	$ 1,115,246	$ 1,221,823	$ 1,369,295	$ 1,305,905	$ 1,011,320	$ 804,026	$ 587,622	$ 462,683	$ 10,812,672
Escalante Solar III QF	$ 507,994	$ 644,271	$ 787,602	$ 915,846	$ 1,089,984	$ 731,324	$ 1,315,175	$ 1,267,280	$ 988,913	$ 735,783	$ 538,302	$ 424,125	$ 9,946,598
ExxonMobil QF	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Five Pine Wind QF	$ 591,751	$ 990,114	$ 867,657	$ 914,134	$ 563,035	$ 616,150	$ 720,681	$ 687,308	$ 858,470	$ 842,118	$ 1,008,291	$ 1,011,378	$ 9,671,086
Granite Mountain East Solar QF	$ 538,975	$ 634,052	$ 873,532	$ 974,584	$ 1,149,968	$ 1,244,331	$ 1,333,659	$ 1,255,131	$ 964,311	$ 795,497	$ 570,005	$ 457,151	$ 10,791,197
Granite Mountain West Solar QF	$ 357,192	$ 420,253	$ 579,379	$ 646,457	$ 761,867	$ 823,479	$ 883,781	$ 831,879	$ 634,512	$ 509,122	$ 377,046	$ 302,471	$ 7,127,437
Iron Springs Solar QF	$ 623,624	$ 681,626	$ 875,888	$ 1,002,096	$ 1,123,768	$ 1,269,977	$ 1,344,268	$ 1,314,577	$ 992,818	$ 802,236	$ 568,232	$ 487,975	$ 11,087,085
Latigo Wind Park QF	$ 1,008,523	$ 974,723	$ 1,127,257	$ 888,162	$ 870,272	$ 743,515	$ 692,426	$ 567,983	$ 624,983	$ 806,218	$ 704,856	$ 798,194	$ 9,807,110
Mountain Wind 1 QF	$ 1,411,927	$ 1,077,712	$ 873,605	$ 691,027	$ 491,070	$ 503,734	$ 408,518	$ 438,466	$ 463,488	$ 664,617	$ 919,705	$ 1,005,544	$ 8,949,411
Mountain Wind 2 QF	$ 2,046,500	$ 1,604,687	$ 1,344,052	$ 1,068,792	$ 764,887	$ 901,569	$ 749,654	$ 723,615	$ 763,905	$ 992,941	$ 1,414,981	$ 1,478,389	$ 13,853,973
North Point Wind QF	$ 1,180,761	$ 2,028,043	$ 1,836,607	$ 1,950,796	$ 1,193,212	$ 1,325,700	$ 1,590,909	$ 1,616,707	$ 1,938,184	$ 1,860,511	$ 2,035,525	$ 1,987,806	$ 20,544,761
Oregon Wind Farm QF	$ 1,023,863	$ 1,189,669	$ 824,060	$ 957,933	$ 677,064	$ 820,732	$ 1,639,189	$ 2,076,126	$ 1,223,711	$ 617,187	$ 836,690	$ 1,432,888	$ 13,319,112
Orchard Wind 1 QF	$ 63,171	$ 69,701	$ 97,721	$ 124,816	$ 110,803	$ 123,524	$ 123,449	$ 105,362	$ 79,489	$ 84,148	$ 75,107	$ 80,003	$ 1,137,294
Orchard Wind 2 QF	$ 61,356	$ 68,707	$ 91,023	$ 124,993	$ 112,506	$ 123,255	$ 125,420	$ 106,117	$ 79,928	$ 85,657	$ 76,765	$ 81,568	$ 1,137,294
Orchard Wind 3 QF	$ 63,522	$ 66,945	$ 105,763	$ 122,943	$ 112,010	$ 124,350	$ 121,662	$ 105,662	$ 78,908	$ 84,637	$ 72,465	$ 78,427	$ 1,137,294
Orchard Wind 4 QF	$ 63,331	$ 69,219	$ 103,949	$ 122,994	$ 111,676	$ 123,692	$ 122,969	$ 105,683	$ 78,915	$ 82,859	$ 73,472	$ 78,535	$ 1,137,294
Pavant II Solar QF	$ 216,445	$ 279,842	$ 401,431	$ 472,730	$ 542,030	$ 588,172	$ 726,782	$ 733,884	$ 532,014	$ 406,233	$ 261,448	$ 211,986	$ 5,372,997
Pioneer Wind Park I QF	$ 1,293,636	$ 967,174	$ 1,174,063	$ 894,062	$ 700,161	$ 641,503	$ 654,205	$ 677,246	$ 444,202	$ 807,854	$ 1,251,420	$ 1,076,883	$ 10,582,411
Power County North Wind QF	$ 463,416	$ 613,435	$ 589,598	$ 578,227	$ 403,826	$ 390,685	$ 412,984	$ 408,970	$ 424,405	$ 567,501	$ 590,091	$ 688,202	$ 6,131,339
Power County South Wind QF	$ 411,220	$ 542,794	$ 535,139	$ 539,566	$ 350,995	$ 350,065	$ 367,273	$ 383,050	$ 377,980	$ 498,816	$ 535,407	$ 600,833	$ 5,493,138
Roseburg Dillard QF	$ 101,657	$ 187,741	$ 116,442	$ 139,347	$ 174,654	$ 85,173	$ 283,625	$ 185,360	$ 111,759	$ 95,262	$ 138,831	$ 254,905	$ 1,874,755
Sage I Solar QF	$ 79,115	$ 80,953	$ 185,750	$ 201,479	$ 231,609	$ 255,841	$ 332,541	$ 328,474	$ 203,969	$ 152,736	$ 102,564	$ 73,738	$ 2,228,767
Sage II Solar QF	$ 79,198	$ 81,049	$ 185,945	$ 201,695	$ 230,934	$ 256,127	$ 330,821	$ 328,839	$ 203,129	$ 152,889	$ 102,978	$ 73,674	$ 2,227,276
Sage III Solar QF	$ 66,690	$ 67,449	$ 153,415	$ 164,218	$ 189,832	$ 209,266	$ 269,677	$ 267,843	$ 167,470	$ 128,126	$ 86,929	$ 62,528	$ 1,833,444
Spanish Fork Wind 2 QF	$ 224,537	$ 192,044	$ 208,643	$ 165,062	$ 156,982	$ 216,357	$ 297,964	$ 323,818	$ 278,809	$ 251,063	$ 260,112	$ 256,145	$ 2,831,535
Sunnyside QF	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sweetwater Solar QF	$ 254,931	$ 379,040	$ 551,639	$ 673,027	$ 797,595	$ 957,706	$ 1,095,186	$ 1,019,583	$ 792,992	$ 615,295	$ 294,026	$ 196,650	$ 7,627,672
Tesoro QF	$ 30,563	$ 63,947	$ 46,439	$ 27,998	$ 13,143	$ 5,257	$ 119	$ 2,314	$ 9,089	$ 9,044	$ 17,624	$ 67,863	$ 293,400
Three Peaks Solar QF	$ 410,390	$ 492,863	$ 614,683	$ 835,185	$ 872,227	$ 913,479	$ 1,072,814	$ 1,017,830	$ 791,169	$ 669,197	$ 440,297	$ 366,970	$ 8,497,104
Threemile Canyon Wind QF	$ 82,972	$ 180,579	$ 139,659	$ 183,820	$ 181,293	$ 218,186	$ 208,329	$ 181,311	$ 120,822	$ 125,922	$ 99,256	$ 80,214	$ 1,802,363
Utah Pavant Solar QF	$ 286,427	$ 350,863	$ 542,142	$ 636,557	$ 760,728	$ 845,521	$ 996,360	$ 925,894	$ 767,702	$ 566,106	$ 357,167	$ 296,358	$ 7,331,825
Utah Red Hills Solar QF	$ 480,440	$ 640,061	$ 773,732	$ 1,020,201	$ 1,193,809	$ 1,227,730	$ 1,539,540	$ 1,463,201	$ 1,311,693	$ 800,670	$ 581,951	$ 454,373	$ 11,487,402
Qualifying Facilities Total	$ 20,991,402	$ 23,336,202	$ 25,950,847	$ 28,037,739	$ 27,575,428	$ 28,711,826	$ 32,249,303	$ 31,063,844	$ 26,171,236	$ 23,230,634	$ 21,194,503	$ 19,594,480	$ 308,107,444
Mid-Columbia Contracts													
Douglas - Wells	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grant Reasonable	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (764,786)	$ (9,177,438)
Grant Meaningful Priority	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 6,321,559	$ 75,858,709
Grant Surplus	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 206,051	$ 2,472,617
Mid-Columbia Contracts Total	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 5,762,824	$ 69,153,888
Total Long Term Firm Purchases	$ 44,070,204	$ 45,277,093	$ 49,158,270	$ 50,731,621	$ 49,983,096	$ 51,343,420	$ 56,203,376	$ 54,244,874	$ 49,675,402	$ 44,698,458	$ 42,403,910	$ 41,213,817	$ 579,003,541

Storage & Exchange													
Rush lake_BESS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fremont Solar_BESS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Green River Energy Center BESS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Umpqua Storage Placeholder	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cowlitz Swift	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
EWEB FC I	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PSCo Exchange	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PSCO FC III	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SCL State Line	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Storage & Exchange	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Short Term Firm Purchases													
COB	$ 6,325,800	$ 6,082,500	$ 6,325,800	$ -	$ -	$ -	$ 11,970,600	$ 12,370,200	$ 11,120,400	$ -	$ -	$ -	$ 54,195,300
Colorado	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Four Corners	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Idaho	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mead	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mid Columbia	$ 1,931,280	$ 1,857,000	$ 1,931,280	$ 3,551,600	$ 3,551,600	$ 4,045,000	$ 5,694,000	$ 5,913,000	$ 5,256,000	$ -	$ -	$ -	$ 33,730,760
Mona	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NOB	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Palo Verde	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SP15	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Utah	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Washington	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
West Main	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wyoming	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Short Term Firm Purchases	$ 8,257,080	$ 7,939,500	$ 8,257,080	$ 3,551,600	$ 3,551,600	$ 4,045,000	$ 17,664,600	$ 18,283,200	$ 16,376,400	$ -	$ -	$ -	$ 87,926,060
System Balancing Purchases													
COB	$ 3,995,728	$ 5,242,463	$ 5,651,083	$ 970,957	$ 1,469,399	$ 3,952,085	$ 4,704,561	$ 5,428,409	$ 5,815,681	$ 3,059,450	$ 3,833,493	$ 3,161,202	$ 47,284,511
Four Corners	$ 5,133,296	$ 3,725,990	$ 2,211,625	$ 1,697,078	$ 1,239,607	$ 3,069,395	$ 10,123,179	$ 4,627,666	$ 8,469,138	$ 2,970,494	$ 2,799,012	$ 3,776,547	$ 49,843,027
Mead	$ 75,205	$ 9,596	$ 23,914	$ 157,252	$ 9,804	$ 125,428	$ 49,634	$ 706,280	$ 426,259	$ 177,349	$ 38,113	$ 1,033,231	$ 2,832,065
Mid Columbia	$ 58,924,615	$ 38,071,382	$ 33,475,706	$ 32,633,798	$ 21,361,830	$ 35,137,154	$ 87,310,819	$ 86,430,663	$ 55,405,923	$ 35,232,806	$ 38,907,100	$ 52,474,493	$ 575,366,287
Mona	$ 4,153,375	$ 2,521,854	$ 2,295,606	$ 2,329,668	$ 1,832,336	$ 1,900,608	$ 7,457,254	$ 4,882,398	$ 5,377,050	$ 4,190,360	$ 3,333,314	$ 4,714,433	$ 44,988,256
NOB	$ 15,096,070	$ 12,524,155	$ 8,236,824	$ 2,839,992	$ 4,332,969	$ 6,295,025	$ 18,340,333	$ 18,989,874	$ 15,960,370	$ 7,813,062	$ 11,455,054	$ 16,579,276	$ 138,463,004
Palo Verde	$ 3,384,529	$ 1,005,150	$ 1,648,220	$ 964,997	$ 1,022,284	$ 1,513,182	$ 4,541,999	$ 4,199,236	$ 1,597,770	$ 3,531,009	$ 2,010,031	$ 1,722,061	$ 27,140,469
EIM Imports/Exports	$ (11,184,399)	$ (9,180,912)	$ (7,491,298)	$ (6,708,794)	$ (6,428,175)	$ (6,655,048)	$ (11,996,478)	$ (12,960,242)	$ (10,544,270)	$ (6,449,442)	$ (7,258,941)	$ (11,123,005)	$ (107,981,006)
Emergency Purchases	$ 26,797	$ 2,921	$ -	$ -	$ -	$ -	$ 298,835	$ 267,421	$ -	$ 73,184	$ -	$ 17,990	$ 687,148
Total System Balancing Purchases	$ 79,605,215	$ 53,922,598	$ 46,051,679	$ 34,884,948	$ 24,840,054	$ 45,337,828	$ 120,830,137	$ 112,571,705	$ 82,507,921	$ 50,598,272	$ 55,117,177	$ 72,356,229	$ 778,623,761
Total Purchased Power & Net Interchange	$ 131,932,499	$ 107,139,191	$ 103,467,029	$ 89,168,169	$ 78,374,749	$ 100,726,249	$ 194,698,112	$ 185,099,778	$ 148,559,724	$ 95,296,730	$ 97,521,087	$ 113,570,045	$ 1,445,553,362
Wheeling & U. of F. Expense													
Firm Wheeling	$ 12,352,191	$ 12,895,715	$ 13,686,689	$ 13,886,857	$ 13,168,217	$ 14,028,114	$ 15,738,603	$ 15,397,001	$ 14,607,293	$ 13,622,190	$ 14,375,663	$ 15,100,810	$ 168,859,342
C&T EIM Admin fee	$ 210,477	$ 192,813	$ 230,652	$ 220,405	$ 231,652	$ 233,135	$ 238,944	$ 221,226	$ 240,569	$ 181,475	$ 188,935	$ 194,490	$ 2,584,773
ST Firm & Non-Firm	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
Total Wheeling & U. of F. Expense	$ 12,562,668	$ 13,088,528	$ 13,917,340	$ 14,107,262	$ 13,399,868	$ 14,261,250	$ 15,977,547	$ 15,618,228	$ 14,847,862	$ 13,803,665	$ 14,564,597	$ 15,295,300	$ 171,444,115
Coal Fuel Burn Expense													
Colstrip	$ 1,296,581	$ 1,601,139	$ 1,697,432	$ 1,541,416	$ 1,488,284	$ 1,434,960	$ 1,899,416	$ 1,887,585	$ 1,929,987	$ 1,354,687	$ 1,601,970	$ 1,548,448	$ 19,281,905
Craig	$ 2,126,467	$ 1,856,817	$ 1,780,881	$ 1,617,501	$ 1,893,341	$ 1,889,930	$ 2,152,366	$ 2,336,218	$ 2,014,428	$ 1,902,786	$ 2,042,946	$ 2,356,369	$ 23,970,051
Dave Johnston	$ 4,412,716	$ 4,355,380	$ 3,638,115	$ 4,375,601	$ 5,593,787	$ 5,301,547	$ 4,861,055	$ 5,630,646	$ 4,473,637	$ 5,148,188	$ 4,636,845	$ 5,846,448	$ 58,273,965
Hayden	$ 929,093	$ 982,109	$ 907,950	$ 872,665	$ 801,337	$ 940,638	$ 1,038,132	$ 1,070,220	$ 640,843	$ 517,615	$ 1,202,556	$ 1,090,686	$ 10,993,845
Hunter	$ 22,211,585	$ 17,743,750	$ 9,234,133	$ 7,419,788	$ 7,599,417	$ 9,172,441	$ 19,731,512	$ 16,020,428	$ 11,369,437	$ 13,440,091	$ 11,157,274	$ 13,866,190	$ 158,966,044
Huntington	$ 12,147,430	$ 8,720,400	$ 5,108,132	$ 4,691,856	$ 4,054,815	$ 4,671,193	$ 9,780,155	$ 7,960,513	$ 4,989,434	$ 4,951,012	$ 4,754,778	$ 7,157,863	$ 78,987,582
Jim Bridger	$ 10,006,534	$ 10,397,154	$ 10,584,625	$ 7,269,377	$ 8,630,636	$ 10,883,936	$ 13,625,147	$ 13,746,113	$ 11,757,339	$ 11,656,755	$ 10,990,795	$ 11,305,212	$ 130,853,621
Naughton	$ 3,598,079	$ 3,386,975	$ 3,372,230	$ 2,549,687	$ 2,950,775	$ 2,339,114	$ 4,007,630	$ 4,475,028	$ 2,266,766	$ 2,549,088	$ 2,235,831	$ 3,102,076	$ 36,833,277
Wyodak	$ 2,203,136	$ 2,056,603	$ 1,661,419	$ 2,199,411	$ 1,616,018	$ 1,732,790	$ 2,023,341	$ 2,233,061	$ 2,092,274	$ 2,408,261	$ 1,743,371	$ 2,534,985	$ 24,504,672
Total Coal Fuel Burn Expense	$ 58,931,622	$ 51,100,328	$ 37,984,917	$ 32,537,301	$ 34,628,410	$ 38,366,549	$ 59,118,754	$ 55,359,812	$ 41,534,146	$ 43,928,483	$ 40,366,365	$ 48,808,276	$ 542,664,961

Gas Fuel Burn Expense													
Chehalis	$ 26,314,723	$ 17,644,291	$ 12,506,954	$ 11,703,091	$ 9,948,011	$ 5,638,290	$ 13,109,856	$ 12,929,796	$ 11,044,330	$ 11,414,289	$ 14,085,298	$ 19,687,118	$ 166,026,046
Currant Creek	$ 14,162,447	$ 13,007,931	$ 8,878,068	$ 7,063,462	$ 6,434,738	$ 6,032,451	$ 7,671,735	$ 7,466,409	$ 8,324,061	$ 1,789,323	$ 8,231,376	$ 12,126,425	$ 101,188,427
Gadsby	$ 3,516,065	$ 3,528,678	$ 2,281,038	$ 1,777,091	$ 1,262,181	$ 1,899,538	$ 2,007,207	$ 2,445,785	$ 1,833,499	$ 2,083,642	$ 2,578,617	$ 3,395,528	$ 28,608,869
Gadsby CT	$ 2,194,111	$ 2,136,464	$ 1,472,078	$ 1,248,474	$ 1,286,331	$ 1,503,739	$ 1,297,976	$ 1,552,646	$ 1,353,390	$ 1,309,016	$ 1,541,501	$ 2,150,100	$ 19,045,826
Hermiston	$ 5,730,033	$ 4,908,624	$ 2,063,975	$ 2,741,146	$ 1,231,901	$ 1,748,215	$ 2,323,511	$ 3,635,697	$ 3,490,577	$ 3,672,198	$ 4,258,005	$ 4,230,602	$ 40,034,484
Jim Bridger - Gas	$ -	$ -	$ 4,533,264	$ 3,443,600	$ 8,127,207	$ 11,288,132	$ 12,936,300	$ 13,561,649	$ 11,029,667	$ 11,210,888	$ 11,443,216	$ 15,960,235	$ 103,534,157
Lake Side 1	$ 14,253,681	$ 14,050,694	$ 8,405,234	$ 7,303,003	$ 7,266,202	$ 7,255,199	$ 8,576,665	$ 8,612,488	$ 8,615,058	$ 5,732,808	$ 9,872,675	$ 13,586,767	$ 113,530,474
Lake Side 2	$ 17,445,834	$ 15,786,427	$ 11,369,229	$ 3,478,407	$ 3,688,623	$ 8,836,000	$ 10,472,567	$ 10,937,025	$ 10,123,546	$ 9,239,846	$ 12,405,537	$ 16,130,205	$ 129,913,247
Naughton - Gas	$ 2,801,384	$ 2,710,121	$ 3,136,882	$ 1,973,797	$ 2,819,345	$ 3,761,594	$ 2,737,633	$ 3,289,413	$ 2,898,020	$ 1,189,104	$ -	$ 2,056,798	$ 29,374,091
Total Gas Fuel Burn	$ 86,418,277	$ 73,773,230	$ 54,646,722	$ 40,732,071	$ 42,064,539	$ 47,963,157	$ 61,133,450	$ 64,430,909	$ 58,712,148	$ 47,641,114	$ 64,416,226	$ 89,323,778	$ 731,255,621
Gas Physical	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gas Swaps	$ (11,212,855)	$ (7,609,528)	$ 5,974,475	$ 1,206,750	$ 2,136,985	$ 1,584,750	$ 814,254	$ 465,000	$ 1,095,150	$ 3,252,365	$ 3,429,863	$ (3,310,529)	$ (2,173,320)
Clay Basin Gas Storage	$ (775,564)	$ (693,925)	$ (179,008)	$ 52,242	$ 52,242	$ 52,242	$ 52,242	$ 52,242	$ 52,242	$ 52,242	$ (169,614)	$ (567,495)	$ (2,019,909)
Pipeline Reservation Fees	$ 3,789,732	$ 3,715,752	$ 3,788,190	$ 3,751,314	$ 3,789,132	$ 3,748,246	$ 3,787,147	$ 3,783,697	$ 3,750,979	$ 3,785,910	$ 3,750,790	$ 3,788,427	$ 45,229,317
Total Gas Fuel Burn Expense	$ 78,219,591	$ 69,185,529	$ 64,230,379	$ 45,742,377	$ 48,042,898	$ 53,348,396	$ 65,787,093	$ 68,731,848	$ 63,610,519	$ 54,731,632	$ 71,427,264	$ 89,234,181	$ 772,291,709
Other Generation Expense													
Blundell	$ 443,392	$ 228,935	$ 88,076	$ 414,690	$ 208,315	$ 391,298	$ 418,061	$ 430,310	$ 413,742	$ 401,326	$ 431,972	$ 453,273	$ 4,323,390
Blundell Bottoming Cycle	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cedar Springs Wind II	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dunlap I Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ekola Flats Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Creek I Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Creek II Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Creek III Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Foote Creek IV Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Glenrock Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Glenrock III Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Goodnoe Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
High Plains Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Leaning Juniper 1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Marengo I Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Marengo II Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
McFadden Ridge Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pryor Mountain Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rolling Hills Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Seven Mile Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Seven Mile II Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Black Cap Solar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TB Flats Wind	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TB Flats Wind II	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rock Creek 1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rock Creek 2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rock River 1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Integration Charge	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Other Generation Expense	$ 443,392	$ 228,935	$ 88,076	$ 414,690	$ 208,315	$ 391,298	$ 418,061	$ 430,310	$ 413,742	$ 401,326	$ 431,972	$ 453,273	$ 4,323,390
Net Power Cost	**$ 229,791,258**	**$ 209,783,265**	**$ 200,423,021**	**$ 163,536,137**	**$ 159,525,957**	**$ 183,622,025**	**$ 292,629,508**	**$ 275,056,133**	**$ 212,239,551**	**$ 178,373,755**	**$ 191,765,784**	**$ 222,265,181**	**$ 2,519,011,577**

Application No. 23-09-___
Exhibit No. PAC/102
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Prior ECAC's Projected 2023 NPC

September 2023

Exhibit PAC/102
PacifiCorp
Projected 2023 NPC

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Total 2023
						$							
Special Sales For Resale													
Long Term Firm Sales													
Black Hills	$ 554,036	$ 483,922	$ 557,374	$ 511,188	$ 534,560	$ 525,100	$ 570,729	$ 567,391	$ 526,213	$ 525,100	$ 515,084	$ 576,294	$ 6,446,989
Hurricane Sale	536	605	670	648	670	648	670	670	648	670	648	670	7,750
Leaning Juniper Revenue	15,478	14,746	16,009	8,357	9,773	13,111	35,803	35,734	25,487	14,851	12,004	14,235	215,587
PSCo_Sale	894,040	824,640	910,380	653,600	677,440	881,920	1,839,220	2,216,455	2,092,288	719,881	700,412	702,586	13,112,861
Total Long Term Firm Sales	$ 1,464,089	$ 1,323,913	$ 1,484,433	$ 1,173,793	$ 1,222,443	$ 1,420,779	$ 2,446,422	$ 2,820,248	$ 2,644,635	$ 1,260,501	$ 1,228,147	$ 1,293,784	$ 19,783,187
Total Short Term Firm Sales	$ 43,407,574	$ 26,870,456	$ 20,808,000	$ 11,751,681	$ 14,220,232	$ 24,540,012	$ 40,430,587	$ 41,662,420	$ 51,233,247	$ 34,442,068	$ 32,199,240	$ 34,706,536	$ 376,272,054
Total Secondary Sales	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Special Sales For Resale	$ 44,871,663	$ 28,194,369	$ 22,292,433	$ 12,925,474	$ 15,442,675	$ 25,960,790	$ 42,877,009	$ 44,482,668	$ 53,877,883	$ 35,702,569	$ 33,427,388	$ 36,000,320	$ 396,055,240
Purchased Power & Net Interchange													
Long Term Firm Purchases													
Cedar Springs Wind	1,348,848	1,095,201	1,032,244	1,016,035	830,825	743,881	742,782	585,990	827,498	1,090,534	1,068,343	1,341,093	11,723,272
Cedar Springs Wind III	1,025,293	832,068	784,236	772,111	631,272	565,348	564,366	445,199	628,829	828,668	811,823	1,018,881	8,908,094
Combine Hills Wind	391,576	474,473	576,362	572,609	490,602	421,752	473,077	398,136	376,057	390,640	479,846	432,646	5,477,775
Cove Mountain Solar	183,848	193,154	336,688	366,527	421,871	453,707	440,109	416,435	357,107	287,471	206,551	169,814	3,833,283
Cove Mountain Solar II	385,462	404,972	705,910	768,471	884,508	951,255	922,745	873,109	748,720	602,719	430,655	354,060	8,032,587
Deseret Purchase	3,117,513	2,988,099	2,988,099	2,765,067	2,789,849	2,627,393	3,142,294	3,142,294	3,109,252	3,142,294	3,074,834	3,114,759	36,001,746
Eagle Mountain - UAMPS/UMPA	-	-	-	-	-	-	-	-	-	-	-	-	-
Gemstate	150,100	150,100	150,100	150,100	150,100	150,100	150,100	150,100	-	-	-	-	1,200,800
Graphite Solar	313,766	355,437	561,331	616,028	690,923	708,977	691,500	646,870	579,734	483,379	357,284	267,268	6,272,497
Horseshoe Solar	-	-	-	-	-	-	-	-	-	-	-	-	-
Hunter Solar	371,168	420,781	641,039	669,033	762,896	789,454	750,512	705,507	657,834	561,379	398,161	323,388	7,051,153
Hurricane Purchase	15,936	15,994	16,145	16,128	16,145	16,128	16,145	16,145	16,128	16,145	16,128	16,145	193,311
MagCorp Reserves	320,800	312,800	316,800	324,800	316,800	324,800	328,800	312,800	308,800	296,700	344,900	328,800	3,837,600
Milican Solar	92,708	141,477	216,779	272,858	323,854	352,508	396,975	350,779	282,304	184,848	118,394	81,245	2,814,730
Milford Solar	353,274	406,820	600,085	667,481	784,725	827,371	736,808	709,314	661,660	533,619	388,227	305,919	6,975,304
Monsanto Reserves	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	1,716,700	20,600,400
Nucor	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	594,150	7,129,800
Old Mill Solar	-	-	-	-	-	-	-	-	-	-	-	-	-
Pavant III Solar	-	-	-	-	-	-	-	-	-	-	-	-	-
PGE Cove	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	12,899	154,785
Prineville Solar	63,645	97,125	144,022	181,280	215,160	234,197	263,740	233,048	187,556	122,808	78,658	53,977	1,875,216
Rock River Wind	-	-	-	-	-	-	-	-	-	-	-	-	-
Rocket Solar	-	-	-	-	-	-	-	-	-	-	-	-	-
Sigurd Solar	309,554	345,619	509,742	556,548	639,667	703,042	653,634	599,181	559,401	453,931	319,006	267,971	5,917,296
Skysol Solar	-	-	698,731	756,489	964,767	1,278,104	1,603,572	1,541,676	1,061,102	626,170	344,706	317,083	9,192,400
Small Purchases east	1,173	1,213	1,172	1,172	1,233	1,203	1,226	1,202	1,154	1,157	1,209	1,176	14,288
Small Purchases west	-	-	-	-	-	-	-	-	-	-	-	-	-
Soda Lake Geothermal	-	-	-	-	-	-	-	-	-	-	-	-	-
Three Buttes Wind	2,790,662	1,806,920	2,135,792	1,616,110	1,427,656	1,205,752	805,618	949,664	1,185,169	1,735,343	2,352,785	2,572,230	20,583,701
Top of the World Wind	5,436,528	3,612,747	4,243,888	3,269,405	2,908,093	2,401,211	1,720,683	1,871,512	2,296,328	3,513,955	4,491,128	4,872,798	40,638,275
Tri-State Purchase	-	-	-	-	-	-	-	-	-	-	-	-	-
UT Schedule Adjustment	(699,228)	(760,409)	(1,267,242)	(1,384,499)	(1,575,430)	(1,660,232)	(1,614,246)	(1,519,979)	(1,328,454)	(1,086,098)	(787,939)	(621,328)	(14,305,084)
Wolverine Creek Wind	779,175	910,409	1,160,283	1,067,617	806,161	866,062	686,022	652,525	770,670	848,339	986,255	990,276	10,523,795
Long Term Firm Purchases Total	$ 19,075,552	$ 16,128,750	$ 18,875,955	$ 17,365,119	$ 16,805,426	$ 16,285,762	$ 15,800,212	$ 15,405,254	$ 15,610,596	$ 16,957,749	$ 17,804,702	$ 18,531,949	$ 204,647,025

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Total 2023
						$							
Qualifying Facilities													
QF California	$ 167,498	$ 177,630	$ 211,597	$ 215,520	$ 201,586	$ 163,935	$ 139,039	$ 134,406	$ 127,305	$ 131,831	$ 130,101	$ 149,015	$ 1,949,463
QF Idaho	630,421	621,030	669,633	674,163	700,750	677,814	733,869	667,907	614,562	647,635	656,520	780,122	8,074,427
QF Oregon	2,249,395	2,672,810	3,668,128	4,722,574	5,040,568	5,343,553	5,183,600	4,928,306	4,109,928	3,012,556	2,004,720	1,937,595	44,873,732
QF Utah	852,212	891,894	1,078,846	1,105,629	1,216,055	1,236,570	1,149,183	1,147,019	1,075,785	1,012,884	890,675	808,880	12,465,631
QF Washington	-	-	-	5,120	18,598	51,806	58,266	53,533	25,617	1,742	-	-	214,683
QF Wyoming	8,180	8,841	12,131	6,897	4,745	2,535	9,505	9,015	4,847	6,879	8,471	14,805	96,851
Biomass One QF	1,579,705	1,323,820	1,494,894	1,505,786	1,599,616	799,407	1,524,929	1,573,783	1,537,958	1,563,610	1,583,204	861,970	16,948,683
DCFP QF	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterprise Solar I QF	1,336,798	1,266,359	1,350,863	1,377,933	1,641,196	1,694,455	2,033,197	1,983,633	1,536,718	1,294,393	1,319,792	1,189,423	18,024,761
Escalante Solar I QF	1,261,552	1,287,541	1,388,400	1,465,328	1,726,643	1,548,752	2,085,695	2,040,619	1,629,794	1,389,426	1,293,403	1,251,163	18,368,316
Escalante Solar II QF	1,201,508	1,230,801	1,318,673	1,393,956	1,641,710	1,613,560	1,979,775	1,940,204	1,547,938	1,321,311	1,234,022	1,191,251	17,614,709
Escalante Solar III QF	1,211,123	1,201,950	1,281,329	1,359,516	1,604,958	744,974	1,910,217	1,892,248	1,507,540	1,209,970	1,133,123	1,089,601	16,146,548
ExxonMobil QF	-	-	-	-	-	-	-	-	-	-	-	-	-
Five Pine Wind QF	554,862	906,947	816,351	850,866	515,894	584,654	659,194	640,311	808,926	791,265	940,370	949,712	9,019,353
Granite Mountain East Solar QF	1,365,069	1,315,904	1,427,608	1,459,469	1,669,147	1,753,064	2,076,824	1,886,662	1,521,000	1,314,442	1,228,111	1,231,956	18,249,256
Granite Mountain West Solar QF	907,188	872,410	945,744	961,555	1,105,880	1,160,442	1,376,383	1,191,554	1,006,070	611,749	595,023	808,345	11,542,343
Iron Springs Solar QF	1,395,725	1,340,095	1,465,891	1,498,478	1,716,029	1,798,792	2,122,668	2,055,158	1,556,628	1,339,896	947,737	1,229,598	18,466,694
Latigo Wind Park QF	1,008,380	918,313	1,126,808	899,197	858,863	750,011	679,576	565,615	621,442	804,293	711,357	771,505	9,715,362
Mountain Wind 1 QF	1,401,681	1,040,630	876,976	685,272	485,602	506,501	405,887	436,961	463,524	674,633	897,977	1,008,543	8,884,188
Mountain Wind 2 QF	2,044,719	1,560,214	1,355,844	1,069,021	760,815	916,414	746,259	724,942	768,629	1,011,319	1,395,548	1,493,772	13,847,496
North Point Wind QF	1,165,131	1,954,536	1,818,665	1,911,384	1,153,737	1,323,642	1,536,181	1,586,828	1,921,789	1,839,754	1,998,437	1,964,698	20,174,782
Oregon Wind Farm QF	715,838	958,244	1,111,489	1,297,182	1,260,298	1,223,667	1,244,796	1,111,614	929,186	738,978	795,816	1,000,463	12,387,571
Pavant II Solar QF	558,591	547,864	601,146	653,745	718,608	745,746	954,469	959,358	647,132	546,241	567,874	544,732	8,045,505
Pioneer Wind Park I QF	1,297,050	918,271	1,286,892	1,019,427	683,882	737,428	853,972	823,289	542,193	864,331	1,344,839	1,055,265	11,426,840
Power County North Wind QF	449,376	590,711	568,304	560,359	380,537	383,093	388,127	390,852	408,819	548,386	567,673	662,087	5,898,325
Power County South Wind QF	396,841	520,011	513,090	520,715	327,839	341,698	342,539	363,999	362,093	479,885	512,477	575,010	5,256,198
Roseburg Dillard QF	59,044	130,556	65,605	103,400	129,189	78,072	244,021	185,888	89,387	87,095	110,763	109,665	1,392,686
Sage I Solar QF	79,705	78,928	187,861	203,039	233,053	259,536	331,713	331,792	206,029	153,821	103,600	74,348	2,243,423
Sage II Solar QF	79,789	79,021	188,061	203,258	233,267	259,829	332,067	332,160	206,263	153,978	103,728	74,419	2,245,841
Sage III Solar QF	67,187	65,762	155,157	165,491	191,023	212,279	270,704	270,549	170,042	129,039	87,807	63,160	1,848,201
Spanish Fork Wind 2 QF	224,422	180,687	209,101	164,243	157,003	219,750	296,750	325,778	277,565	246,966	256,226	259,486	2,817,977
Sunnyside QF	2,591,440	2,364,563	2,689,304	2,292,206	2,818,676	3,056,161	3,087,299	3,039,881	-	-	-	-	21,939,530
Sweetwater Solar QF	255,091	368,749	557,947	676,497	804,030	969,793	1,098,050	1,027,809	802,870	618,001	295,309	198,224	7,672,369
Tesoro QF	78,413	58,137	46,539	26,695	37,564	7,070	8,464	30,441	9,687	7,805	18,112	69,929	398,855
Three Peaks Solar QF	1,062,105	1,035,787	1,157,428	1,198,060	1,321,812	1,166,846	1,462,357	1,434,276	1,145,504	1,004,651	987,254	823,708	13,799,788
Threemile Canyon Wind QF	-	-	-	-	-	-	-	-	-	-	-	-	-
Utah Pavant Solar QF	890,466	757,840	904,296	946,457	1,168,480	1,185,014	1,467,464	1,452,949	1,147,430	1,003,746	906,896	848,120	12,679,158
Utah Red Hills Solar QF	1,247,931	1,346,584	1,535,451	1,595,103	1,897,065	1,812,377	2,396,290	2,340,239	2,241,127	1,445,427	1,463,082	1,205,154	20,525,829
Qualifying Facilities Total	$ 30,394,436	$ 30,593,441	$ 34,086,051	$ 34,793,541	$ 36,024,721	$ 35,329,237	$ 41,189,330	$ 39,879,580	$ 31,571,328	$ 28,007,938	$ 27,090,047	$ 26,295,723	$ 395,255,374
Mid-Columbia Contracts													
Grant - Priest Rapids	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grant Reasonable	-	-	-	-	-	-	-	-	-	-	-	-	-
Grant Surplus	193,400	193,400	193,400	193,400	193,400	193,400	193,400	193,400	193,400	193,400	193,400	193,400	2,320,800
Mid-Columbia Contracts Total	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 193,400	$ 2,320,800
Total Long Term Firm Purchases	$ 49,663,388	$ 46,915,591	$ 53,155,407	$ 52,352,059	$ 53,023,547	$ 51,808,398	$ 57,182,942	$ 55,478,234	$ 47,375,325	$ 45,159,087	$ 45,088,149	$ 45,021,072	$ 602,223,199
Storage & Exchange													
APS Exchange	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cowlitz Swift	-	-	-	-	-	-	-	-	-	-	-	-	-
PSCo Exchange	-	-	-	-	-	-	-	-	-	-	-	-	-
SCL State Line	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Storage & Exchange	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Short Term Firm Purchases	$ (3,071,048)	$ 2,473,330	$ (3,252)	$ (446,612)	$ 604,471	$ 893,985	$ 104,234,133	$ 110,462,086	$ 57,974,495	$ 18,874,950	$ 17,402,935	$ 36,345,101	$ 345,744,573
Total Secondary Purchases	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Purchased Power & Net Interchange	$ 46,592,341	$ 49,388,921	$ 53,152,155	$ 51,905,447	$ 53,628,018	$ 52,702,384	$ 161,417,075	$ 165,940,320	$ 105,349,819	$ 64,034,037	$ 62,491,083	$ 81,366,173	$ 947,967,772
Wheeling & U. of F. Expense													
Firm Wheeling	$ 13,849,200	$ 13,522,500	$ 15,687,900	$ 14,755,500	$ 13,754,300	$ 15,920,600	$ 18,680,200	$ 16,009,800	$ 16,351,500	$ 14,277,800	$ 12,997,000	$ 14,459,200	$ 180,265,500
Non-Firm Wheeling	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Wheeling & U. of F. Expense	$ 13,849,200	$ 13,522,500	$ 15,687,900	$ 14,755,500	$ 13,754,300	$ 15,920,600	$ 18,680,200	$ 16,009,800	$ 16,351,500	$ 14,277,800	$ 12,997,000	$ 14,459,200	$ 180,265,500

Projected 2023 NPC

Exhibit PAC/102

	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Total 2023
						$							
Coal Fuel Burn Expense													
Cholla	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Colstrip	2,174,245	1,975,275	2,182,557	2,094,039	2,139,242	2,122,854	1,499,440	1,744,758	1,507,117	952,391	1,618,458	1,370,987	21,381,364
Craig	2,198,880	1,762,353	1,721,552	1,229,274	2,204,251	2,056,726	1,867,839	2,266,654	2,002,239	1,901,018	1,794,543	1,971,912	22,977,240
Dave Johnston	7,330,301	6,473,077	6,491,171	6,293,945	7,242,468	7,014,623	4,460,424	5,289,664	4,616,880	5,470,458	3,937,004	4,498,033	69,118,049
Hayden	974,623	769,873	832,533	785,884	943,320	856,920	936,398	780,323	1,045,441	723,673	815,013	781,521	10,245,524
Hunter	14,036,511	12,470,441	10,389,517	12,177,205	13,450,947	13,766,915	10,500,347	10,941,232	10,137,195	11,322,124	11,171,034	9,321,892	139,685,359
Huntington	12,457,934	10,811,447	10,961,709	9,584,676	10,501,738	11,217,608	9,845,578	10,145,393	7,779,898	7,471,986	8,816,671	10,593,394	120,188,032
Jim Bridger	14,897,069	14,485,395	13,116,479	8,213,163	10,495,756	12,008,887	23,845,600	25,112,897	21,917,814	18,476,924	20,052,321	21,558,445	204,180,750
Naughton	2,348,994	2,708,260	2,402,087	2,325,465	2,093,803	2,865,732	3,355,263	3,324,569	2,931,311	2,876,373	2,366,896	2,658,442	32,257,195
Wyodak	3,087,006	2,969,574	3,210,712	3,020,770	3,247,307	3,187,568	2,430,085	2,319,353	2,025,733	2,136,222	1,583,973	1,074,764	30,293,067
Total Coal Fuel Burn Expense	$ 59,505,564	$ 54,425,695	$ 51,308,317	$ 45,724,422	$ 52,318,831	$ 55,097,834	$ 58,740,974	$ 61,924,843	$ 53,963,628	$ 51,331,168	$ 52,155,914	$ 53,829,389	$ 650,326,579
Gas Fuel Burn Expense													
Chehalis	$ 15,008,276	$ 5,853,237	$ 4,628,231	$ 925,900	$ 954,700	$ 2,932,550	$ 7,181,013	$ 6,736,006	$ 7,381,445	$ 9,801,770	$ 7,154,205	$ 7,937,506	$ 76,494,841
Currant Creek	6,340,125	3,345,479	6,027,127	6,667,631	4,314,248	6,753,804	7,953,785	6,159,850	5,413,349	6,622,383	8,184,247	6,613,061	74,395,091
Gadsby	1,383,872	913,861	795,770	490,329	620,530	894,587	1,770,489	2,120,023	1,802,051	1,135,862	1,464,253	1,866,262	15,257,890
Gadsby CT	1,038,646	976,256	863,692	314,140	-	582,503	1,211,343	1,325,007	1,073,761	1,120,336	1,161,760	1,234,734	10,902,178
Hermiston	6,363,920	4,833,331	4,148,021	2,868,477	3,305,894	1,951,342	1,533,344	1,392,667	1,581,567	477,967	2,632,903	4,043,147	35,132,580
Lake Side 1	5,121,014	4,028,903	6,137,784	6,309,680	7,239,151	7,141,878	7,551,521	7,662,446	6,537,643	6,446,921	6,630,095	6,187,793	76,994,829
Lake Side 2	5,046,811	3,187,137	4,193,129	1,657,660	716,580	3,846,842	6,557,820	6,683,152	5,649,445	5,435,076	5,615,017	6,823,548	55,412,217
Naughton - Gas	875,497	534,862	764,954	720,508	568,483	980,043	3,065,708	3,165,085	1,726,489	1,778,534	1,971,756	4,620,761	20,772,679
Total Gas Fuel Burn Expense	$ 41,178,162	$ 23,673,066	$ 27,558,708	$ 19,954,326	$ 17,719,586	$ 25,083,551	$ 36,825,023	$ 35,244,236	$ 31,165,749	$ 32,818,849	$ 34,814,236	$ 39,326,813	$ 365,362,304
Other Generation													
Black Cap Solar	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Blundell	461,755	417,069	461,755	387,279	432,185	418,243	381,550	390,298	406,476	346,843	229,062	176,392	4,508,907
Total Other Generation	$ 461,755	$ 417,069	$ 461,755	$ 387,279	$ 432,185	$ 418,243	$ 381,550	$ 390,298	$ 406,476	$ 346,843	$ 229,062	$ 176,392	$ 4,508,907
Net Power Cost	$ 116,715,359	$ 113,232,882	$ 125,876,401	$ 119,801,499	$ 122,410,245	$ 123,261,822	$ 233,167,813	$ 235,026,830	$ 153,359,289	$ 127,106,128	$ 129,259,908	$ 153,157,648	$ 1,752,375,823

Application No. 23-09-___
Exhibit No. PAC/103-C
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Projected NPC Comparison to Prior ECAC

[PUBLIC VERSION]

September 2023

Application No. 23-09-___
Exhibit No. PAC/104
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

2024 California-allocated NPC

September 2023

1888815v1

Exhibit PAC/104
PacifiCorp
California 2024 Forecast Net Power Costs

Description	CY 2024 Total Company	Per Docket A.18-04-002 2017 Protocol Factor	California Factor %	CY 2024 California Allocated
Sales for Resale (Account 447)				
Existing Firm Sales PPL	-	SG	1.580%	-
Existing Firm Sales UPL	-	SG	1.580%	-
Post-merger Firm Sales	417,265,960	SG	1.580%	6,594,615
Total Revenue	417,265,960			**6,594,615**
	-			
Purchased Power (Account 555)				
Existing Firm Demand PPL	27,788,625	SG	1.580%	439,181
Existing Firm Demand UPL	9,200,052	SG	1.580%	145,401
Existing Firm Energy	86,683,767	SE	1.490%	1,291,828
Post-merger Firm	1,321,880,919	SG	1.580%	20,891,461
Other Generation	-	SG	1.580%	-
Seasonal Contracts	-	SG	1.580%	-
Total Purchased Power	1,445,553,362			**22,767,871**
	-			
Wheeling (Account 565)				
Existing Firm PPL	19,834,453	SG	1.580%	313,471
Existing Firm UPL	-	SG	1.580%	-
Post-merger Firm	138,790,535	SG	1.580%	2,193,493
Non-firm	12,819,126	SE	1.490%	191,040
Total Wheeling Expense	171,444,113			**2,698,004**
	-			
Fuel Expense (Accounts 501, 503 and 547)				
Fuel Consumed - Coal	518,160,290	SE	1.490%	7,722,020
Fuel Consumed - Gas	101,188,427	SE	1.490%	1,507,987
Steam From Other Sources	4,323,390	SE	1.490%	64,430
Natural Gas Consumed	666,999,084	SE	1.490%	9,940,130
Simple Cycle Combustion Turbines	28,608,869	SE	1.490%	426,351
Cholla/APS Exchange	-	SE	1.490%	-
Total Fuel Expense	1,319,280,060			**19,660,919**
	-			
CY 2024 Net Power Cost	**2,519,011,575**			**38,532,179**

Application No. 23-09-___
Exhibit No. PAC/105-C
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Direct Testimony of Ramon J. Mitchell

[PUBLIC VERSION]

September 2023

1888815v1

Unit Cycling CONFIDENTIAL

This scenario analyzes cycling of three of the largest Company owned coal units (Hunter 3 and Huntington 1 and 2)

This analysis is the cycling of **particular** coal units during **all** times of the year

Test Period is 2024

[redacted]

Please refer to Page 4 ("Explanation") for a description of the increase to net power costs resulting from cycling coal units when market prices are substantially higher than coal generation costs

Time Cycling CONFIDENTIAL

This scenario analyzes cycling during the light load months of Spring (March-May) and Fall (Oct-Nov)

This analysis is the cycling of **all Company owned** coal units during **particular** times of the year
Test Period is 2024

[redacted]

Please refer to Page 4 ("Explanation") for a description of the increase to net power costs resulting from cycling coal units when market prices are substantially higher than coal generation costs

All Cycling CONFIDENTIAL

This scenario analyzes cycling all Company owned coal units

This analysis is the cycling of **all Company owned** coal units during **all** times of the year
Test Period is 2024

[redacted]

Please refer to Page 4 ("Explanation") for a description of the increase to net power costs resulting from cycling coal units when market prices are substantially higher than coal generation costs

Explanation

Aurora performs net power costs forecasts using simulated look-ahead periods to create a temporal constraint on the cycling of generating units (this is referred to as the "look-ahead period", which is how many consecutive present and future days that are analyzed when determining whether to make startup or shutdown decisions). For example, for a seven-day look-ahead period that runs January 1st until January 7th, the decision on whether to commit (i.e., to startup or shutdown) a particular plant would be made for January 1st. A subsequent seven-day look-ahead period would begin on January 2nd and run through January 8th, with a commitment decision for January 2nd. Taken together, for each day of the year, the commitment decisions look at the current day, plus an extended number of days (the look-ahead period), to make an informed decision on whether startups or

However, look-ahead periods have a significant impact on the cycling of resources, these impacts can often result in increased NPC. By having a limited look-ahead period, the model has no knowledge of system conditions occurring after that specific look-ahead period. With high startup costs, high market prices, and increased volatility of generation from variable energy resources (VERs), Aurora can make uneconomic shutdown decisions that it otherwise would have avoided had the model had the functionality for a look-ahead capability greater than 7 days. This tendency of uneconomic decisions increases the greater the discrepancy

For example, consider the following. For commitment decisions on January 7th with a look-ahead period of 7 days (January 7th – January 13th), if Aurora determines that the cost of a coal resource's generation is greater than the cost of power available for purchase from the market, the coal resource will be shutdown (if economic cycling is permitted). Next, on the subsequent look-ahead period that begins on January 8th with a 7-day period (January 8th – January 14th), if Aurora determines a need for additional generation due to loss of generation from VERs on January 14th, re-starting the coal resource in this period may be uneconomic due to the start-up costs.

However, if the model had not shut down the coal resource on January 7th and instead operated the coal resource at its minimum generation level, then the commitment decisions made on January 8th would be better informed since the model has no other economic alternatives to replace the reduced generation from VERs on January 14th. Not allowing the economic cycling of units can result in better solutions (less costly), because the costs of running coal resources at minimum generation levels are often less than the cost of market purchases in

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This Appendix provides additional discussion for how economic cycling can increase NPC in Aurora.

For the purposes of this example assume that: Aurora is using a 7-day look-ahead period; there is a coal-fired resource named X with a dispatch cost of $30/MWh, a startup cost of $50,000, a minimum operating level of 100 MW, a maximum operating level of 500 MW, and a minimum up-time of 7 days; and a market that offers unlimited energy at a price that varies each day.

First, consider an example where the coal-fired resource is economically shut down during the first look-ahead period. On January 7th, coal-fired resource X is online at the minimum operating level of 100 MW with a look-ahead period of 7 days (January 7th – January 13th), and market prices are $25/MWh across the look-ahead period. In this example, the cost of generation from coal-fired resource X across the look-ahead period (100MW * 168hrs * $30/MWh = $504,000) is more than the cost of market purchases (100 MW * 168hrs * $25/MWh = $420,000). Therefore, Aurora would conclude that the economic decision is to shut down the resource.

Now consider the subsequent look-ahead period where this coal-fired resource remains shutdown after comparing the resource to other market alternatives. On January 8th with a look-ahead period of 7 days (January 8th – January 14th), there is a need for additional energy due to the loss of a 100 MW resource on January 14th, and the market price on January 14th is $50/MWh, and falls to $25/MWh on January 19th and remains at that price until January 22nd. In this example, the loss of the 100 MW resource is covered by market purchases and therefore market purchases from January 14th – January 22nd would cost $600,000 (200MW * 24hrs * $50/MWh + 100MW * 144hrs * $25/MWh = $600,000), while starting-up and operating coal-fired

However, if coal-fired resource X had not been shutdown to begin with, the cost of operating the coal-fired resource across that January 14th – January 22nd time period would have been $576,000 (200MW * 24hrs * $30/MWh + 100MW * 144hrs * $30/MWh = $576,000). This is a lower cost outcome compared to the shutdown and resulting market purchases that otherwise would have been avoided if the resource could have continued to operate ($576,000 to continue operating the coal plant, compared to $600,000 for shutting down the unit and purchasing market power).

By having a limited look-ahead period, the model has no knowledge of system conditions occurring after the look-ahead period. Hence when the model cycles coal resources, it makes shutdown decisions that would otherwise been avoided if the look-ahead period were greater than the available seven days (for example, one year long). These shutdown decisions are often uneconomic in retrospect, and this is often expected because: 1) Aurora does not allow for the look-ahead period to be greater than 7 days; 2) like Aurora, in actual operations there is a look-ahead period of 2-3 days beyond which the expected system conditions are either not know or substantially uncertain; and 3) startup costs present a high hurdle rate to overcome when considering the economics of repeatedly shutting down and starting up coal-fired resources.

Application No. 23-09-___
Exhibit No. PAC/106-C
Witness: Ramon J. Mitchell

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

PACIFICORP 2024 ECAC

Coal Volumes

[PUBLIC VERSION]

September 2023