



Portland General Electric Company

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August 10, 2023

Via Electronic Filing

Public Utility Commission of Oregon
Attention: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

Re: UE 416 – In the Matter of Portland General Electric Company, Request for a General Rate Revision

Dear Filing Center:

Please find enclosed for filing in the above-captioned docket, Portland General Electric Company's Surrebuttal Testimony of Elizabeth Pedersen, Sophiya Vhora, and Stefan Cristea. A copy of the Confidential version and Highly Confidential version of PGE's Surrebuttal Testimony is being sent as a password protected encrypted zip folders, individually and to those listed on the Certificate of Service filed concurrently.

Thank you in advance for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Jaki Ferchland". The signature is written in a cursive, flowing style.

Jaki Ferchland
Manager, Rates and Regulatory Affairs

JF/dm
Enclosure

BEFORE THE PUBLIC UTILITY COMMISSION
OF THE STATE OF OREGON

UE 416

Net Variable Power Costs (NVPC)

PORTLAND GENERAL ELECTRIC COMPANY

Direct Surrebuttal Testimony of

Elizabeth Pedersen
Sophiya Vhora
Stefan Cristea

August 10, 2023

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1 **I. Introduction**

2 **Q. Please state your names and positions with Portland General Electric (PGE).**

3 A. My name is Elizabeth Pedersen. My position at PGE is Interim Manager, Power Cost Forecast.
4 My qualifications were previously provided in PGE Exhibit 1500.

5 My name is Sophiya Vhora. My position at PGE is Manager, Trading Strategy and
6 Analytics, Power Operations. My qualifications are provided in Section IV of this testimony.

7 My name is Stefan Cristea. My position at PGE is Regulatory Consultant, Rates and
8 Regulatory Affairs. My qualifications were previously provided in PGE Exhibit 300.

9 **Q. What is the purpose of your testimony?**

10 A. The purpose of our testimony is to respond to the issues and proposed adjustments put forward
11 by the Alliance of Western Energy Consumers (AWEC) regarding flexibility down reserves
12 modeled in the 2024 Net Variable Power Cost (NVPC) forecast and PGE's July 14, 2023
13 MONET Update.

14 **Q. How is the remainder of your testimony organized?**

15 A. After this introduction, we have three sections:
16 Section II: Overview and Summary
17 Section III: AWEC's Proposed Adjustments
18 Section IV: Qualifications

II. Overview and Summary

1 **Q. Please provide a summary of your testimony.**

2 A. Our testimony addresses arguments made in AWEC's Direct and Rebuttal testimony, AWEC
3 Exhibits 100 and 400 respectively. As we will discuss and demonstrate in our testimony,
4 AWEC's proposed adjustments are largely based on misguided assumptions, and they are
5 unrealistic and opportunistic in seeking benefits without recognizing associated costs and risk.
6 Additionally, AWEC's recommendations are in conflict with long-standing Schedule 125
7 guidelines and practices. AWEC's recommended reductions would unfairly introduce a
8 significant and unreasonable downward bias on PGE's NVPC forecast and significantly
9 increase the risk of generation reliability, making it unlikely that PGE would recover its
10 prudently incurred NVPC for 2024.

11 **Q. Did other parties submit rebuttal testimony related to NVPC issues?**

12 A. The Public Utility Commission of Oregon (OPUC) Staff (Staff) filed Rebuttal and Cross
13 Answering Testimony indicating that they have not reached a conclusion on the issue of how
14 reserves are modeled in MONET, but they would review the testimony and may address it in
15 briefs.¹ Staff did not raise any additional issues with PGE's 2024 NVPC forecast in their
16 rebuttal testimony. While they did not file testimony, the Citizens' Utility Board of Oregon
17 submitted notice in this docket that they reserved the right to respond to further Annual Power
18 Cost Update issues and participate in full as a party throughout this docket.²

¹ Staff/2800, Dlouhy/6 at 14-18.

² CUB Letter on APCU Rebuttal Testimony (filed Jul. 21, 2023).

1 **Q. Did Staff take a position on other adjustments proposed by AWEC?**

2 A. Yes. Staff addressed AWEC's recommendation regarding PGE's thermal capacity
3 parameters. Staff stated that they find PGE's modeling of thermal capacities reasonable.³

4 **Q. Did parties reach a partial settlement on NVPC issues during the June 14, 2023 and July
5 11, 2023 settlement conferences?**

6 A. Yes. Participating parties reached agreement in principle on the majority of NVPC forecast
7 issues raised by parties in their opening testimony. The only unresolved NVPC items from
8 opening testimony were AWEC's flexibility downward reserve and thermal capacities issues.

9 **Q. Did AWEC accept PGE's response regarding AWEC's CAISO Master File Parameters
10 adjustment?**

11 A. Yes. AWEC accepted PGE's response regarding their proposed adjustment associated with
12 modeling thermal resource capacities based on CAISO Energy Imbalance Market (EIM or
13 CAISO EIM) master file capacities reported by PGE to EIM. Therefore, PGE will not address
14 that item in this testimony.

15 **Q. Please summarize your review of AWEC's position on the remaining issues.**

16 A. In addition to the flexibility downward reserve, AWEC raised three additional issues related
17 to PGE's July 14, 2023 MONET Update. AWEC's consolidated recommended reduction for
18 the issues discussed in AWEC Exhibit 400 is approximately **[BEGIN CONFIDENTIAL]**
19 **[REDACTED]** **[END CONFIDENTIAL]**. This reduction is both exorbitant and unrealistic.
20 As described in more detail below, PGE finds AWEC's recommendations for the remaining
21 items to be: (1) inaccurate, (2) opportunistic and one-sided in seeking benefits (without
22 recognizing costs or risks), (3) not supported by reasonable assumptions, and/or (4) based on

³ Staff/2800, Dlouhy/6 at 8-10.

1 incomplete or erroneous analysis. If implemented in their entirety, AWEC’s recommendations
2 and their associated reductions would unfairly introduce a significant downward bias on
3 PGE’s NVPC forecast, making it highly unlikely that PGE would recover its prudently
4 incurred power costs in 2024 under the construct of the current Power Cost Adjustment
5 Mechanism (PCAM).

6 **Q. What specific issues do you address in your testimony?**

7 A. We address the following issues raised by AWEC:

- 8 • Flexibility Down Reserves (Section II-A)
- 9 • MONET July 14th Update (Section II-B)
 - 10 ○ Lydia Model Correction
 - 11 ○ Faraday Unit 6 Planned Outage
 - 12 ○ Round Butte Planned Maintenance

13 **Q. What is your recommendation to the Commission?**

14 A. We recommend the Commission reject AWEC’s proposals to: remove downward flexibility
15 reserves; remove the modeling of costs for unmet AS capacity (aka ‘hydro spill’); and include
16 diversity reserve benefits from the EIM in the MONET modeling of flexibility reserve
17 requirements. We also recommend the Commission reject AWEC’s proposed adjustment after
18 the July 14 MONET Update as well as their recommendation to not recognize a maintenance
19 outage for Faraday Unit 6 and delay an outage at Round Butte.

III. AWEC's Proposed Adjustments

A. Flexibility Down Reserves

1 **Q. Please summarize AWEC's recommendation regarding flexibility down reserves?**

2 A. In rebuttal testimony, AWEC is recommending that "voluntary hydro spill be removed from
3 MONET as an out of model adjustment" and that "flexibility reserve diversity benefits from
4 the EIM be incorporated into MONET reserve requirements."⁴ Additionally, AWEC
5 continues to recommend "an adjustment removing flexibility reserves" from the MONET
6 modeling. AWEC's recommended adjustment related to these issues is a reduction to the 2024
7 NVPC forecast of approximately [BEGIN CONFIDENTIAL] [REDACTED] [END
8 CONFIDENTIAL].

9 **Q. Do you agree with AWEC's recommendation?**

10 A. No. AWEC's recommendation inappropriately seeks benefits without recognizing costs and
11 the reliability risk associated with implementing their proposal. Additionally, AWEC's
12 adjustment is unreasonable because it: 1) is not reflective of historical power cost variance
13 results, 2) is based on erroneous assumptions, 3) does not factor in the cost for holding reserves
14 with thermal resources although PGE provided this cost in Reply Testimony,⁵ and 4) results
15 in double counting of EIM diversity benefits.

16 **Q. How did you organize your Surrebuttal Testimony on this issue?**

17 A. First, we will discuss AWEC's proposal to remove 'hydro spill' from the MONET modeling
18 and explain why removal is not appropriate. Second, we will discuss AWEC's proposal
19 regarding the modeling of EIM diversity reserve benefits in MONET and explain why this

⁴ AWEC/400, Mullins/2 at 1-13.

⁵ PGE calculated a cost of approximately \$235,000 associated with meeting flexibility down reserves with thermal resources. See PGE Exhibit 1500, Section II-A for details and PGE Exhibit 3002 for PGE's calculations.

1 adjustment represents a double counting of benefits. Third, we will address AWEC’s proposal
2 to remove the flexibility downward reserves from the MONET modeling. Finally, we will
3 address AWEC’s comments regarding the validity of PGE’s Visual Basic for Applications
4 (VBA) script for the Ancillary Services (AS) hydro module, and then summarize our position.

5 **1. PGE’s Response to AWEC’s ‘Hydro Spill’ Adjustment**

6 **Q. What does AWEC argue with regards to the ‘hydro spill’ quantity modeled in MONET?**

7 A. AWEC argues that PGE’s modeling of flexibility reserves is inaccurate because it is producing
8 a “large volume of voluntary hydro spill”⁶ that is not consistent with PGE’s actual operations.

9 **Q. What is AWEC’s recommendation regarding ‘hydro spill’?**

10 A. AWEC recommends an outboard adjustment that removes all ‘hydro spill’ from the 2024
11 NVPC forecast. This results in a [BEGIN CONFIDENTIAL] [REDACTED] [END
12 CONFIDENTIAL] reduction to the 2024 NVPC forecast if AWEC’s recommendation is
13 applied before AWEC’s adjustment related to EIM diversity reserve benefits. If modeled as
14 last step, AWEC’s recommendation to remove all ‘hydro spill’ results in a [BEGIN
15 CONFIDENTIAL] [REDACTED] [BEGIN CONFIDENTIAL] reduction.

16 **Q. Do you agree with AWEC’s recommendation?**

17 A. No. AWEC’s proposed adjustment is overly simplistic and does not account for important
18 differences between the MONET modeling and PGE’s actual operations. We will discuss
19 below what ‘hydro spill’ represents and why it is an appropriate modeling approach to meet
20 flexible reserve requirements in the MONET model.

⁶ AWEC/400, Mullins/3 at 1.

1 **Q. How does AWEC define ‘hydro spill’?**

2 A. AWEC states that hydro spill is “lost energy from running water over or through a
3 hydroelectric impoundment without generating electricity.”⁷

4 **Q. Is that the right definition for ‘hydro spill’ for purposes of PGE’s MONET modeling?**

5 A. While AWEC’s definition for ‘hydro spill’ may be accurate outside of the MONET modeling,
6 the term holds a different meaning within the MONET modeling. In MONET, ‘hydro spill’ is
7 a modeling approach used to estimate the costs associated with unmet AS capacity that is
8 resolved through wholesale market power purchases of equal generation quantity at the market
9 price. The unmet AS capacity represents the additional reserve capacity that is needed when
10 PGE’s reserve quantity requirement is greater than flexible capacity available on PGE’s
11 resources. Instances when there is unmet AS capacity occur in both the MONET AS modeling
12 and in PGE’s actual power operations.

13 **Q. When did PGE first begin using the hydro spill concept in the NVPC forecast?**

14 A. PGE introduced the ‘hydro spill’ modeling concept as part of the AS modeling enhancement
15 included in PGE’s 2014 NVPC forecast. In that docket, UE 262, PGE discussed how the AS
16 modeling enhancement improved the logic used to allocate AS while optimizing Mid-C hydro
17 projects generation and provided that:

18 This enhancement also includes new functionality that re-dispatches (after the
19 economic dispatch occurs) eligible thermal plants in order to cover ancillary
20 service needs that are unmet by the Mid-C resources for a given hour. Ancillary
21 service needs that remain unmet at this point are assumed to be satisfied by
22 spilling water, which allows for the provision of additional dynamic capacity by
23 reducing hydro generation.⁸

⁷ AWEC/400, Mullins/3 at 11.

⁸ *In the Matter of Portland General Electric Company, Request for a General Rate Revision*, Docket UE 262, PGE/400, Niman-Peschka/15-16 at 23-5 (Feb. 15, 2013).

1 In UE 262, the AS modeling enhancement resulted in a \$1.9 million overall reduction to
2 the 2014 NVPC forecast. AWEC (then ICNU) did not raise any issues with the AS modeling
3 enhancement in general or the ‘hydro spill’ concept in particular, and neither did any other
4 party to that docket.

5 **Q. Does PGE voluntarily spill hydro generation in actual operations to ensure adequate**
6 **reserves to reliably meet customer demand?**

7 A. PGE does not voluntarily spill hydro generation unless it is required due to environmental,
8 biological, or specific plant operation circumstances (such as if inflow exceed the generating
9 capacity of the plant or the plant is in an outage). As mentioned above, PGE resolves any
10 unmet AS capacity through wholesale market purchases.

11 **Q. If PGE does not rely on voluntarily spilling hydro generation to meet its reserve**
12 **requirements in actual operations, why does the MONET model reflect unmet AS**
13 **capacity in the form of ‘hydro spill’?**

14 A. MONET is a single stage, energy focused model that does not have the ability to dynamically
15 re-optimize PGE’s portfolio at every operational stage, from term to day-ahead to real-time.
16 As a result, MONET does not contemplate the friction associated with transitioning through
17 the different trading and operating horizons. MONET will economically dispatch all PGE
18 resources, meet the reserve requirement, and utilize forecasted energy generation for meeting
19 load before assuming there is excess energy to sell into the market or a need for additional
20 purchases to meet load.

21 The result is that MONET will meet required flexibility reserves through a reduction in
22 hydro capacity before assuming there is access to the market.

1 **Q. If PGE wouldn't voluntarily perform a hydro spill in actual operations, is AWEC correct**
2 **that the MONET model is producing erroneous results?**

3 A. No. This modeling construct is analogous to wholesale power purchases and not necessarily
4 an indicator of actual voluntary hydro spill. The cost impact of market purchases is the same
5 as 'hydro spill'. As a result, this is an accurate modeling method to account for projected costs
6 to meet AS requirements. This modeling convention is a necessary and accurate compromise
7 to measure the obligation in dollars: MONET recognizes the unmet AS capacity in the form
8 of 'hydro spill' because there is no liquid forward market for AS type products.

9 **Q. How does PGE meet its flexibility reserve requirements in actual operations?**

10 A. In actual operations, PGE re-optimizes its portfolio at every operational stage, from day-
11 ahead, to hour-ahead, to intra-hour, to moment-to-moment. This means that PGE will engage
12 in market transactions, including energy purchases to be used for flexibility reserves if needed,
13 and re-position of available generation resources between PGE's day-ahead commitments,
14 hour-ahead commitments, and real-time dispatch. Any market transactions for this purpose
15 will be subject to the then prevailing current market conditions and portfolio set up: these
16 additional conditions are not known and knowable until the day and hour of operations. This
17 ensures that PGE's resource portfolio is positioned in such a way that voluntary loss of hydro
18 generation is properly weighted against all other alternatives to meet the reserve obligation.
19 'Hydro Spill' is a good proxy for costs and operational decisions.

20 **Q. Is there any evidence that the MONET modeling regarding unmet AS capacity resulted**
21 **in significant over forecast of power costs?**

22 A. No. The unmet AS capacity modeled in MONET was consistently low between the AS
23 modeling enhancement in PGE's 2014 GRC and PGE's 2023 AUT modeling. Pursuant to

1 changes in the modeling of DAFE/HAFE⁹ in the 2023 AUT,¹⁰ the unmet AS capacity
2 increased from 2MW in the MONET modeling for the 2022 NVPC forecast to approximately
3 21MW in the MONET modeling for the 2023 NVPC forecast.¹¹ However, although the unmet
4 AS capacity increased, the overall NVPC forecast decreased by approximately \$1.3 million.
5 Therefore, it is obvious that PGE's MONET modeling related to reserve requirements does
6 not result in excess costs.

7 **Q. Did AWEC or any other party raise issues regarding PGE's DAFE/HAFE modeling**
8 **update in UE 402?**

9 A. No party raised issues or recommended changes to PGE's updated DAFE/HAFE method in
10 UE 402.

11 **Q. Does the increase in unmet AS capacity resulting from the enhanced DAFE/HAFE**
12 **modeling warrant a power cost adjustment of AWEC's proposed magnitude?**

13 A. No. As provided above, while increasing the unmet AS capacity, the implementation of
14 DAFE/HAFE reserve modeling still provided for a more efficient dispatch of PGE's overall
15 resource portfolio and resulted in an overall reduction to NVPC of approximately \$1.3 million
16 in the 2023 test year. Consequently, AWEC is only looking at one side of a two-sided
17 equation: while the current AS module results in increased unmet AS capacity relative to
18 PGE's prior method for modeling DAFE/HAFE reserves, AWEC ignores the more efficient
19 dispatch of the overall PGE portfolio, which more than offsets the cost associated with this

⁹ Day-Ahead Forecast Error / Hour-Ahead Forecast Error.

¹⁰ In the 2023 AUT filing, PGE removed the direct financial adjustment associated with DAFE and instead, proposed a method that was based on quantile regression of historical observed data to determine physical regulation reserves that need to be held for both DAFE and HAFE. PGE also held a pre-filing workshop with parties where we discussed our proposed DAFE/HAFE modeling changes and described in detail the enhanced methodology in UE 402, PGE Exhibit 100, Section III.D.

¹¹ The unmet AS capacity increased because PGE's update to DAFE (for wind) reserve modeling in the 2023 AUT moved from a financial cost adjustment calculation to a physical system reserve MW requirement inboard to MONET that needed to be met by PGE's generation resources.

1 increase. AWEC's adjustment is unrealistic, extreme, and does not result in a more accurate
2 power cost forecast.

3 **2. PGE's Response to AWEC's EIM-Related Adjustment to PGE Reserve Requirements**

4 **Q. What does AWEC argue regarding the EIM reserve requirements?**

5 A. First, AWEC argues that PGE's flexibility reserves are overstated in MONET relative to
6 actual EIM flexibility reserve requirement.¹² Second, AWEC argues that "the reserve
7 requirements that PGE is assuming" are misstated because they should be offset by the EIM
8 diversity reserve benefit.¹³

9 **Q. What is the NVPC adjustment proposed by AWEC?**

10 A. AWEC recommends an EIM reserves-related reduction of [BEGIN CONFIDENTIAL]
11 [REDACTED] [END CONFIDENTIAL] to PGE's 2024 NVPC forecast.

12 **Q. AWEC states that "all hour ahead reserve requirements are managed by the EIM, and
13 it is not necessary to include additional hour-ahead flexibility reserves in MONET other
14 than those required by the EIM, including consideration of the reserve diversity
15 benefit."¹⁴ Does PGE agree with AWEC?**

16 A. No, we do not agree with AWEC. AWEC's uses this claim to support their [BEGIN
17 CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] proposed adjustment even
18 though it: 1) is based on the false premise that EIM is the authority that manages PGE's
19 Balancing Authority Area (BAA) flexibility reserve requirement; and 2) represents a double
20 counting of diversity benefits because the EIM net benefits forecast included in MONET
21 already captures the EIM diversity benefits. Additionally, AWEC's proposal ignores that

¹² AWEC/100, Mullins/11 and AWEC/400, Mullins/7 at 19-21.

¹³ AWEC/400, Mullins/10 at 3-4.

¹⁴ *Id.* 7 at 19-22.

1 PGE’s primary responsibility is to optimize PGE’s portfolio to reliably meet customer loads
2 while also complying with all applicable rules and regulations and not to gain financial
3 benefits from participating in the EIM.

4 **Q. Is EIM the authority that manages PGE’s Balancing Authority Area reserve**
5 **requirements?**

6 A. No. AWEC claims “all hour ahead reserve requirements are managed by the EIM.”¹⁵ This is
7 not true. EIM is an incremental sub-hourly, voluntary market and is not a regional
8 transmission organization (RTO). That means, balancing authorities such as PGE BAA retain
9 the responsibility of maintaining system reliability, which includes but is not limited to
10 meeting all the NERC, WECC,¹⁶ and internal balancing authority reliability requirements.
11 This distinction is made clear in the EIM Business Practice Manual, Section 11.1.1 (Ancillary
12 Services): “EIM participants will be responsible for procuring and managing their own
13 ancillary services in conformance with NERC and WECC requirements.”¹⁷ Consequently, in
14 order to participate in the EIM, PGE must demonstrate that we can meet our load following /
15 flexible ramping requirements on our own.

16 **Q. Is AWEC proposing an NVPC adjustment that reduces MONET flexibility reserves so**
17 **that the modeling only reflects the flexibility reserve requirement established by EIM?**

18 A. No. Although AWEC questioned the response we provided in PGE Exhibit 1500 to this
19 matter, AWEC did not apply a reduction to the MONET flexibility reserves in the study they
20 performed to support the flexibility reserve adjustment proposed in their Rebuttal Testimony.

¹⁵ *Id.*

¹⁶ North American Reliability Corporation and Western Electricity Coordinating Council

¹⁷ See at:

https://bpmcm.caiso.com/BPM%20Document%20Library/Energy%20Imbalance%20Market/BPM_for_Energy%20Imbalance%20Market_V29_redline.pdf

1 To reiterate our response on this issue, even if the EIM flexibility reserve requirement is
2 finalized within the hour-ahead at 55-minutes prior the start of the hour, it is still only
3 considering the historical forecast error observation, which is the difference between forecasts
4 in the 5-minute market and the forecast in the 15-minute market.

5 As previously described in PGE Exhibit 1500, the flexible ramping reserves requirement
6 in the EIM is only a subset of the flexibility reserve requirement modeled in PGE's AS model,
7 which addresses different timeframes.¹⁸ Therefore, we would not find it appropriate to reduce
8 the MONET flexibility reserve to reflect only the EIM flexibility reserve requirement.

9 **Q. If AWEC did not adjust the MONET flexibility reserve requirements to be consistent**
10 **with EIM flexibility reserve requirements, how did AWEC calculate the [BEGIN**
11 **CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] adjustment you mentioned**
12 **above?**

13 A. The proposed NVPC reduction appears to only be based on AWEC's EIM diversity reserve
14 benefit adjustment. In short, AWEC reduced the MONET flexibility reserves to reflect the
15 potential EIM diversity reserve benefit that PGE may receive from participating in the EIM.¹⁹

16 **Q. Is AWEC's recommendation to reduce the MONET flexibility reserves by the EIM**
17 **diversity reserve benefit appropriate?**

18 A. No. Reducing PGE's flexibility reserve requirements on the basis that PGE can monetize the
19 EIM diversity reserve benefits outside of the EIM market represents double counting of these
20 benefits. We explain below why.

¹⁸ See PGE Exhibit 1500, Section II-A, pages 8-9, lines 14-14 and Figure 1. DAFE/HAFE flexibility reserve requirements in the MONET model accounts for forecast errors from day-ahead to hour-ahead, forecast changes for hour-to-hour, and forecast errors within the hour.

¹⁹ The EIM diversity reserve benefit is the difference between the sum of the individual flexible ramping requirements of each BAA in the EIM Area and the flexible ramping requirement for the entire EIM Area taken as a whole.

1 **Q. When does PGE receive EIM diversity reserve benefits?**

2 A. The EIM diversity reserve benefits are “unlocked” only after PGE passes the EIM resource
3 sufficiency/flexible ramping test that is designed to ensure that no EIM participant will be
4 leaning on the market for capacity and flexibility.

5 **Q. Why does AWEC’s recommendation regarding EIM diversity benefits represent double**
6 **counting?**

7 A. AWEC’s recommendation represents double counting of benefits because PGE customers
8 already receive the EIM diversity reserve benefits as part the EIM sub-hourly dispatch benefits
9 included in NVPC forecast. Specifically, once the resource sufficiency test is passed, the
10 capacity that PGE held out in previous market timeframes for uncertainty will be made
11 available for EIM to dispatch—if economical—in the form of the diversity reserve benefit.
12 Because PGE does not realistically have the ability to trade the diversity reserve benefit
13 bilaterally outside of the EIM market, this “freed-up” capacity is accounted for in PGE’s
14 resource trading limits used to calculate the sub-hourly dispatch benefits included in the
15 NVPC forecast as part of the overall EIM net benefits. Additionally, to the extent CAISO
16 issues flexible ramping awards to PGE, this revenue is included as part of the EIM net benefit
17 calculation as well.

18 **Q. Please briefly discuss how PGE determines the trading limits applied to the EIM sub-**
19 **hourly dispatch benefits method.**

20 A. The trading limits are based on a three-year weighted average of actual incremental and
21 decremental transaction data, which incorporates the resource capacity associated with the
22 EIM diversity reserve benefits. PGE proposed the EIM trading limit modeling pursuant to

1 collaborative engagement from parties during the 2021 AUT proceeding,²⁰ including an EIM
2 workshop held prior to submitting the 2022 NVPC forecast.²¹

3 **Q. Please describe further PGE’s discussion of the EIM diversity benefits during the EIM**
4 **workshop held prior to the filing of the 2022 AUT?**

5 A. In PGE’s 2021 AUT, Staff requested that PGE address “the issue of reduced reserve”²²
6 associated with participation in the EIM. Parties to UE 377 reached an agreement wherein
7 PGE committed to hold a workshop that would provide details regarding the “interaction
8 between PGE’s participation in the EIM and PGE’s reserve requirements.”²³ PGE held the
9 workshop on January 25, 2021, prior to submitting the 2022 NVPC forecast. Exhibit 3001
10 provides the workshop presentation. As part of the presentation PGE detailed how
11 participation in the EIM does not reduce PGE’s reserve need during the set up for the operating
12 hour and discussed why EIM participants are not expecting to be able to monetize EIM
13 diversity benefits through bilateral transactions outside of the EIM market. No party raised
14 issues with PGE’s treatment of EIM diversity reserve benefits and the modeling for EIM
15 trading limits and sub-hourly dispatch benefits in the 2022 AUT.

16 **Q. Is PGE claiming that it does not receive a diversity benefit against its flexibility reserve**
17 **requirements in the EIM?**

18 A. No. While AWEC makes such a claim in its rebuttal testimony,²⁴ AWEC’s statement
19 misunderstands PGE’s testimony. PGE did not state that we do not receive EIM diversity
20 benefits. Instead, we provided that the EIM diversity benefits are “unlocked” only after we

²⁰ *In the Matter of Portland General Electric Company, 2021 Annual Power Cost Update Tariff*, Docket UE 377.

²¹ *In the Matter of Portland General Electric Company, 2021 Annual Power Cost Update Tariff (Schedule 125)*, Docket No. UE 391.

²² See UE 377, Staff/200, Enright/11 at 9-10 (Jun. 26, 2020).

²³ UE 377, Order No. 20-390, Appendix A(2.d.ii) at 2.

²⁴ AWEC/400, Mullins/8 at 1-2.

1 pass the EIM resource sufficiency / flexible ramping test.²⁵ We continue to stand by this
2 assertion and AWEC does not seem to contest this fact.²⁶

3 AWEC asserts PGE inaccurately stated that the EIM resource sufficiency test is
4 performed without the inclusion of EIM diversity benefits. Instead, we provided that “within
5 EIM, both up and down uncertainty requirement for a given 15-min interval in the next hour
6 is calculated without diversity benefit because EIM requires that each participating Balancing
7 Authority can stand on their own before benefiting from the diversity.”²⁷ The uncertainty up
8 and down requirement is not equivalent to the EIM resource sufficiency/ramping flexibility
9 test. It is only one component of the test.²⁸

10 **3. PGE’s Response to AWEC’s Proposal to Remove Downward Flexibility Reserves**

11 **Q. What does AWEC argue regarding the flexibility downward reserves?**

12 A. AWEC continues to argue that the flexibility downward reserves should be removed from the
13 2024 NVPC forecast.

14 **Q. What was AWEC’s initial proposed adjustment regarding the removal of flexibility 15 downward reserves from the MONET modeling?**

16 A. In opening testimony, AWEC proposed a \$48.6 million reduction to the 2024 NVPC forecast
17 that was based on faulty and incomplete analysis. We responded to AWEC’s initial

²⁵ See PGE/1500, Outama-Pedersen-Cristea/9 at 17.

²⁶ See AWEC/400, Mullins/9 at 3-4.

²⁷ See PGE/1500, Outama-Pedersen-Cristea/9 at 17-19.

²⁸ The flexible ramping need is effectively composed of three components: (1) load following, (2) uncertainty, and (3) diversity benefit. Load following calculates the load change between hours. Uncertainty is CAISO’s calculation for load and variable energy resource forecast error by using historical forecast error observation, which is the difference between forecasts in the 5-minute market and the forecast in the 15-minute market. Diversity benefit is CAISO’s calculation for reducing the flexible ramping need due to the pooling of need across Balancing Authority Areas

1 recommendation and provided details in our Reply Testimony, PGE Exhibit 1500, Section
2 II.A, and PGE Exhibit 1501.

3 **Q. What is the NVPC reduction that AWEC is proposing in Rebuttal Testimony with**
4 **regards to removing the flexibility downward reserves from the 2024 NVPC forecast?**

5 A. AWEC's proposed reduction is now [BEGIN CONFIDENTIAL] [REDACTED] [END
6 CONFIDENTIAL].

7 **Q. What is the basis for AWEC's [BEGIN CONFIDENTIAL] [REDACTED] [END**
8 **CONFIDENTIAL] proposed adjustment?**

9 A. AWEC is basing this adjustment on PGE's analysis described in PGE Exhibit 1501. However,
10 AWEC inappropriately disregards the NVPC impact and costs associated with allocating the
11 downward flexibility reserves to thermal resources. PGE described this NVPC impact in PGE
12 Exhibit 1501²⁹ and provided supporting workpapers detailing the calculation.

13 **Q. What is the NVPC impact associated with allocating the downward flexibility reserves**
14 **to thermal resources?**

15 A. PGE estimated a total cost of approximately \$235,000. Exhibit 3002 provides PGE's analysis.
16 Consequently, using PGE's July 14, 2023 MONET Update filing, the net impact associated
17 with re-allocating all flexibility downward reserves from hydro plants to thermal plants is a
18 NVPC reduction of approximately \$253,000. PGE is willing to reduce the 2024 NVPC
19 forecast by this amount and continue to investigate and potentially refine further the AS
20 modeling method described in PGE Exhibit 1501.

²⁹ PGE/1501C, Outama-Pedersen-Cristea/3 at 7-21.

1 **4. PGE’s Response to AWEC’s Claims Regarding the Ancillary Services VBA Script**

2 **Q. What does AWEC argue regarding the VBA script for the AS hydro module?**

3 A. AWEC states that PGE’s VBA scripts for reserves are erroneous because they are using
4 symmetrical upward and downward flexibility reserve and it results in “voluntary spill [...] of
5 hydro energy to satisfy reserve requirements.”³⁰ Additionally, AWEC asserts that “the VBA
6 scripts are nearly impossible to audit, particularly given the ad hoc way they have been written
7 by various analysts over the years.”³¹

8 **Q. How do you respond to AWEC’s statement that PGE’s VBA script for reserves is**
9 **erroneous?**

10 A. We do not agree with AWEC. First, regarding the ‘hydro spill’, we explained in Section II.A.1
11 of this testimony why it is an accurate modeling method to account for projected costs to meet
12 AS requirements. Second, the application of symmetrical up and down flexibility reserves is
13 not incorrect; it is deliberate and working as originally intended. The AS hydro module
14 consistently applied the symmetrical up and down flexibility reserve modeling conventions
15 since its implementation in PGE’s 2014 GRC. For more detail regarding PGE’s AS modeling
16 see PGE Exhibit 3003.

17 **Q. Please discuss why it is reasonable to model symmetrical up and down flexibility**
18 **reserves.**

19 A. As previously described, MONET is a single stage, energy focused model that has limited
20 ability to contemplate the friction associated with transitioning through the different trading
21 and operating horizons. Therefore, certain modeling simplifications, such as using

³⁰ AWEC/400, Mullins/6-7 at 20-1.

³¹ AWEC/400, Mullins/6 at 18-19.

1 symmetrical up and down flexibility reserves, are warranted and required to represent
2 complex sub-hourly operations. For example, modeling symmetrical up and down flexibility
3 reserves simplifies the MONET model and avoids modeling complexities and potential
4 additional costs associated with asymmetrical energy generation that would be required for
5 following the asymmetrical up and down sub-hourly error. Furthermore, without modeling
6 the full complexity of asymmetric flexibility reserves, we have demonstrated through the
7 analysis performed in support of our Reply Testimony, PGE Exhibit 1500, that there is
8 minimal impact to the NVPC forecast from using asymmetrical flexibility reserves compared
9 to the current symmetrical modeling (i.e., \$235,000 reduction). Based on that analysis in
10 addition to not seeing strong biases in PCAM results, we can conclude that the symmetrical
11 up and down flexibility reserve is a reasonable modeling approach.

12 **Q. AWEC claims that the VBA script is nearly impossible to audit. How do you respond?**

13 A. While the MONET model as a whole and, the VBA script for ancillary services in particular,
14 are complex modeling tools that can be difficult to audit in a short timeframe for an external
15 party that is not familiar with all its details, we do not agree that it is “nearly impossible to
16 audit.” For example, in a study and analysis of the VBA script code, an informed party could
17 have relatively easily identified that up and down flexibility reserves are symmetrical by
18 reviewing the AS modeling white paper³² included in the PGE’s initial filing MFRs (Volume
19 8 – Ancillary Services) and the results report called “MidC Ancillary Service Reports.”

20 Additionally, AWEC supports this claim on the basis that the VBA script for ancillary
21 services was “changed ad-hoc over the years by various analysts.”³³ This is untrue. The VBA
22 script for ancillary services remained unchanged since implementation in PGE’s 2014 GRC

³² Provided in support of this testimony as Highly Confidential Exhibit 3003.

³³ *Id.*

1 until PGE's 2023 AUT, when PGE made minor changes to include the Frequency Response
2 Obligation (FRO) in the modeling. The 2023 AUT modeling changes were not "ad hoc," they
3 were documented by PGE in the MFRs and in PGE's testimony.³⁴ However, even with the
4 FRO-related modeling changes, PGE did not change the VBA script related to how up and
5 down flexibility reserves are symmetrically applied.

6 **5. Summary of PGE's Position on AWEC's Flexibility Reserve Recommendations**

7 **Q. Please summarize your position on AWEC's recommendation and arguments regarding**
8 **flexibility down reserves.**

9 A. PGE fundamentally disagrees with AWEC's recommendations. AWEC's proposal regarding
10 the removal of the unmet AS capacity is overly simplistic and does not consider the
11 fundamental differences between the MONET modeling and actual PGE power operations.
12 Additionally, AWEC's proposal regarding the reduction of PGE's flexibility reserve
13 requirements based on the assumption that PGE receives EIM diversity reserve benefits is
14 untenable in actual operations and represents double counting of these benefits. Finally,
15 AWEC's proposal to reduce the NVPC forecast based on PGE's analysis that re-allocated
16 flexibility reserves to thermal resources does not recognize the associated costs, although PGE
17 detailed those costs in Reply Testimony.

18 Therefore, AWEC's overall recommendation regarding PGE's flexibility reserves, results
19 in a massively inflated and unrealistic power cost adjustment that cannot be achieved in actual

³⁴ *In the Matter of Portland General Electric Company, 2023 Annual Power Cost Update*, Docket UE 402, PGE/100, Vhora-Outama-Cristea at Section III.E (Apr. 1, 2022).

1 operations, which is evident given PGE's historical PCAM results.³⁵ The Commission should
2 reject AWEC's proposal regarding flexibility down reserves.

B. July 14th, 2023 MONET Update

3 **Q. What is AWEC's recommendation regarding PGE's July 14, 2023 MONET Update?**

4 A. AWEC raises issues regarding PGE's correction to the Lydia model, and certain hydro
5 planned maintenance outages at Faraday Unit 6 and the Round Butte hydro facility. Their
6 proposed NVPC adjustment related to these items is a reduction of approximately \$11 million.

7 **Q. What is your position regarding AWEC's proposed adjustments?**

8 A. We do not agree with AWEC's recommendations. AWEC's proposed adjustments are seeking
9 benefits without recognizing costs, contrary to long-standing Schedule 125 practices
10 regarding modeling corrections and guidelines for maintenance updates. AWEC's
11 recommendation is also speculative since AWEC is proposing to remove modeling
12 corrections and maintenance updates that result in a power cost increases, while effectively
13 accepting (or raising no issue) with the modeling corrections and maintenance updates that
14 result in a power cost decrease. We discuss AWEC's recommendations for the July 14, 2023
15 MONET Update items below.

16 **Q. Did PGE make modeling corrections as part of MONET updates in prior AUTs or**
17 **GRCs?**

18 A. Yes. The MONET model is a large and complex model with thousands of inputs and advanced
19 calculations. It is expected and normal to sometimes identify errors associated with various

³⁵ In PGE's PCAM results over the previous ten years, there is no historical year where PGE over-forecasted power costs to the magnitude proposed by AWEC. In fact, PGE's combined power cost variance for years 2021 and 2022 totaled approximately \$85 million above amounts forecast (\$61.6 million variance in 2021 and \$23.2 million in 2022)

1 inputs or modeling for specific items. It would not be prudent to simply ignore that the model
2 requires a correction and knowingly forecast an NVPC that is not as accurate as possible. This
3 is what AWEC is effectively proposing in this case: to knowingly use incorrect inputs to
4 forecast the 2024 NVPC. We do not find this to be a reasonable approach.

5 **1. Lydia Model Correction**

6 **Q. Please summarize AWEC’s recommendation regarding the Lydia model correction**
7 **included as modeling Step 47 in PGE’s July 14, 2023 MONET update.**

8 A. AWEC questions PGE’s correction to the Lydia model,³⁶ included as modeling Step 47 in
9 PGE’s July 14, 2023 MONET Update. AWEC reviewed the supporting documentation
10 submitted by PGE and identified that the correction is to “address the way that daylight
11 savings time was being considered, as well as making other modeling tweaks and changes to
12 its hourly Lydia 2.0 price calculation.”³⁷ AWEC recommends that the correction be rejected
13 and the 2024 NVPC reduced by approximately [BEGIN CONFIDENTIAL] [REDACTED]
14 [END CONFIDENTIAL].

15 **Q. How does AWEC support this recommendation?**

16 A. AWEC argues that: 1) “The procedure for an AUT filing only allows for modeling revisions
17 in PGE’s initial filing”³⁸ and therefore, the Lydia model correction should have been
18 submitted in PGE’s initial filing, 2) Schedule 125 does not allow MONET modeling
19 corrections, 3) PGE “could have corrected the alleged errors” in PGE’s “erratum to its NVPC
20 testimony in this docket on April 21, 2023” to give parties an opportunity to evaluate the

³⁶ While AWEC uses the Lydia 2.0 nomenclature, that current Lydia model version is Lydia 2.2.

³⁷ AWEC/400, Mullins/14 at 17-19.

³⁸ *Id.* 16 at 7-8.

1 reasonably of the correction,³⁹ and 4) it is “unfair for PGE to be allowed to make one-
2 sided revision that only increase NVPC while ignoring those that reduce it.”⁴⁰

3 **Q. Do you agree with AWEC’s recommendation?**

4 A. No. AWEC is vague in their description of the correction and does not clarify that the
5 correction was necessary not only to include the Daylight Savings Time (DLS) adjustment,
6 but also to ensure that the Lydia model results in accurate hourly energy price shapes. AWEC
7 is effectively arguing that PGE should knowingly model the 2024 NVPC forecast based on
8 incorrect electric price curves. This is contrary to the goal that all parties should have in
9 AUT/GRC proceedings which is to model an NVPC forecast as accurately as possible.
10 Additionally, AWEC is inconsistent in their approach regarding modeling corrections.
11 Specifically, AWEC objects against modeling corrections that increase the NVPC while not
12 raising any issues or asking questions regarding other corrections that reduced the NVPC.

13 **Q. Did you identify other issues with AWEC’s recommendation?**

14 A. Yes. AWEC’s recommendation is based on the false premise that PGE’s initial filing
15 contained the errors to the Lydia model that PGE corrected in the July 14, 2023 MONET
16 update. This is not true, and this fact undercuts the premise of AWEC’s argument.

17 **Q. Please explain why PGE corrected the Lydia model in the July 14, 2023 MONET update.**

18 A. The correction to Lydia was primarily applied to revert the energy price shaping methodology
19 back to how it was modeled in PGE’s initial filing. As part of this correction, PGE also
20 corrected the historical data to account for DLS. Below we provide a mapping of the Lydia
21 modeling issue in MONET:

³⁹ AWEC/400, Mullins/15-16.

⁴⁰ *Id.* 16 at 13-14.

- 1 • PGE’s initial filing submitted on February 15, 2023: The Lydia model is correctly applied
2 for both DLS and price shaping, and results in energy price shapes consistent with the
3 Winter, Summer, and Transition months, as intended. We should note that the Lydia
4 modeling in the initial 2024 NVPC forecast stayed consistent with how it was proposed
5 and modeled by PGE in the 2023 AUT (UE 402).
- 6 • PGE’s March 31, 2023 MONET update, Modeling Step 11: PGE updates the inputs to the
7 Lydia model to incorporate 2022 data into the 5-year rolling average of Mid-C prices and
8 wind generation data that is used to develop price and wind volatility factors. In this
9 modeling step PGE inadvertently included an error by applying 1) Transition months price
10 shapes to Summer months and 2) Summer months price shapes to Transition months.
11 Additionally, PGE did not adjust the 5-year data to account for DLS.
- 12 • PGE’s July 14, 2023 MONET Update, Modeling Step 47: PGE identified the error made
13 in the March 31, 2023 MONET update and corrects it. The Summer months price shapes
14 are correctly applied to summer months and Transition months price shapes are correctly
15 applied to transition months. Additionally, as part of this modeling step PGE adjusted the
16 historical wind generation and price data to account for DLS.

17 **Q. Why was it necessary to correct the Lydia price shaping for summer and transition**
18 **months?**

19 A. If the correction was not applied, the energy price shaping performed through the Lydia model
20 would reflect incorrect hourly price shapes during summer and transition months, significantly
21 impacting the NVPC forecast.

1 **Q. Why was it necessary to adjust the data to account for DLS?**

2 A. The correction was necessary because, if it was not applied, the MONET hour-ending logic
3 read for wind generation and price data was contemplating incorrect hours for the DLS days.
4 Specifically, the logic was resulting in: 1) one entry for hour-ending “2” in March and no
5 entry for hour ending “3” for years 2018 and 2019 and no DLS adjustment for years 2020-
6 2022 and 2) two entries for hour-ending 3 in November in years 2018-2019 and no DSL
7 adjustment for years 2020-2022. Not accounting for DLS in 2020-2022 data effectively meant
8 that the hourly historical data read into the Lydia modeling inputs was attributing the incorrect
9 wind generation to the respective hours beginning with the March DLS day and ending on the
10 November DLS day for each year. For example, in the data for 3/8/2020, the hourly wind
11 generation for the last hour of the day was shifted up by 1 hour when left unadjusted for DLS
12 as a March DLS day should have 23 hours instead of 24. Because of this difference, the
13 historical data was offset by 1 hour in 2020-2022 data for the March-November period when
14 DLS begins and ends. The correction applied as part of modeling step 47 was not a modeling
15 enhancement, it was a correction to ensure accurate application of wind generation to the
16 correct hours and price curves.

17 **Q. Did your initial NVPC forecast filing submitted on February 15, 2023 include correct**
18 **DLS adjustments?**

19 A. Yes. The wind data carried over from the 2023 AUT included adjustments for DLS. When the
20 data was updated to include year 2022 data as part of the March 31, 2023 MONET Update,
21 the DLS adjustments to hours was overwritten in 2020-2022. The result was that hourly data
22 between months with DLS (i.e., March through November) was incorrectly offset up by 1
23 hour. Therefore, the correction applied as part of the July 14, 2023 MONET update ensured

1 that the MONET model was reading the hourly data consistent with the initial February 15,
2 2023 initial NVPC forecast.

3 **Q. What is the NVPC impact associated with the Lydia correction?**

4 A. The correction to Lydia summer and transition months price shapes accounts for
5 approximately [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] of the
6 increase while the correction to adjust the data for DLS results in an increase of approximately
7 [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL].

8 **Q. AWEC states that “PGE alleges that its original filing contained errors.” Is this true?**

9 A. No. AWEC appears to have misread the workpapers submitted in support of the July 14, 2023
10 MONET update. PGE never stated that our original NVPC filing submitted on
11 February 15, 2023 contained errors. We explained in MFRs that our MONET update
12 submitted on April 1, 2023 inadvertently reversed the transitional and summer shapes.
13 Therefore, we corrected the error in the July 14, 2023 MONET to be consistent with Lydia
14 modeling included in our initial February 15, 2023 filing.

15 **Q. AWEC also argues that PGE should have corrected the Lydia error as part of the**
16 **erratum to its NVPC testimony submitted on April 21, 2023. How do you respond to this**
17 **argument?**

18 A. While the erratum submitted by PGE on April 21, 2023, addressed certain revenue
19 requirement items, it did not include any NVPC items and it was not an erratum to the NVPC
20 testimony. Moreover, PGE had just submitted the MFRs in support of the March 31, 2023
21 MONET update the prior week and had not yet identified the Lydia model error on
22 April 21, 2023.

1 **Q. Please summarize your position to AWEC’s recommendation.**

2 A. We strongly oppose AWEC’s recommendation since AWEC erroneously claims that PGE
3 was attempting to correct errors in our initial filing. While AWEC states that modeling
4 changes must only be submitted in PGE’s initial filing, the facts show PGE was only
5 correcting errors in order to be consistent with the modeling for our initial filing. Additionally,
6 AWEC’s recommendation is contrary to the goal of an AUT/GRC proceeding which is to
7 model an NVPC forecast as accurately as possible.

8 **2. Hydro Planned Maintenance Outages**

9 **Q. Please summarize AWEC’s recommendation regarding hydro planned maintenance**
10 **outages.**

11 A. AWEC recommends the removal of a major outage at Faraday Unit 6 and the re-scheduling
12 of an outage at Round Butte to a different time period in 2024. AWEC states that it is
13 concerned the major outages “were not sufficiently documented or demonstrated to be
14 prudent.”⁴¹

15 **Q. Do you agree with AWEC’s recommendation?**

16 A. No. AWEC’s recommendation is contrary to long-standing Schedule 125 guidelines that allow
17 PGE to update the planned maintenance at our hydro facilities up to the October MONET
18 Update. Additionally, AWEC’s recommendation is based on erroneous assumptions regarding
19 the Faraday Unit 6 maintenance and does not consider environmental and operational
20 constraints that do not allow the re-scheduling of the Round Butte maintenance outage.

21 We provide more detail regarding our position on AWEC’s recommendation below.

⁴¹ AWEC/400, Mullins/17 at 9-10.

1 **Faraday Unit 6 Outage**

2 **Q. What does AWEC recommend regarding the Faraday Unit 6 outage currently scheduled**
3 **in 2024?**

4 A. AWEC recommends that the Faraday Unit 6 maintenance outage be removed from the 2024
5 NVPC forecast.

6 **Q. How does AWEC support this proposed adjustment?**

7 A. AWEC ties the outage at Faraday Unit 6 to the Faraday Resiliency and Repowering Project
8 that involved the construction of the new Faraday Units 7 and 8 and argues that PGE “had the
9 opportunity to perform maintenance on Faraday Unit 6 while the facility was shut down to
10 construct units 7 and 8.”⁴² Additionally, AWEC argues that “to the extent this type of major
11 outage is required, it was PGE’s obligation to discuss it in Opening Testimony.”⁴³

12 **Q. Is the Faraday Unit 6 outage due to planned upgrades or maintenance repairs?**

13 A. No. The Faraday Unit 6 outage is due to the failure of the Unit 6 step-up transformer.
14 PGE identified the step-up transformer failure on April 10, 2023. Therefore, the Faraday Unit
15 6 outage is unrelated to the Faraday Resiliency and Repowering Project and it is not for any
16 unit upgrades that could have been identified prior to our Opening Testimony.

17 **Q. Did PGE order a replacement step-up transformer?**

18 A. Yes. PGE ordered a replacement step-up transformer shortly after we identified the failure.
19 We expect that the new transformer will be delivered in April 2024.

20 **Q. Can PGE perform a temporary repair of the step-up transformer and allow Faraday**
21 **Unit 6 to operate until the replacement step-up transformer will be delivered and**
22 **installed?**

⁴² AWEC/400, Mullins/18 at 3-5.

⁴³ *Id.* at 6-7.

1 A. Potentially. PGE is currently evaluating and will determine if the repair is possible by the end
2 of September 2023. If the transformer can be repaired then PGE expects to be able to operate
3 Faraday Unit 6 for the period October 2023 through April 2024 at which time PGE will start
4 the work to replace the transformer.

5 **Q. Will PGE update the Unit 6 outage based on more recent information in the October**
6 **MONET update?**

7 A. Yes, PGE will update the planned 2024 hydro maintenance in the October 2, 2023 MONET
8 update, as provided in the Schedule 125 guidelines and the UE 416 procedural schedule. PGE
9 will update the outage at Faraday Unit 6 based on the best known information at the time of
10 the update.

11 **Q. AWEC also raises issues regarding the modeling of Faraday generation. What does**
12 **AWEC argue?**

13 A. AWEC provides that “PGE inadvertently used the old capacity for Faraday Units 1-5 of 16.2
14 MW, rather than the new capacity of 18.8 MW for Units 7-8.”⁴⁴ Based on this observation,
15 AWEC contends that the impact of the outage is reduced if the Units 7 and 8 capacity is used
16 instead of the capacity from the original Units 1-5.

17 **Q. How do you respond to AWEC’s argument regarding the capacity modeled at Faraday?**

18 A. We would first outline the inconsistency of AWEC’s approach since AWEC proposes the
19 rejection of the correction applied by PGE to the Lydia model but in this case is proposing
20 modeling enhancements to correct the modeling of the Faraday generation. However, AWEC
21 is partially correct on this issue. While PGE is modeling the Faraday plant generation correctly
22 and includes the incremental generation expected from Faraday Units 7 and 8, PGE did not

⁴⁴ AWEC/400, Mullins/18, at 12-13.

1 update the generation that is applied to the maintenance derations to reflect the new units.
2 PGE is willing to correct this issue in future MONET updates, pending guidance from the
3 Commission.

4 **Q. AWEC also raises the issue that “PGE adjusted the amount of PTCs that will be**
5 **available from Units 7-8 even though the outage had no impact on Units 7-8.”⁴⁵**
6 **Please respond.**

7 A. This issue arose because the MONET model is currently set up to discount expected PTCs by
8 Faraday’s overall maintenance deration factor. The modeling needs to be corrected to reflect
9 that PTCs are only based on incremental generation expected from the Faraday Resiliency and
10 Repowering Project to ensure the model discounts expected PTCs only based on Faraday
11 Units 7 and 8’s expected maintenance deration factor. PGE is willing to correct this issue as
12 well in future MONET Updates, pending guidance from the Commission.

13 **Round Butte Outage**

14 **Q. What does AWEC recommend regarding the Round Butte outage modeled in January**
15 **2024?**

16 A. AWEC raises the issue that the Round Butte outage is scheduled in January 2024, “when
17 power prices are the highest and when river flows are high.”⁴⁶ AWEC recommends that PGE
18 reschedule the outage “for a lower price period, such as October 2024.”⁴⁷

19 **Q. Why is an outage at Round Butte scheduled for January 2024?**

20 A. The Round Butte outage scheduled to take place between January 8, 2024 and
21 January 21, 2024 is for the performance of a dewater test, which is a pre-requisite before

⁴⁵ AWEC/400, Mullins/18 at 16-17.

⁴⁶ *Id.* 18 at 20-21.

⁴⁷ *Id.* 19 at 1-2.

1 mobilizing the Round Butte reservoir dewater needed to perform the Pelton-Round Butte
2 Turbine Shut-Off Valve (TSV) replacement project. The Pelton-Round Butte TSV
3 replacement project is scheduled to be completed between October and December 2024.
4 The dewater test is needed to evaluate: 1) the timing of draining down the power tunnel to
5 ensure it will happen as planned; and 2) whether the tailrace gates will seal as expected.

6 **Q. Why is it important to perform the dewater test prior to the major outage for the TSV**
7 **replacement?**

8 A. The test is very important because, if not performed, there may be unexpected occurrences
9 that could significantly impact the safety and reliability of the Round Butte hydro facility
10 operations. Specifically, the Round Butte power tunnel has a risk of collapsing if drained down
11 too quickly. This is the worst-case scenario and if not tested, could irremediably damage the
12 Round Butte hydro plant. Additionally, the tailrace gates have a risk of not sealing and
13 therefore prohibiting people from entering the tailrace gates confined space and removing the
14 TSV during the major outage scheduled for Q3 2024.

15 **Q. Can PGE move the Round Butte dewater test to October 2024 like AWEC suggests?**

16 A. No. PGE is constrained by operational and environmental requirements to perform this test in
17 January 2024.

18 **Q. What are the operational constraints?**

19 A. First, for the dewater test to be performed, PGE needs to modify the spillway at Round Butte
20 to meet FERC requirements and resist the capacity and duration of the water spill. The Round
21 Butte spillway modification is expected to be completed in December 2023. Second, PGE
22 would not be able to perform the dewater test in the period between October 2024 and
23 December 2024 because PGE is scheduled to complete the TSV replacement project during

1 this period. As mentioned above, the dewater test is performed specifically to support the
2 major Pelton-Round Butte outage for the TSV replacement.

3 **Q. Did PGE model the Q3 2024 comprehensive outage at Pelton-Round Butte for the TSV**
4 **replacement in the 2024 NVPC forecast?**

5 A. No. We did not model the outage because the outage was initially planned for 2023 and was
6 included in the 2023 NVPC forecast. The outage was subsequently re-scheduled to take place
7 in 2024. Because the 2023 NVPC forecast already included the cost impact associated with
8 this outage, PGE did not model the outage and associated costs in the 2024 NVPC forecast.

9 **Q. What are the environmental constraints?**

10 A. Environmental regulations⁴⁸ constrain PGE to perform maintenance work that requires hydro
11 spill at the Pelton-Round Butte facility only during the October through January period of any
12 year. The reason for the constraint is there are Endangered Species Listed fish (bull trout and
13 steelhead) in Lake Billy Chinook which are much more likely to be entrained (killed) during
14 a spill event in the spring months as they are much more prevalent in the area around the dam.
15 This is because they are migrating downstream during the spring (February through June)
16 towards the Selective Water Withdrawal (SWW) fish collection facilities. Additionally, if spill
17 occurred from February to June, we could not operate our downstream fish facilities during
18 the primary migration, which would be inconsistent with the FERC License.

19 From June to September the environmental constraint primarily relates to water quality.
20 During the summer months we are required by the Oregon Department of Environmental
21 Quality (DEQ) and the Confederated Tribes of Warm Springs (CTWS) (via our 401
22 certificates which are incorporated into our FERC License) to provide water from the Round

⁴⁸ The environmental constraints relate to regulations and agreements established by U.S. Fish and Wildlife, NOAA Fisheries, the Department of Environmental Quality, and the Confederated Tribes of Warm Springs.

1 Butte reservoir bottom gates to meet temperature requirements in the lower river. If we were
2 to spill during these months, we would be sending warmer surface water downstream, which
3 would have detrimental impacts on endangered fish and violate our 401 certificates.
4 Consequently, PGE cannot reschedule the dewater test at any time between from February
5 through the end of September 2024.

6 **Q. Please summarize your position regarding AWEC's recommendation?**

7 A. We do not agree with AWEC's recommendation. PGE is not able to perform the Round Butte
8 dewater test in 2024 during any other month other than January 2024 due to operational and
9 environmental constraints.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

1 **IV. Qualifications**

2 **Q. Ms. Vhora, please describe your qualifications.**

3 A. I received a Bachelor of Technology degree in Metallurgy and Material Science (Engineering)
4 from College of Engineering, Pune (CoEP), India in 2014 and a Master of Financial
5 Mathematics degree from North Carolina State University in 2015. I have been employed at
6 PGE since 2019 as a Senior Financial Analyst on the Power Cost Forecasting and Analysis
7 team and my current position is as Manager, Trading Strategy and Analytics, Power
8 Operations. Prior to joining PGE, I worked at Emerald Kalama Chemicals, from 2016 to 2019,
9 as a Financial Analyst in the Financial Planning and Analysis (FP&A) department.

List of Exhibits

<u>PGE Exhibit</u>	<u>Description</u>
3001C	UE 377 – EIM Presentation
3002HC	Cost for Flexibility Reserves Allocated to PGE Thermal Resources
3003HC	Ancillary Services Model White Paper

**Exhibit 3001 contains confidential information and is subject to
Modified General Protective Order 23-039.
Information provided in electronic format only.**

**Exhibit 3002 contains highly confidential information and is subject to
Modified Protective Order 23-138.
Information provided in electronic format only.**

**Exhibit 3003 contains highly confidential information and is subject to
Modified Protective Order 23-138.
Information provided in electronic format only.**

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused **Portland General Electric Company's** **CONFIDENTIAL Surrebuttal Testimony and Exhibits** to be served by electronic mail to those parties whose e-mail addresses appear on the attached service list for OPUC Docket UE 416.

Dated at Portland, Oregon, this 10th day of August, 2023.

/s/ Jaki Ferchland

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CERTIFICATE OF SERVICE

I hereby certify that I have this day caused **Portland General Electric Company's** **HIGHLY CONFIDENTIAL Surrebuttal Testimony and Exhibits** to be served by electronic mail to those parties whose e-mail addresses appear on the attached service list for OPUC Docket UE 416.

Dated at Portland, Oregon, this 10th day of August, 2023.

/s/ Jaki Ferchland

Jacquelyn Ferchland
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