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Loretta I. Mabinton
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August 30, 2021

Via Electronic Filing

Public Utility Commission of Oregon
Attention: Filing Center
201 High Street Southeast, Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

Re: **UE 391 – In the Matter of Portland General Electric Company, 2022 Annual Power Cost Update Tariff (Schedule 125)**

Dear Filing Center:

On behalf of Portland General Electric Company, Staff of the Public Utility Commission of Oregon, the Oregon Citizens' Utility Board and Alliance of Western Energy Consumers, enclosed for electronic filing today in the above-captioned docket are the following:

- Motion to Admit Stipulation;
- Stipulation; and
- Joint Testimony in Support of Stipulation.

Thank you for your assistance. If you have any questions, please do not hesitate to call me.

Sincerely,

Loretta Mabinton
Associate General Counsel

LM:dm
Enclosures

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 391

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY 2022 Annual Power Cost Update Tariff (Schedule 125).	**MOTION TO ADMIT STIPULATION**

Pursuant to OAR 860-001-0350(7), Portland General Electric Company ("PGE") moves to admit into the record in this proceeding the Stipulation, dated August 30, 2021. PGE also moves that the following Joint Testimony in support of the Stipulation be admitted into the record as evidence in this proceeding:

Testimony and Exhibits	Witness(es)
Stipulating Parties / 101	Greg Batzler, PGE Moya Enright, OPUC William Gehrke, CUB Bradley Mullins, AWEC

PGE, the Staff of the Public Utility Commission of Oregon, the Oregon Citizens' Utility Board, and Alliance of Western Energy Consumers support this motion.

DATED this 30th day of August 2021.

Respectfully submitted,

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BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 391

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY 2022 Annual Power Cost Update Tariff (Schedule 125)	**STIPULATION**

This Stipulation is between Portland General Electric Company ("PGE"), Staff of the Public Utility Commission of Oregon ("Staff"), the Citizens' Utility Board of Oregon ("CUB"), and the Alliance of Western Energy Consumers ("AWEC") (collectively, the "Stipulating Parties").

PGE filed this Annual Power Cost Update Tariff filing on April 1, 2021, for 2022 net variable power costs ("NVPC"). The filing included the minimum filing requirements required by Schedule 125, testimony and exhibits. PGE also provided to Staff and other parties work papers in support of its filing. Since that time, Staff and intervening parties have submitted 189 data requests obtaining additional information. On June 30, 2021, Staff, CUB, and AWEC filed their opening testimony in this docket. PGE filed reply testimony on July 26, 2021. The Stipulating Parties held settlement discussion on July 13, July 15, and August 2, 2021. At the August 2, 2021 settlement discussion, the Stipulating Parties reached a compromise settlement of all issues in this docket, as described in detail below.

TERMS OF STIPULATION

1. This Stipulation resolves all issues in this docket.

2. Production Tax Credit Rate (PTC)

   a. Stipulating Parties agree to a PTC rate of 2.6 ¢/kWh for PGE's 2022 NVPC forecast.

3. Energy Storage Systems in MONET

   a. Stipulating Parties agree that PGE will include the energy benefits associated with the Anderson Readiness Center battery storage and the PW2 Generation Kickstart Battery Storage in the 2022 NVPC forecast by the final MONET update.

   b. Stipulating Parties agree that PGE will create a new Minimum Filing Requirement folder for energy storage systems in future net variable power cost proceedings.

4. Schedule 125

   a. Stipulating Parties agree that PGE will update Schedule 125 language from "costs associated with wind integration" to "costs associated with wind and solar integration. The battery portion of wind and solar projects that have a battery storage component may be included if the battery is charged solely by wind and solar generation."

   b. Stipulating Parties agree with the following Schedule 125 update language for the November 6 MONET update:

   On or before November 6th of each calendar year, the Company will file estimates with the final planned maintenance outages from the October 1st filing, load forecasts from the October 1st filings, load reductions from the October update resulting from additional participation in the Company's Long-Term Cost of Service Opt-out that occurs in September, updated projections of gas and electric prices, power, and fuel contracts.

c. Stipulating Parties agree that PGE will be able to update the Faraday Repowering Project online date, the facility's expected generation, and PTCs up to the final November filing for the 2022 AUT.

d. Stipulating Parties agree to add "the dispatch of energy storage systems" as an annual update to Schedule 125.

5. Wheatridge Performance Report and CUB's Request for Commission clarification regarding Order No. 20-321

   a. Stipulating Parties agree that PGE will include in the Wheatridge Performance Report the following items:

      i. The initial forecast of Wheatridge benefits for PTC and NVPC that is filed contemporaneously with the report.

      ii. A narrative description for any large deviations between forecasts and actuals in the preceding calendar year.

   b. Stipulating Parties agree with CUB's request for Commission clarification regarding Commission Order No. 20-321 in Docket No. UE 370. Specifically, Order No. 20-321 states that the "performance of the Wheatridge facility is best reviewed on an ongoing basis in future proceedings where we have actual data upon which to determine just and reasonable rates, such as in PGE's future power cost filings." CUB seeks clarification regarding parties' ability to propose modifications to Wheatridge facility performance parameters in an AUT or other proceeding during a non-GRC year, should circumstances arise where the facility's actual performance departs significantly from forecast benefits.

6. Day-Ahead Forecast Error Escalation

a. Stipulating Parties agree that PGE will remove the day ahead forecast error escalator from the 2022 NVPC forecast.

7. Energy Imbalance Market (EIM)

a. Stipulating Parties agree that PGE will forecast 2022 GHG revenues based on the weighted average of 2019 and 2020 historical results.

b. Stipulating Parties agree that PGE will update the California Carbon Offset (CCO) use for its 2022 forecast GHG cost obligation from 2 percent to 4 percent if PGE executes a CCO exchange agreement before the November MONET update.

8. Wheatridge Battery Storage

a. Stipulating Parties agree that PGE will reduce its 2022 NVPC forecast by $116,407 to reflect more economic dispatch of the Wheatridge Battery Storage.

b. Stipulating Parties agree that any party can propose modeling changes for the Wheatridge Battery Storage dispatch in the 2023 AUT.

c. Stipulating Parties agree that parties will discuss the Wheatridge Battery Storage modeling in a workshop to be held prior to the 2023 AUT.

9. California-Oregon Border (COB) Trading Margin, Transmission Resales, Colstrip Forced Outage Rate, Carty Forced Outage Rate, Beaver Forced Outage Rate, Day-Ahead Forecast Error Modeling, Avangrid Capacity Contract, Lydia 2.0, EIM Grid management charges, and any remaining NVPC issues not separately identified

a. Stipulating Parties agree to a NVPC reduction of $6.25 million for California-Oregon Border (COB) Trading Margin, Transmission Resales, Colstrip Forced Outage Rate, Carty Forced Outage Rate, Beaver Forced Outage Rate, Day-Ahead Forecast Error, Avangrid Capacity Contract, Lydia 2.0, EIM Grid management charges, and any remaining NVPC issues not separately identified in this Stipulation.

In addition, Stipulating Parties agree to the following:

b. PGE will convene a workshop of interested parties. The following conditions will apply:

   i. PGE will send workshop agenda to parties four weeks prior to workshop.

   ii. Parties will provide comments on the agenda and can propose NVPC-related items to be discussed during the workshop.

   iii. Parties will finalize the agenda two weeks prior to the workshop. Initial items, as necessary, to be discussed are: Transmission Resale Revenues Forecast Methodology, Wheatridge Battery Storage dispatch modeling, and Lydia 2.0 methodology.

c. Stipulating Parties agree that any party can propose changes to the Lydia 2.0 methodology in the 2023 AUT.

d. Stipulating Parties agree that any party can propose changes to the modeling of the day ahead forecast error in the 2023 AUT.

e. Stipulating Parties agree that PGE will propose an updated transmission resale forecast methodology in the 2023 AUT. Other Stipulating Parties may also propose an updated methodology.

10. The Stipulating Parties recommend and request that the Commission approve the adjustments and provisions described herein as appropriate and reasonable resolutions of all issues in this docket.

11. The Stipulating Parties agree that this Stipulation is in the public interest, and will result in rates that are fair, just and reasonable, consistent with the standard in ORS 756.040.

12. The Stipulating Parties agree that this Stipulation represents a compromise in the positions of the Stipulating Parties. Without the written consent of all of the Stipulating Parties, evidence of conduct or statements, including but not limited to term sheets or other documents created solely for use in settlement conferences in this docket, are confidential and not admissible in the instant or any subsequent proceeding, unless independently discoverable or offered for other purposes allowed under ORS 40.190.

13. The Stipulating Parties have negotiated this Stipulation as an integrated document. The Stipulating Parties, after consultation, may seek to obtain Commission approval of this Stipulation prior to evidentiary hearings. If the Commission rejects all or any material part of this Stipulation, or adds any material condition to any final order that is not consistent with this Stipulation, each Stipulating Party reserves its right: (i) pursuant to OAR 860-001-0350(9), to present evidence and argument on the record in support of the Stipulation, including the right to cross-examine witnesses, introduce evidence as deemed appropriate to respond fully to issues presented, and raise issues that are incorporated in the settlements embodied in this Stipulation; and (ii) pursuant to ORS 756.561 and OAR 860-001-0720, to seek rehearing or reconsideration, or pursuant to ORS 756.610 to appeal the Commission's final order. The Stipulating Parties agree that in the event the Commission rejects all or any material part of this Stipulation or adds any material condition to any final order that is not consistent with this Stipulation, the Stipulating Parties will meet in good faith within ten days and discuss next steps. A Stipulating Party may withdraw from the Stipulation after this meeting by providing written notice to the Commission and other

Stipulating Parties. Nothing in this paragraph provides any Stipulating Party the right to withdraw from this Stipulation as a result of the Commission's resolution of issues that this Stipulation does not resolve.

14. This Stipulation will be offered into the record in this proceeding as evidence pursuant to OAR 860-001-0350(7). The Stipulating Parties agree to support this Stipulation throughout this proceeding and in any appeal and provide witnesses to support this Stipulation (if required by the Commission), and recommend that the Commission issue an order adopting the settlements contained herein. By entering into this Stipulation, no Stipulating Party shall be deemed to have approved, admitted or consented to the facts, principles, methods or theories employed by any other Stipulating Party in arriving at the terms of this Stipulation. Except as provided in this Stipulation, no Stipulating Party shall be deemed to have agreed that any provision of this Stipulation is appropriate for resolving issues in any other proceeding.

15. This Stipulation may be signed in any number of counterparts, each of which will be an original for all purposes, but all of which taken together will constitute one and the same agreement.

DATED this 30th day of August, 2021.

PORTLAND GENERAL ELECTRIC COMPANY

STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

OREGON CITIZENS' UTILITY BOARD

ALLIANCE OF WESTERN ENERGY CONSUMERS

PORTLAND GENERAL ELECTRIC
COMPANY

Stephanie Andrus

STAFF OF THE PUBLIC UTILITY
COMMISSION OF OREGON

OREGON CITIZENS' UTILITY BOARD

ALLIANCE OF WESTERN
ENERGY CONSUMERS

PORTLAND GENERAL ELECTRIC COMPANY

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PORTLAND GENERAL ELECTRIC COMPANY

STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

OREGON CITIZENS' UTILITY BOARD

ALLIANCE OF WESTERN ENERGY CONSUMERS

BEFORE THE PUBLIC UTILITY COMMISSION

OF THE STATE OF OREGON

UE 391
Annual Update Tariff

PORTLAND GENERAL ELECTRIC

Joint Testimony in Support of the Net Variable Power Cost Stipulation

Direct Testimony of

Moya Enright, OPUC

William Gehrke, CUB

Bradley Mullins, AWEC

Greg Batzler, PGE

August 30, 2021

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I. Introduction

Q. Please state your names and positions with your respective organizations.

A. My name is Moya Enright. I am a Senior Economist for the Public Utility Commission of Oregon (OPUC) Staff. My qualifications appear in Staff Exhibit 101.

My name is William Gehrke. I am an Economist for the Oregon Citizens' Utility Board (CUB). My qualifications appear in CUB Exhibit 101.

My name is Bradley Mullins. I am an independent consultant testifying on behalf of the Alliance of Western Energy Consumers (AWEC). My qualifications appear in AWEC Exhibit 201.

My name is Greg Batzler. I am a Regulatory Consultant for Portland General Electric (PGE). My qualifications appear in PGE Exhibit 100.

Q. What is the purpose of your testimony?

A. The purpose of our testimony is to describe and support the stipulation (Stipulation) entered into between all parties to this proceeding, OPUC Staff (Staff), CUB, AWEC, and PGE (Stipulating Parties), resolving all issues identified by parties related to PGE's 2022 forecast of net variable power costs (NVPC). A copy of the Stipulation is provided as Stipulating Parties Exhibit 101.

Q. What is the basis for the Stipulation?

A. PGE filed its initial forecast of 2022 NVPC on April 1, 2021, as part of its Annual Update Tariff (AUT) filing (UE 391). Over the following four months, PGE responded to 189 data requests from Staff, AWEC, and CUB. On May 28, 2021, parties held a workshop to discuss issues and review PGE's Multi-area Optimization Network Energy Transaction power cost forecasting model (MONET). Staff, AWEC, and CUB submitted opening testimony on June

30, 2021, and PGE filed reply testimony on July 26, 2021. The parties held settlement discussions on July 13, July 15, and August 2, 2021. PGE's 2022 NVPC forecast was updated on July 15, 2021.[1] At the August 2, 2021 meeting, the Stipulating Parties reached an agreement that they found reasonable for settlement. The Stipulation reached at the August 2 meeting resolves all issues raised by parties in this docket (UE 391).

Q. What power cost issues were raised by Staff, AWEC, and CUB in testimony and resolved in this settlement?

A. The issues that were raised and settled are related to:

- Production Tax Credit (PTC) Rate;
- Western Energy Imbalance Market (EIM);
- Schedule 125;
- Wheatridge Facility Performance Report and CUB's Request for Commission clarification of Order No. 20-321;
- Day-Ahead Forecast Error Escalation;
- Energy Storage Systems in MONET;
- Wheatridge Battery Storage;
- California-Oregon Border Trading Margin;
- Transmission Resale Revenues;
- Beaver, Colstrip, and Carty Forced Outage Rates;
- Day-Ahead Forecast Error Modeling;
- Avangrid Capacity Contract Modeling;
- Lydia 2.0 Methodology;

[1] PGE will provide three more 2022 NVPC forecast updates on October 1, November 5, and November 15.

- Gas Optimization;
- Pelton-Round Butte Major Outage; and
- Unwarranted Modeling Enhancements.

We explain the resolution of each of these issues below.

Q. Are there any issues not addressed in the Stipulation?

A. No. The Stipulation addresses and settles all issues between all parties in Docket No. UE 391.

II. Stipulated Issues

A. Production Tax Credit (PTC) Rate

Q. Please describe the issue regarding PTC Rate.

A. AWEC proposed an adjustment based on the assumption that the 2022 PTC rate will increase to 2.6 ¢/kWh due to projected inflation in 2021.

Q. Have parties resolved this issue in this settlement?

A. Yes. Stipulating Parties agree with a PTC rate of 2.6 ¢/kWh for PGE's 2022 NVPC forecast.

B. Western Energy Imbalance Market (EIM)

Q. What concerns regarding the EIM did Parties identify?

A. Both OPUC Staff and AWEC raised concerns regarding PGE's method to forecast benefits resulting from participation in the EIM. Specifically, AWEC was first concerned with PGE's proposed modified method to calculate EIM benefits because according to AWEC, it "exclude[ed] historical data that fall[s] outside a certain range."[2] AWEC asserted that "the distribution of EIM market transactions is asymmetric and PGE's data exclusion range is symmetric[,]" and as a result, "a larger number of high-volume periods [was] being excluded."[3] Second, AWEC was concerned with PGE's proposed modified method because it "offset increments with decrements within each 5-minute historic period."[4] To address their concern parties provided the following recommendations:

1) OPUC Staff recommended that:

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[2] AWEC/200 Kaufman 16:4-5
[3] Id. at 16:5-7.
[4] Id. at 16:9-10.

a. PGE use historical data starting with December 2018 and include the most recently available data up to a maximum of 36 months to inform the 2022 greenhouse gas (GHG) forecast.

b. PGE use the maximum amount of (California Carbon Offsets) CCOs allowed by the California Air Resources Board (CARB) cap and trade regulation for 2022 CARB compliance obligation purposes, which is four percent of the total compliance obligation.

c. PGE remove the escalation factor applied to historical GMC when determining the GMC forecast for 2022.

d. PGE adjust its 2022 expected costs associated with CARB compliance obligations based on historical data analysis showing that, on average, only 77.4% of energy transfers to California were deemed delivered for CARB compliance purposes and incurred a compliance obligation.

2) AWEC recommended that:

a. PGE remove the data exclusion from the EIM trading limits calculation.

b. PGE eliminate the dispatch offsets between same types of resources in the real time dispatch.

Q. Did PGE respond to the issues raised by Staff regarding changes to the Western EIM method?

A. Yes. PGE partially agreed with Staff's recommendations on the GHG revenue forecast method and the CCO adjustment. Specifically, PGE proposed to use its existing model structure to forecast GHG revenues and costs but adjusted for two whole years. PGE would include a third year in future AUT proceedings. Regarding the CCO adjustment, PGE proposed to use four percent CCOs if PGE executes a contract to exchange CCOs in its inventory with CCOs sourced from projects that provide direct environmental benefits in the state of California by the conclusion of this AUT. PGE however disagreed with Staff on the other two adjustments they recommended. PGE explained that Staff's recommendation to reduce costs to reflect energy deemed delivered for CARB compliance purposes is not attainable in actual operations because PGE does not have an opportunity to actively employ scheduling or bidding strategies to attain the outcomes described by Staff. We discuss the EIM GMC issue in Section II.H.

Q. Did PGE respond to the issues raised by AWEC regarding changes to the Western EIM method?

A. Yes. PGE disagreed with both of AWEC's recommendations. In response, PGE noted that to determine EIM trading limits PGE employed the interquartile range (IQR) method, which is a well-known and frequently used statistical tool that results in reasonable trading limits that represent normal operating conditions. PGE also disagreed with AWEC's EIM dispatch offset argument and adjustment. While this type of offset occurs in real operations, PGE argued that is not appropriate to include it within the forecast environment, as perfect optimization is already assumed.

Q. Have parties resolved the issues raised with regards to EIM in this settlement?

A. Yes. Stipulating Parties agreed that PGE will forecast 2022 GHG revenues based on the weighted average of 2019 and 2020 historical results. Additionally, Stipulating Parties agreed that PGE will update the CCO use for its 2022 forecast GHG cost obligation from two percent to four percent if PGE executes a CCO exchange agreement before the November MONET updates.

Q. Did parties resolve the remaining EIM issues raised in this proceeding?

A. Yes. Stipulating Parties agree that the EIM GMC issue be resolved as part of the other items discussed in Section II.H of this testimony. Also, Stipulating Parties agreed that no adjustment will be applied in this proceeding with regards to Staff's recommendation that PGE adjust its 2022 expected costs associated with CARB compliance obligations based on historical data analysis of actual energy transfers to California or adjusted based on AWEC's EIM recommendations.

C. Schedule 125

Q. Please describe the issue regarding Schedule 125 language.

A. Staff and CUB reviewed PGE's proposed changes to Schedule 125 and had several recommendations.

Q. Have parties resolved those issues in this settlement?

A. Yes. Stipulating Parties agreed with Staff's and CUB's recommendations. In summary, Stipulating Parties agreed that:

- PGE will update Schedule 125 language from "costs associated with wind integration" to "costs associated with wind and solar integration. The battery portion of wind and solar projects that have a battery storage component may be included if the battery is charged solely by wind and solar generation."
- PGE will include in Schedule 125 the following language regarding the first November MONET update:

On or before November 6th of each calendar year, the Company will file estimates with the final planned maintenance outages from the October 1st filing, load forecasts from the October 1st filings, load reductions from the

October update resulting from additional participation in the Company's Long-Term Cost of Service Opt-out that occurs in September, updated projections of gas and electric prices, power, and fuel contracts.

- PGE will be able to update the Faraday Repowering Project online date, the facility's expected generation, and PTCs up to the final November filing for the 2022 AUT.
- PGE will add "the dispatch of energy storage systems" as an annual update to Schedule 125.

D. Wheatridge Facility Performance Report (Wheatridge Report) and CUB's Request for Commission Clarification of Order No. 20-321

Q. Please describe the issue regarding the Wheatridge Report.

A. Staff recommended that PGE make two additions to the Wheatridge Report:

1. "Include the initial forecast of Wheatridge benefits for PTC and NVPC that is filed contemporaneously with the report;"[5] and
2. "Include a short narrative description of any large deviations between forecasts and actuals in the preceding calendar year."[6]

Q. Did parties agree with Staff's recommendations?

A. Yes. Stipulating Parties agreed that PGE will include the additional information starting with the 2023 AUT filing.

Q. Did other parties provide recommendations regarding the Wheatridge Facility?

A. Yes. CUB is seeking clarification from the Commission on Order No. 20-231 issued in Docket No. UE 370. Specifically, Order No. 20-321 states that the "performance of the Wheatridge

[5] Staff/900, Gibbens/5
[6] Id.

facility is best reviewed on an ongoing basis in future proceedings where we have actual data upon which to determine just and reasonable rates, such as in PGE's future power cost filings." CUB seeks clarification regarding parties' ability to propose modifications to Wheatridge facility performance parameters in an AUT or other proceeding during a non-GRC year, should circumstances arise where the facility's actual performance departs significantly from forecast benefits.

Q. Did parties resolve this issue?

A. Yes. Stipulating Parties agreed with CUB's request for Commission clarification regarding Commission Order No. 20-321 in Docket No. UE 370.

E. Day-Ahead Forecast Escalation

Q. Please describe the issue regarding the costs associated with the day-ahead forecast error escalation.

A. AWEC raised concerns regarding the escalation factor applied to the day-ahead forecast error escalation in the NVPC forecast. AWEC recommended removing the escalator because the day-ahead forecast error "does not necessarily change in relationship with inflation."[7]

Q. Did parties resolve this issue in this settlement?

A. Yes. Stipulating Parties agreed that PGE will remove the day-ahead forecast error escalator from the 2022 NVPC forecast.

[7] AWEC/100, Mullins/15, line 6

F. Energy Storage Systems in MONET

Q. Please describe the issue regarding Energy Storage Systems in MONET.

A. CUB had three recommendations regarding energy storage systems:

1. That PGE create a new volume in its Minimum Filing Requirements (MFRs) for energy storage systems;
2. That PGE change Schedule 125 language to allow for battery storage updates in AUT years; and
3. That PGE include the dispatch of energy storage systems approved by the Commission in Docket No. UM 1856 in the 2022 NVPC forecast.

Q. Have parties resolved this issue in this settlement?

A. Yes. Stipulating Parties agree that PGE will include the energy benefits associated with the Anderson Readiness Center Battery Storage and the PW2 Generation Kickstart Battery Storage in the 2022 NVPC forecast. Additionally, Stipulating Parties also agreed that PGE will create an MFR specific to energy storage projects and will include language in Schedule 125 to allow for the dispatch of energy storage systems within annual NVPC forecast filings.

G. Wheatridge Battery Storage

Q. Please describe the issue regarding Wheatridge Battery Storage Optimization.

A. AWEC argued that PGE's approach to modeling the Wheatridge Battery Storage is sub-optimal because it did not, for example "consider how market prices impact the timing of when it is most cost effective to charge and discharge."[8] Therefore, AWEC recommended an approximate $0.1 million adjustment to reflect a more economic battery storage dispatch.

[8] AWEC/100, Mullins/9, lines 20-21

Q. Did PGE respond to AWEC's recommendation?

A. Yes. PGE agreed that more detailed modeling of the battery dispatch could be warranted. As such, PGE proposed to re-evaluate the Wheatridge battery dispatch modeling and propose updated modeling in the 2023 AUT filing.

Q. Have parties resolved this issue in this settlement?

A. Yes. Stipulating Parties agree that PGE will reduce its 2022 NVPC forecast by $116,407 to reflect more economic dispatch of the Wheatridge Battery Storage. Additionally, Stipulating Parties agreed that any party can propose modeling changes for the Wheatridge Battery Storage dispatch in the 2023 AUT and that PGE and parties will discuss the Wheatridge Battery Storage modeling in a workshop to be held prior to the 2023 AUT.

H. Remaining Issues in this Docket

Q. What are the remaining power cost issues that are resolved through this settlement.

A. The remaining power cost issues that Stipulating Parties resolved as part of this settlement include:

- California-Oregon Border Trading Margin;
- Transmission Resales;
- Beaver, Colstrip, and Carty Forced Outage Rates;
- Day-Ahead Forecast Error Modeling;
- Avangrid Capacity Contract Modeling;
- Lydia 2.0 Methodology;
- EIM Grid Management Charges;
- Unwarranted Modeling Enhancements;
- Pelton-Round Butte Major Outage; and

- Gas Optimization.

Q. How have Parties resolved these issues in this settlement?

A. For settlement purposes, PGE will reduce its 2022 NVPC forecast by $6.25 million related to the remaining issues listed above. Additionally, Stipulating Parties agreed that:

a. PGE will convene a workshop and the following conditions will apply:
   i. PGE will send workshop agenda to parties four weeks prior to the workshop.
   ii. Parties will provide comments on the agenda and can propose NVPC-related items to be discussed during the workshop.
   iii. Parties will finalize the agenda two weeks prior to the workshop. Initial items to be discussed, as applicable, are: Transmission Resale Revenues Forecast Methodology, Wheatridge Battery Storage dispatch modeling, and Lydia 2.0 methodology.
b. Any party can propose changes to the Lydia 2.0 methodology in the 2023 AUT.
c. Any party can propose changes to the modeling of the day ahead forecast error in the 2023 AUT.
d. PGE will propose an updated transmission resale forecast methodology in the 2023 AUT. Other Stipulating Parties may also propose an updated methodology.

Stipulating Parties agreed that the $6.25 million reduction to PGE's 2022 NVPC forecast and other agreed items above represent appropriate and reasonable resolutions of these issues.

California-Oregon Border (COB) Trading Margin

Q. Please describe the issue raised on PGE's method for calculating COB trading margins.

A. AWEC argued that PGE's COB trading margin forecast method understates the margins because it restricts the volume of transactions relative to the historical average and that it limits the price spreads by using a monthly diurnal profile as opposed to an hourly view.

Q. Did PGE respond to the arguments raised by AWEC regarding the COB trading margin method?

A. Yes. PGE explained that the current method for forecasting COB margins provides for a normalized and forecasted value that recognizes both seasonality and hourly variability. PGE also noted that AWEC's method is using trading volumes that are greater than PGE's firm rights on the California-Oregon Intertie (COI), and simulating a real-time hourly trading approach, when PGE primarily transacts at COB in the day-ahead market, which typically trades in on-peak and off-peak blocks.

Transmission Resale Values

Q. Please describe the issue regarding PGE's forecast of transmission resale revenues.

A. Staff testified that PGE had under forecasted transmission resale revenues in every AUT since 2016. Given the inaccuracy of PGE's previous forecasts, Staff recommended changing the methodology for calculating the 2022 transmission resale revenues and basing them on a five-year average of historical short-term transmission resale volumes, including transactions that occurred in Q3 of each year.

Q. Did PGE respond to the arguments raised by Staff regarding PGE's forecast of transmission resale revenues?

A. Yes. PGE did not agree with Staff's proposed modification to the forecast of transmission resale revenues. PGE explained in reply testimony that PGE has neither excess transmission, nor a secured firm transmission resale agreement to support the assumption that historical volumes can be met on an ongoing basis. Additionally, PGE argued that the adjustment and method proposed by Staff looks at one item in isolation, whereas PGE's forecast and actual operations are managed at the portfolio level.

Q. Did parties reached an agreement specific to this item?

A. Yes. Stipulating Parties agreed that PGE will re-evaluate the transmission resale revenue forecast methodology in the 2023 AUT.

Carty, Colstrip, and Beaver FORs

Q. Please describe the Colstrip FOR issue.

A. Staff recommended that PGE remove the 2018 Colstrip FOR from the four year-average calculation of the Colstrip 2022 FOR forecast due to the June and July 2018 outages that occurred because the plant's emissions exceeded compliance limits. Staff based their recommendation on the fact that this issue was not resolved in PGE's 2021 AUT (Docket No. UE 377) when it was raised by AWEC.

Q. Did PGE respond to the arguments raised by Staff regarding the Colstrip FOR?

A. Yes. PGE argued that there has been no determination by the Commission that PGE's actions were imprudent regarding Colstrip's 2018 June and July outages, to warrant removal of Colstrip's 2018 FOR from the four-year average. Moreover, PGE noted that Staff did not provide evidence to support the premise that PGE acted imprudently in 2018.

Q. Please describe the Carty FOR issue.

A. Staff recommended that PGE use three years and eight months of actual forced outage data to calculate the 2022 Carty FOR forecast. Similar to the Colstrip FOR recommendation, Staff based this proposed adjustment on AWEC's concern raised in PGE's 2021 AUT.

Q. Did PGE respond to the arguments raised by Staff regarding the Carty FOR?

A. Yes. PGE did not agree with Staff's recommendation and argued that Staff's proposed change comes only one cycle before the plant will have four years of actual data. PGE also noted that Staff's recommendation is inconsistent with the clear application of the FOR methodology outlined in Commission Order No. 10-414 and followed by PGE for over 10 years, including for prior resource additions, such as Port Westward 2.

Q. Please describe the Beaver FOR issue.

A. Staff did not propose specific modeling changes but raised concerns regarding the impact of the Beaver Unit 6 upgrade on the calculation of the plant FOR.

Q. Did PGE address Staff's concerns in reply testimony?

A. Yes. PGE provided that, for the 2022 test year, the upgrade is performed on a single unit and it does not change the way Beaver currently operates other than removing the Beaver Unit 6 capability to run on fuel oil. Therefore, PGE argued that it is not necessary at this time to propose a modification to the FOR methodology.

Day-ahead forecast error modeling

Q. Please describe the issue regarding the costs associated with the day-ahead forecast error modeling.

A. AWEC questioned the costs associated with the day-ahead forecast error. AWEC argued that these costs should be removed from the NVPC forecast because the MONET economic dispatch is not based on day-ahead forecasts. Additionally, AWEC contended that the Lydia

2.0 methodology proposed by PGE already simulated the cost associated with dispatch in hourly markets based upon the equivalent of an hour-ahead wind forecast. Therefore, in AWEC's view, MONET already includes the cost associated with moving from a day-ahead to hour-ahead wind forecast, negating the need to include a day-ahead forecast error within MONET.

Q. Did PGE respond to the arguments raised by AWEC regarding costs associated with the day-ahead forecast error modeling?

A. Yes. PGE did not agree with AWEC's proposed adjustment. PGE explained in reply testimony that MONET is a single-stage, hourly NVPC model that does not account for the dynamic changes within the portfolio due to wind variability between day-ahead, hour-ahead, and real time. Additionally, PGE explained that reserves modeled in MONET to support wind integration only address the moment-to-moment, hour-to-hour, and within-hour changes to wind forecast generation and the day-ahead forecast error cost ensures that MONET also captures the impact of wind variability between the day-ahead and hour-ahead stages.

Q. Did parties reach an agreement specific to this item?

A. Yes. Stipulating Parties agreed that any party can propose changes to the modeling of the day-ahead forecast error in the 2023 AUT.

Avangrid Capacity Contract

Q. Please describe the issue regarding the Avangrid Capacity contract modeling.

A. AWEC raised concerns that PGE is modeling the Avangrid capacity contract on a monthly basis assuming a static dispatch for the entire month and recommended that PGE calculate the dispatch benefits of the Avangrid capacity contract in a manner that is consistent with the hourly market prices in MONET.

Q. Did PGE respond to the arguments raised by AWEC regarding the Avangrid Capacity contract modeling?

A. Yes. PGE did not agree with AWEC's recommendation because it was based on analysis that used hourly shaped Mid-C energy price forecast against a monthly, flat natural gas price forecast, with no hourly or daily shape. PGE argued that the analysis did not provide proper support for the proposed adjustment because it is not an apples-to-apples comparison, and it is inconsistent with the contract parameters.

Lydia 2.0

Q. Please describe the issue regarding Lydia 2.0.

A. AWEC argued that, in accordance with the Minimum Filing Requirements ("MFRs") set forth in Commission Order No. 08-505, PGE is not allowed to propose modeling changes if the initial AUT filing is not submitted prior to February 28 of a GRC year and therefore, the Commission should reject PGE's proposed update to Lydia 2.0. AWEC further argued that the Lydia 2.0 methodology update should be rejected because it overestimates the relationship between wind and energy market prices.

Q. Did PGE respond to the procedural arguments raised by AWEC regarding Lydia 2.0?

A. Yes. PGE argued that the Commission Order No. 08-505 established the MFRs PGE must submit with the initial filing of AUTs and GRCs and not required filing dates for these filings. PGE included proposed modeling changes in the 2022 AUT filing because the filing was submitted prior to the 2022 GRC filing docketed in Docket No. UE 394.

Q. Did PGE respond to the technical arguments raised by AWEC regarding Lydia 2.0?

A. Yes. PGE did not agree with AWEC's arguments and analysis regarding the Lydia 2.0 methodology. PGE noted that the Lydia 2.0 method update was developed to incorporate the observed correlation between wind generation and Mid-C market power prices and PGE performed a very thorough analysis in support of the update. Also, as part of this case, PGE provided extensive testimony, work papers, and documentation in support of the Lydia 2.0 update.

Q. Did parties reach an agreement specific to this item?

A. Yes. Stipulating Parties agreed that any party can propose changes to the modeling of Lydia 2.0 methodology in the 2023 AUT.

EIM GMCs

Q. Please describe the issue regarding EIM GMCs.

A. Staff highlighted a change that had been made to PGE's methodology for forecasting GMCs, specifically an escalation factor had been added to its GMC forecast for 2022, which had not been included in previous forecasts. Staff argued that GMCs should not be escalated because they are set based on trading volumes in the entire EIM market, and the GMCs both increase and decrease over time. Therefore, Staff recommended that PGE remove the escalation factor applied to historical GMC when determining the GMC forecast for 2022.

Q. Did PGE respond to Staff proposed adjustment?

A. Yes. PGE argued that although GMCs do change year-to-year (and in some instances within a year), that is not an argument for no escalation. Moreover, PGE showed that CAISO's annual update from 2020 to 2021 was an increase in the GMC of approximately 2.8%. Therefore, PGE continued to propose the use of the standard escalator (2.05%) in its GMC forecast.

Unwarranted Modeling Changes

Q. Please describe the issue regarding the modeling enhancements included by PGE in the initial April 1, 2021, AUT filing.

A. AWEC argued that PGE did not comply with the MFRs established in Docket No. UE 198, Commission Order No. 08-505, when including modeling enhancements in the initial April 1, 2021, AUT filing. AWEC argued that to be allowed to propose modeling enhancements, PGE should have filed this year's AUT prior to February 28, 2021. As such, AWEC recommended that the Commission reject the NVPC modeling enhancements proposed by PGE in the proceeding.

Q. Did PGE respond to the issues raised by AWEC regarding the modeling changes?

A. Yes. PGE disagreed with AWEC's recommendation and arguments that the modeling enhancements should be rejected. PGE provided MFRs in support of proposed modeling enhancements with the AUT initial filing in a GRC year, as provided in Commission Order No. 08-505. Moreover, PGE argued that workshops and presentations were held with parties before making the filing to ensure parties received timely information regarding the modeling enhancements and other major items that impact the 2022 NVPC forecast. Also, PGE noted that parties pursued thorough discovery in this proceeding, issuing 189 data requests, with many of them containing numerous subparts. PGE submitted timely responses to all data requests.

Major Outage at Pelton-Round Butte (PRB)

Q. Please describe the issue raised by Staff regarding PGE's planned 480v switchgear replacement outage at the Pelton-Round Butte (PRB) hydro project.

A. Staff argued that the forecasted spill associated with the planned plant outage at PRB may not be necessary and recommended removing the forecasted power cost increase associated with spilling water at the facility.

Q. Did PGE respond to the arguments raised by Staff regarding the forecasted spill at PRB?

A. Yes. PGE did not agree with Staff's recommendation and arguments. PGE noted it is necessary to spill water during full plant outages, and has done so in the past, with the last occurring in 2009. Additionally, FERC license requirements at the facility are such that there will be very little additional storage available pre-outage and very little ability to utilize stored water to increase generation at the facility post-outage. Finally, PGE argued that should the reservoir be managed to the edges of what it's allowed to do under the governing FERC license, there could be impacts to PGE's ancillary services capabilities at the facility pre- and post-outage, creating additional strains and costs elsewhere in PGE's supply stack.

Gas Optimization

Q. Please describe the issue raised by Staff regarding PGE's gas storage optimization modeling.

A. Staff reviewed the gas storage optimization model included in MONET and concluded that PGE failed to reflect the expected benefit within its initial 2022 NVPC forecast.

Q. Did PGE respond to the arguments raised by Staff regarding PGE's gas storage optimization modeling?

A. Yes. PGE did not agree with Staff's conclusion that PGE failed to reflect the gas storage optimization benefit in the 2022 NVPC forecast. Compared to the 2021 NVPC forecast, PGE enhanced the model to be embedded in MONET via reduced dispatch costs for PGE's PW/Beaver complex. Therefore, although not reflected as a line item in the gas storage worksheet, PGE does provide the gas storage optimization benefit to customers through a reduction of the NVPC forecast. PGE provided the MONET 2022 forecast with and without gas storage optimization modeling in PGE Exhibit 303, demonstrating that the gas storage optimization benefits are included in the forecast.

III. Pricing

Q. What is PGE's current estimate of the 2022 NVPC forecast, inclusive of the items agreed upon in the UE 391 Stipulation?

A. PGE's current 2022 NVPC forecast, inclusive of the UE 391 Stipulation terms, is approximately $505.3 million. This represents a $47.4 million increase relative to PGE's final 2021 NVPC forecast, but a $6.5 million decrease from PGE's initial filing.

Q. What are the base rate impacts of the currently estimated $47.4 million increase in Schedule 125 prices,[9] inclusive of changes in system usage charge prices?

A. Table 1 below provides preliminary estimates of the 2022 cost of service (COS) base rate impacts for selected rate schedules. These estimates are subject to changes in market electric and gas prices and forecasted loads, among other items.

Table 1
Estimated Base Rate Impacts

Schedule	Rate Impact
Sch 7 Residential	1.8 %
Sch 32 Small Non-residential 30 kW or less	1.7 %
Sch 83 Non-residential 31-200 kW	2.2 %
Sch 85 Secondary 201-4,000 kW	2.5 %
Sch 85 Primary 201-4,000 kW	2.6 %
Sch 89 Primary Over 4,000 kW	2.9 %
Sch 89 Subtransmission Over 4,000 kW	2.5 %
Schedule 90 Over 100 MWa	3.1 %
COS Overall	2.0 %

[9] Preliminary estimate inclusive of the items agreed upon in this Stipulation. The cost impact estimate is subject to change in subsequent NVPC updates scheduled for October 1, November 5, and November 15, 2021.

IV. Recommendation to the Commission

Q. What is your recommendation to the Commission regarding the adjustments contained in the Stipulation?

A. The Stipulating Parties recommend and request that the Commission approve these adjustments. Based on careful review of PGE's, OPUC Staff's, CUB's, and AWEC's filings; consideration of the documentation provided in PGE's Minimum Filing Requirements; thorough discovery conducted by parties in Docket No. UE 391, including 189 data requests; and thorough discussion of the issues during the settlement conferences, we believe the proposed adjustments represent appropriate and reasonable resolutions of all issues in this docket. Rates reflecting these adjustments will be fair, just, reasonable, and provide PGE with adequate revenues consistent with the standard in ORS 756.040.

Q. Does this Stipulation resolve all issues raised by all parties in this docket (UE 391)?

A. Yes.

Q. Does this conclude your testimony?

A. Yes.

V. List of Exhibits

Stipulating Parties Exhibit	Description
101	Net Variable Power Cost Stipulation

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 391

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY 2022 Annual Power Cost Update Tariff (Schedule 125)	**STIPULATION**

This Stipulation is between Portland General Electric Company ("PGE"), Staff of the Public Utility Commission of Oregon ("Staff"), the Citizens' Utility Board of Oregon ("CUB"), and the Alliance of Western Energy Consumers ("AWEC") (collectively, the "Stipulating Parties").

PGE filed this Annual Power Cost Update Tariff filing on April 1, 2021, for 2022 net variable power costs ("NVPC"). The filing included the minimum filing requirements required by Schedule 125, testimony and exhibits. PGE also provided to Staff and other parties work papers in support of its filing. Since that time, Staff and intervening parties have submitted 189 data requests obtaining additional information. On June 30, 2021, Staff, CUB, and AWEC filed their opening testimony in this docket. PGE filed reply testimony on July 26, 2021. The Stipulating Parties held settlement discussion on July 13, July 15, and August 2, 2021. At the August 2, 2021 settlement discussion, the Stipulating Parties reached a compromise settlement of all issues in this docket, as described in detail below.

TERMS OF STIPULATION

1. This Stipulation resolves all issues in this docket.

2. <u>Production Tax Credit Rate (PTC)</u>

   a. Stipulating Parties agree to a PTC rate of 2.6 ¢/kWh for PGE's 2022 NVPC forecast.

3. <u>Energy Storage Systems in MONET</u>

   a. Stipulating Parties agree that PGE will include the energy benefits associated with the Anderson Readiness Center battery storage and the PW2 Generation Kickstart Battery Storage in the 2022 NVPC forecast by the final MONET update.

   b. Stipulating Parties agree that PGE will create a new Minimum Filing Requirement folder for energy storage systems in future net variable power cost proceedings.

4. <u>Schedule 125</u>

   a. Stipulating Parties agree that PGE will update Schedule 125 language from "costs associated with wind integration" to "costs associated with wind and solar integration. The battery portion of wind and solar projects that have a battery storage component may be included if the battery is charged solely by wind and solar generation."

   b. Stipulating Parties agree with the following Schedule 125 update language for the November 6 MONET update:

      On or before November 6th of each calendar year, the Company will file estimates with the final planned maintenance outages from the October 1st filing, load forecasts from the October 1st filings, load reductions from the October update resulting from additional participation in the Company's Long-Term Cost of Service Opt-out that occurs in September, updated projections of gas and electric prices, power, and fuel contracts.

c. Stipulating Parties agree that PGE will be able to update the Faraday Repowering Project online date, the facility's expected generation, and PTCs up to the final November filing for the 2022 AUT.

d. Stipulating Parties agree to add "the dispatch of energy storage systems" as an annual update to Schedule 125.

5. Wheatridge Performance Report and CUB's Request for Commission clarification regarding Order No. 20-321

a. Stipulating Parties agree that PGE will include in the Wheatridge Performance Report the following items:

i. The initial forecast of Wheatridge benefits for PTC and NVPC that is filed contemporaneously with the report.

ii. A narrative description for any large deviations between forecasts and actuals in the preceding calendar year.

b. Stipulating Parties agree with CUB's request for Commission clarification regarding Commission Order No. 20-321 in Docket No. UE 370. Specifically, Order No. 20-321 states that the "performance of the Wheatridge facility is best reviewed on an ongoing basis in future proceedings where we have actual data upon which to determine just and reasonable rates, such as in PGE's future power cost filings." CUB seeks clarification regarding parties' ability to propose modifications to Wheatridge facility performance parameters in an AUT or other proceeding during a non-GRC year, should circumstances arise where the facility's actual performance departs significantly from forecast benefits.

6. Day-Ahead Forecast Error Escalation

a. Stipulating Parties agree that PGE will remove the day ahead forecast error escalator from the 2022 NVPC forecast.

7. Energy Imbalance Market (EIM)

a. Stipulating Parties agree that PGE will forecast 2022 GHG revenues based on the weighted average of 2019 and 2020 historical results.

b. Stipulating Parties agree that PGE will update the California Carbon Offset (CCO) use for its 2022 forecast GHG cost obligation from 2 percent to 4 percent if PGE executes a CCO exchange agreement before the November MONET update.

8. Wheatridge Battery Storage

a. Stipulating Parties agree that PGE will reduce its 2022 NVPC forecast by $116,407 to reflect more economic dispatch of the Wheatridge Battery Storage.

b. Stipulating Parties agree that any party can propose modeling changes for the Wheatridge Battery Storage dispatch in the 2023 AUT.

c. Stipulating Parties agree that parties will discuss the Wheatridge Battery Storage modeling in a workshop to be held prior to the 2023 AUT.

9. California-Oregon Border (COB) Trading Margin, Transmission Resales, Colstrip Forced Outage Rate, Carty Forced Outage Rate, Beaver Forced Outage Rate, Day-Ahead Forecast Error Modeling, Avangrid Capacity Contract, Lydia 2.0, EIM Grid management charges, and any remaining NVPC issues not separately identified

a. Stipulating Parties agree to a NVPC reduction of $6.25 million for California-Oregon Border (COB) Trading Margin, Transmission Resales, Colstrip Forced Outage Rate, Carty Forced Outage Rate, Beaver Forced Outage Rate, Day-Ahead Forecast Error, Avangrid Capacity Contract, Lydia 2.0, EIM Grid management charges, and any remaining NVPC issues not separately identified in this Stipulation.

In addition, Stipulating Parties agree to the following:

b. PGE will convene a workshop of interested parties. The following conditions will apply:

   i. PGE will send workshop agenda to parties four weeks prior to workshop.

   ii. Parties will provide comments on the agenda and can propose NVPC-related items to be discussed during the workshop.

   iii. Parties will finalize the agenda two weeks prior to the workshop. Initial items, as necessary, to be discussed are: Transmission Resale Revenues Forecast Methodology, Wheatridge Battery Storage dispatch modeling, and Lydia 2.0 methodology.

c. Stipulating Parties agree that any party can propose changes to the Lydia 2.0 methodology in the 2023 AUT.

d. Stipulating Parties agree that any party can propose changes to the modeling of the day ahead forecast error in the 2023 AUT.

e. Stipulating Parties agree that PGE will propose an updated transmission resale forecast methodology in the 2023 AUT. Other Stipulating Parties may also propose an updated methodology.

10. The Stipulating Parties recommend and request that the Commission approve the adjustments and provisions described herein as appropriate and reasonable resolutions of all issues in this docket.

11. The Stipulating Parties agree that this Stipulation is in the public interest, and will result in rates that are fair, just and reasonable, consistent with the standard in ORS 756.040.

12. The Stipulating Parties agree that this Stipulation represents a compromise in the positions of the Stipulating Parties. Without the written consent of all of the Stipulating Parties, evidence of conduct or statements, including but not limited to term sheets or other documents created solely for use in settlement conferences in this docket, are confidential and not admissible in the instant or any subsequent proceeding, unless independently discoverable or offered for other purposes allowed under ORS 40.190.

13. The Stipulating Parties have negotiated this Stipulation as an integrated document. The Stipulating Parties, after consultation, may seek to obtain Commission approval of this Stipulation prior to evidentiary hearings. If the Commission rejects all or any material part of this Stipulation, or adds any material condition to any final order that is not consistent with this Stipulation, each Stipulating Party reserves its right: (i) pursuant to OAR 860-001-0350(9), to present evidence and argument on the record in support of the Stipulation, including the right to cross-examine witnesses, introduce evidence as deemed appropriate to respond fully to issues presented, and raise issues that are incorporated in the settlements embodied in this Stipulation; and (ii) pursuant to ORS 756.561 and OAR 860-001-0720, to seek rehearing or reconsideration, or pursuant to ORS 756.610 to appeal the Commission's final order. The Stipulating Parties agree that in the event the Commission rejects all or any material part of this Stipulation or adds any material condition to any final order that is not consistent with this Stipulation, the Stipulating Parties will meet in good faith within ten days and discuss next steps. A Stipulating Party may withdraw from the Stipulation after this meeting by providing written notice to the Commission and other

Stipulating Parties. Nothing in this paragraph provides any Stipulating Party the right to withdraw from this Stipulation as a result of the Commission's resolution of issues that this Stipulation does not resolve.

14. This Stipulation will be offered into the record in this proceeding as evidence pursuant to OAR 860-001-0350(7). The Stipulating Parties agree to support this Stipulation throughout this proceeding and in any appeal and provide witnesses to support this Stipulation (if required by the Commission), and recommend that the Commission issue an order adopting the settlements contained herein. By entering into this Stipulation, no Stipulating Party shall be deemed to have approved, admitted or consented to the facts, principles, methods or theories employed by any other Stipulating Party in arriving at the terms of this Stipulation. Except as provided in this Stipulation, no Stipulating Party shall be deemed to have agreed that any provision of this Stipulation is appropriate for resolving issues in any other proceeding.

15. This Stipulation may be signed in any number of counterparts, each of which will be an original for all purposes, but all of which taken together will constitute one and the same agreement.

DATED this 30th day of August, 2021.

Lorette McSorrnton

PORTLAND GENERAL ELECTRIC
COMPANY

STAFF OF THE PUBLIC UTILITY
COMMISSION OF OREGON

OREGON CITIZENS' UTILITY BOARD

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