

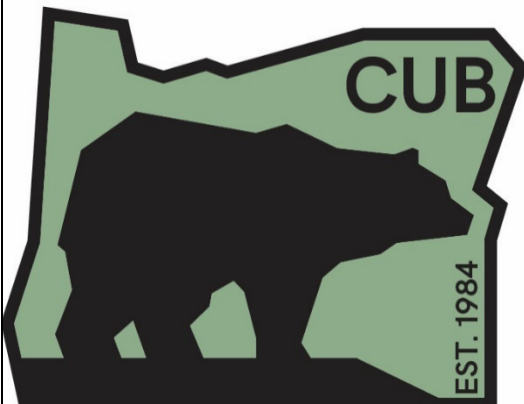
**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**UE 391**

In the Matter of )  
 )  
PORTLAND GENERAL ELECTRIC )  
COMPANY, )  
 )  
2022 Annual Power Cost Update Tariff )  
(Schedule 125). )  
\_\_\_\_\_ )

REDACTED OPENING TESTIMONY  
OF THE  
OREGON CITIZENS' UTILITY BOARD

June 30, 2021



**BEFORE THE PUBLIC UTILITY COMMISSION**  
**OF OREGON**  
**UE 391**

In the Matter of )  
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PORTLAND GENERAL ELECTRIC ) REDACTED OPENING  
COMPANY, ) TESTIMONY OF THE OREGON  
 ) CITIZENS' UTILITY BOARD  
2022 Annual Power Cost Update Tariff )  
(Schedule 125). )  
\_\_\_\_\_ )

**I. Introduction**

1 **Q. Please state your name, occupation, and business address.**

2 A. My name is William Gehrke. I am an Economist employed by the Oregon  
3 Citizens' Utility Board (CUB). My business address is 610 SW Broadway, Ste.  
4 400 Portland, Oregon 97205.

5 **Q. Please describe your educational background and work experience.**

6 A. My witness qualification statement is found in exhibit CUB/101.

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

8 A. I respond to issues raised by Portland General Electric Company (PGE or the  
9 Company) in its Annual Updated Tariff (AUT) Direct Testimony, filed on April 1,  
10 2021. The purpose of the Company's Direct Testimony was to provide the initial  
11 forecast of its 2022 Net Variable Power Costs (NVPC).

12 **Q. How is your testimony organized?**

13 A. The following topics are addressed in my testimony:

- 1 1. Lydia 2.0 Methodology
- 2 2. Energy Storage Systems
- 3 3. Solar Integration Costs
- 4 4. November 6<sup>th</sup> AUT Update
- 5 5. Wheatridge ratemaking under AUT guidelines
- 6 6. Gas Optimization – Ancillary Services

## 7 **II. Lydia 2.0 Methodology**

### 8 **Q. Please summarize this issue.**

9 **A.** In this proceeding, PGE has proposed to change its Lydia methodology. Lydia is  
10 an hourly shaping model that shapes monthly on-peak and off-peak prices into  
11 hourly prices. PGE is proposing to change the Lydia methodology to account for  
12 intramonth price variation due to fluctuating wind generation.

### 13 **Q. Does CUB have any concerns with the methodology?**

14 **A.** CUB has two ongoing concerns with the methodology change:

- 15 1. Wind technology has reduced the variability of wind plants, relative to  
16 historical figures. New wind turbines are being built with larger turbines and  
17 can access more consistent winds higher above the earth's surface. New turbine  
18 blades allow for more consistent output during periods of lower wind speeds.  
19 Portland General Electric's wind generation is of a specific vintage. Except for  
20 Wheatridge, which has a limited impact on the Lydia 2.0 modeling, PGE is  
21 using wind turbines from Biglow and Tucannon, which were placed in service  
22 between 2007 to 2012. Biglow makes up a majority of PGE's owned wind  
23 generation capacity. Biglow's turbines have smaller rotors than newer vintages

1 of wind turbines.<sup>1</sup> The Siemens turbines at Biglow have a higher cut-in wind  
2 speed than other turbines in PGE's fleet. Several wind projects in the region  
3 have been or are scheduled to be repowered to take advantage of advancement  
4 in wind technology and capture production tax credits.<sup>2</sup> Shepard Flats wind  
5 farm, the largest wind farm in the region, was completed in 2012 and has a  
6 nameplate capacity of 845 MW. The Shepard Flats wind farm is due to be  
7 repowered in 2022, which would increase the rotor and rotor sweep area of the  
8 wind farm and increase expected generation. Repowering and increasing the  
9 output of the largest wind farm in the region will undoubtedly have an impact  
10 on regional wind production averages. In opening testimony, PGE stated that  
11 wind generation is the price setter at the Mid-C power trading hub.<sup>3</sup> However,  
12 in future proceedings, historical wind generation may not be a reasonable proxy  
13 for wind in the Columbia Gorge, due to the vintage and locations of PGE's  
14 wind turbines. CUB is going to evaluate the reasonableness of using historical  
15 wind generation profiles to forecast NVPC in future proceedings.

- 16 **2.** PGE's methodology only includes the impact of wind resources located near the  
17 Oregon and Washington border. In the future, regional renewable resource  
18 additions which impact intramonth variations in energy prices may be  
19 developed by PGE and other peer load-serving entities.

20 **Q. Does CUB recommend any adjustments on the Lydia 2.0 methodology?**

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<sup>1</sup> CUB Exhibit 102.

<sup>2</sup> See PacifiCorp Energy Vision 2020 Repowering.

<sup>3</sup> UE 391 – PGE/100/Vhora – Outama – Batzler/21, lines 17-21.

1 A. Not at this time. CUB will evaluate the methodology in a future proceeding and  
2 recommends that PGE examine the continued viability of relying on historical wind  
3 generation profiles given the technological changes to wind turbines.

### 4 III. Energy Storage Systems

5 **Q. Please summarize this issue.**

6 A. As required, PGE annually includes volumes of minimum filing requirements  
7 (MFR) concurrently with its opening testimony. CUB recommends that PGE  
8 create a new volume in its MFR volume for Energy Storage Systems. CUB also  
9 recommends that the Schedule 125 tariff be changed to include the dispatch of  
10 energy storage systems on NVPC in the annual updates section.

11 **Q. How does PGE present information concurrently with its annual AUT**  
12 **filing?**

13 A. Annually, PGE files its annual power cost updates, which includes testimony,  
14 workpapers and MFRs.

15 **Q. Does CUB have a position on the MFRs?**

16 A. Yes. PGE's MFRs are well organized, detailed, and transparent. CUB is  
17 supportive of future cases containing these documents. It is CUB's belief that the  
18 MFRs contribute to the efficient processing of the annual case. However, given  
19 PGE's changing resource mix that will affect its NVPC forecast, CUB recommends  
20 a modest change to the current MFR requirements.

21 **Q. What is CUB proposing with regards to the MFRs?**

1     **A.** CUB recommends that moving forward the Company should include detail about  
2           energy storage systems that are operational and expected to be operational during  
3           the future test year of the AUT proceeding.

4     **Q. Does PGE’s MONET model include the impact of batteries on the system?**

5     **A.** Yes. PGE models the impact of battery storage on its NVPC. PGE’s current  
6           iteration of the MONET model contains **(Start Confidential)** [REDACTED]  
7           [REDACTED]  
8           [REDACTED]  
9           [REDACTED]  
10          [REDACTED] **(End Confidential)**

11    **Q. Has PGE have any other batteries in system?**

12    **A.** Yes. The generation kickstart project for Port Westward II (PW2), which CUB  
13          believes will be in service in 2020.<sup>4</sup> This battery is coupled with one of PW2  
14          reciprocating engines. The battery will enable both a PW2 reciprocating engine  
15          and the energy storage system to qualify as spinning reserve. The generation  
16          kickstart project will reduce operations and maintenance expense associated with  
17          the operation of PW2.

18    **Q. Does CUB a request on the generation kickstart battery for PW2?**

19    **A.** Yes. CUB has reviewed the MONET model and associated MFR. Since this a  
20          rate case year, PGE has updated the variable operations and maintenance expense  
21          and plant parameters associated with Port Westward II. Based on the information  
22          presented in the MFR, CUB is unable to determine whether PGE has included the

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<sup>4</sup> PGE’s Compliance per Order No. 18-290, Annual Energy Storage Update 2020.

1 generation kickstart battery in its AUT filling. CUB would like the Company to  
2 detail on the record whether the PW2 generation kickstart project has been included  
3 in this filing. CUB may have further adjustments on this project in future  
4 testimony in this proceeding.

5 **Q. Does PGE plan on procuring future batteries?**

6 **A.** Yes. The Company is planning on procuring additional batteries under HB 2193  
7 (2015). It is CUB's understanding that PGE is planning on building three system  
8 batteries by 2022 under HB 2193:<sup>5</sup>

9 **1.** Baldock Mid-Feeder Energy Storage Systems – a 2MW two-hour energy storage  
10 system;

11 **2.** Coffee Creek Substation Energy Storage System – a 17-20 MW four-hour  
12 energy system located at PGE's Coffee Creek Substation; and

13 **3.** Anderson Readiness Center Microgrid.

14 **Q. How will the costs of these battery storage projects be recovered from**  
15 **customers?**

16 **A.** PGE will recover expenses associated with these three projects related to HB 2193  
17 pursuant to an automatic adjustment clause with an underlying deferral.

18 **Q. How are these projects costs and benefits recovered from customers before**  
19 **entering base rates?**

20 **A.** For HB 2193 projects, PGE will likely recover costs and benefits associated with  
21 these battery storage projects in a deferral associated with an automatic adjustment  
22 clause.<sup>6</sup> Once PGE receives updates base rates in a general rate case (GRC), the

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<sup>5</sup> PGE's Compliance per Order No. 18-290, Annual Energy Storage Update 2020.

<sup>6</sup> OPUC Order 20-279.

1 capital costs and O&M expenses associated with the HB 2193 projects will be  
2 recovered in base rates. The automatic adjustment clause only covers incremental  
3 expenses and benefits between GRCs. Once new base rates are established in a  
4 GRC, unless the dispatch of energy storage systems is updated in the AUT,  
5 customers would not receive the NVPC dispatch benefits of energy storage  
6 systems.

7 **Q. What is CUB's proposal around the three battery storage projects under**  
8 **HB 2193?**

9 **A.** Since this is a rate case year, CUB recommends that the dispatch of energy storage  
10 systems be forecast in this proceeding and included in future AUTs.

#### 11 **IV. Solar Integration Costs**

12 **Q. Please summarize this issue.**

13 **A.** Schedule 125, as currently written, enables PGE to recover costs associated with  
14 wind integration. PGE proposes to change the language to "costs associated with  
15 integrating variable energy resources." CUB has an alternative proposal, which is  
16 "costs associated with wind and solar integration."

17 **Q. Why is PGE changing the Schedule 125 tariff language?**

18 **A.** In the proceeding, PGE is proposing to include the costs of integrating solar and  
19 wind resources. Without a tariff language change, PGE argues it will be unable to  
20 recover integration costs associated with solar generation on its system.

21 **Q. How does PGE define the term "variable energy resources"?**

22 **A.** According to the Company:

23 Variable energy resources (VERs) refers to generation resources whose output is  
24 not perfectly controllable by a transmission system operator. By nature, VERs



1 display variability that can be impacted by factors like weather patterns and time  
2 of day. VERS are also subject to forecast error on different timescales.<sup>7</sup>

3 **Q. What is CUB’s alternative language?**

4 **A.** CUB recommends the following language, “costs associated with wind and solar  
5 integration.”

6 **Q. Does CUB have concerns with PGE’s tariff language?**

7 **A.** Yes. CUB is concerned about future disputes over the term “variable energy  
8 resources.” Instead of using a broad term like variable energy resources, CUB’s  
9 proposal to use wind and solar more clearly defines the terms associated with the  
10 tariff, which will hopefully avoid future disputes. In its IRP planning process, PGE  
11 is only considering procuring wind and solar resources.<sup>8</sup> In discovery, PGE was  
12 unable to provide alternative variable energy resources to wind and solar that are  
13 due to be connected to PGE’s system.<sup>9</sup> CUB’s alternative language is more precise  
14 and enables PGE to accurately forecast NVPC.

15 **V. November 6<sup>th</sup> Annual Updates**

16 **Q. Please summarize this issue.**

17 **A.** In this proceeding, the Company proposed revised language to its Schedule 125  
18 language around NVPC updates in November. To clarify the tariff, which CUB  
19 believes is ambiguous, CUB recommends revised language.

20 **Q. What change is PGE proposing to schedule 125 updates?**

21 **A.** In the proceeding, PGE has proposed a permanent change to the Schedule 125  
22 updates:

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<sup>7</sup> CUB Exhibit 103.

<sup>8</sup> CUB Exhibit 104.

<sup>9</sup> CUB Exhibit 103.

1 On or before November 6 of each calendar year, the Company will file  
2 updated estimates with the final planned maintenance outages and load  
3 forecast from the October 1st filing, load reductions from the October  
4 update resulting from additional participation in the Company's Long-  
5 Term Cost of Service Opt-out that occurs in September, updated  
6 projections of gas and electric prices, and fuel contracts.<sup>10</sup>

7 **Q. Does CUB have any concerns about the tariff language?**

8 **A.** Yes. Based on discovery, it appears that the Company is not planning on updating  
9 planned maintenance outages in the November 6<sup>th</sup> update.<sup>11</sup> PGE stated that, per  
10 Schedule 125 language, it will file estimates with final planned maintenance  
11 outages "on or before October 1<sup>st</sup> of each calendar year."<sup>12</sup> The proposed tariff  
12 language is unclear. While the Company has been clear on the intent of its  
13 language in discovery, the current tariff language appears to enable them to update  
14 planned maintenance outages in November and should be revised.

15 **Q. What about planned maintenance outages?**

16 **A.** CUB recommends that the final update to planned maintenance outages continue to  
17 occur in the October 1st update and that the tariff language be revised. CUB is  
18 concerned that November updates to maintenance outage rates would deny parties  
19 the opportunity to address maintenance outages. November updates to planned  
20 maintenance outages would significantly decrease the amount of time for non-  
21 Company parties to respond and review changes to planned maintenance outages.  
22 The October update period for final planned outage maintenance outages should be  
23 maintained to enable to enable parties to review changes in planned maintenance  
24 outages.

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<sup>10</sup> UE 391 / PGE / 204 / Macfarlane – Tang / 2

<sup>11</sup> CUB Exhibit 105

<sup>12</sup> Id.

1 **Q. What is CUB's proposal?**

2 A. CUB proposes the following language:

3 On or before November 6<sup>th</sup> of each calendar year, the Company will file  
4 estimates with the final planned maintenance outages from the October 1<sup>st</sup>  
5 filling, load forecasts from the October 1<sup>st</sup> fillings, load reductions from  
6 the October update resulting from additional participation in the  
7 Company's Long-Term Cost of Service Opt-out that occurs in September,  
8 updated projections of gas and electric prices, and fuel contracts.

9 **Q. Why was an update allowed to AUT rates on November 6, 2020?**

10 A. Due to the Q3 2020 Oregon wildfires, the Company's Westside Clackamas River  
11 Hydro facilities were forced offline due to damages to the transmission system.  
12 When setting power cost rates for 2021, under the AUT guidelines, PGE would  
13 have been unable to file updated planned maintenance outages in November. This  
14 update in 2021 was meant to be a one-time update in response to an emergency  
15 effecting PGE's energy system. This was a temporary tariff change and was not  
16 meant to set a precedent on how AUT rates were updated. In this proceeding, PGE  
17 has removed this language from the tariff.

18 **Q. What is CUB's recommendation?**

19 A. CUB would like to ensure the tariff is updated for clarity going forward to ensure  
20 planned maintenance outages are updated in a consistent manner.

21 **VI. Wheatridge Facility Performance Report**

22 **Q. Please summarize this issue.**

23 A. CUB recommends that the Commission enable parties to the AUT to propose  
24 changes MONET modeling related to Wheatridge in non-GRC years. CUB is  
25 seeking clarification from the Commission on Order 20-231.

26 **Q. What is prompting this issue?**

1     **A.** In UE 370, CUB, Staff, and the Alliance of Western Energy Consumers (AWEC)  
2           proposed several different mechanisms to govern the manner in which PGE  
3           recovers Wheatridge costs over time and forecast power costs associated with  
4           Wheatridge. The Commission declined to adopt any of parties’ proposed changes.  
5           The Commission found the Wheatridge power plant to be a prudent investment and  
6           allowed PGE to recover expenses related to this investment.

7  
8           In Order 20-231, the Commission stated that it “intends to closely monitor the  
9           performance and economic impact of Wheatridge on customer rates and reserve our  
10          authority to make adjustments to rates that are necessary in order to ensure that  
11          customer rates are just and reasonable.”<sup>13</sup> The Commission also stated “[i]n the  
12          future, if circumstances were to arise that pointed to performance that did not  
13          realize PGE’s forecasted customer benefits, however, we could impose an  
14          appropriate adjustment at that time, with the benefit of a review of the facts  
15          associated with that deviation.”<sup>14</sup>

16     **Q. Was the review of Wheatridge in future AUT’s discussed between parties?**

17     **A.** Yes. Pursuant to Commission Order No. 20-321 in Docket No. UE 370, PGE was  
18           directed to file a report with its annual power cost filing, detailing the performance  
19           of the Wheatridge facility compared to the estimated performance that was used to  
20           justify the acquisition of the project.

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<sup>13</sup> OPUC Order No. 20-321, at page 11.

<sup>14</sup> OPUC Order No. 20-321, at page 11.

1 On December 18, 2020, CUB, AWEC, Staff and PGE discussed Wheatridge  
2 reporting requirements as directed by OPUC Order 20-321. In that meeting, parties  
3 discussed the ability of parties to propose adjustments during the AUT process.

4 The Company argued in the meeting that under AUT guidelines, modeling changes  
5 for Wheatridge should only be allowed during a GRC and that the Company would  
6 oppose parties making arguments around the performance of Wheatridge in non-  
7 rate case years.

8 **Q. Why is CUB seeking clarification on the Commission order?**

9 **A.** Wheatridge has been in operation for less than a year. CUB is not seeking to make  
10 any adjustments to the benefits associated with Wheatridge in this case. However,  
11 moving forward, CUB plans on tracking the benefits associated with Wheatridge in  
12 future AUT proceedings. CUB would like to present evidence and proposals on  
13 Wheatridge, on behalf of customers, should the situation be warranted, regardless  
14 of whether the AUT is occurring in a GRC year or in a non-GRC year. CUB would  
15 like to also note the PGE is able to recover expenses associated with RPS eligible  
16 investments outside of a GRC and is able to add significant capital investment in a  
17 single-issue ratemaking mechanism. Given the significant upside the Company  
18 incurs by recovering RPS-eligible costs through a single-issue ratemaking  
19 mechanism and the language in the Commission Order, CUB believes it is  
20 reasonable to propose future adjustments once more information about  
21 Wheatridge's actual operations are known.

22 **Q. Is CUB proposing to completely remove the limit on modeling changes**  
23 **outside of GRC?**

1     **A.** No. CUB is asking for a narrow change to AUT guidelines to enable all parties to  
2           make proposals on how Wheatridge’s benefits are modeled in rates in future AUT  
3           proceedings.

4                                   **VI. Gas Optimization – Ancillary Services**

5     **Q. What is CUB evaluating on this topic?**

6     **A. (Begin Confidential)** [REDACTED]  
7     [REDACTED]  
8     [REDACTED]  
9     [REDACTED]  
10    [REDACTED] **(End Confidential)** After additional

11           discovery, CUB may make additional adjustments related to this figure in future  
12           rounds of the case.

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

14    **A.** Yes.

15

**UE 391– CERTIFICATE OF SERVICE**

I hereby certify that, on this 30<sup>th</sup> day of June, 2021, I served the **Confidential Opening Testimony of the Oregon Citizens' Utility Board** in docket UE 391 upon the Commission and each party designated to receive confidential information pursuant to Order 21-099 through a secure, encrypted attachment to an e-mail.

**STAFF**

STEPHANIE S ANDRUS (C)  
PUC STAFF--DEPARTMENT OF  
JUSTICE

BUSINESS ACTIVITIES SECTION  
1162 COURT ST NE  
SALEM OR 97301-4096  
stephanie.andrus@state.or.us

MOYA ENRIGHT (C)  
PUBLIC UTILITY COMMISSION OF  
OREGON

PO BOX 1088  
SALEM OR 97308  
moya.enright@state.or.us

**PGE**

LORETTA I MABINTON (C)  
PORTLAND GENERAL ELECTRIC

121 SW SALMON ST - 1WTC1711  
PORTLAND OR 97204  
loretta.mabinton@pgn.com

JAKI FERCHLAND (C)  
PORTLAND GENERAL ELECTRIC

121 SW SALMON ST. 1WTC0306  
PORTLAND OR 97204  
jacquelyn.ferchland@pgn.com

**CUB**

WILLIAM GEHRKE (C)  
OREGON CITIZENS' UTILITY BOARD

610 SW BROADWAY STE 400  
PORTLAND OR 97206  
will@oregoncub.org

MICHAEL GOETZ (C)  
OREGON CITIZENS' UTILITY BOARD

610 SW BROADWAY STE 400  
PORTLAND OR 97205  
mike@oregoncub.org

**AWEC**

JESSE O GORSUCH (C)  
DAVISON VAN CLEVE

1750 SW HARBOR WAY STE 450  
PORTLAND OR 97201  
jog@dvclaw.com

CORRINE MILINOVICH (C)  
DAVISON VAN CLEVE, P.C.

1750 SW HARBOR WAY, STE. 450  
PORTLAND OR 97201  
com@dvclaw.com

TYLER C PEPPLER (C)  
DAVISON VAN CLEVE, PC

1750 SW HARBOR WAY STE 450  
PORTLAND OR 97201  
tcp@dvclaw.com



Thomas Jerin  
Legal Assistant / Office  
Manager  
Oregon Citizens' Utility Board  
610 SW Broadway, Ste. 400  
Portland, OR 97205  
503.227.1984  
[dockets@oregoncub.org](mailto:dockets@oregoncub.org)



**WITNESS QUALIFICATION STATEMENT**

**NAME:** William Gehrke

**EMPLOYER:** Oregon Citizens' Utility Board

**TITLE:** Economist

**ADDRESS:** 610 SW Broadway, Suite 400  
Portland, OR 97205

**EDUCATION:** MS, Applied Economics  
Florida State University, Tallahassee, FL

BS, Economics  
Florida State University, Tallahassee, FL

**EXPERIENCE:** Provided testimony for the Oregon Citizens' Utility Board in UE 335, UE 374, UG 344, UG 347, UG 366, and UG 388. Worked as an Economist for the Florida Department of Revenue. Worked as Utility Analyst at the Florida Public Service Commission, providing advice on electric rate cases.

**Datasheets on Wind Turbines owned by Portland General Electric**

Location Units	Manufacturer	Turbine Model	Number of Turbines	Nameplate Capacity <i>MW / Turbine</i>	Cut-In Wind Speed <i>m/s</i>	Rotor Size (meters) <i>Meters</i>	Nameplate Capacity <i>MW</i>	Year
Biglow	Vestas	V-82 Turbines	76	1.65	2.5 m/s	82	125.4	2007
Biglow	Siemens	SWT 2.3-93	141	2.3	4.0 m/s	93	324.3	2010
Tucannon River	Siemens	SWT 2.3-108	116	2.3	3.0 m/s	108	266.8	2012
Wheatridge	GE	2.5-127	37	2.5	3 m/s	127	92.5	2020
Wheatridge	GE	2.3-116	3	2.3	3 m/s	116	6.9	2020

April 20, 2021

TO: William Gehrke  
Oregon Citizens' Utility Board

FROM: Jaki Ferchland  
Manager, Revenue Requirement

**PORTLAND GENERAL ELECTRIC  
UE 391  
PGE Response to CUB Data Request No. 001  
Dated April 06, 2021**

**Request:**

Refer to UE 391/ PGE/ 200 / Macfarlane –Tang / 7 / Lines 4-10, the Company states “PGE’s 2022 initial NVPC forecast includes the cost associated with integrating both wind and solar resources and could potentially add other types of variable energy resources in the future.”

- a. How does PGE define the term “variable energy resources”? What energy resources does this term apply to?
- b. The Company has indicated that it could potentially add other types of variable energy resources in the future. Please indicate what types of variable energy resources the Company is referencing.

**Response:**

- a. Variable Energy Resources (VERs) refers to generation resources whose output is not perfectly controllable by a transmission system operator. By nature, VERs display variability that can be impacted by factors like weather patterns and time of the day. VERs are also subject to forecast error on different timescales. For this proceeding and within PGE’s Integrated Resource Planning process, PGE currently considers only wind and solar resources as VERs.
- b. As technology evolves, other types of resources could be developed that might fit the VER definition in the future. Changing the Schedule 125 to allow VER integration would ensure the cost to integrate new types of variable resources is captured in the NVPC forecast. PGE does not have an example of such resource at this time.

May 10, 2021

TO: Curtis Dlouhy  
Public Utility Commission of Oregon

FROM: Jaki Ferchland  
Manager, Revenue Requirement

**PORTLAND GENERAL ELECTRIC COMPANY**  
**UE 391**  
**PGE Response to OPUC Data Request No. 039**  
**Dated April 26, 2021**

**Request:**

Please discuss why replacing the word “wind” with “variable energy resources” is necessary rather than simply adding in language to include solar integration.

**Response:**

As technology evolves, other types of resources could be developed that might be considered variable energy resources (VERs). Changing the Schedule 125 language to allow updates associated with VER integration would ensure the cost to integrate new types of variable resources is captured in the NVPC forecast without needing a future update to the Schedule 125 language. However, for this proceeding and within PGE’s Integrated Resource Planning process, PGE currently considers only wind and solar resources as VERs.

May 10, 2021

TO: Curtis Dlouhy  
Public Utility Commission of Oregon

FROM: Jaki Ferchland  
Manager, Revenue Requirement

**PORTLAND GENERAL ELECTRIC COMPANY**  
**UE 391**  
**PGE Response to OPUC Data Request No. 040**  
**Dated April 26, 2021**

**Request:**

Please refer to PGE/204, Macfarlane – Tang/2. Discuss why PGE is proposing to make permanent the November 6 deadline to file updated planned maintenance outages timeline that was originally enacted as a temporary measure in response to the extraordinary wildfire events of 2020.

**Response:**

PGE is not proposing to make permanent the addition to Schedule 125 that allowed a one-time only update of final maintenance outages for certain hydro facilities as a result of extraordinary wildfire events in 2020 within the November 6 MONET update in PGE's 2021 AUT. In fact, as reflected in PGE Exhibit 204, page 2, PGE is removing that addition.

PGE instead is proposing an update to align Schedule 125 with customary AUT procedural schedules that allow two updates in November. Exhibit 204 provides the items to be updated during the first November update (on or before November 6), neither of which being updates to planned maintenance outages. Per the Schedule 125 language, PGE will file estimates with final planned maintenance outages "on or before October 1<sup>st</sup> of each calendar year".