Portland General Electric Company
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Loretta I. Mabinton
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July 29, 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: **UM 2152 – In the Matter of Portland General Electric Company, Detailed Depreciation Study of Electric Utility Properties**

Dear Filing Center:

On behalf of Portland General Electric Company, Staff of the Public Utility Commission of Oregon and the Oregon Citizens' Utility Board, 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

UM 2152

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY Detailed Depreciation Study of Electric Utility Properties.	**MOTION TO ADMIT STIPULATION**

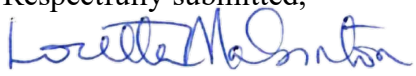
Pursuant to OAR 860-001-0350(7), Portland General Electric Company ("PGE") moves to admit into the record in this proceeding the Stipulation, dated July 28, 2021. PGE also moves that the following Joint Testimony in support of the Stipulation be admitted into the record as evidence in this proceeding:

Testimony and Exhibits	Witness(es)
Stipulating Parties / 100-107	Ming Peng, OPUC Michael Goetz, CUB John J. Spanos, Gannet Fleming Valuation and Rate Consults, LLC for PGE

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

DATED this 29th day of July 2021.

Respectfully submitted,



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BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 2152

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY Detailed Depreciation Study of Electric Utility Properties.	**STIPULATION**

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

Pursuant to ORS 757.140, which requires that "[e]ach public utility shall conform its depreciation accounts to the rates so ascertained and determined by the commission" and pursuant to the Commission Order No. 17-365, issued September 26, 2017, PGE is required to file a detailed depreciation study no later than December 31, 2022.

In compliance with ORS 757.140 and Order 17-365, on January 15, 2021, PGE filed with the Public Utility Commission of Oregon ("Commission") the results of a detailed depreciation study ("2019 Depreciation Study") of its utility properties as of December 31, 2019, which included proposed depreciation lives, curves, and net salvage rates (collectively the "parameters") and depreciation rates for PGE's generation, transmission, distribution, and general plant.

In July 2021, PGE filed an application for a general rate revision, Docket No. UE 394, for rates to be effective May 1, 2022. The depreciation rates that will be used in Docket No. UE 394 will be the rates approved by the Commission in this docket.

PGE responded to numerous data requests from parties to this docket and a workshop was held on April 8, 2021. On May 3, 2021, the Alliance of Western Energy Consumers' (AWEC) filed a motion to compel production of deprecation data in a native format as machine readable files. On June 10, 2021, the Commission granted AWEC's motion to compel, and on June 24, 2021, PGE provided the data in Excel format to AWEC in compliance with the ALJ's

ruling. On June 24 and 28, 2021, PGE, Staff, CUB and AWEC participated in Settlement Conferences. The discussions resulted in a compromise settlement between PGE, Staff, and CUB as set forth below. AWEC is not a party to this Stipulation.

PGE, Staff, and CUB request that the Commission issue an order in this docket implementing the terms of this Stipulation. As a settlement of the issues in dispute, the Parties have agreed to depreciation parameters and rates that would result in a decrease of approximately $710,000 on an annual basis from that originally proposed in this docket based on plant data at December 31, 2019.

TERMS OF STIPULATION

1. This Stipulation resolves all issues in this docket.

2. The Parties agree that the changes shown in Exhibit "104 – Adjustment-Parameter Comparison," to this Stipulation should be made for the identified lives, curves, net salvage value, and rates. With the exception of the parameters set forth in Exhibit "104 – Adjustment-Parameter Comparison," the parameters should remain as filed in PGE's 2019 Depreciation Study.

3. Exhibit "102, Table 1" to this Stipulation is a complete list of all PGE depreciation parameters for all plant accounts by location.

4. Exhibit "103, Table 2" to this Stipulation provides a comparison of the agreed upon net plant depreciation rates and expense to the current net plant depreciation rates and expense

5. Consistent with the Commission's order in Docket No. UM 1809 (Order 17-365), PGE used the Average Service Life depreciation procedure for the FERC accounts related to generating facilities placed in service after December 31, 2012 and the Integrated Operations Center. PGE will continue to use the straight-line, Equal Life Group method for all other assets and accounts.

5. The Parties agreed that PGE will change the retirement date for the Colstrip coal

plant steam assets from December 31, 2027 as proposed in PGE's initial filing, to December 31, 2025.

6. The Parties agreed that PGE will change the expected average service life for AMI meters from 15 years to 20 years and survivor curve type from R3 to R2.5 for the 2019 Depreciation Study.

7. The Parties agreed that PGE will change the expected average service life for wind resources in Account 344 from 35 years to 30 years for the 2019 Depreciation Study. For the 2019 Depreciation Study, PGE agreed to change Survivor Curves and Net Salvage Percentages for the accounts listed in Exhibit 103.

8. The table below provides the summary of overall reductions in PGE annual depreciation expenses, based on depreciable plant as of December 31, 2019, after updating the probable retirement date for the Colstrip coal plant, and the Survivor Curves and Net Salvage Rates for certain PGE accounts.

Estimated Annual Depreciation Expense Comparison:

Settlement	$300,427,429
As Filed	$301,136,948
Reduction	($709,519)

9. The revised depreciation parameters described above and set forth in Exhibit "102, Table 1" are reasonable and should be adopted.

10. The revised depreciation rates should be implemented on the effective date of PGE's pending general rate request in Docket UE 394, currently expected to be May 9, 2022.

11. No later than December 31, 2026, PGE shall file with the Commission another detailed depreciation study of its utility property. The depreciation parameters detailed in Stipulation Exhibit "102, Table 1" will be utilized until the effective date of the next depreciation study.

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

13. The Stipulating Parties agree that this Stipulation is in the public interest and will result in rates that are fair, just and reasonable and, if approved, will meet the standard in ORS 756.040.

14. The Stipulating Parties agree that this Stipulation represents a compromise in the positions of the parties. Without the written consent of all 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 Rule 408.

15. The Stipulating Parties have negotiated this Comprehensive Settlement as an integrated document. 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 to: (i) withdraw from the Stipulation, upon written notice to the Commission and other Parties within five (5) business days of service of the final order that rejects this Stipulation, in whole or material part, or adds such material condition; (ii) 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 settlement embodied in this Stipulation; and (iii) pursuant to ORS 756.561 and OAR 860-001-0720, to seek rehearing or reconsideration or to appeal the Commission order under ORS 756.610. Nothing in this paragraph provides any Party the right to withdraw from this Stipulation as a result of the Commission's resolution of

issues that this Stipulation does not resolve.

16. This Stipulation will be offered into the record in this proceeding as evidence pursuant to OAR 860-01-0350(7). The Stipulating Parties agree to support this Stipulation throughout this proceeding and in any appeal, provide witnesses to support this Stipulation (if specifically required by the Commission), and recommend that the Commission issue an order adopting the settlements contained herein. The Stipulating Parties also agree to cooperate in drafting and submitting an explanatory brief and written testimony per OAR 860-001-0350(7), unless such requirement is waived. 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 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.

17. 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.

PORTLAND GENERAL ELECTRIC COMPANY

By: 

Date: July 28, 2021

STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By: /s/Jill Goatcher

Date: July 28, 2021

OREGON CITIZENS' UTILITY BOARD

By: 

Date: 7/27/2021

UM 2152 / Stipulating Parties / 100
Peng – Gehrke – Spanos

BEFORE THE PUBLIC UTILITY COMMISSION OF THE STATE OF OREGON

UM 2152

Joint Testimony in Support of Stipulation

PORTLAND GENERAL ELECTRIC COMPANY

Direct Testimony and Exhibits of

Ming Peng, OPUC

Will Gehrke, CUB

John Spanos, On behalf of PGE

July 28, 2021

Table of Contents

I. Introduction

Q. Please state your names and positions.

A. My name is Ming Peng. I am a Senior Econometrician for the Public Utility Commission of Oregon (Commission). My business address is 201 High St. SE, Suite 100, Salem, Oregon, 97301.

My name is William Gehrke. I am an economist employed by the Citizens' Utility Board (CUB).

My name is John J. Spanos. I am President at Gannett Fleming Valuation and Rate Consultants, LLC. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania 17011. I represent Portland General Electric Company (PGE) in this docket.

Our qualification statements are found in Exhibits 105, 106 and 107, respectively at the end of this testimony.

Q. What is the purpose of your testimony?

A. Our testimony addresses the depreciation study submitted by PGE to the Commission in January 2021 (Depreciation Study). The purpose of our testimony is to describe our analysis and to support the Partial Stipulation (Stipulation) reached between Commission Staff (Staff), PGE, and CUB, collectively referred to as the "Stipulating Parties". The adjustments discussed in the Stipulation are reasonable and will yield fair and equitable rates if adopted by the Commission in its final order in this docket. The Alliance of Western Energy Customer (AWEC) is not a party to the Stipulation.

Q. What precipitated this proceeding?

A. Pursuant to ORS 757.140, "[e]ach public utility shall conform its depreciation accounts to the rates so ascertained and determined by the commission." Pursuant to Commission Order No. 17-365, issued September 26, 2017, PGE was required to file a detailed depreciation

study no later than December 31, 2022. In compliance with ORS 757.140 and Order 17-365, PGE filed a new Depreciation Study on January 15, 2021. All assets in the study are included as of December 31, 2019, in traditional FERC classification of generation, transmission, distribution, and general plant assets.

Q. Please summarize PGE's Depreciation Study proposal.

A. PGE's Depreciation Study recommended revisions in depreciation lives, curves, and net salvage rates for various plant accounts. In its filing, PGE requested that the Commission prescribe the depreciation rates derived from, and included with, the Iowa survivor curve and average service life combinations, and that the rates be fixed until the effective date of the next depreciation study.

The depreciation rates proposed by PGE in UM 2152 would have resulted in an annual depreciation expense of approximately $301.1 million based on depreciable plant as of December 31, 2019, a decrease in annual depreciation expense of approximately $8.6 million, excluding the effects of adjustments to Colstrip depreciation parameters. This difference was based upon a comparison of 2019 depreciation expense using filed depreciation study rates to 2019 depreciation expense using previously approved depreciation parameters.

II. Summary of Proceedings

Q. Did Staff organize a workshop for the parties to UM 2152?

A. Yes. Staff held a workshop for parties on April 8, 2021, almost four months after PGE made its initial filing. PGE, Staff, CUB, and AWEC participated in the workshop. In the workshop meeting, the depreciation consultant, John Spanos, gave an overview of the utility's filing with explanations of the methods, procedures, and techniques used to determine the

depreciation rates. Mr. Spanos also explained the major changes on depreciation parameters of survivor curve-life and net salvage percent. There was time for questions and comments.

Q. Did any party to this docket raise any procedural issues?

A. Yes. On May 3, 2021, AWEC submitted a motion to compel, requesting PGE to provide certain depreciation output parameter data as "a comma-delimited or tab-delimited text file".[1] AWEC's motion to compel was granted by the Administrative Law Judge (ALJ) on June 10, 2021.

Q. Has PGE complied with the OPUC ruling to send AWEC's requested data formatting?

A. Yes. PGE complied with the ALJ decision and provided the data in the requested format on June 24, 2021.

Q. When did the parties have settlement negotiations?

A. Staff hosted a settlement conference on June 24, 2021. It was continued to a second day, June 28, 2021, after which Staff, CUB, and PGE reached a settlement in principle. Staff held a follow-up conference with all parties on July 16, 2021, to discuss AWEC's concerns with the settlement in principle. That conference did not result in a change to the settlement in principle and AWEC did not join the settlement.

III. Analysis and Stipulated Results

Q. How are depreciation rates determined?

A. Depreciation rates are derived by two depreciation parameters: (1) the combination of survivor curve and projection life (curve-life) and (2) net salvage rates. The depreciation filing and settlement discussions were focused on these two parameters, upon which the depreciable asset remaining life and annual depreciation accrual are calculated.

[1] UM 2152 AWEC Motion To Compel Discovery, page 2

Q. Did Staff and CUB independently review the Depreciation Study?

A. Yes. Staff conducted an independent and comprehensive review. Staff developed a set of proposed Iowa curves, average service lives, and net salvage rates for each of the plant accounts. CUB also analyzed PGE's Depreciation Study and made recommendations at the June 24 and June 28, 2021 settlement conferences.

Q. Did Staff and CUB suggest adjustments to PGE's proposal?

A. Yes. Staff recommended adjustments to Iowa survivor curves, projected average service lives, and net salvage rates[2] for numerous depreciation groups. CUB proposed changing the Colstrip probable retirement date from December 31, 2027, the date included in PGE's Depreciation Study, to December 31, 2025.

Q. How did PGE and Staff analyze Iowa curves and net salvage rates?

A. Both PGE and Staff utilized the actuarial retirement rate methodology to analyze historical retirement data to help determine Iowa curves and net salvage rates for each depreciation group. However, PGE' depreciation study and Staff's initial proposal did not necessarily reach the same conclusions based on this data. For example, PGE proposed in the filed Depreciation Study a life of 15-R3 with -5 percent net salvage rate for Account 370.01 Meters – AMI (Advance Metering Infrastructure). The Staff position for Account 370.01 was a 20-L2 survivor curve and 0 percent net salvage rate.

Q. Were the Stipulating Parties able to resolve the study differences for the electric plant accounts?

A. Yes, the differences were resolved in the successive settlement meetings held on June 24 and June 28, 2021. The Stipulating Parties recommend that the Commission adopt the position

[2] Net salvage is the difference between gross salvage and cost of removal. Net salvage is positive when gross salvage exceeds the cost of removal and reduces the revenue requirement. Conversely, net salvage is negative when cost of removal exceeds gross salvage and increases the revenue requirement.

outlined in the Stipulation provided in Exhibit 101. The Stipulations sets forth the changes to PGE's depreciation study that were proposed in the Staff Settlement Proposal or by CUB, and agreed to by the Stipulating Parties at the settlement meetings. Exhibit 101 details the probable retirement date, survivor curve, net salvage percent and the estimated annual change in depreciation for each depreciation group, and new plants respectively.

Q. What is the final impact on estimated depreciation expense due to the Stipulation?

A. The result of the settlement is a depreciation expense of $300,427,429 or an aggregated depreciation rate of 3.21 percent, as shown in the Stipulation Exhibit 102 – Depreciation Settlement Summary Report, based on depreciable plant as of December 31, 2019. The net annual difference in depreciation expense, when comparing the Stipulation to the Depreciation Study as filed of $301,136,948 in the Company's Application, is a reduction of approximately $0.7 million.

Stipulation Exhibit 103 provides the Comparison of Proposed Net Plant Accruals and Pro Forma Accruals as of December 31, 2019, reflecting depreciation parameters agreed upon by the Stipulating Parties.

Exhibit 104 provides the depreciation groups for which the Staff analyses produced differing results from PGE's, and the final position agreed to by the Stipulating Parties in settlement discussions.

A. AMI

Q. What agreement did the Stipulating Parties reach regarding depreciation of AMI?

A. The initial Staff position for Account 370.01 - METERS – AMI, under the Distribution Plant, was a curve-life combination of L2-20, with 0 percent net salvage ratio. The PGE Depreciation Study recommendation is R3-15, with -5 percent net salvage ratio. For settlement purposes, the Stipulating Parties recommend a curve-life combination of 20-R2.5

(20 year of average service life and R2.5 type of dispersion) with a -2 percent net salvage rate.

Q. Why is the stipulated result reasonable for AMI?

A. In its initial filing, PGE provided 12-year AMI retirement data to support its 15-year average service life. However, twelve years after going into service, the AMI survival probability is still 90 percent based on the survival analysis. A 15-year service life means that the majority of AMI meters should be retired in 2022. Staff evaluated PGE's curve life combination in a statistical model, finding that the curve fitting Residual (Sum of Squared Residuals, SSR) for L2-20 showed a significantly better fit for a set of observations, and it has 49 percent less residual than does the curve of R3-15.

Q. Did Staff base its proposal for AMI depreciation on additional factors?

A. Yes. Staff previously visited AMI meter-shops of other utility companies and learned that: (1) the AMI lifespan would be longer than the assumed 15 years, (2) AMI Battery life is 20 years, and (3) there was almost no cost of removal incurred.

Q. How did Staff reach the number of 20 years for the average lifespan for AMI?

A. Based on the review results of AMI investment, Staff believes that the assumption of the average service life of 15 years for AMI will be excessively costly for customers and is an ineffective use of a $169 million investment. As a result, instead of using the PGE-assumed 15-year service life, Staff made an adjustment to the average service life of AMI to 20 years. With respect to meter depreciation, based upon both data evidence and the evidence that Staff investigated at large AMI meter shops, Staff concludes that the adjustment of 20 years will reflect the more reasonable average lifespan for AMI.

It is important to note that the service life of smart meter devices is different than meter-reading software. The meter device is a piece of mechanical or electronic equipment, a

tangible asset, for which Staff proposed a service life of 20 years. Software, however, is an intangible asset that has an average service life of 6-8 years. According to FERC accounting, utilities amortize the intangible asset for software, and depreciate the tangible asset for the mechanical meter device.

Currently, the short-term load forecasting is digitized and computerized based on the smart meter data. Based on current technology, people have the capacity to remotely upgrade firmware (permanent software programmed into a read-only memory), and therefore, Staff concluded that there was no need and no cost to go to the field to update software for the customers' AMI meters.

Staff's recommended AMI projection life is 20 years, which is within the range of industry statistics. Staff believes that these assets have life characteristics to justify an average 20-year depreciation life. For settlement purposes Staff agreed with a 20-year life and R-2.5 curve type and dispersion (R2.5-20) for Account 370.01- METERS – AMI.

B. Wind Generation

Q. Why is the Stipulating Parties' agreement regarding depreciation for wind generation plants reasonable?

A. For Other Production Plant Account 344.01 Generators-Wind, PGE's Depreciation Study included a survivor curve of 35-R3. The Staff position for Account 344-01 was a 25-R1 survivor curve. Staff's recommendation for the maximum life projection of 25 years is within the range of majority industry statistics and meets the wind power industry expectation. Staff evaluated PGE's curve life combination in a statistical model, finding that the curve fitting Residual (SSR) for R1-25 showed a significantly better fit for a set of observations, and it has 22 percent less residual than does the curve of R3-35.

Q. Why did the Parties agree to utilize a 30-R3 curve for the wind generators?

A. In settlement discussions, PGE emphasized the minimal retirements in the early service life for this type of assets due to parts' warranties and the significant statistical support for specified industry ranges. After this discussion, the Stipulating Parties agreed to utilize a 30-R3 curve that reflected all the critical factors for life expectancies for PGE's generator wind assets.

C. Net Salvage Rates

Q. How did the Stipulating Parties determine net salvage rates?

A. In order to determine net salvage rates for its generation facilities, PGE relied primarily upon site-specific decommissioning studies, historical interim retirement data, expectations with respect to future removal requirements and markets for retired equipment and materials, and input from in-house engineering personnel.

Staff analyzed the net salvage rates submitted by PGE and examined the asset retirement activities by comparing year-by-year, three-year, and five-year moving averages, as well as the most recent five- and ten-year averages.

For non-generation FERC 300-level accounts, both Staff and PGE utilized the statistical methods of overall averages and rolling and shrinking band analyses to study historical data to help estimate net salvage characteristics. In addition, PGE consulted with in-house engineering personnel to help determine future net salvage trends.

Q. How were net salvage rates set for steam production plant accounts?

A. The only steam production plant in PGE's asset portfolio is the Colstrip coal plant. PGE recommended a net salvage of -4 percent for all steam production accounts, based on decommissioning studies, historical data, current expectations from field personnel, and the estimates of others. Staff recommended net salvage rates of: 1) -3 percent for Account 311.00,

Structures and Improvements; 2) positive 2 percent for Boiler Plant Equipment; and 3) 0 percent for Turbogenerator Units. Staff based their recommendation on actual asset retirement activities and cost of removal levels. The Stipulating Parties agreed to utilize a net salvage rate of -3 percent for all steam production accounts in this study, based upon the agreement to change the probable retirement date for Colstrip from December 31, 2027 to December 31, 2025.

Q. How were net salvage rates set for other production accounts?

A. The net salvage rates for the other production accounts resulted from site-specific decommissioning studies performed between 2002 and 2019. The resulting net salvage rate requested in the Depreciation Study ranged from -5 percent to -20 percent. Staff did not proposed adjustments to other production accounts net salvage rates, except for Account 344.01, Generator Wind. For Account 344.01, PGE's proposed -6 percent and -5 percent net salvage rates for Biglow Canyon and Tucannon River generators respectively. Staff recommended a net salvage rate of -3 percent for both generators based on the lack of retirement activity in the data observations. The Stipulating Parties agreed to utilize a net salvage rate of -5 percent for Biglow Canyon asset accounts and -4 percent for Tucannon River asset accounts, consistent with the adjustment to the Account 344.01 survivor curves agreed to by Stipulating Parties.

Q. How were net salvage rates adjusted for distribution assets?

A. For Account 367.00, Underground Conductors and Devices, PGE recommended a net salvage rate of -70 percent, based upon the overall historical analyses for the period, 1971-2019 and a general knowledge of the effort required to remove underground conductors and devices. Staff recommended a net salvage rate of -49 percent, based upon the recent trend

for less net salvage. The Stipulating Parties agreed upon a net salvage rate of -55 percent for this Depreciation Study.

For subaccounts 370.01, Meters-AMI and 370.02, Meters-Retained, PGE recommended a net salvage rate of -5 percent, based upon expectations of future costs. Staff recommended a net salvage rate of 0 percent, based upon the limited retirement activity. The Stipulating Parties agreed to compromise on a net salvage position of -2 percent for this Depreciation Study.

D. Colstrip Probable Retirement Date

Q. Please provide depreciation information regarding the Colstrip Plant.

A. PGE owns 20 percent of two coal plants in Montana, Colstrip Units 3 and 4. On October 12, 2016, pursuant to 2016 Oregon Laws, Chapter 28 (SB 1547), Section 1, PGE proposed an automatic adjustment clause in Docket No. ADV 391, Advice 16-15 to implement the revenue requirement effects resulting from a change in the Colstrip Generating Facility (Colstrip) end-of-life of December 31, 2042 to December 31, 2030. The Commission granted PGE recovery of the Colstrip incremental depreciation and decommissioning costs via Schedule 146, an automatic adjustment clause rate schedule.

More recently, Governor Kate Brown issued Executive Order No. 20-04, calling for substantial reductions in economywide greenhouse gas emissions (GHG). To support Oregon reaching its decarbonization goals and provide increasingly clean electricity, PGE proposed an adjustment to Colstrip end-of-life from December 31, 2030 to December 31, 2027 in this Depreciation Study.

Q. Did the Stipulating Parties agree with PGE's proposed retirement date for Colstrip?

A. CUB proposed to change the Colstrip probable retirement date from December 31, 2027 (proposed in the Depreciation Study) to December 31, 2025.

Q. What is the basis for CUB's proposal to adjust the Colstrip probable retirement date from December 31, 2027 to December 31, 2025?

A. The basis for CUB's proposal is PGE's Colstrip Enabling Study, performed by PGE in 2020 in response to the Commission request for further analysis on the impact of the early removal of Colstrip from PGE's portfolio. The conclusion of the study is that the removal of Colstrip from PGE's portfolio by December 31, 2025 provides PGE's customers the greatest reduction of cost and risk in the Integrated Resource Plan (IRP) portfolio metrics. The December 31, 2025 date also aligns with Washington's Clean Energy Transformation Act (CETA) legislation that was passed in 2019, which aligns PGE with the Washington co-owners of Colstrip, Avista and Puget Sound Energy.

Setting the depreciable life to match the life used by the Washington utilities sets depreciation rates in a manner that minimizes the risk to PGE and its customers. For example, in Avista's 2019 Washington general rate case, Avista agreed to not support capital expenditures at Colstrip that go beyond routine capital maintenance costs that extend the plant's operational life beyond December 31, 2025.[3] As informed by the Colstrip enabling study, setting a depreciable life of 2025 for the plant minimizes cost and risk to PGE's customers.

Q. Are there other reasons that support a December 31, 2025 probable retirement date for Colstrip?

A. Yes. Colstrip is supplied coal from the Rosebud mine, which is owned by the Westmoreland Coal Company. In October 2018, Westmoreland Coal company declared Chapter 11 Bankruptcy. In 2019, the regulated utility owners of Colstrip signed a new six-year contract

[3] WUTC Docket UE-190334.

to supply the power plant with coal until 2025. Setting a 2025 depreciation date for Colstrip enables PGE to align its interest in the facility with the current Colstrip coal contract. Given the speculative future that the coal industry faces, it is critical that PGE not be exposed to the price fluctuations and risk that a potential future coal contract brings. By setting a depreciation date of 2025, PGE can exit the plant at a time that would mitigate this exposure. If Colstrip's depreciable life were set beyond 2025, the Company may have to negotiate a future coal supply contract where the costs and risks are uncertain and therefore may pose cost and risk to PGE's customers.

Q. Did the Stipulating Parties agree with CUB's adjustment?

A. Yes, the Stipulating Parties agreed to set the Colstrip probable retirement date to December 31, 2025. The change represents an approximate $4.5 million increase to the Colstrip annual depreciation expense as filed based on depreciable plant as of December 31, 2019.

Q. Why does Staff support CUB's adjustment to the Colstrip probable retirement date?

A. The Colstrip Units 1 and 2 were shut down in January, 2020. The Units 3 and 4 are jointly-owned by PGE, Puget Sound Energy (PSE), Avista Corp, PacifiCorp, NorthWestern Energy, and Talen. PGE has a 20 percent ownership share of Units 3 and 4. The units began operating in 1985 and 1986. NorthWestern Energy announced in December 2020 it had reached an agreement to buy PSE's 25 percent share of Unit 4 of the Colstrip plant for $1. PSE's selling decision was made after determining they could not make the units "economically viable." By May 2025, Washington's PSE will no longer be able to serve Washington load with coal-fired power.

Accordingly, Staff supported the CUB-proposed end of depreciation (retirement) date of December 31, 2025 for Colstrip power plant for the following reasons:

- PGE's enabling study concludes that PGE customers are better off with Colstrip out of PGE's portfolio by 2025;
- A longer coal power plant life is no longer financially viable;
- Currently, the net coal plant value is low, and the asset is close to being fully depreciated. However, the decommissioning cost is very high at this time compared to the period that the coal power plant was built, because of the labor costs and environmental remediation costs. Please note, decommissioning cost is included in the depreciation rate as a terminal net salvage value.

Q. Does the Stipulation represent a complete resolution of all issues in this docket?

A. Yes. All the Stipulating Parties know that the settlement reached required each one of them to make some compromises on the asset depreciation, and all parties accepted this presupposition during the settlement meetings. For settlement purposes, the Stipulating Parties all compromised and acquiesced on some issues.

Q. Please explain why the Commission should adopt the Stipulation.

A. The final adjustment decisions were made based on the combination of the considerations of PGE's plant retirement patterns and in-house engineering opinion, the industry average level, and analyst experience. Based on scientific evidence and the scientific method, the Stipulation is consistent with the asset retirement pattern and it meets energy industry expectations. The Stipulation represents a fair and reasonable level of depreciation expenses to be included in depreciation rates.

Q. Please summarize the Stipulating Parties' joint recommendations to the Commission.

A. We recommend that the Commission approve the Stipulation. We also recommend that the Commission order PGE to implement the probable retirement dates, depreciation curve-

life, and net salvage rates parameters proposed in the Stipulation as of the effective date of the 2022 test year general rate case docketed under Docket No. UE 394.

Q. Does this conclude your testimony?

A. Yes.

List of Exhibits

Exhibit	Description
101	UM 2152 Stipulation
102	Table 1. Summary of Estimated Survivor Curves, Net Salvage Percent, Original Cost, Book Depreciation Reserve and Calculated Annual Depreciation Accruals Related to Electric Plant as of December 31, 2019.
103	Table 2. Comparison of Proposed Net Plant Accruals and Pro Forma Accruals as of December 31, 2019
104	Table 3. Adjustment-Parameter Comparison
105	Staff Witness Qualification – Ming Peng
106	CUB Witness Qualification – Will Gehrke
107	PGE Witness Qualification – John Spanos

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

UM 2152

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY Detailed Depreciation Study of Electric Utility Properties.	**STIPULATION**

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

Pursuant to ORS 757.140, which requires that "[e]ach public utility shall conform its depreciation accounts to the rates so ascertained and determined by the commission" and pursuant to the Commission Order No. 17-365, issued September 26, 2017, PGE is required to file a detailed depreciation study no later than December 31, 2022.

In compliance with ORS 757.140 and Order 17-365, on January 15, 2021, PGE filed with the Public Utility Commission of Oregon ("Commission") the results of a detailed depreciation study ("2019 Depreciation Study") of its utility properties as of December 31, 2019, which included proposed depreciation lives, curves, and net salvage rates (collectively the "parameters") and depreciation rates for PGE's generation, transmission, distribution, and general plant.

In July 2021, PGE filed an application for a general rate revision, Docket No. UE 394, for rates to be effective May 1, 2022. The depreciation rates that will be used in Docket No. UE 394 will be the rates approved by the Commission in this docket.

PGE responded to numerous data requests from parties to this docket and a workshop was held on April 8, 2021. On May 3, 2021, the Alliance of Western Energy Consumers' (AWEC) filed a motion to compel production of deprecation data in a native format as machine readable files. On June 10, 2021, the Commission granted AWEC's motion to compel, and on

June 24, 2021, PGE provided the data in Excel format to AWEC in compliance with the ALJ's ruling. On June 24 and 28, 2021, PGE, Staff, CUB and AWEC participated in Settlement Conferences. The discussions resulted in a compromise settlement between PGE, Staff, and CUB as set forth below. AWEC is not a party to this Stipulation.

PGE, Staff, and CUB request that the Commission issue an order in this docket implementing the terms of this Stipulation. As a settlement of the issues in dispute, the Parties have agreed to depreciation parameters and rates that would result in a decrease of approximately $710,000 on an annual basis from that originally proposed in this docket based on plant data at December 31, 2019.

TERMS OF STIPULATION

1. This Stipulation resolves all issues in this docket.

2. The Parties agree that the changes shown in Exhibit "104 – Adjustment-Parameter Comparison," to this Stipulation should be made for the identified lives, curves, net salvage value, and rates. With the exception of the parameters set forth in Exhibit "104 – Adjustment-Parameter Comparison," the parameters should remain as filed in PGE's 2019 Depreciation Study.

3. Exhibit "102, Table 1" to this Stipulation is a complete list of all PGE depreciation parameters for all plant accounts by location.

4. Exhibit "103, Table 2" to this Stipulation provides a comparison of the agreed upon net plant depreciation rates and expense to the current net plant depreciation rates and expense

5. Consistent with the Commission's order in Docket No. UM 1809 (Order 17-365), PGE used the Average Service Life depreciation procedure for the FERC accounts related to generating facilities placed in service after December 31, 2012 and the Integrated Operations Center. PGE will continue to use the straight-line, Equal Life Group

method for all other assets and accounts.

5. The Parties agreed that PGE will change the retirement date for the Colstrip coal plant steam assets from December 31, 2027 as proposed in PGE's initial filing, to December 31, 2025.

6. The Parties agreed that PGE will change the expected average service life for AMI meters from 15 years to 20 years and survivor curve type from R3 to R2.5 for the 2019 Depreciation Study.

7. The Parties agreed that PGE will change the expected average service life for wind resources in Account 344 from 35 years to 30 years for the 2019 Depreciation Study. For the 2019 Depreciation Study, PGE agreed to change Survivor Curves and Net Salvage Percentages for the accounts listed in Exhibit 103.

8. The table below provides the summary of overall reductions in PGE annual depreciation expenses, based on depreciable plant as of December 31, 2019, after updating the probable retirement date for the Colstrip coal plant, and the Survivor Curves and Net Salvage Rates for certain PGE accounts.

Estimated Annual Depreciation Expense Comparison:

Settlement	$300,427,429
As Filed	$301,136,948
Reduction	($709,519)

9. The revised depreciation parameters described above and set forth in Exhibit "102, Table 1" are reasonable and should be adopted.

10. The revised depreciation rates should be implemented on the effective date of PGE's pending general rate request in Docket UE 394, currently expected to be May 9, 2022.

11. No later than December 31, 2026, PGE shall file with the Commission another

detailed depreciation study of its utility property. The depreciation parameters detailed in Stipulation Exhibit "102, Table 1" will be utilized until the effective date of the next depreciation study.

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

13. The Stipulating Parties agree that this Stipulation is in the public interest and will result in rates that are fair, just and reasonable and, if approved, will meet the standard in ORS 756.040.

14. The Stipulating Parties agree that this Stipulation represents a compromise in the positions of the parties. Without the written consent of all 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 Rule 408.

15. The Stipulating Parties have negotiated this Comprehensive Settlement as an integrated document. 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 to: (i) withdraw from the Stipulation, upon written notice to the Commission and other Parties within five (5) business days of service of the final order that rejects this Stipulation, in whole or material part, or adds such material condition; (ii) 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 settlement embodied in this Stipulation; and (iii) pursuant to ORS 756.561 and OAR 860-001-0720, to seek rehearing or reconsideration or to appeal the Commission order under ORS 756.610. Nothing in this paragraph provides any Party the right to withdraw from this Stipulation as a result of the Commission's resolution of issues that this Stipulation does not resolve.

16. This Stipulation will be offered into the record in this proceeding as evidence pursuant to OAR 860-01-0350(7). The Stipulating Parties agree to support this Stipulation throughout this proceeding and in any appeal, provide witnesses to support this Stipulation (if specifically required by the Commission), and recommend that the Commission issue an order adopting the settlements contained herein. The Stipulating Parties also agree to cooperate in drafting and submitting an explanatory brief and written testimony per OAR 860-001-0350(7), unless such requirement is waived. 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 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.

17. 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.

PORTLAND GENERAL ELECTRIC COMPANY

By: _____

Date: July 28, 2021

STAFF OF THE PUBLIC UTILITY COMMISSION OF OREGON

By: _____/s/Jill Goatcher_____

Date: July 28, 2021

OREGON CITIZENS' UTILITY BOARD

By: _____

Date: 7/27/2021

PORTLAND GENERAL ELECTRIC

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AS OF DECEMBER 31, 2019

	ACCOUNT	PROBABLE RETIREMENT DATE	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
	STEAM PRODUCTION PLANT									
	COLSTRIP									
311.00	STRUCTURES AND IMPROVEMENTS	12-2025	90 - S1.5 *	(3)	117,227,390.05	102,160,808	18,583,404	3,120,626	2.66	6.0
312.00	BOILER PLANT EQUIPMENT	12-2025	65 - R3 *	(3)	256,228,932.64	191,047,771	72,868,030	12,310,145	4.80	5.9
	COLSTRIP DECOMMISSIONING ACCRUAL					936,206	58,906,565	1,963,552		30.0
314.00	TURBOGENERATOR UNITS	12-2025	55 - R2 *	(3)	72,869,037.81	50,194,898	24,860,211	4,300,909	5.90	5.8
315.00	ACCESSORY ELECTRIC EQUIPMENT	12-2025	60 - R2.5 *	(3)	23,503,445.57	20,506,294	3,702,255	633,037	2.69	5.8
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT	12-2025	60 - R1 *	(3)	6,495,791.35	5,411,803	1,278,862	220,830	3.40	5.8
	TOTAL COLSTRIP				476,324,597.42	370,257,780	180,199,327	22,549,099	4.73	8.0
	TOTAL STEAM PRODUCTION PLANT				**476,324,597.42**	**370,257,780**	**180,199,327**	**22,549,099**	**4.73**	**8.0**
	HYDRAULIC PRODUCTION PLANT									
331.00	STRUCTURES AND IMPROVEMENTS									
	FARADAY	06-2055	105 - R2.5 *	(42)	14,154,711.88	2,289,524	17,810,167	536,884	3.79	33.2
	NORTH FORK	06-2055	105 - R2.5 *	(71)	9,115,427.21	4,305,433	11,281,948	337,205	3.70	33.5
	OAK GROVE	06-2055	105 - R2.5 *	(36)	16,216,461.44	4,598,606	17,455,782	523,127	3.23	33.4
	PELTON	06-2055	105 - R2.5 *	(89)	6,262,112.48	3,739,294	8,096,099	246,866	3.94	32.8
	RIVER MILL	06-2055	105 - R2.5 *	(87)	7,516,466.06	2,429,094	11,626,698	353,211	4.70	32.9
	ROUND BUTTE	06-2055	105 - R2.5 *	(84)	12,483,495.03	5,021,886	17,947,745	543,059	4.35	33.0
	SULLIVAN	06-2035	105 - R2.5 *	(29)	18,320,848.20	5,503,339	18,130,555	1,189,618	6.49	15.2
	TOTAL STRUCTURES AND IMPROVEMENTS				84,069,522.30	27,887,176	102,348,994	3,729,970	4.44	27.4
332.00	RESERVOIRS, DAMS AND WATERWAYS									
	FARADAY	06-2055	105 - R3 *	(42)	32,440,589.78	16,545,932	29,519,705	872,857	2.69	33.8
	NORTH FORK	06-2055	105 - R3 *	(71)	86,489,849.56	36,067,446	111,830,197	3,252,125	3.76	34.4
	OAK GROVE	06-2055	105 - R3 *	(36)	25,816,529.00	22,416,293	12,694,186	370,715	1.44	34.2
	PELTON	06-2055	105 - R3 *	(89)	10,714,550.15	11,103,286	9,147,214	286,356	2.67	31.9
	RIVER MILL	06-2055	105 - R3 *	(87)	59,828,508.72	23,362,967	88,516,344	2,588,304	4.33	34.2
	ROUND BUTTE	06-2055	105 - R3 *	(84)	111,243,011.26	49,211,426	155,475,715	4,567,336	4.11	34.0
	SULLIVAN	06-2035	105 - R3 *	(29)	32,236,102.10	11,793,489	29,791,083	1,940,031	6.02	15.4
	TOTAL RESERVOIRS, DAMS AND WATERWAYS				358,769,140.57	170,500,839	436,974,444	13,877,724	3.87	31.5
333.00	WATER WHEELS, TURBINES AND GENERATORS									
	FARADAY	06-2055	95 - S0.5 *	(42)	6,752,411.58	2,871,859	6,716,565	218,146	3.23	30.8
	NORTH FORK	06-2055	95 - S0.5 *	(71)	11,449,887.54	7,503,451	12,075,857	382,117	3.34	31.6
	OAK GROVE	06-2055	95 - S0.5 *	(36)	15,786,077.84	4,455,616	17,013,450	530,889	3.36	32.0
	PELTON	06-2055	95 - S0.5 *	(89)	4,414,741.45	5,383,540	2,960,321	98,596	2.23	30.0
	RIVER MILL	06-2055	95 - S0.5 *	(87)	6,262,380.96	3,748,280	7,962,372	254,575	4.07	31.3
	ROUND BUTTE	06-2055	95 - S0.5 *	(84)	22,023,848.01	10,977,773	29,546,107	928,179	4.21	31.8
	SULLIVAN	06-2035	95 - S0.5 *	(29)	10,305,358.91	5,466,871	7,827,042	524,284	5.09	14.9
	TOTAL WATER WHEELS, TURBINES AND GENERATORS				76,994,706.29	40,407,390	84,101,714	2,936,786	3.81	28.6
334.00	ACCESSORY ELECTRIC EQUIPMENT									
	FARADAY	06-2055	60 - R2 *	(42)	2,737,869.85	1,527,591	2,360,184	86,631	3.16	27.2
	NORTH FORK	06-2055	60 - R2 *	(71)	1,097,009.03	897,435	978,450	35,453	3.23	27.6
	OAK GROVE	06-2055	60 - R2 *	(36)	7,152,968.88	1,553,435	8,174,603	290,324	4.06	28.2
	PELTON	06-2055	60 - R2 *	(89)	11,305,626.59	1,359,158	20,008,476	689,476	6.10	29.0
	RIVER MILL	06-2055	60 - R2 *	(87)	2,601,393.20	1,597,438	3,267,167	122,262	4.70	26.7
	ROUND BUTTE	06-2055	60 - R2 *	(84)	2,521,196.48	1,147,649	3,491,353	124,459	4.94	28.1
	SULLIVAN	06-2035	60 - R2 *	(29)	4,185,469.48	1,800,462	3,598,794	245,647	5.87	14.7
	TOTAL ACCESSORY ELECTRIC EQUIPMENT				31,601,533.51	9,883,168	41,879,027	1,594,252	5.04	26.3

PORTLAND GENERAL ELECTRIC

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AS OF DECEMBER 31, 2019

	ACCOUNT	PROBABLE RETIREMENT DATE	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
335.00	MISCELLANEOUS PLANT EQUIPMENT									
	FARADAY	06-2055	55 - R0.5 *	(42)	257,629.32	147,345	218,489	10,553	4.10	20.7
	NORTH FORK	06-2055	55 - R0.5 *	(71)	876,758.20	477,667	1,021,590	43,822	5.00	23.3
	OAK GROVE	06-2055	55 - R0.5 *	(36)	294,816.36	92,558	308,392	12,794	4.34	24.1
	PELTON	06-2055	55 - R0.5 *	(89)	226,858.06	199,892	228,870	10,864	4.79	21.1
	RIVER MILL	06-2055	55 - R0.5 *	(87)	412,708.84	21,727	750,039	40,710	9.86	18.4
	ROUND BUTTE	06-2055	55 - R0.5 *	(84)	775,739.92	479,125	948,236	40,740	5.25	23.3
	SULLIVAN	06-2035	55 - R0.5 *	(29)	109,225.68	53,156	87,745	6,320	5.79	13.9
	TOTAL MISCELLANEOUS PLANT EQUIPMENT				2,953,736.38	1,471,470	3,563,361	165,803	5.61	21.5
336.00	ROADS, RAILROADS, AND BRIDGES									
	FARADAY	06-2055	80 - R1 *	(42)	2,441,324.89	996,114	2,470,567	86,381	3.54	28.6
	NORTH FORK	06-2055	80 - R1 *	(71)	2,767,794.08	1,325,882	3,407,046	118,753	4.29	28.7
	OAK GROVE	06-2055	80 - R1 *	(36)	4,178,799.95	2,701,407	2,981,761	109,173	2.61	27.3
	PELTON	06-2055	80 - R1 *	(89)	3,843,152.28	1,352,128	5,911,430	222,148	5.78	26.6
	RIVER MILL	06-2055	80 - R1 *	(87)	421,796.26	199,671	589,088	19,983	4.74	29.5
	ROUND BUTTE	06-2055	80 - R1 *	(84)	1,739,032.08	756,215	2,443,604	85,547	4.92	28.6
	TOTAL ROADS, RAILROADS, AND BRIDGES				15,391,899.54	7,331,417	17,803,496	641,985	4.17	27.7
	TOTAL HYDRAULIC PRODUCTION PLANT				**569,780,538.59**	**257,481,460**	**686,671,036**	**22,946,520**	**4.03**	**29.9**
	OTHER PRODUCTION PLANT									
341.00	STRUCTURES AND IMPROVEMENTS									
	BEAVER - CT	06-2035	70 - R3 *	(7)	38,962,049.24	30,971,857	10,717,536	708,091	1.82	15.1
	COYOTE SPRINGS - CT	06-2040	70 - R3 *	(2)	11,638,830.41	7,862,508	4,009,099	203,607	1.75	19.7
	PORT WESTWARD - CT	06-2050	70 - R3 *	(3)	42,763,287.08	12,196,021	31,850,165	1,103,788	2.58	28.9
	PORT WESTWARD II	06-2060	70 - R3 *	(3)	42,352,598.36	4,513,910	39,109,266	1,000,996	2.36	39.1
	CARTY	06-2061	70 - R3 *	(4)	40,631,268.57	3,143,039	39,113,480	974,132	2.40	40.2
	KB PIPELINE	06-2035	70 - R3 *	(20)	36,850.67	0	44,221	2,885	7.83	15.3
	TOTAL STRUCTURES AND IMPROVEMENTS				176,384,884.33	58,687,335	124,843,767	3,993,499	2.26	31.3
341.01	STRUCTURES AND IMPROVEMENTS - WIND									
	BIGLOW CANYON WIND FARM	06-2057	40 - R4 *	(5)	34,859,161.02	11,567,734	25,034,385	908,385	2.61	27.6
	TUCANNON RIVER WIND FARM	06-2064	40 - R4 *	(4)	18,859,060.20	2,411,603	17,201,820	499,990	2.65	34.4
	TOTAL STRUCTURES AND IMPROVEMENTS - WIND				53,718,221.22	13,979,337	42,236,205	1,408,375	2.62	30.0
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES									
	BEAVER - CT	06-2035	50 - R3 *	(7)	63,762,993.96	50,040,567	18,185,837	1,271,464	1.99	14.3
	COYOTE SPRINGS - CT	06-2040	50 - R3 *	(2)	36,914,405.86	24,850,588	12,802,106	711,318	1.93	18.0
	PORT WESTWARD - CT	06-2050	50 - R3 *	(3)	10,367,528.61	5,528,025	5,150,529	192,458	1.86	26.8
	PORT WESTWARD II	06-2060	50 - R3 *	(3)	7,576,319.26	690,888	7,112,721	190,885	2.52	37.3
	CARTY	06-2061	50 - R3 *	(4)	7,601,494.92	565,753	7,339,802	193,231	2.54	38.0
	KB PIPELINE	06-2035	50 - R3 *	(15)	21,034,115.83	17,603,557	6,585,676	463,818	2.21	14.2
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES				147,256,858.44	99,279,378	57,176,671	3,023,174	2.05	18.9
344.00	GENERATORS									
	BEAVER - CT	06-2035	45 - R1.5 *	(7)	119,584,617.99	77,376,472	50,579,069	3,716,435	3.11	13.6
	COYOTE SPRINGS - CT	06-2040	45 - R1.5 *	(2)	138,636,687.61	74,808,034	66,601,387	3,938,629	2.84	16.9
	PORT WESTWARD - CT	06-2050	45 - R1.5 *	(3)	208,909,668.88	68,410,712	146,766,247	6,466,715	3.10	22.7
	PORT WESTWARD II	06-2060	45 - R1.5 *	(3)	220,371,510.51	31,500,981	195,481,675	5,893,360	2.67	33.2
	CARTY	06-2061	45 - R1.5 *	(4)	392,107,417.22	37,691,801	370,099,913	10,791,269	2.75	34.3
	TOTAL GENERATORS				1,079,609,902.21	289,788,000	829,528,291	30,806,408	2.85	26.9

PORTLAND GENERAL ELECTRIC

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AS OF DECEMBER 31, 2019

	ACCOUNT	PROBABLE RETIREMENT DATE	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
344.01	GENERATORS - WIND									
	BIGLOW CANYON WIND FARM	06-2057	30 - R3 *	(5)	874,997,026.50	344,073,054	574,673,824	32,404,575	3.70	17.7
	TUCANNON RIVER WIND FARM	06-2064	30 - R3 *	(4)	445,497,641.72	76,684,568	386,632,979	15,664,916	3.52	24.7
	TOTAL GENERATORS - WIND				1,320,494,668.22	420,757,622	961,306,803	48,069,491	3.64	20.0
344.02	GENERATORS - SOLAR		20 - L2.5	(2)	4,427,436.32	(244,508)	4,760,493	346,773	7.83	13.7
345.00	ACCESSORY ELECTRIC EQUIPMENT									
	DISPATCH GENERATION		50 - R2.5	(5)	13,996,916.68	3,186,823	11,509,940	326,895	2.34	35.2
	BEAVER - CT	06-2035	50 - R2.5 *	(7)	26,831,244.66	15,342,640	13,366,792	916,472	3.42	14.6
	COYOTE SPRINGS - CT	06-2040	50 - R2.5 *	(2)	12,041,369.00	8,572,579	3,709,617	209,893	1.74	17.7
	PORT WESTWARD - CT	06-2050	50 - R2.5 *	(3)	9,298,345.47	3,577,640	5,999,656	234,506	2.52	25.6
	PORT WESTWARD II	06-2060	50 - R2.5 *	(3)	17,167,891.17	1,928,647	15,754,281	438,123	2.55	36.0
	TOTAL ACCESSORY ELECTRIC EQUIPMENT				79,335,766.98	32,608,329	50,340,286	2,125,889	2.68	23.7
345.01	ACCESSORY ELECTRIC EQUIPMENT - WIND									
	BIGLOW CANYON WIND FARM	06-2057	30 - S2.5 *	(5)	27,268,897.82	9,796,105	18,836,238	1,035,352	3.80	18.2
	TUCANNON RIVER WIND FARM	06-2064	30 - S2.5 *	(4)	14,532,301.12	2,317,913	12,795,680	520,313	3.58	24.6
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND				41,801,198.94	12,114,018	31,631,918	1,555,665	3.72	20.3
346.00	MISCELLANEOUS PLANT EQUIPMENT									
	BEAVER - CT	06-2035	60 - R2.5 *	(7)	4,529,017.54	3,781,466	1,064,583	72,944	1.61	14.6
	COYOTE SPRINGS - CT	06-2040	60 - R2.5 *	(2)	3,194,615.77	1,603,386	1,655,122	86,192	2.70	19.2
	PORT WESTWARD - CT	06-2050	60 - R2.5 *	(3)	3,225,810.51	995,116	2,327,469	85,347	2.65	27.3
	PORT WESTWARD II	06-2060	60 - R2.5 *	(3)	3,200,074.57	383,087	2,912,990	77,535	2.42	37.6
	CARTY	06-2061	60 - R2.5 *	(4)	27,694,943.99	2,238,095	26,564,647	685,920	2.48	38.7
	KB PIPELINE	06-2035	60 - R2.5 *	(5)	126,138.21	74,949	57,496	3,902	3.09	14.7
	TOTAL MISCELLANEOUS PLANT EQUIPMENT				41,970,600.59	9,076,099	34,582,307	1,011,840	2.41	34.2
346.01	MISCELLANEOUS PLANT EQUIPMENT - WIND									
	BIGLOW CANYON WIND FARM	06-2057	45 - R2.5 *	(5)	1,575,389.08	425,988	1,228,171	43,657	2.77	28.1
	TUCANNON RIVER WIND FARM	06-2064	45 - R2.5 *	(4)	534,993.90	72,067	484,327	13,324	2.49	36.3
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND				2,110,382.98	498,055	1,712,498	56,981	2.70	30.1
	TOTAL OTHER PRODUCTION PLANT				**2,947,109,920.23**	**936,543,665**	**2,138,119,239**	**92,398,095**	**3.14**	**23.1**
	TOTAL PRODUCTION				**3,993,215,056.24**	**1,564,282,905**	**3,004,989,602**	**137,893,714**	**3.45**	
	TRANSMISSION PLANT									
352.00	STRUCTURES AND IMPROVEMENTS		70 - R2.5	(20)	30,274,033.29	10,495,308	25,833,532	561,186	1.85	46.0
353.00	STATION EQUIPMENT		62 - R2	(20)	491,807,390.44	152,461,350	437,707,519	10,846,742	2.21	40.4
354.00	TOWERS AND FIXTURES		70 - S3	(10)	48,824,327.14	28,284,490	25,422,270	907,266	1.86	28.0
355.00	POLES AND FIXTURES		52 - S0	(50)	83,364,422.45	48,312,653	76,733,981	2,489,182	2.99	30.8
356.00	OVERHEAD CONDUCTORS AND DEVICES		65 - R2.5	(20)	169,438,107.06	118,529,590	84,796,138	1,814,594	1.07	46.7
359.00	ROADS AND TRAILS		65 - R3	0	286,332.32	182,621	103,711	3,553	1.24	29.2
	TOTAL TRANSMISSION PLANT				**823,994,612.70**	**358,266,012**	**650,597,151**	**16,622,523**	**2.02**	**39.1**
	DISTRIBUTION PLANT									
361.00	STRUCTURES AND IMPROVEMENTS		70 - R2	(25)	46,326,091.45	18,502,597	39,405,017	906,387	1.96	43.5
362.00	STATION EQUIPMENT		59 - S0	(20)	559,680,234.50	172,063,320	499,552,961	14,608,815	2.61	34.2
363.00	STORAGE BATTERY		15 - L3	(5)	393,190.82	153,981	258,869	34,830	8.86	7.4
364.00	POLES, TOWERS AND FIXTURES		50 - R0.5	(45)	420,065,793.24	251,862,062	357,233,338	13,769,129	3.28	25.9
365.00	OVERHEAD CONDUCTORS AND DEVICES		60 - R1	(65)	664,059,808.73	423,135,365	672,563,319	19,405,228	2.92	34.7
366.00	UNDERGROUND CONDUIT		85 - R4	(10)	29,515,628.47	10,876,607	21,590,584	334,458	1.13	64.6

PORTLAND GENERAL ELECTRIC

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AS OF DECEMBER 31, 2019

	ACCOUNT	PROBABLE RETIREMENT DATE	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
367.00	UNDERGROUND CONDUCTORS AND DEVICES		65 - S1	(55)	907,226,216.69	525,453,052	880,747,584	20,412,932	2.25	43.1
368.00	LINE TRANSFORMERS		52 - R2.5	(10)	469,865,715.01	215,375,023	301,477,264	8,588,138	1.83	35.1
369.01	SERVICES - OVERHEAD		55 - R1.5	(30)	81,320,051.24	47,251,341	58,464,726	1,744,137	2.14	33.5
369.03	SERVICES - UNDERGROUND		55 - R4	(30)	414,063,514.45	299,302,891	238,979,678	5,850,994	1.41	40.8
370.00	METERS		28 - R2	(2)	9,657,143.69	1,467,083	8,383,204	535,375	5.54	15.7
370.01	METERS - AMI		20 - R2.5	(2)	168,652,947.59	70,653,254	101,372,753	8,365,697	4.96	12.1
370.02	METERS - RETAINED		16 - L0.5	(2)	6,976,674.60	5,044,542	2,071,666	302,401	4.33	6.9
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES		30 - R4	0	1,749,713.13	304,152	1,445,561	58,028	3.32	24.9
373.01	CIRCUITS - OTHER		40 - L2.5	(25)	25,077,570.66	19,265,150	12,081,813	528,497	2.11	22.9
373.02	FIXTURES, ORNAMENTAL POSTS AND DEVICES		28 - L1	(25)	83,684,633.42	38,911,879	65,693,913	3,953,547	4.72	16.6
373.07	SENTINEL LIGHTING EQUIPMENT		30 - L0.5	(25)	8,491,048.00	10,562,085	51,725	3,198	0.04	16.2
	TOTAL DISTRIBUTION PLANT				**3,896,805,975.69**	**2,110,184,384**	**3,261,373,975**	**99,401,791**	**2.55**	**32.8**
	GENERAL PLANT									
390.00	STRUCTURES AND IMPROVEMENTS		42 - R0.5	(5)	120,715,526.93	38,410,129	88,341,174	3,845,938	3.19	23.0
390.10	STRUCTURES AND IMPROVEMENTS - LEASE									
	CSS	12-2028	SQUARE *	0	16,087.41	14,951	1,136	127	0.79	8.9
	EASTPORT	12-2020	SQUARE *	0	58,754.96	58,755	0	0	-	-
	ERC TUALATIN	12-2028	SQUARE *	0	414,255.32	388,782	25,473	2,830	0.68	9.0
	HILLSBORO	12-2020	SQUARE *	0	93,336.06	93,336	0	0	-	-
	SALEM	12-2020	SQUARE *	0	13,580.71	13,581	0	0	-	-
	WILSONVILLE	12-2021	SQUARE *	0	272,342.13	249,669	22,673	11,335	4.16	2.0
	WTC	09-2043	SQUARE *	0	24,503,645.04	9,064,675	15,438,970	650,064	2.65	23.7
	TOTAL STRUCTURES AND IMPROVEMENTS				25,372,001.63	9,883,749	15,488,252	664,356	2.62	23.3
	OFFICE FURNITURE AND EQUIPMENT									
391.10	FURNITURE AND EQUIPMENT		15 - SQ	0	27,575,296.84	11,495,053	16,080,244	1,622,109	5.88	9.9
391.20	COMPUTERS AND EQUIPMENT		5 - SQ	0	132,932,472.59	71,660,244	61,272,229	22,880,453	17.21	2.7
	TOTAL OFFICE FURNITURE AND EQUIPMENT				160,507,769.43	83,155,297	77,352,473	24,502,562	15.27	3.2
	TRANSPORTATION EQUIPMENT									
392.04	HEAVY DUTY TRUCKS		20 - S0	15	26,034,187.32	8,901,768	13,227,291	1,133,927	4.36	11.7
392.05	MEDIUM DUTY TRUCKS		15 - S2	15	27,983,974.27	12,134,378	11,652,000	1,007,460	3.60	11.6
392.06	LIGHT DUTY TRUCKS		13 - L2.5	15	13,283,121.90	5,240,003	6,050,651	725,094	5.46	8.3
392.08	TRAILERS		30 - S0	15	6,347,528.20	3,043,068	2,352,331	136,945	2.16	17.2
392.09	AUTOS		12 - S1.5	15	2,043,598.35	978,168	758,891	96,225	4.71	7.9
392.10	HELICOPTER		20 - S4	15	2,764,850.25	1,270,504	1,079,619	125,178	4.53	8.6
	TOTAL TRANSPORTATION EQUIPMENT				78,457,260.29	31,567,889	35,120,783	3,224,829	4.11	10.9
393.00	STORES EQUIPMENT		20 - SQ	0	3,877,884.26	1,478,661	2,399,223	186,677	4.81	12.9
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT		20 - SQ	0	23,093,382.44	7,656,948	15,436,434	989,883	4.29	15.6
395.00	LABORATORY EQUIPMENT		15 - SQ	0	8,901,073.61	5,143,832	3,757,242	704,398	7.91	5.3
	POWER OPERATED EQUIPMENT									
396.01	MAN LIFT		14 - S1.5	10	29,181,884.43	8,557,908	17,705,788	2,126,759	7.29	8.3
396.02	DIGGER		15 - S2	10	3,512,905.88	1,846,351	1,315,264	260,499	7.42	5.0
396.03	CRANE		23 - S2.5	10	4,882,319.58	2,957,218	1,436,870	104,278	2.14	13.8
396.07	CONSTRUCTION EQUIPMENT		20 - L2	10	7,053,658.20	4,139,890	2,208,402	194,594	2.76	11.3
	TOTAL POWER OPERATED EQUIPMENT				44,630,768.09	17,501,367	22,666,324	2,686,130	6.02	8.4
	COMMUNICATION EQUIPMENT									
397.01	LINE EQUIPMENT		15 - SQ	0	21,148,863.01	4,353,078	16,795,785	1,436,883	6.79	11.7

PORTLAND GENERAL ELECTRIC

TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AS OF DECEMBER 31, 2019

	ACCOUNT	PROBABLE RETIREMENT DATE	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(8)/(5)	(10)=(7)/(8)
397.03	RADIO, MICROWAVE AND TERMINAL EQUIPMENT		15 - SQ	0	154,202,962.59	75,242,516	78,960,447	7,976,799	5.17	9.9
397.06	MOBILE RADIO EQUIPMENT		15 - SQ	0	2,987,372.42	397,615	2,589,757	209,578	7.02	12.4
397.07	TELEPHONE EQUIPMENT		15 - SQ	0	889,801.05	755,880	133,921	17,128	1.92	7.8
	TOTAL COMMUNICATION EQUIPMENT				179,228,999.07	80,749,089	98,479,910	9,640,388	5.38	10.2
398.00	MISCELLANEOUS EQUIPMENT		20 - SQ	0	1,295,281.80	187,686	1,107,596	64,240	4.96	17.2
	TOTAL GENERAL PLANT				**646,079,947.55**	**275,734,647**	**360,149,411**	**46,509,401**	**7.20**	**7.7**
	TOTAL DEPRECIABLE PLANT				**9,360,095,592.18**	**4,308,467,948**	**7,277,110,139**	**300,427,429**	**3.21**	**24.2**
	NONDEPRECIABLE / ACCOUNTS NOT STUDIED									
	BOARDMAN									
311.00	STRUCTURES AND IMPROVEMENTS				141,673,188.64	103,571,464				
312.00	BOILER PLANT EQUIPMENT				348,354,026.03	301,878,080				
312.01	RAIL CARS				9,727,440.25	9,691,114				
314.00	TURBOGENERATOR UNITS				115,881,281.67	83,273,696				
315.00	ACCESSORY ELECTRIC EQUIPMENT				31,763,936.00	23,145,963				
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT				8,520,340.99	6,068,922				
353.00	STATION EQUIPMENT - BOARDMAN				7,964,879.32	5,752,880				
	TOTAL BOARDMAN				663,885,092.90	533,382,119				
302.00	FRANCHISES AND CONSENTS				195,264,817.73	77,431,013				
303.00	MISCELLANEOUS INTANGIBLE PLANT				563,164,236.70	288,693,036				
310.00	LAND AND LAND RIGHTS				4,161,624.80					
317.00	STEAM PRODUCTION PLANT - ARO				75,980,569.68	43,595,692				
330.00	LAND AND LAND RIGHTS				6,053,902.82	1,512,364				
337.00	HYDRAULIC PRODUCTION PLANT - ARO				5,127.87	3,374				
340.00	LAND AND LAND RIGHTS				26,960,038.01					
347.00	OTHER PRODUCTION PLANT - ARO				22,576,353.45	2,370,720				
350.00	LAND AND LAND RIGHTS				17,269,684.75	(379,614)				
359.10	TRANSMISSION PLANT - ARO				34,108.66	34,086				
360.00	LAND AND LAND RIGHTS				19,294,221.61	(1,625,965)				
374.00	DISTRIBUTION PLANT - ARO				476,732.46	398,934				
389.00	LAND AND LAND RIGHTS				9,622,354.56	(630,238)				
399.00	GENERAL PLANT - ARO				65,288.96	64,564				
	TOTAL NONDEPRECIABLE / NOT STUDIED				**1,604,814,154.96**	**944,850,085**				
	TOTAL ELECTRIC PLANT				**10,964,909,747.14**	**5,253,318,033**	**7,277,110,139**	**300,427,429**		

* CURVE SHOWN IS INTERIM SURVIVOR CURVE. EACH FACILITY IN THE ACCOUNT IS ASSIGNED AN INDIVIDUAL PROBABLE RETIREMENT YEAR.

NOTES:
ACCRUAL RATES FOR FACILITIES TO BE PLACED IN SERVICE AFTER DECEMBER 31, 2019 ARE AS FOLLOWS.

		RATE	SURVIVOR CURVE		NET SALVAGE PERCENT
WHEATRIDGE WIND					
	341.00	3.57	40 - R4	*	(3)
	344.00	3.93	30 - R3	*	(3)
	345.00	3.94	30 - S2.5	*	(3)
	346.00	3.74	40 - R2.5	*	(3)
INTEGRATED OPERATIONS CENTER					
	390.00	2.12	60 - R1.5	*	(5)

PORTLAND GENERAL ELECTRIC

TABLE 2. COMPARISON OF PROPOSED NET PLANT ACCRUALS AND PRO FORMA ACCRUALS
AS OF DECEMBER 31, 2019

	ACCOUNT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	NET PLANT ANNUAL ACCRUAL AMOUNT	NET PLANT ANNUAL ACCRUAL RATE	CURRENT COMPANY NET PLANT	CURRENT NET PLANT RATE	CURRENT PRO FORMA ACCRUAL	ACCRUAL DIFFERENCE
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(7)x(8)	(10)=(5)-(9)
	STEAM PRODUCTION PLANT									
	COLSTRIP									
311.00	STRUCTURES AND IMPROVEMENTS	117,227,390.05	102,160,808	18,583,404	3,120,626	16.79	19,755,678	6.92	1,367,093	1,753,533
312.00	BOILER PLANT EQUIPMENT	256,228,932.64	191,047,771	72,868,030	12,310,145	16.89	75,430,319	6.89	5,197,149	7,112,996
	COLSTRIP DECOMMISSIONING ACCRUAL		936,206	58,906,565	1,963,552	-				1,963,552
314.00	TURBOGENERATOR UNITS	72,869,037.81	50,194,898	24,860,211	4,300,909	17.30	25,588,901	7.27	1,860,313	2,440,596
315.00	ACCESSORY ELECTRIC EQUIPMENT	23,503,445.57	20,506,294	3,702,255	633,037	17.10	3,937,289	7.25	285,453	347,584
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT	6,495,791.35	5,411,803	1,278,862	220,830	17.27	1,343,820	7.30	98,099	122,731
	TOTAL COLSTRIP	476,324,597.42	370,257,780	180,199,327	22,549,099		126,056,007		8,808,107	13,740,992
	TOTAL STEAM PRODUCTION PLANT	**476,324,597.42**	**370,257,780**	**180,199,327**	**22,549,099**		**126,056,007**		**8,808,107**	**13,740,992**
	HYDRAULIC PRODUCTION PLANT									
331.00	STRUCTURES AND IMPROVEMENTS									
	FARADAY	14,154,711.88	2,289,524	17,810,167	536,884	3.01	20,074,921	2.72	546,038	(9,154)
	NORTH FORK	9,115,427.21	4,305,433	11,281,948	337,205	2.99	11,920,027	2.71	323,033	14,172
	OAK GROVE	16,216,461.44	4,598,606	17,455,782	523,127	3.00	20,861,238	2.76	575,770	(52,643)
	PELTON	6,262,112.48	3,739,294	8,096,099	246,866	3.05	13,544,136	2.75	372,464	(125,598)
	RIVER MILL	7,516,466.06	2,429,094	11,626,698	353,211	3.04	12,679,003	2.86	362,619	(9,408)
	ROUND BUTTE	12,483,495.03	5,021,886	17,947,745	543,059	3.03	17,198,735	2.73	469,525	73,534
	SULLIVAN	18,320,848.20	5,503,339	18,130,555	1,189,618	6.56	18,496,972	5.25	971,091	218,527
	TOTAL STRUCTURES AND IMPROVEMENTS	84,069,522.30	27,887,176	102,348,994	3,729,970		114,775,032		3,620,540	109,430
332.00	RESERVOIRS, DAMS AND WATERWAYS									
	FARADAY	32,440,589.78	16,545,932	29,519,705	872,857	2.96	34,710,200	2.72	944,117	(71,260)
	NORTH FORK	86,489,849.56	36,067,446	111,830,197	3,252,125	2.91	117,884,486	2.65	3,123,939	128,186
	OAK GROVE	25,816,529.00	22,416,293	12,694,186	370,715	2.92	18,115,658	2.71	490,934	(120,219)
	PELTON	10,714,550.15	11,103,286	9,147,214	286,356	3.13	18,468,872	2.87	530,057	(243,701)
	RIVER MILL	59,828,508.72	23,362,967	88,516,344	2,588,304	2.92	96,892,336	2.65	2,567,647	20,657
	ROUND BUTTE	111,243,011.26	49,211,426	155,475,715	4,567,336	2.94	148,801,134	2.65	3,943,230	624,106
	SULLIVAN	32,236,102.10	11,793,489	29,791,083	1,940,031	6.51	30,435,805	5.21	1,585,705	354,326
	TOTAL RESERVOIRS, DAMS AND WATERWAYS	358,769,140.57	170,500,839	436,974,444	13,877,724		465,308,491		13,185,630	692,094
333.00	WATER WHEELS, TURBINES AND GENERATORS									
	FARADAY	6,752,411.58	2,871,859	6,716,565	218,146	3.25	7,796,951	2.89	225,332	(7,186)
	NORTH FORK	11,449,887.54	7,503,451	12,075,857	382,117	3.16	12,877,349	3.02	388,896	(6,779)
	OAK GROVE	15,786,077.84	4,455,616	17,013,450	530,889	3.12	20,328,526	2.90	589,527	(58,638)
	PELTON	4,414,741.45	5,383,540	2,960,321	98,596	3.33	6,801,146	3.24	220,357	(121,761)
	RIVER MILL	6,262,380.96	3,748,280	7,962,372	254,575	3.20	8,839,106	2.88	254,566	9
	ROUND BUTTE	22,023,848.01	10,977,773	29,546,107	928,179	3.14	28,224,676	2.76	779,001	149,178
	SULLIVAN	10,305,358.91	5,466,871	7,827,042	524,284	6.70	8,033,149	5.32	427,364	96,920
	TOTAL WATER WHEELS, TURBINES AND GENERATORS	76,994,706.29	40,407,390	84,101,714	2,936,786		92,900,903		2,885,043	51,743
334.00	ACCESSORY ELECTRIC EQUIPMENT									
	FARADAY	2,737,869.85	1,527,591	2,360,184	86,631	3.67	2,798,243	3.33	93,181	(6,550)
	NORTH FORK	1,097,009.03	897,435	978,450	35,453	3.62	1,055,241	3.31	34,928	525
	OAK GROVE	7,152,968.88	1,553,435	8,174,603	290,324	3.55	9,676,726	3.48	336,750	(46,426)
	PELTON	11,305,626.59	1,359,158	20,008,476	689,476	3.45	29,844,371	3.25	969,942	(280,466)
	RIVER MILL	2,601,393.20	1,597,438	3,267,167	122,262	3.74	3,631,362	3.29	119,472	2,790
	ROUND BUTTE	2,521,196.48	1,147,649	3,491,353	124,459	3.56	3,340,081	3.19	106,549	17,910
	SULLIVAN	4,185,469.48	1,800,462	3,598,794	245,647	6.83	3,682,503	5.43	199,960	45,687
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	31,601,533.51	9,883,168	41,879,027	1,594,252		54,028,527		1,860,782	(266,530)

PORTLAND GENERAL ELECTRIC

TABLE 2. COMPARISON OF PROPOSED NET PLANT ACCRUALS AND PRO FORMA ACCRUALS
AS OF DECEMBER 31, 2019

	ACCOUNT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	NET PLANT ANNUAL ACCRUAL AMOUNT	NET PLANT ANNUAL ACCRUAL RATE	CURRENT COMPANY NET PLANT	CURRENT NET PLANT RATE	CURRENT PRO FORMA ACCRUAL	ACCRUAL DIFFERENCE
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(7)x(8)	(10)=(5)-(9)
335.00	MISCELLANEOUS PLANT EQUIPMENT									
	FARADAY	257,629.32	147,345	218,489	10,553	4.83	259,709	4.53	11,765	(1,212)
	NORTH FORK	876,758.20	477,667	1,021,590	43,822	4.29	1,082,963	4.06	43,968	(146)
	OAK GROVE	294,816.36	92,558	308,392	12,794	4.15	370,304	4.21	15,590	(2,796)
	PELTON	226,858.06	199,892	228,870	10,864	4.75	426,236	4.65	19,820	(8,956)
	RIVER MILL	412,708.84	21,727	750,039	40,710	5.43	807,818	3.71	29,970	10,740
	ROUND BUTTE	775,739.92	479,125	948,236	40,740	4.30	901,692	4.06	36,609	4,131
	SULLIVAN	109,225.68	53,156	87,745	6,320	7.20	89,930	6.00	5,396	924
	TOTAL MISCELLANEOUS PLANT EQUIPMENT	2,953,736.38	1,471,470	3,563,361	165,803		3,938,652		163,117	2,686
336.00	ROADS, RAILROADS, AND BRIDGES									
	FARADAY	2,441,324.89	996,114	2,470,567	86,381	3.50	2,861,179	3.20	91,558	(5,177)
	NORTH FORK	2,767,794.08	1,325,882	3,407,046	118,753	3.49	3,600,791	3.29	118,466	287
	OAK GROVE	4,178,799.95	2,701,407	2,981,761	109,173	3.66	3,859,309	4.19	161,705	(52,532)
	PELTON	3,843,152.28	1,352,128	5,911,430	222,148	3.76	9,254,972	3.20	296,159	(74,011)
	RIVER MILL	421,796.26	199,671	589,088	19,983	3.39	648,139	3.11	20,157	(174)
	ROUND BUTTE	1,739,032.08	756,215	2,443,604	85,547	3.50	2,339,262	3.36	78,599	6,948
	TOTAL ROADS, RAILROADS, AND BRIDGES	15,391,899.54	7,331,417	17,803,496	641,985		22,563,652		766,644	(124,659)
	TOTAL HYDRAULIC PRODUCTION PLANT	**569,780,538.59**	**257,481,460**	**686,671,036**	**22,946,520**		**753,515,257**		**22,481,757**	**464,763**
	OTHER PRODUCTION PLANT									
341.00	STRUCTURES AND IMPROVEMENTS									
	BEAVER - CT	38,962,049.24	30,971,857	10,717,536	708,091	6.61	10,327,915	7.05	728,118	(20,027)
	COYOTE SPRINGS - CT	11,638,830.41	7,862,508	4,009,099	203,607	5.08	4,358,264	4.29	186,970	16,637
	PORT WESTWARD - CT	42,763,287.08	12,196,021	31,850,165	1,103,788	3.47	33,560,696	3.08	1,033,669	70,119
	PORT WESTWARD II	42,352,598.36	4,513,910	39,109,266	1,000,996	2.56	40,803,370	2.33	950,719	50,277
	CARTY	40,631,268.57	3,143,039	39,113,480	974,132	2.49	40,332,418	2.29	923,612	50,520
	KB PIPELINE	36,850.67	0	44,221	2,885	6.52	44,221	1.71	756	2,129
	TOTAL STRUCTURES AND IMPROVEMENTS	176,384,884.33	58,687,335	124,843,767	3,993,499		129,426,884		3,823,844	169,655
341.01	STRUCTURES AND IMPROVEMENTS - WIND									
	BIGLOW CANYON WIND FARM	34,859,161.02	11,567,734	25,034,385	908,385	3.63	26,080,160	3.22	839,781	68,604
	TUCANNON RIVER WIND FARM	18,859,060.20	2,411,603	17,201,820	499,990	2.91	17,767,591	2.61	463,734	36,256
	TOTAL STRUCTURES AND IMPROVEMENTS - WIND	53,718,221.22	13,979,337	42,236,205	1,408,375		43,847,751		1,303,515	104,860
342.00	FUEL HOLDERS, PRODUCERS AND ACCESSORIES									
	BEAVER - CT	63,762,993.96	50,040,567	18,185,837	1,271,464	6.99	17,548,207	7.76	1,361,741	(90,277)
	COYOTE SPRINGS - CT	36,914,405.86	24,850,588	12,802,106	711,318	5.56	13,909,538	4.69	652,357	58,961
	PORT WESTWARD - CT	10,367,528.61	5,528,025	5,150,529	192,458	3.74	5,565,231	3.35	186,435	6,023
	PORT WESTWARD II	7,576,319.26	690,888	7,112,721	190,885	2.68	7,415,774	2.46	182,428	8,457
	CARTY	7,601,494.92	565,753	7,339,802	193,231	2.63	7,567,847	2.44	184,655	8,576
	KB PIPELINE	21,034,115.83	17,603,557	6,585,676	463,818	7.04	5,533,970	7.29	403,426	60,392
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES	147,256,858.44	99,279,378	57,176,671	3,023,174		57,540,567		2,971,043	52,131
344.00	GENERATORS									
	BEAVER - CT	119,584,617.99	77,376,472	50,579,069	3,716,435	7.35	49,383,223	7.83	3,866,706	(150,271)
	COYOTE SPRINGS - CT	138,636,687.61	74,808,034	66,601,387	3,938,629	5.91	70,760,488	5.31	3,757,382	181,247
	PORT WESTWARD - CT	208,909,668.88	68,410,712	146,766,247	6,466,715	4.41	155,122,634	4.21	6,530,663	(63,948)
	PORT WESTWARD II	220,371,510.51	31,500,981	195,481,675	5,893,360	3.01	204,296,535	2.82	5,761,162	132,198
	CARTY	392,107,417.22	37,691,801	370,099,913	10,791,269	2.92	381,863,135	2.82	10,768,540	22,729
	TOTAL GENERATORS	1,079,609,902.21	289,788,000	829,528,291	30,806,408		861,426,015		30,684,454	121,954
344.01	GENERATORS - WIND									
	BIGLOW CANYON WIND FARM	874,997,026.50	344,073,054	574,673,824	32,404,575	5.64	600,923,735	4.84	29,084,709	3,319,866
	TUCANNON RIVER WIND FARM	445,497,641.72	76,684,568	386,632,979	15,664,916	4.05	399,997,909	3.51	14,039,927	1,624,989
	TOTAL GENERATORS - WIND	1,320,494,668.22	420,757,622	961,306,803	48,069,491		1,000,921,644		43,124,635	4,944,856

PORTLAND GENERAL ELECTRIC

TABLE 2. COMPARISON OF PROPOSED NET PLANT ACCRUALS AND PRO FORMA ACCRUALS
AS OF DECEMBER 31, 2019

	ACCOUNT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	NET PLANT ANNUAL ACCRUAL AMOUNT	NET PLANT ANNUAL ACCRUAL RATE	CURRENT COMPANY NET PLANT	CURRENT NET PLANT RATE	CURRENT PRO FORMA ACCRUAL	ACCRUAL DIFFERENCE
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(7)x(8)	(10)=(5)-(9)
344.02	GENERATORS - SOLAR	4,427,436.32	(244,508)	4,760,493	346,773	7.28	4,760,493	5.13	244,213	102,560
345.00	ACCESSORY ELECTRIC EQUIPMENT									
	DISPATCH GENERATION	13,996,916.68	3,186,823	11,509,940	326,895	2.84	11,509,940	3.07	353,355	(26,460)
	BEAVER - CT	26,831,244.66	15,342,640	13,366,792	916,472	6.86	13,098,479	7.54	987,625	(71,153)
	COYOTE SPRINGS - CT	12,041,369.00	8,572,579	3,709,617	209,893	5.66	4,070,858	5.08	206,800	3,093
	PORT WESTWARD - CT	9,298,345.47	3,577,640	5,999,656	234,506	3.91	6,371,590	3.68	234,475	31
	PORT WESTWARD II	17,167,891.17	1,928,647	15,754,281	438,123	2.78	16,440,997	2.61	429,110	9,013
	TOTAL ACCESSORY ELECTRIC EQUIPMENT	79,335,766.98	32,608,329	50,340,286	2,125,889		51,491,864		2,211,365	(85,476)
345.01	ACCESSORY ELECTRIC EQUIPMENT - WIND									
	BIGLOW CANYON WIND FARM	27,268,897.82	9,796,105	18,836,238	1,035,352	5.50	19,654,305	4.85	953,234	82,118
	TUCANNON RIVER WIND FARM	14,532,301.12	2,317,913	12,795,680	520,313	4.07	13,231,649	3.50	463,108	57,205
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND	41,801,198.94	12,114,018	31,631,918	1,555,665		32,885,954		1,416,342	139,323
346.00	MISCELLANEOUS PLANT EQUIPMENT									
	BEAVER - CT	4,529,017.54	3,781,466	1,064,583	72,944	6.85	1,019,293	7.32	74,612	(1,668)
	COYOTE SPRINGS - CT	3,194,615.77	1,603,386	1,655,122	86,192	5.21	1,750,961	4.53	79,319	6,873
	PORT WESTWARD - CT	3,225,810.51	995,116	2,327,469	85,347	3.67	2,456,501	3.38	83,030	2,317
	PORT WESTWARD II	3,200,074.57	383,087	2,912,990	77,535	2.66	3,040,993	2.46	74,808	2,727
	CARTY	27,694,943.99	2,238,095	26,564,647	685,920	2.58	27,395,495	2.42	662,971	22,949
	KB PIPELINE	126,138.21	74,949	57,496	3,902	6.79	57,496	7.29	4,191	(289)
	TOTAL MISCELLANEOUS PLANT EQUIPMENT	41,970,600.59	9,076,099	34,582,307	1,011,840		35,720,739		978,931	32,909
346.01	MISCELLANEOUS PLANT EQUIPMENT - WIND									
	BIGLOW CANYON WIND FARM	1,575,389.08	425,988	1,228,171	43,657	3.55	1,275,432	3.58	45,660	(2,003)
	TUCANNON RIVER WIND FARM	534,993.90	72,067	484,327	13,324	2.75	500,376	2.69	13,460	(136)
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND	2,110,382.98	498,055	1,712,498	56,981		1,775,808		59,121	(2,140)
	TOTAL OTHER PRODUCTION PLANT	**2,947,109,920.23**	**936,543,665**	**2,138,119,239**	**92,398,095**		**2,219,797,719**		**86,817,463**	**5,580,632**
	TOTAL PRODUCTION	**3,993,215,056.24**	**1,564,282,905**	**3,004,989,602**	**137,893,714**		**3,099,368,983**		**118,107,328**	**19,786,386**
	TRANSMISSION PLANT									
352.00	STRUCTURES AND IMPROVEMENTS	30,274,033.29	10,495,308	25,833,532	561,186	2.17	24,319,830	2.41	586,108	(24,922)
353.00	STATION EQUIPMENT	491,807,390.44	152,461,350	437,707,519	10,846,742	2.48	413,117,149	2.77	11,443,345	(596,603)
354.00	TOWERS AND FIXTURES	48,824,327.14	28,284,490	25,422,270	907,266	3.57	25,422,270	3.23	821,139	86,127
355.00	POLES AND FIXTURES	83,364,422.45	48,312,653	76,733,981	2,489,182	3.24	72,565,760	3.34	2,423,696	65,486
356.00	OVERHEAD CONDUCTORS AND DEVICES	169,438,107.06	118,529,590	84,796,138	1,814,594	2.14	76,324,233	2.13	1,625,706	188,888
359.00	ROADS AND TRAILS	286,332.32	182,621	103,711	3,553	3.43	103,711	3.12	3,236	317
	TOTAL TRANSMISSION PLANT	**823,994,612.70**	**358,266,012**	**650,597,151**	**16,622,523**		**611,852,953**		**16,903,231**	**(280,708)**
	DISTRIBUTION PLANT									
361.00	STRUCTURES AND IMPROVEMENTS	46,326,091.45	18,502,597	39,405,017	906,387	2.30	39,405,017	2.52	993,006	(86,619)
362.00	STATION EQUIPMENT	559,680,234.50	172,063,320	499,552,961	14,608,815	2.92	499,552,961	3.20	15,985,695	(1,376,880)
363.00	STORAGE BATTERY	393,190.82	153,981	258,869	34,830	13.45	258,869	9.27	23,997	10,833
364.00	POLES, TOWERS AND FIXTURES	420,065,793.24	251,862,062	357,233,338	13,769,129	3.85	357,233,338	3.77	13,467,697	301,432
365.00	OVERHEAD CONDUCTORS AND DEVICES	664,059,808.73	423,135,365	672,563,319	19,405,228	2.89	705,766,310	3.33	23,502,018	(4,096,790)
366.00	UNDERGROUND CONDUIT	29,515,628.47	10,876,607	21,590,584	334,458	1.55	21,590,584	2.08	449,084	(114,626)
367.00	UNDERGROUND CONDUCTORS AND DEVICES	907,226,216.69	525,453,052	880,747,584	20,412,932	2.32	1,016,831,516	2.81	28,572,966	(8,160,034)

PORTLAND GENERAL ELECTRIC

TABLE 2. COMPARISON OF PROPOSED NET PLANT ACCRUALS AND PRO FORMA ACCRUALS
AS OF DECEMBER 31, 2019

	ACCOUNT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	NET PLANT ANNUAL ACCRUAL AMOUNT	NET PLANT ANNUAL ACCRUAL RATE	CURRENT COMPANY NET PLANT	CURRENT NET PLANT RATE	CURRENT PRO FORMA ACCRUAL	ACCRUAL DIFFERENCE
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(7)x(8)	(10)=(5)-(9)
368.00	LINE TRANSFORMERS	469,865,715.01	215,375,023	301,477,264	8,588,138	2.85	301,477,264	3.03	9,134,761	(546,623)
369.01	SERVICES - OVERHEAD	81,320,051.24	47,251,341	58,464,726	1,744,137	2.98	58,464,726	3.03	1,771,481	(27,344)
369.03	SERVICES - UNDERGROUND	414,063,514.45	299,302,891	238,979,678	5,850,994	2.45	238,979,678	2.74	6,548,043	(697,049)
370.00	METERS	9,657,143.69	1,467,083	8,383,204	535,375	6.39	9,155,775	6.17	564,911	(29,536)
370.01	METERS - AMI	168,652,947.59	70,653,254	101,372,753	8,365,697	8.25	114,864,988	9.96	11,440,553	(3,074,856)
370.02	METERS - RETAINED	6,976,674.60	5,044,542	2,071,666	302,401	14.60	2,629,800	14.19	373,169	(70,768)
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	1,749,713.13	304,152	1,445,561	58,028	4.01	1,445,561	6.92	100,033	(42,005)
373.01	CIRCUITS - OTHER	25,077,570.66	19,265,150	12,081,813	528,497	4.37	12,583,365	4.32	543,601	(15,104)
373.02	FIXTURES, ORNAMENTAL POSTS AND DEVICES	83,684,633.42	38,911,879	65,693,913	3,953,547	6.02	67,367,605	6.57	4,426,052	(472,505)
373.07	SENTINEL LIGHTING EQUIPMENT	8,491,048.00	10,562,085	51,725	3,198	6.18	221,546	6.29	13,935	(10,737)
	TOTAL DISTRIBUTION PLANT	**3,896,805,975.69**	**2,110,184,384**	**3,261,373,975**	**99,401,791**		**3,447,828,903**		**117,911,002**	**(18,509,211)**
	GENERAL PLANT									
390.00	STRUCTURES AND IMPROVEMENTS	120,715,526.93	38,410,129	88,341,174	3,845,938	4.35	88,341,174	4.93	4,355,220	(509,282)
390.10	STRUCTURES AND IMPROVEMENTS - LEASE									
	CSS	16,087.41	14,951	1,136	127	11.18	1,136	33.34	379	(252)
	EASTPORT	58,754.96	58,755	0	0	-	0	100.00	0	0
	ERC TUALATIN	414,255.32	388,782	25,473	2,830	11.11	25,473	41.32	10,525	(7,695)
	HILLSBORO	93,336.06	93,336	0	0	-	0	-	0	0
	SALEM	13,580.71	13,581	0	0	-	0	-	0	0
	WILSONVILLE	272,342.13	249,669	22,673	11,335	49.99	22,673	-	0	11,335
	WTC	24,503,645.04	9,064,675	15,438,970	650,064	4.21	15,438,970	3.60	555,803	94,261
	TOTAL STRUCTURES AND IMPROVEMENTS	25,372,001.63	9,883,749	15,488,252	664,356		15,488,252		566,707	97,649
	OFFICE FURNITURE AND EQUIPMENT									
391.10	FURNITURE AND EQUIPMENT	27,575,296.84	11,495,053	16,080,244	1,622,109	10.09	16,080,244	10.20	1,640,185	(18,076)
391.20	COMPUTERS AND EQUIPMENT	132,932,472.59	71,660,244	61,272,229	22,880,453	37.34	61,272,229	32.97	20,201,454	2,678,999
	TOTAL OFFICE FURNITURE AND EQUIPMENT	160,507,769.43	83,155,297	77,352,473	24,502,562		77,352,473		21,841,639	2,660,923
	TRANSPORTATION EQUIPMENT									
392.04	HEAVY DUTY TRUCKS	26,034,187.32	8,901,768	13,227,291	1,133,927	8.57	15,049,684	6.30	948,130	185,797
392.05	MEDIUM DUTY TRUCKS	27,983,974.27	12,134,378	11,652,000	1,007,460	8.65	13,610,878	10.12	1,377,421	(369,961)
392.06	LIGHT DUTY TRUCKS	13,283,121.90	5,240,003	6,050,651	725,094	11.98	6,980,469	11.50	802,754	(77,660)
392.08	TRAILERS	6,347,528.20	3,043,068	2,352,331	136,945	5.82	2,796,658	5.69	159,130	(22,185)
392.09	AUTOS	2,043,598.35	978,168	758,891	96,225	12.68	901,942	18.61	167,851	(71,626)
392.10	HELICOPTER	2,764,850.25	1,270,504	1,079,619	125,178	11.59	1,273,158	8.24	104,908	20,270
	TOTAL TRANSPORTATION EQUIPMENT	78,457,260.29	31,567,889	35,120,783	3,224,829		40,612,789		3,560,194	(335,365)
393.00	STORES EQUIPMENT	3,877,884.26	1,478,661	2,399,223	186,677	7.78	2,399,223	9.49	227,686	(41,009)
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	23,093,382.44	7,656,948	15,436,434	989,883	6.41	15,436,434	8.15	1,258,069	(268,186)
395.00	LABORATORY EQUIPMENT	8,901,073.61	5,143,832	3,757,242	704,398	18.75	3,757,242	20.26	761,217	(56,819)
	POWER OPERATED EQUIPMENT									
396.01	MAN LIFT	29,181,884.43	8,557,908	17,705,788	2,126,759	12.01	17,705,788	12.51	2,214,994	(88,235)
396.02	DIGGER	3,512,905.88	1,846,351	1,315,264	260,499	19.81	1,315,264	10.81	142,180	118,319
396.03	CRANE	4,882,319.58	2,957,218	1,436,870	104,278	7.26	1,436,870	7.62	109,489	(5,211)
396.07	CONSTRUCTION EQUIPMENT	7,053,658.20	4,139,890	2,208,402	194,594	8.81	2,208,402	8.50	187,714	6,880
	TOTAL POWER OPERATED EQUIPMENT	44,630,768.09	17,501,367	22,666,324	2,686,130		22,666,324		2,654,378	31,752

PORTLAND GENERAL ELECTRIC

TABLE 2. COMPARISON OF PROPOSED NET PLANT ACCRUALS AND PRO FORMA ACCRUALS
AS OF DECEMBER 31, 2019

	ACCOUNT	ORIGINAL COST AS OF DECEMBER 31, 2019	BOOK DEPRECIATION RESERVE	FUTURE ACCRUALS	NET PLANT ANNUAL ACCRUAL AMOUNT	NET PLANT ANNUAL ACCRUAL RATE	CURRENT COMPANY NET PLANT	CURRENT NET PLANT RATE	CURRENT PRO FORMA ACCRUAL	ACCRUAL DIFFERENCE
	(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(7)x(8)	(10)=(5)-(9)
	COMMUNICATION EQUIPMENT									
397.01	LINE EQUIPMENT	21,148,863.01	4,353,078	16,795,785	1,436,883	8.56	16,795,785	8.16	1,370,536	66,347
397.03	RADIO, MICROWAVE AND TERMINAL EQUIPMENT	154,202,962.59	75,242,516	78,960,447	7,976,799	10.10	78,960,447	13.50	10,659,660	(2,682,861)
397.06	MOBILE RADIO EQUIPMENT	2,987,372.42	397,615	2,589,757	209,578	8.09	2,589,757	8.33	215,727	(6,149)
397.07	TELEPHONE EQUIPMENT	889,801.05	755,880	133,921	17,128	12.79	133,921	9.48	12,696	4,432
	TOTAL COMMUNICATION EQUIPMENT	179,228,999.07	80,749,089	98,479,910	9,640,388		98,479,910		12,258,619	(2,618,231)
398.00	MISCELLANEOUS EQUIPMENT	1,295,281.80	187,686	1,107,596	64,240	5.80	1,107,596	5.63	62,358	1,882
	TOTAL GENERAL PLANT	**646,079,947.55**	**275,734,647**	**360,149,411**	**46,509,401**		**365,641,417**		**47,546,087**	**(1,036,686)**
	TOTAL DEPRECIABLE PLANT	**9,360,095,592.18**	**4,308,467,948**	**7,277,110,139**	**300,427,429**		**7,524,692,256**		**300,467,648**	**(40,219)**
	NONDEPRECIABLE / ACCOUNTS NOT STUDIED									
	BOARDMAN									
311.00	STRUCTURES AND IMPROVEMENTS	141,673,188.64	103,571,464							
312.00	BOILER PLANT EQUIPMENT	348,354,026.03	301,878,080							
312.01	RAIL CARS	9,727,440.25	9,691,114							
314.00	TURBOGENERATOR UNITS	115,881,281.67	83,273,696							
315.00	ACCESSORY ELECTRIC EQUIPMENT	31,763,936.00	23,145,963							
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT	8,520,340.99	6,068,922							
353.00	STATION EQUIPMENT - BOARDMAN	7,964,879.32	5,752,880							
	TOTAL BOARDMAN	663,885,092.90	533,382,119							
302.00	FRANCHISES AND CONSENTS	195,264,817.73	77,431,013							
303.00	MISCELLANEOUS INTANGIBLE PLANT	563,164,236.70	288,693,036							
310.00	LAND AND LAND RIGHTS	4,161,624.80								
317.00	STEAM PRODUCTION PLANT - ARO	75,980,569.68	43,595,692							
330.00	LAND AND LAND RIGHTS	6,053,902.82	1,512,364							
337.00	HYDRAULIC PRODUCTION PLANT - ARO	5,127.87	3,374							
340.00	LAND AND LAND RIGHTS	26,960,038.01								
347.00	OTHER PRODUCTION PLANT - ARO	22,576,353.45	2,370,720							
350.00	LAND AND LAND RIGHTS	17,269,684.75	(379,614)							
359.10	TRANSMISSION PLANT - ARO	34,108.66	34,086							
360.00	LAND AND LAND RIGHTS	19,294,221.61	(1,625,965)							
374.00	DISTRIBUTION PLANT - ARO	476,732.46	398,934							
389.00	LAND AND LAND RIGHTS	9,622,354.56	(630,238)							
399.00	GENERAL PLANT - ARO	65,288.96	64,564							
	TOTAL NONDEPRECIABLE / NOT STUDIED	**1,604,814,154.96**	**944,850,085**							
	TOTAL ELECTRIC PLANT	**10,964,909,747.14**	**5,253,318,033**	**7,277,110,139**	**300,427,429**					

* CURVE SHOWN IS INTERIM SURVIVOR CURVE. EACH FACILITY IN THE ACCOUNT IS ASSIGNED AN INDIVIDUAL PROBABLE RETIREMENT YEAR.

NOTES:
ACCRUAL RATES FOR FACILITIES TO BE PLACED IN SERVICE AFTER DECEMBER 31, 2019 ARE AS FOLLOWS.

		NET PLANT RATE
WHEATRIDGE WIND		
	341.00	3.47
	344.00	3.82
	345.00	3.83
	346.00	3.63
INTEGRATED OPERATIONS CENTER		
	390.00	2.02

Portland General Electric

Table 2. Comparison of Estimated Survivor Curves, Net Salvage, and Calculated Annual Depreciation Rates

ACCOUNT DESCRIPTION	ACCOUNT	2019 DEPRECIATION STUDY AS FILED			SETTLEMENT AGREEMENT			
		Probable Retirement Date	Survivor Curve	Net Salvage Percent	Probable Retirement Date	Survivor Curve	Net Salvage Percent	Estimated Annual Change in Depreciation
Steam Production Plant - Colstrip								
Structures and Improvements	311.00	12-2027	90-S1.5	(4)	12-2025	90-S1.5	(3)	$ 595,304
Boiler Plant Equipment	312.00	12-2027	65-R3	(4)	12-2025	65-R3	(3)	$ 2,757,417
Turbogenerator Units	314.00	12-2027	55-R2	(4)	12-2025	55-R2	(3)	$ 937,560
Accessory Electric Equipment	315.00	12-2027	60-R2.5	(4)	12-2025	60-R2.5	(3)	$ 117,312
Miscellaneous power Plant Equipment	316.00	12-2027	60-R1	(4)	12-2025	60-R1	(3)	$ 44,707
Total Steam Production Plant								**$ 4,452,300**
Other Production Plant								
Structures and Improvements -Wind	341.01							
Biglow Canyon Wind Farm		06-2057	40-R4	(6)	06-2057	40-R4	(5)	($12,726)
Tucannon River Wind Farm		06-2064	40-R4	(5)	06-2064	40-R4	(4)	($5,484)
Generators - Wind	344.01							
Biglow Canyon Wind Farm		06-2057	35-R3	(6)	06-2057	30-R3	(5)	$5,778,804
Tucannon River Wind Farm		06-2064	35-R3	(5)	06-2064	30-R3	(4)	$2,443,791
Accessory Electric Equipment - Wind	345.01							
Biglow Canyon Wind Farm		06-2057	30-S2.5	(6)	06-2057	30-S2.5	(5)	($15,129)
Tucannon River Wind Farm		06-2064	30-S2.5	(5)	06-2064	30-S2.5	(4)	($5,912)
Miscellaneous Plant Equipment - Wind	346.01							
Biglow Canyon Wind Farm		06-2057	45-R2.5	(6)	06-2057	45-R2.5	(5)	($565)
Tucannon River Wind Farm		06-2064	45-R2.5	(5)	06-2064	45-R2.5	(4)	($147)
Total Steam Production Plant								**$8,182,632**
Transmission Plant								
Station Equipment	353.00		59-R2	(20)		62-R2	(20)	($652,827)

Total Transmission Plant								**($652,827)**
Distribution Plant								
Poles, Towers & Fixtures	364.00		48-R0.5	(45)		50-R0.5	(45)	($542,856)
Overhead Conductors and Devices	365		53-R1.5	(65)		60-R1	(65)	($1,571,543)
Underground Conductors and Devices	367		60-S1.5	(70)		65-S1	(55)	($4,812,657)
Meters	370		28-R2	(5)		28-R2	(2)	($19,415)
Meters-AMI	370.01		15-R3	(5)		20-R2.5	(2)	($5,132,596)
Meters - Retained	370.02		16-L0.5	(5)		16-L0.5	(2)	($33,361)
Total Distribution Plant								**($12,112,428)**
General Plant								
Structures and Improvements	390		42-R0.5	(10)		42-R0.5	(5)	($270,489)
Man Lift	396.01		13-S1.5	10		14-S1.5	10	($266,531)
Digger	396.02		14-S2	10		15-S2	10	($42,176)
Total General Plant								**($579,196)**
Total Estimated Depreciation Change								**$ (709,519)**

ACCOUNT DESCRIPTION	ACCOUNT	2019 DEPRECIATION STUDY AS FILED			SETTLEMENT AGREEMENT			
		Probable Retirement Date	Survivor Curve	Net Salvage Percent	Probable Retirement Date	Survivor Curve	Net Salvage Percent	Estimated Annual Change in Depreciation
Wheatridge Wind								
Generators - Wind	344.00		35-R3	(3)		30-R3	(3)	
Integrated Operations Center								
Structures and Improvements	390.00		60-R1.5	(10)		60-R1.5	(5)	

WITNESS QUALIFICATIONS STATEMENT

NAME: Ms. Ming Peng

EMPLOYER: Public Utility Commission of Oregon

TITLE: Senior Econometrician
Energy Rates, Finance, and Audit Division

ADDRESS: 201 High Street SE, Suite 100
Salem, OR 97301

EDUCATION & TRAINING:

M.S. Applied Economics
University of Idaho, Moscow

B.S. Statistics
People's University of China, Beijing

CRRA Certified Rate of Return Analyst in 2002
Society of Utility and Regulatory Financial Analysts

Depreciation studies – the Society of
Depreciation Professionals

NARUC Annual Regulatory Studies Program
Michigan State University, East Lansing

400+ credit hours on 30+ training topics in the public utility industry

EXPERIENCE: 1/11/1999 – Present, Public Utility Commission of Oregon

I have been employed by the Public Utility Commission of Oregon (Commission) for 22 years. My roles include:

Expert Witness, Case Manager, Principal Analyst, Econometrician, Economist, Utility Analyst, and Policy Analyst:

I have testified in various formal state hearings and performed numerous analyses including economic, financial, statistical, mathematical, marketing, and policy analyses in the public utility industry.

Principal Analyst and Case Manager, Settlement Lead/Negotiator for Depreciation Ratemaking:

I have served as a Principal Analyst and Case Manager for the determination of Energy Property Depreciation Rates (Oregon Revised Statute 757.140) for the past 12 years. In this role, I've had a strong focus on Depreciation Rate Determination (fixed cost allocation, and capital recovery). I was also a Principal Analyst and Case Manager for the determination of Energy Property Depreciation Rates (Oregon Revised Statute 757.140) during this time period.

In this position, I investigated, analyzed, and calculated energy asset retirement cost and impact, as well as power plant decommissioning cost and impact, on customer rates. I reviewed, calculated, and analyzed fixed asset depreciation and proposed depreciation parameters for each of FERC accounts on Generation, Transmission, Distribution, General, and Coal Mining Plants. The energy sources I have worked on Steam/Coal, Hydraulic, Natural Gas, Wind, Solar, and Geothermal.

My analyses of "Power-Plant-Shutdown" activities (accelerated plant retirement, and decommissioning cost recovery) include the following cases:

1. PGE closes Boardman Coal-fired plant (UM 1679 & UE 215).
2. PacifiCorp closes Carbon Coal Plant in Utah (UE 246).
3. Multi-state PacifiCorp Klamath Hydro Dam Removal Cost recovery for (1) J. C. Boyle Dam, (2) Copco 1 Dam, (3) Copco 2 Dam, and (4) Iron Gate Dam removal under the ORS 757.734 – Recovery of investment in Klamath River dams in OPUC UE 219.
4. Idaho Power Valmy Coal-fired power plant Shutdown (UE 316).
5. PGE Colstrip Coal-fired power plant Shutdown (UM 1809).

I conduct case investigations and analyses on Utility's filings, make rate adjustments, lead settlement negotiation, prepare testimony, and appear on behalf of the Commission. The energy companies I work with are: (1) PacifiCorp (serves 6 states), (2) PGE, (3) Northwest Natural Gas (NWN), (4) Idaho Power, (5) Avista Corp (Washington), and (6) Cascade Gas (CNG, Montana).

Lead Analyst and Case Manager on Financial Dockets:

Prior to my current position, I was a Lead Analyst and Case Manager for cost of debt capital for nine years. I reviewed market risks, derivatives and hedging, debt issuance, and stock flotation. My analysis directly informed utility and energy policy.

I advised the Commission on over 60 financial dockets. The Commission incorporated all of my recommendations into final orders.

I was certified by the Society of Utility and Regulatory Financial Analysts as a Certified Rate of Return Analyst in 2002.

Public Utility & Policy Analyst:

Rulemaking: I have formulated energy regulation rules for utility performance incentives and cost-of-service regulation.

Energy Utility Merger & Acquisition: I have testified in formal state hearings involving utility mergers & acquisitions. I conducted Acquisition Premiums & Credit Risk Analysis and testified on behalf of the Commission in MidAmerican Energy Company's application to purchase PacifiCorp. I also reviewed Scottish Power's earlier purchase of PacifiCorp, and PGE's emergence from Enron after the Enron bankruptcy.

Integrated Resource Planning (IRP, Least Cost Planning): I provided comments to the Commission for decision making on Boardman to Hemingway (B2H), a 500-kV transmission power line, which included a cost and benefit list, a pros and cons list, alternatives, and the relevant legal risks. I also provided comments on utility's IRPs, such as total cost for power generation, power capacity (MW) replacement cost, avoided cost for free fuel, and emission trading cost.

Clean Energy – Dollar Impact on Customer Rates: I analyzed and calculated the rate impact and comparative advantage of clean energy. I built the portfolio optimization models to analyze the coal-fired generating capacity replacement.

General Rate Cases: I have been a part of *almost every energy rate case* since I joined the Oregon PUC on 1/11/1999. Historically, my review included fuel price forecasting, property sales, load forecasting, weather normalizations, cost of debt, and capital structures. Currently, my reviews are focused on depreciation and reserve, and AFUDC Capitalization Policy.

Survey Sampling Design: Results of my statistical sampling design and sampling procedures are incorporated into my revenue requirement testimony in Commission Docket No. UM 1288.

Auditing, Interest Rate, Late Payment: I audited cost of capital and financial components. My survey report and analyses are published annually for Oregon (UM 779).

Survey for Market Competition & Economic Policy: I conducted and wrote the report on Telecommunications, "Market Competition and Economic

Policy Survey Analysis" for House Bill 2577. This report has been published on the OPUC web annually for 15 years.

Mentor in the ICER - International Confederation of Energy Regulators:
I was selected to act as a mentor in the ICER (International Confederation of Energy Regulators) Women in Energy (ICER WIE) pilot mentoring program. My "Mentoring Topics" focus on Incentive Regulation; Rate and Economic Impacts of "Cost-of-Service" regulation in the U.S. and "Price-Cap Performance Based Regulation" in Europe; Cost of Capital, Energy Demand and Price Forecasting Modeling; Least Cost Planning; Regulatory Policy; and Renewable Energy issues within regulated rate structures.

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. Consumer Advocate Sector Liaison for the CAISO EIM Regional Issues Forum.

WITNESS QUALIFICATIONS STATEMENT

NAME:	JOHN J. SPANOS
EMPLOYER:	GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
TITLE:	PRESIDENT
ADDRESS:	207 Senate Avenue, Camp Hill, Pennsylvania 17011
EDUCATION AND TRAINING	Bachelor of Science degree in Industrial Management and Mathematics from Carnegie-Mellon University
.	Master of Business Administration from York College of Pennsylvania
	Completed courses conducted by Depreciation Programs, Inc.: "Techniques of Life Analysis," "Techniques of Salvage and Depreciation Analysis," "Forecasting Life and Salvage," "Modeling and Life Analysis Using Simulation," and "Managing a Depreciation Study."
	Completed "Introduction to Public Utility Accounting" program conducted by the American Gas Association.
	President – Society of Depreciation Professionals – 2012 Certified Depreciation Professional
WORK EXPERIENCE	<u>Gannett Fleming Valuation and Rate Consultants, LLC</u> President - 2019-Present Sr. Vice President - 2012-2019 Vice President – 2000-2012 Manager, Depreciation and Valuation Studies – 1999-2000 Supervisor of Depreciation Studies – 1996-1999 Depreciation Analyst – 1986-1996