

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

UM 1809

In the Matter of

PORTLAND GENERAL ELECTRIC  
COMPANY,2015 Detailed Depreciation Study of  
Electric Utility Properties.

ORDER

DISPOSITION: STIPULATION ADOPTED; DEPRECIATION RATES  
APPROVED AS REVISED

**I. SUMMARY**

In this order, we adopt the parties' stipulation to resolve all issues related to the request by Portland General Electric Company (PGE) to revise depreciation lives, curves, and net salvage rates for various plant accounts to be used in determining the revenue requirement and rate base in its pending general rate case, docket UE 319. In its initial filing, PGE proposed to increase its annual depreciation expense by approximately \$6.6 million to approximately \$286 million. The terms of the stipulation result in an \$8.8 million reduction of PGE's proposed depreciation expense to approximately \$277.3 million.

**II. BACKGROUND AND PROCEDURAL HISTORY**

On December 23, 2016, PGE filed the results of a detailed depreciation study of its utility properties as of December 31, 2015, which included proposed depreciation lives, curves, and net salvage rates and depreciation rates for PGE's generation, transmission, distribution, and general plant. The depreciation rates initially proposed to be used in the pending general rate case, docket UE 319, would have resulted in an annual depreciation increase of approximately \$6.6 million, based upon a comparison of 2017 depreciation expense using the study's depreciation rates to the 2017 depreciation expense using the previously-approved depreciation parameters. PGE also filed proposed depreciation rates to be used for the Carty generation facility (Carty) and addressed the costs to decommission Units 3 and 4 of the Colstrip coal-fired generation facility.

During the course of the proceedings, the Industrial Customers of Northwest Utilities (ICNU) was granted leave to appear as a party. The Oregon Citizens' Utility Board

(CUB) intervened as a matter of right under ORS 774.180. The parties and the Commission Staff conducted discovery and participated in a workshop held on April 18, 2017, and in settlement discussions. The issues were ultimately resolved by the parties through the execution of a stipulation between PGE, Staff, and ICNU without the prior filing of testimony by either Staff, CUB, or ICNU. Although not a signatory, CUB indicated that it does not oppose the stipulation. The stipulation, identified as UM 1809/Stipulating Parties/101, Peng-Mullins-Spanos, and supporting exhibits 102-103, are attached as Appendix A.

### III. DISCUSSION

In its depreciation study, PGE recommended revisions in depreciation lives, curves and net salvage rates for various plant accounts. Staff conducted an independent and comprehensive review based on a set of Iowa Curves<sup>1</sup>, average service lives, and net salvage rates that it had developed for each of the plant accounts. ICNU also analyzed the study and made recommendations.<sup>2</sup>

We summarize each initially disputed issue and the proposed resolution of those issues as presented in the stipulation.

#### A. Depreciation Study Issues

In the settlement workshops, Staff and ICNU raised a number of issues related to depreciation rates presented in the PGE study. Depreciation rates are derived from (1) the combination of survival curve and projection life and (2) the net salvage rates. The settlement discussions were focused on these two parameters. PGE and Staff each utilized different rate methodologies to analyze historical data to help determine the curves and service lives for each depreciation group.

##### 1. *Equal Life Group (ELG) v. Average Service Life/Vintage Group (ASL/VG)*

For calculating annual depreciation for most accounts, PGE's study applied the straight line method using the ELG procedure and the remaining life basis which, PGE stated, is a depreciation calculation procedure that we have previously accepted.<sup>3</sup> Staff proposed using ASL/VG for all generation plants built after December 31, 2012, in accordance with the stipulation approved in Order 14-297.<sup>4</sup> ICNU supported Staff's proposal.

<sup>1</sup> Iowa Curves are deterioration models applied to the life cycle of assets developed in a study at the University of Iowa in the mid-20<sup>th</sup> century. They are comprised of a set of standardized patterns of asset retirement dispersion using statistics and observed life tables. *See, e.g.*, [http://www.assetinsights.net/Glossary/G\\_Iowa\\_Curve.html](http://www.assetinsights.net/Glossary/G_Iowa_Curve.html)

<sup>2</sup> Stipulating Parties/100, Peng-Mullins-Spanos/3-5.

<sup>3</sup> Initial Application, PGE Depreciation Study, Attachment A, Part 1, at 10-11. The ELG methodology and its impact on PGE depreciation rates are described in greater detail at 47-50.

<sup>4</sup> *See In the Matter of Portland General Electric Company Detailed Depreciation Study of Electric Utility Properties*, Docket UM 1679, entered September 2, 2014 at 5: "Staff proposed a 'hybrid procedure' that is the combination of ELG and VG procedures to calculate depreciation rates. In the stipulation, the parties

Among the six regulated utilities in Oregon, PGE is the only one which uses the ELG procedure to calculate depreciation. The ELG methodology has not been approved by the Federal Energy Regulatory Commission (FERC) for use in electric industries because the utility “could not identify and track the units that would be placed in each equal life group” and because “the composite ELG rate did not contain a true-up procedure to correct for the excesses or deficiencies in accumulated depreciation.”<sup>5</sup>

Staff agreed with the assessment in a treatise released by the National Association of Regulatory Utility Commissioners (NARUC) that “[T]he ELG procedure results in annual accruals that are higher during the early years of a vintage's life, thereby causing an increase in depreciation expense and revenue requirements during these years.”<sup>6</sup> Consistent with our decision in Order 14-297, Staff believes PGE should use the ASL procedure for all new generating facilities that are built after December 31, 2012.

Although agreeing in the stipulation to use the ASL/VG procedure, PGE considers the ELG procedure superior to the ASL procedure “because it more accurately matches asset recovery to asset utilization. With the ELG procedure, while depreciation expense is more up front, it is less in the tail of the assets' useful life, hence less risk. Therefore, the ELG procedure is a more accurate and precise procedure compared to ASL.”<sup>7</sup>

## 2. *Iowa Survivor Curves and Projected Average Service Lives*

While PGE's survivor curves and projected lives were derived from its own data, Staff's Iowa survivor curve-projection life selection was based on PGE's raw data and data from other electric companies nationwide. Staff's proposal recommended several changes to PGE's proposed curve-life combination for depreciable property groups.

As recommended by Staff and adopted in the stipulation, changes were made in the average service life or dispersion curve (or both) for the FERC account categories in the Other Production Plant, Transmission Plant, Distribution Plant, and General Plant. In addition to considering the curve-life data from other electric utility companies, Staff also took input from site visits into account.<sup>8</sup>

## 3. *Net Salvage Rates*

“Net Salvage” is the difference between the gross value of the salvage and the cost of removal. When the gross salvage exceeds the cost of removal, the net salvage is positive

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agree that for existing plant facilities as of December 31, 2012, PGE will continue to use the ELG procedure to calculate depreciation rates. The parties agreed to use the ASL/VG procedure for all new generating facilities that are built after December 12, 2012.”

<sup>5</sup> Stipulating Parties/100, Peng-Mullins-Spanos/11-12.

<sup>6</sup> *Id.* at 12.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at 8-9.

and revenue requirement is reduced. Conversely, when the cost of removal exceeds the gross salvage value, the net salvage is negative and the revenue requirement increases.<sup>9</sup>

To determine net salvage rates, PGE and Staff used different methodologies. PGE relied primarily upon site-specific decommissioning studies, historical interim retirement data, 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. Staff also used information gained during visits to power plants to evaluate asset retirement patterns and estimate net salvage rates.<sup>10</sup> For non-generation FERC 300 level accounts, both PGE and Staff used 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.<sup>11</sup>

Following settlement discussions, the parties stipulated to the following net salvage values.

*a. Other Production Accounts*

The net salvage rates for the other production accounts resulted from site-specific decommissioning studies performed between 2002 and 2014. The resulting net salvage rate requested in the Depreciation Study ranged from -5 percent to -10 percent. Staff recommended, and the parties stipulated to a net salvage rate that was consistent with the rate proposed by PGE.<sup>12</sup>

*b. Transmission Assets*

For settlement purposes, the stipulating parties reached a compromise on transmission asset net salvage rates. For Account 355.00, Transmission Poles and Fixtures, PGE recommended a net salvage rate of -50 percent, based upon historical data, current expectations from field personnel and the estimates of others. Staff recommended a net salvage rate of -37 percent that reflected the recent downward trend from recent years. The parties agreed to utilize a net salvage rate of -45 percent for this study, based upon the average of other utilities and the lack of recent activity.

Similarly, for Account 356.00, Transmission Overhead Conductor and Devices, PGE recommended a reduction in the currently approved net salvage rate to -20 percent, because there has been very little retirement activity in the past 13 years. The recommended net salvage estimate was based largely upon net salvage experience prior to 2001 and the estimates within the industry for overhead conductor. Staff recommended a net salvage rate of -8 percent based on PGE's actual retirement activities

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<sup>9</sup> *Id.* at 4, fn. 1.

<sup>10</sup> *Id.* at 9.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 10.

and cost removal level that is less negative than PGE's proposal. The stipulating parties agreed to a compromise position of -15 percent for this depreciation study.<sup>13</sup>

*c. Distribution Assets*

The parties also reached a compromise on distribution asset accounts for settlement purposes. For Account 364.00, Distribution Poles, Towers and Fixtures, PGE recommended a net salvage rate of -50 percent, based upon the overall historical analyses for the period, 1971- 2015 and a general knowledge of the effort required to remove distribution poles. Staff recommended a net salvage rate of -40 percent, based upon the recent trend for less net salvage. For purposes of settlement, the stipulating parties agreed upon a net salvage rate of -45 percent for this depreciation study.<sup>14</sup>

For Account 368.00, Line Transformers, PGE recommended a net salvage rate of -15 percent, based upon the historical data for the period, 1971-2015. Staff recommended a net salvage rate of -7 percent that reflects statistical results in recent years only. The stipulating parties agreed upon a net salvage rate of -10 percent, which put a greater emphasis on the overall net salvage statistics.<sup>15</sup>

For all subaccounts in Account 373.00, Street Lighting, PGE recommended a net salvage rate of -30 percent, based upon historical net salvage data, the current prescribed net salvage percent and the expectations of future costs. Staff recommended a net salvage rate of -24 percent, based upon the recent 5-year trend. The stipulating parties agreed to compromise on a net salvage position of -27 percent for this depreciation study, reflecting recent trends and estimates from comparable utilities.<sup>16</sup>

**B. Carty Generating Plant**

PGE's Carty generation facility went into operation in July, 2016. Because the study used plant in-service balances as of December 31, 2015, it did not reflect the Carty generating plant assets. Nevertheless, PGE filed proposed depreciation parameters and rates for the facility. The parties stipulated to the proposed parameters because (1) the PGE proposals had survivor curves and net salvage that had been updated at the same level as the Port Westward gas generation plants in this docket and (2) the ASL/VG depreciation methodology was used for Carty in accordance with Order 14-297.<sup>17</sup>

**C. Colstrip Plant Decommissioning**

PGE owns 20 percent each of Units 3 and 4 of the Colstrip coal-fired power plant located in Montana. PGE's interest in these plants has been impacted by Senate Bill 1547 (SB 1547), enacted by the 2016 Oregon Legislature. SB 1547 requires electric utilities to

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<sup>13</sup> *Id.*

<sup>14</sup> *Id.* at 10-11.

<sup>15</sup> *Id.* at 11.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 13.

eliminate coal-fired resources from their allocation of electricity resources on or before January 1, 2030. As part of that requirement, a coal-fired resource must be fully depreciated on or before December 31, 2030. The statute specifies that such recovery includes the full recovery of the costs related to decommissioning or closure of the resource at the time those costs are incurred.

To comply with SB 1547, and be consistent with the regulatory treatment prescribed in Order No. 16-468 (establishing PGE's Tariff Schedule 146 to shorten the Colstrip's Operating Life Expectancy), starting from January 1, 2017, the composite remaining life (weighted average remaining life calculated by FERC accounts) must be reduced to 14 years from the original 21 years.

PGE therefore included a Colstrip depreciation calculation in this filing entitled "Colstrip Units 3 & 4 Retirement Study - Demolition Cost Estimates and Site Review," which reflected the accelerated depreciation and plant decommissioning cost. The study was prepared by HDR Engineering, Inc. in November 2016, and provides a retirement cost estimate to decommission and demolish each of these generating units upon retirement. It also provides a comprehensive list of the facilities to be demolished, as well as the tasks associated with each of the demolition activities.<sup>18</sup> The cost to PGE to remove these plants from service is \$15.8 million, including the costs to remove plant components and a +30 percent contingency factor. A contingency factor is a "reserve" that the cost estimator makes to cover unforeseeable expenses the project may incur. These expenses may result from unpredictable conditions and uncertainties within the demolition of Colstrip. After reviewing the data, the stipulating parties did not seek any adjustments to the data offered by PGE.<sup>19</sup>

In the stipulation, the parties agree with PGE's proposal that, to recover the cost of closing Units 3 and 4, the Colstrip decommissioning costs should be rolled into the depreciation schedule and allocated by FERC account. The Colstrip decommissioning cost would be treated as a part of total net salvage cost and be recovered through depreciation. Consequently, Colstrip's decommissioning cost and accelerated depreciation are recovered simultaneously. The parties agreed that, given that the terminal cost will not change until final retirement (or when a new estimate is determined), the amount accrued can be determined at each test year and subtracted from the established terminal cost amount of \$15,801,151. This process will properly assign the accrual amount and incurred amount on an interim basis due to actual retirements.<sup>20</sup>

#### IV. CONCLUSION

We have reviewed the terms of the stipulation and supporting joint testimony of the parties and find that the terms of the stipulation are reasonable and that the stipulation was freely entered into by the parties.

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<sup>18</sup> *Id.* at 13-14.

<sup>19</sup> *Id.* at 14-15.

<sup>20</sup> *Id.* at 15.

We adopt the stipulation settling the depreciation calculation methodology issues, the Carty Generating Plant depreciation treatment and the adjustments to the depreciation schedules related to Colstrip Decommissioning costs. Based on the evidence presented, we find the parties' joint proposals are reasonable responses to the development of depreciation expenses for a general rate case, given PGE's circumstances. We adopt the parties' proposed resolutions on adjustments to the depreciation schedules to be included in the revenue requirement in docket UE 319. We find them to be sufficiently supported by the testimony and will contribute to the provision of reliable service at just and reasonable rates. The stipulation should be adopted in its entirety.

## V. ORDER

IT IS ORDERED that:

1. The stipulation and accompanying exhibits attached as Appendix A is adopted.
2. The Stipulation and Summary of Estimated Survivor Curves, Net Salvage, Original Cost, Book Reserve and Calculated Annual Depreciation Accruals related to Electric Plant at December 31, 2015, in Appendix A, identified respectively as UM1809/Stipulating Parties/101, Peng-Mullins-Spanos/1-7 and UM 1809/Stipulating Parties/102, Peng-Mullins-Spanos/1-6, shall be included in the evidentiary record in Docket No. UE 319.
3. Portland General Electric Company shall implement the depreciation curve-life and net salvage rates parameters proposed in the stipulation as of the effective date of the 2018 test year rate case in Docket No. UE 319.


SEP 26 2017


Made, entered, and effective \_\_\_\_\_



**Lisa D. Hardie**  
Chair



  
**Stephen M. Bloom**  
Commissioner

  
**Megan W. Decker**  
Commissioner

A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Court of Appeals in compliance with ORS 183.480 through 183.484.





BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

UM 1809

In the Matter of

PORTLAND GENERAL ELECTRIC  
COMPANYDetailed 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 Industrial Customers of Northwest Utilities ("ICNU") (collectively, the "Stipulating Parties").

On December 23, 2016, PGE filed with the Public Utility Commission of Oregon ("Commission") the results of a detailed depreciation study of its utility properties as of December 31, 2015 (the "Study"), 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. The depreciation rates initially proposed in UM 1809 would have resulted in an annual depreciation increase of approximately \$6.6 million. The increase is based upon a comparison of 2017 depreciation expense using filed depreciation study rates to 2017 depreciation expense using previously approved depreciation parameters. PGE also filed proposed depreciation rates to be used for the Carty generation facility (Carty).

The depreciation rates, if approved, will be used in the current pending general rate Docket No. UE 319.

The parties to this docket asked and responded to numerous data requests and a workshop was held on April 18, 2017. On June 1, 2017, PGE, Staff, and ICNU participated in a Settlement Conference. The discussions resulted in a compromise settlement by the Parties as set forth

PAGE 1 - UM 1809 STIPULATION

below. The Citizens' Utility Board (CUB) of Oregon is a party to this docket, and has indicated that it does not oppose this Stipulation.

PGE, Staff, and ICNU 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 \$8.8 million on an annual basis from that originally proposed in this docket based on plant data at December 31, 2015.

#### TERMS OF STIPULATION

1. This Stipulation resolves all issues in this docket.
2. The Parties agree that the changes shown in Exhibit "103, Table 2" 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 "103, Table 2" to this Stipulation, the parameters should remain as filed in PGE's Study.
3. Exhibit "102, Table 1" to the Stipulation is a complete list of all PGE depreciation parameters for all plant accounts by location, and depreciation parameters for PGE's Carty Plant.
4. As part of the settlement, the Parties agree that for this depreciation study PGE should use the Average Service Life depreciation procedure for the FERC accounts of new generating facilities including Carty Plant placed in service after December 31, 2012. PGE will continue to use the straight-line, Equal Life Group method for all other assets and accounts.
5. The Parties agree that PGE includes Colstrip decommissioning costs of \$15.8 million in the Plant depreciation schedule and allocates these costs by FERC account.
6. The revised depreciation parameters described above and set forth in Exhibit "102, Table 1" are reasonable and should be adopted.
7. The revised depreciation rates shall be implemented on January 1, 2018, the

effective date of PGE's pending general rate request in Docket UE 319.

8. No later than the end of 2022, 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

ORDER NO. 17 365

UM 1809 / Stipulating Parties / 101  
Peng - Mullins - Spanos / 5

DATED this 17 day of July, 2017.

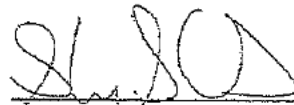
  
PORTLAND GENERAL ELECTRIC  
COMPANY

STAFF OF THE PUBLIC UTILITY  
COMMISSION OF OREGON

INDUSTRIAL CONSUMERS OF  
NORTHWEST UTILITIES

DATED this 14<sup>th</sup> day of July, 2017.

PORTLAND GENERAL ELECTRIC  
COMPANY



STAFF OF THE PUBLIC UTILITY  
COMMISSION OF OREGON

INDUSTRIAL CONSUMERS OF  
NORTHWEST UTILITIES

UM 1809 / Stipulating Parties / 101  
Peng - Mullins - Spanos / 7

DATED this 14<sup>th</sup> day of July, 2017.

PORTLAND GENERAL ELECTRIC  
COMPANY

STAFF OF THE PUBLIC UTILITY  
COMMISSION OF OREGON

  
INDUSTRIAL CONSUMERS OF  
NORTHWEST UTILITIES

PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2016

ACCOUNT (1)	SURVIVOR CURVE (2)	NET SALVAGE PERCENT (3)	ORIGINAL COST AS OF DECEMBER 31, 2016 (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	CALCULATED ANNUAL ACCRUAL AMOUNT (7)	RATE (8)=(7)/(4)	COMPOSITE REMAINING LIFE (9)=(6)/(7)
STEAM PRODUCTION PLANT								
BOARDMAN								
311.00 STRUCTURES AND IMPROVEMENTS	00 - S1.5 *	(1)	107,051,192.27	87,611,884	20,500,820	3,807,802 **	3.63	5.0
312.00 BOILER PLANT EQUIPMENT	65 - R3 *	(1)	258,670,948.24	182,243,279	79,014,379	15,194,946 **	5.87	5.0
312.00 BOARDMAN DECOMMISSIONING ACCRUAL			0.00	38,784,038	29,384,465	5,076,893 ***	-	5.0
312.01 RAIL CARS	28 - S0 *	0	10,039,472.22	8,451,505	1,587,987	317,593 **	3.16	6.0
314.00 TURBOGENERATOR UNITS	55 - R2 *	(1)	87,020,784.20	68,284,747	19,608,245	3,747,237 **	4.31	5.0
315.00 ACCESSORY ELECTRIC EQUIPMENT	60 - R2.5 *	(1)	23,889,031.51	19,749,114	4,480,616	848,144 **	3.54	5.0
316.00 MISCELLANEOUS POWER PLANT EQUIPMENT	60 - R1 *	(1)	6,389,064.18	4,797,377	1,665,578	318,343 **	4.88	5.0
TOTAL BOARDMAN			493,161,282.82	409,931,944	156,298,070	30,191,017	6.12	5.0
COLSTRIP								
311.00 STRUCTURES AND IMPROVEMENTS	90 - S1.5 *	(4)	114,980,317.08	97,349,852	22,229,878	1,637,718	1.34	14.5
312.00 BOILER PLANT EQUIPMENT	65 - R3 *	(4)	229,441,033.29	171,920,908	66,697,766	4,698,492	2.00	14.5
314.00 TURBOGENERATOR UNITS	55 - R2 *	(4)	73,163,039.84	42,236,264	33,863,277	2,460,816	3.36	13.8
315.00 ACCESSORY ELECTRIC EQUIPMENT	60 - R2.5 *	(4)	23,503,535.66	19,216,964	5,226,713	378,888	1.81	13.8
316.00 MISCELLANEOUS POWER PLANT EQUIPMENT	60 - R1 *	(4)	6,315,521.02	5,013,262	1,554,880	113,521	1.80	13.7
TOTAL COLSTRIP			447,403,446.89	335,737,071	120,562,514	9,089,437	2.03	14.3
TOTAL STEAM PRODUCTION PLANT			940,684,739.61	745,669,015	285,801,584	39,280,454	4.18	7.3
HYDRAULIC PRODUCTION PLANT								
331.00 STRUCTURES AND IMPROVEMENTS								
FARADAY	110 - R2.5 *	(58)	6,507,390.73	1,761,056	0,520,634	231,048	3.56	36.7
NORTH FORK	110 - R2.5 *	(78)	8,766,845.84	2,804,512	12,800,474	346,484	3.95	36.9
OAK GROVE	110 - R2.5 *	(57)	7,008,607.05	2,731,475	9,520,038	262,667	3.36	36.3
PELTON	110 - R2.5 *	(176)	6,081,024.87	2,486,632	14,318,997	393,295	6.47	36.4
RIVER MILL	110 - R2.5 *	(181)	3,007,139.50	1,204,980	5,000,190	143,068	4.83	34.9
ROUND BUTTE	110 - R2.5 *	(78)	11,632,778.01	3,211,779	17,484,566	477,852	4.11	36.8
SULLIVAN	110 - R2.5 *	(31)	9,387,473.54	2,234,868	10,036,522	527,354	5.83	10.0
TOTAL STRUCTURES AND IMPROVEMENTS			53,251,287.84	16,415,282	77,687,421	2,382,667	4.47	32.6
332.00 RESERVOIRS, DAMS AND WATERWAYS								
FARADAY	105 - R3 *	(58)	25,710,245.82	13,348,998	27,273,190	740,910	2.88	36.8
NORTH FORK	105 - R3 *	(78)	82,474,814.59	20,640,726	126,156,444	3,339,831	4.05	37.8
OAK GROVE	105 - R3 *	(57)	24,250,758.39	20,507,796	17,555,095	476,477	1.96	38.9
PELTON	105 - R3 *	(176)	10,573,893.13	8,334,743	18,849,202	570,012	5.39	34.8
RIVER MILL	105 - R3 *	(101)	54,798,423.92	14,177,614	95,963,108	2,541,153	4.64	37.8
ROUND BUTTE	105 - R3 *	(78)	111,749,067.52	33,150,025	165,763,315	4,303,032	3.93	37.7
SULLIVAN	105 - R3 *	(31)	23,589,921.71	6,537,779	24,338,818	1,267,803	6.38	19.2
TOTAL RESERVOIRS, DAMS AND WATERWAYS			333,125,125.08	117,705,681	476,910,062	13,329,918	4.00	35.8



PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2015

ACCOUNT (1)	SURVIVOR CURVE (2)	NET SALVAGE PERCENT (3)	ORIGINAL COST AS OF DECEMBER 31, 2015 (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	CALCULATED ANNUAL ACCRUAL		COMPOSITE REMAINING LIFE (9)=(6)/(7)
						AMOUNT (7)	RATE (8)=(7)/(4)	
333.00 WATER WHEELS, TURBINES AND GENERATORS								
FARADAY	80 - S1 *	(58)	6,743,974.26	3,475,327	7,180,152	207,029	3.08	34.5
NORTH FORK	80 - S1 *	(78)	6,899,508.02	6,282,294	5,998,832	181,083	2.02	33.1
OAK GROVE	90 - S1 *	(67)	6,507,010.60	3,242,840	6,973,167	202,160	3.11	34.5
PELTON	90 - S1 *	(176)	4,105,089.33	4,762,863	6,508,087	212,780	5.18	30.9
RIVER MILL	90 - S1 *	(101)	5,925,913.48	2,853,284	9,057,802	260,503	4.40	34.8
ROUND BUTTE	90 - S1 *	(78)	21,073,601.20	8,065,470	29,446,362	811,466	3.85	36.3
SULLIVAN	90 - S1 *	(31)	9,416,266.85	3,831,447	8,503,863	452,491	4.81	18.8
TOTAL WATER WHEELS, TURBINES AND GENERATORS			80,671,874.74	32,513,525	73,728,046	2,328,380	3.84	31.7
334.00 ACCESSORY ELECTRIC EQUIPMENT								
FARADAY	80 - R2.5 *	(58)	2,681,008.84	1,268,781	2,811,213	93,695	3.63	30.0
NORTH FORK	80 - R2.5 *	(78)	1,094,113.25	748,624	1,188,898	39,649	3.62	30.2
OAK GROVE	80 - R2.5 *	(57)	3,262,587.74	959,520	4,147,011	144,195	4.43	28.8
PELTON	80 - R2.6 *	(176)	2,526,584.92	1,078,094	6,895,280	191,498	7.58	30.8
RIVER MILL	80 - R2.5 *	(101)	2,813,282.13	1,198,518	4,058,179	133,436	5.11	30.4
ROUND BUTTE	60 - R2.5 *	(78)	2,312,032.27	820,949	3,184,468	102,040	4.41	31.3
SULLIVAN	60 - R2.5 *	(31)	4,287,664.38	1,121,270	4,495,570	244,005	5.69	18.4
TOTAL ACCESSORY ELECTRIC EQUIPMENT			18,667,253.53	7,281,758	25,798,619	948,618	6.08	27.2
335.00 MISCELLANEOUS PLANT EQUIPMENT								
FARADAY	55 - R0.5 *	(58)	227,707.67	112,191	247,587	11,218	4.93	22.1
NORTH FORK	55 - R0.5 *	(78)	480,238.58	345,014	527,611	21,414	4.37	24.6
OAK GROVE	55 - R0.5 *	(57)	294,816.36	39,533	423,329	17,818	6.04	23.8
PELTON	55 - R0.5 *	(176)	180,728.78	151,848	347,166	16,153	8.04	21.5
RIVER MILL	55 - R0.5 *	(101)	20,116.12	7,019	33,414	1,240	6.18	26.9
ROUND BUTTE	55 - R0.5 *	(78)	775,730.77	352,575	1,028,242	41,765	6.38	24.6
SULLIVAN	55 - R0.5 *	(31)	109,225.68	30,729	112,367	6,743	8.17	16.7
TOTAL MISCELLANEOUS PLANT EQUIPMENT			2,098,673.86	1,038,709	2,718,706	116,341	5.54	23.4
336.00 ROADS, RAILROADS, AND BRIDGES								
FARADAY	75 - R1.5 *	(58)	1,076,298.06	720,109	2,402,442	76,894	3.89	31.2
NORTH FORK	75 - R1.5 *	(78)	2,579,914.84	889,584	3,892,654	121,331	4.70	30.4
OAK GROVE	75 - R1.5 *	(67)	2,322,129.51	2,348,085	1,297,659	54,378	2.34	23.9
PELTON	75 - R1.5 *	(176)	2,148,378.02	918,543	5,010,080	160,335	7.46	31.3
RIVER MILL	75 - R1.5 *	(101)	458,019.14	173,680	746,938	23,197	5.06	32.2
ROUND BUTTE	75 - R1.5 *	(78)	1,575,722.57	520,847	2,283,939	76,767	4.87	29.8
TOTAL ROADS, RAILROADS, AND BRIDGES			11,060,462.14	5,680,858	15,434,811	512,902	4.64	30.1
TOTAL HYDRAULIC PRODUCTION PLANT			478,874,557.09	180,545,811	672,288,464	19,618,726	4.10	34.3
OTHER PRODUCTION PLANT								
341.00 STRUCTURES AND IMPROVEMENTS								
BEAVER - CT	70 - R3 *	(8)	35,405,156.97	28,773,362	8,756,104	617,260	1.74	14.2
COYOTE SPRINGS - CT	70 - R3 *	(5)	11,227,918.75	7,079,845	4,709,468	202,241	1.80	23.3
PORT WESTWARD - CT	70 - R3 *	(7)	41,367,466.65	7,883,237	36,379,952	1,119,714	2.71	32.5
PORT WESTWARD II	70 - R3 *	(7)	28,092,514.71	719,655	30,195,336	702,054	2.43	43.0
TOTAL STRUCTURES AND IMPROVEMENTS			116,893,055.08	44,456,099	80,040,860	2,641,269	2.26	30.3

PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2016

				NET	ORIGINAL COST		CALCULATED		COMPOSITE
ACCOUNT		SURVIVOR		SALVAGE	AS OF	BOOK	FUTURE	ANNUAL ACCRUAL	REMAINING
		CURVE		PERCENT	DECEMBER 31, 2015	RESERVE	ACCRUALS	AMOUNT	LIFE
(1)		(2)		(3)	(4)	(5)	(6)	(7)	(8)=(7)/(4)
									(9)=(6)/(7)
341.01	STRUCTURES AND IMPROVEMENTS - WIND								
	BIGLOW CANYON WIND FARM	40 - R4 *	(8)		32,892,664.86	8,255,388	27,268,690	878,719	2.67
	TUCANNON RIVER WIND FARM	40 - R4 *	(7)		17,769,680.29	512,935	18,600,624	463,421	2.72
	TOTAL STRUCTURES AND IMPROVEMENTS - WIND				50,662,265.15	8,768,323	45,769,214	1,362,140	2.69
342.08	FUEL HOLDERS, PRODUCERS AND ACCESSORIES								
	BEAVER - CT	50 - R3 *	(6)		51,148,888.32	48,751,107	5,466,693	424,358	0.83
	COYOTE SPRINGS - CT	50 - R3 *	(5)		36,052,436.84	22,574,432	16,120,626	756,172	2.05
	PORT WESTWARD - CT	50 - R3 *	(7)		8,474,678.21	4,928,251	5,209,646	174,292	1.84
	PORT WESTWARD II	50 - R3 *	(7)		6,600,696.56	167,166	6,895,579	169,884	2.67
	KB PIPELINE	50 - R3 *	(10)		20,488,296.46	16,025,680	6,511,446	474,694	2.32
	TOTAL FUEL HOLDERS, PRODUCERS AND ACCESSORIES				124,664,873.49	92,446,636	40,203,890	1,999,400	1.61
344.00	GENERATORS								
	BEAVER - CT	42 - R1.5 *	(6)		105,261,260.10	65,408,021	46,160,304	3,614,287	3.43
	COYOTE SPRINGS - CT	42 - R1.5 *	(5)		124,431,320.70	59,920,916	70,723,972	3,763,327	3.02
	PORT WESTWARD - CT	42 - R1.5 *	(7)		193,348,812.60	43,720,635	163,162,694	6,873,526	3.55
	PORT WESTWARD II	42 - R1.5 *	(7)		241,867,755.26	6,952,280	251,953,210	7,086,823	2.93
	TOTAL GENERATORS				664,890,138.66	176,007,859	532,000,080	21,337,763	3.21
344.01	GENERATORS - WIND								
	BIGLOW CANYON WIND FARM	30 - R3 *	(8)		860,738,964.20	225,805,265	703,703,896	34,024,847	3.95
	TUCANNON RIVER WIND FARM	30 - R3 *	(7)		446,378,931.82	16,920,717	460,704,740	16,148,081	3.62
	TOTAL GENERATORS - WIND				1,307,118,896.21	242,815,982	1,164,408,636	50,172,920	3.04
344.02	GENERATORS - SOLAR	20 - L2.5	(2)		1,467,561.05	41,740	1,455,173	74,624	5.08
345.00	ACCESSORY ELECTRIC EQUIPMENT								
	DISPATCH GENERATION	45 - R2.5	(5)		11,478,510.39	2,344,228	9,708,208	297,666	2.59
	BEAVER - CT	45 - R2.5 *	(6)		24,145,243.83	11,722,095	13,671,863	1,045,319	4.33
	COYOTE SPRINGS - CT	45 - R2.5 *	(5)		12,132,732.79	7,830,592	5,108,777	259,310	2.14
	PORT WESTWARD - CT	45 - R2.5 *	(7)		8,949,403.88	2,625,064	6,950,808	255,940	2.86
	PORT WESTWARD II	45 - R2.5 *	(7)		9,473,952.07	285,000	9,872,049	258,025	2.72
	TOTAL ACCESSORY ELECTRIC EQUIPMENT				66,179,842.90	24,587,049	45,511,705	2,116,280	3.20
345.01	ACCESSORY ELECTRIC EQUIPMENT - WIND								
	BIGLOW CANYON WIND FARM	30 - R2.5 *	(8)		25,496,497.01	5,893,029	21,643,188	1,050,678	4.12
	TUCANNON RIVER WIND FARM	30 - R2.5 *	(7)		15,801,270.29	565,197	16,322,162	571,104	3.81
	TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND				41,297,767.30	6,478,226	37,965,350	1,621,782	3.93
346.00	MISCELLANEOUS PLANT EQUIPMENT								
	BEAVER - CT	55 - R2.5 *	(6)		4,351,056.14	3,549,989	1,062,131	77,741	1.79
	COYOTE SPRINGS - CT	55 - R2.5 *	(5)		2,625,081.78	1,288,897	1,467,439	86,534	2.53
	PORT WESTWARD - CT	55 - R2.5 *	(7)		3,176,638.78	646,033	2,752,170	93,036	2.93
	PORT WESTWARD II	55 - R2.5 *	(7)		3,137,236.36	77,289	3,279,544	80,598	2.67
	KB PIPELINE	55 - R2.5 *	(5)		81,794.37	67,349	18,535	1,351	1.65
	TOTAL MISCELLANEOUS PLANT EQUIPMENT				13,371,807.43	5,630,367	8,579,819	319,260	2.39

PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2016

ACCOUNT (1)	SURVIVOR CURVE (2)	NET SALVAGE PERCENT (3)	ORIGINAL COST AS OF DECEMBER 31, 2016 (4)	BOOK RESERVE (5)	FUTURE ACCRUALS (6)	CALCULATED ANNUAL ACCRUAL		COMPOSITE REMAINING LIFE (9)=(6)/(7)
						AMOUNT (7)	RATE (8)=(7)/(4)	
346.01 MISCELLANEOUS PLANT EQUIPMENT - WIND								
BIGLOW CANYON WIND FARM	40 - R2.5	(8)	1,323,570.90	267,760	1,161,607	41,042	3.15	27.9
TUCANNON RIVER WIND FARM	40 - R2.5	(7)	486,405.43	15,218	605,332	13,577	2.79	37.2
TOTAL ACCESSORY ELECTRIC EQUIPMENT - WIND			1,810,066.33	282,978	1,667,029	56,210	3.05	30.2
TOTAL OTHER PRODUCTION PLANT			2,388,365,262.46	601,516,259	1,957,601,756	81,700,645	3.42	24.0
TOTAL PRODUCTION			3,607,804,559.06	1,527,730,085	2,915,591,804	140,599,825	3.60	
TRANSMISSION PLANT								
352.00 STRUCTURES AND IMPROVEMENTS	65 - R2.5	(16)	19,312,917.31	7,936,901	14,272,874	344,467	1.78	41.4
353.00 STATION EQUIPMENT	57 - R2	(15)	267,004,091.69	94,367,051	213,722,654	5,910,535	2.21	36.1
353.00 STATION EQUIPMENT - BOARDMAN	57 - R2	(15)	5,908,401.82	4,777,880	2,018,782	415,797	7.04	4.9
354.00 TOWERS AND FIXTURES	70 - S3	(10)	46,819,259.47	24,217,309	27,283,876	881,028	1.88	31.0
355.00 POLES AND FIXTURES	50 - R1	(45)	25,714,209.81	11,988,605	25,298,999	844,683	3.28	29.9
358.00 OVERHEAD CONDUCTORS AND DEVICES	65 - R2.5	(15)	73,514,806.59	60,343,434	24,198,594	516,611	0.70	46.9
359.00 ROADS AND TRAILS	65 - R3	0	286,332.32	159,587	126,745	3,957	1.38	32.0
TOTAL TRANSMISSION PLANT			439,460,019.01	203,700,847	306,918,524	8,924,078	2.03	34.4
DISTRIBUTION PLANT								
361.00 STRUCTURES AND IMPROVEMENTS	65 - R2	(25)	39,801,374.33	14,627,007	35,124,621	804,126	2.22	39.7
362.00 STATION EQUIPMENT	55 - S0	(20)	472,305,679.82	145,636,170	421,130,646	13,466,426	2.85	31.3
363.00 STORAGE BATTERY	15 - L3	(5)	387,215.83	51,298	355,279	32,923	8.50	10.8
364.00 POLES, TOWERS AND FIXTURES	48 - R0.5	(45)	349,610,655.27	253,174,817	253,780,833	9,577,378	2.74	26.5
365.00 OVERHEAD CONDUCTORS AND DEVICES	50 - S0.5	(70)	587,352,192.37	401,692,869	696,905,858	19,871,601	3.38	30.0
368.00 UNDERGROUND CONDUIT	80 - R4	(10)	15,385,200.01	9,995,741	6,927,980	144,328	0.94	48.0
367.00 UNDERGROUND CONDUCTORS AND DEVICES	55 - S1.5	(70)	690,312,080.69	428,571,057	744,958,580	20,951,550	3.04	35.6
368.00 LINE TRANSFORMERS	50 - R2.5	(10)	357,878,099.44	182,350,295	211,315,614	6,407,644	1.79	33.0
369.01 SERVICES - OVERHEAD	48 - R2	(30)	61,300,422.74	40,806,305	38,784,245	1,175,241	1.92	33.0
369.03 SERVICES - UNDERGROUND	50 - R4	(30)	354,770,903.06	274,949,537	188,252,637	5,106,647	1.44	36.5
370.00 METERS	29 - R2	(10)	5,909,028.71	779,879	5,720,853	353,212	5.98	16.2
370.01 METERS - AMI	16 - S2.5	(10)	136,195,804.78	41,386,300	108,420,886	10,794,809	7.93	10.0
370.02 METERS - RETAINED	16 - L0.5	(10)	7,301,494.19	3,414,262	4,617,382	655,312	8.98	7.0
371.00 INSTALLATIONS ON CUSTOMERS' PREMISES	30 - R4	0	376,133.46	282,875	93,158	6,448	1.71	14.4
373.01 CIRCUITS - OTHER	40 - L2.5	(27)	21,980,396.75	17,460,094	10,416,910	448,834	2.05	23.2
373.02 FIXTURES, ORNAMENTAL POSTS AND DEVICES	25 - L1	(27)	52,526,976.74	28,258,893	38,460,367	2,526,872	4.81	15.2
373.07 SENTINEL LIGHTING EQUIPMENT	29 - L0.6	(27)	8,491,020.98	10,386,209	397,388	25,010	0.29	15.9
TOTAL DISTRIBUTION PLANT			3,161,854,679.97	1,863,824,608	2,663,640,436	92,428,361	2.92	28.8

PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2015

ACCOUNT		SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2015	BOOK RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL		COMPOSITE REMAINING LIFE
(1)		(2)	(3)	(4)	(5)	(6)	AMOUNT (7)	RATE (8)=(7)/(4)	(9)=(8)/(7)
GENERAL PLANT									
390.00	STRUCTURES AND IMPROVEMENTS	40 - R0.5	(5)	94,080,979.72	25,831,389	72,964,140	3,588,650	3.82	20.3
390.10	STRUCTURES AND IMPROVEMENTS - LEASE								
	CSS	SQUARE	0	16,087.41	8,357	7,730	2,577	16.02	3.0
	EASTPORT	SQUARE	0	58,754.96	57,647	1,108	1,108	1.09	1.0
	ERC TUALATIN	SQUARE	0	414,266.32	297,945	116,310	40,061	11.60	2.4
	HILLSBORO	SQUARE	0	93,338.08	44,743	48,593	0	0.00	0.0
	SALEM	SQUARE	0	13,580.71	702	12,879	0	0.00	0.0
	WILSONVILLE	SQUARE	0	272,342.13	149,291	123,051	0	0.00	0.0
	WTC	SQUARE	0	24,503,845.04	8,538,850	17,964,795	647,382	2.64	27.7
	TOTAL STRUCTURES AND IMPROVEMENTS			25,372,001.83	7,097,535	18,274,466	689,128	2.76	26.1
	OFFICE FURNITURE AND EQUIPMENT								
391.10	FURNITURE AND EQUIPMENT	15 - SQ	0	22,059,426.36	7,299,101	14,760,324	1,505,944	6.83	9.8
391.20	COMPUTERS AND EQUIPMENT	5 - SQ	0	88,303,504.10	36,391,147	61,912,357	17,116,351	19.38	3.0
	TOTAL OFFICE FURNITURE AND EQUIPMENT			110,362,929.45	43,690,248	66,672,681	18,621,295	16.87	3.6
	TRANSPORTATION EQUIPMENT								
392.04	HEAVY DUTY TRUCKS	20 - S2	8	16,137,568.72	7,079,625	7,766,930	489,457	3.03	15.9
392.05	MEDIUM DUTY TRUCKS	16 - S1.5	8	14,767,748.37	8,148,081	5,440,240	550,523	3.73	9.9
392.06	LIGHT DUTY TRUCKS	13 - L2.5	8	10,963,150.43	5,118,816	4,967,282	571,186	5.21	8.7
392.08	TRAILERS	30 - S0	8	8,382,384.69	3,024,836	2,846,967	162,116	2.64	17.6
392.09	AUTOS	11 - S1.5	8	1,234,095.27	514,421	620,947	115,573	9.36	5.4
392.10	HELICOPTER	20 - S4	8	2,703,076.25	856,758	1,630,074	134,323	4.87	12.1
	TOTAL TRANSPORTATION EQUIPMENT			52,188,033.73	24,740,535	23,272,456	2,023,188	3.88	11.5
393.00	STORES EQUIPMENT	20 - SQ	0	2,830,641.95	1,410,976	1,419,667	134,686	4.76	10.5
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	20 - SQ	0	15,411,225.59	5,412,448	9,998,778	814,541	5.28	12.3
395.00	LABORATORY EQUIPMENT	15 - SQ	0	9,245,946.80	4,128,837	5,119,110	1,037,204	11.22	4.8
	POWER OPERATED EQUIPMENT								
396.01	MAN LIFT	14 - S1.5	10	25,700,684.24	13,451,585	9,878,981	1,210,977	4.71	8.0
396.02	DIGGER	16 - R2.5	10	7,108,488.69	4,083,549	2,314,081	250,167	3.52	9.2
396.03	CRANE	22 - S2.5	10	4,701,378.01	3,405,477	825,783	62,930	1.34	13.1
396.07	CONSTRUCTION EQUIPMENT	19 - L1.5	10	7,386,692.88	3,708,898	2,939,125	249,934	3.38	11.6
	TOTAL POWER OPERATED EQUIPMENT			44,897,143.82	24,649,480	16,757,940	1,774,028	3.95	8.9
	COMMUNICATION EQUIPMENT								
397.01	LINE EQUIPMENT	15 - SQ	0	6,771,132.76	1,014,920	5,756,207	469,727	6.94	12.3
397.03	RADIO, MICROWAVE AND TERMINAL EQUIPMENT	16 - SQ	0	90,674,615.01	45,187,175	46,487,440	6,141,122	6.77	7.4
397.08	MOBILE RADIO EQUIPMENT	15 - SQ	0	354,605.46	56,797	297,808	24,804	6.99	12.0
397.07	TELEPHONE EQUIPMENT	15 - SQ	0	848,493.02	661,598	186,795	17,716	2.08	10.5
	TOTAL COMMUNICATION EQUIPMENT			98,048,846.25	48,920,586	51,726,250	6,653,369	6.74	7.6
398.00	MISCELLANEOUS EQUIPMENT	20 - SQ	0	308,112.03	27,915	280,197	15,770	5.12	17.8
	TOTAL GENERAL PLANT			463,365,860.77	183,907,967	266,487,686	35,371,739	7.80	7.5
	TOTAL DEPRECIABLE PLANT			7,862,475,118.81	3,769,253,597	6,151,738,448	277,324,003	3.63	22.2

PORTLAND GENERAL ELECTRIC  
TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE, ORIGINAL COST, BOOK RESERVE AND CALCULATED  
ANNUAL DEPRECIATION ACCRUALS RELATED TO ELECTRIC PLANT AT DECEMBER 31, 2015

ACCOUNT	SURVIVOR CURVE	NET SALVAGE PERCENT	ORIGINAL COST AS OF DECEMBER 31, 2015	BOOK RESERVE	FUTURE ACCRUALS	CALCULATED ANNUAL ACCRUAL AMOUNT	CALCULATED ANNUAL ACCRUAL RATE	COMPOSITE REMAINING LIFE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(7)/(4)	(9)=(6)/(7)
NONDEPRECIABLE / ACCOUNTS NOT STUDIED								
302.00			182,691,124.04	43,085,243				
303.00			373,677,186.19	183,671,147				
310.00			4,161,715.00					
317.00			64,270,343.08	17,249,036				
330.00			6,047,027.00	1,419,090				
332.00				683,971				
337.00			5,128.00	3,822				
340.00			48,846.00					
347.00			13,851,275.55	375,367				
350.00			11,508,608.06	(6,755)				
359.10			34,100.00	68,148				
360.00			23,952,220.58	(1,788,512)				
370.03				(8,218)				
374.00			476,732.00	580,400				
389.00			9,654,596.49	(458,153)				
392.01				241,194				
399.00			65,269.00	109,957				
TOTAL NONDEPRECIABLE / NOT STUDIED			600,344,908.99	245,235,737				
TOTAL ELECTRIC PLANT			8,552,820,027.00	4,014,489,334	6,151,736,449	277,324,003		

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

\*\* ANNUAL DEPRECIATION EXPENSE BASED ON METHOD PREVIOUSLY APPROVED BY THE OPUC IN ORDER NO. 10-478.

\*\*\* UPDATED PER CURRENTLY-APPROVED SCHEDULE 145.

NOTES:

ACCRUAL RATES FOR FACILITIES TO BE PLACED IN SERVICE AFTER DECEMBER 31, 2015 ARE AS FOLLOWS.

	RATE	SURVIVOR CURVE	NET SALVAGE PERCENT
CARTY			
341.00	2.45	70 - R3 *	(7)
342.00	2.61	48 - R3 *	(7)
344.00	3.02	38 - R2 *	(7)
346.00	2.58	55 - R2.5 *	(7)

## Portland General Electric

Table 2. Comparison of Estimated Survivor Curves, Net Salvage, and Calcu

ACCOUNT DESCRIPTION	ACCOUNT	2015 DEPRECIATION		
		STUDY AS FILED		
		Survivor Curve	Net Salvage Percent	ELG Rate
Other Production Plant				
Structures and Improvements	341			
	Port Westward II			2.56
Structures and Improvements - Wind	341.01			
	Tucannon			2.9
Fuel Holders, Producers & Accessories	342			
	Beaver – CT	48-R3	-6	
	Coyote Springs - CT	48-R3	-5	
	Port Westward - CT	48-R3	-7	
	Port Westward II	48-R3	-7	2.88
	KB Pipeline	48-R3	-10	
Generators	344			
	Beaver – CT	38-R2	-6	
	Coyote Springs - CT	38-R2	-5	
	Port Westward - CT	38-R2	-7	
	Port Westward II	38-R2	-7	4.02
Generators - Wind	344.01			
	Tucannon			4.19
Generators - Solar	344.02			
	Solar			6.12
Accessory Electric Equipment	345			
	Port Westward II			3.27
Accessory Electric Equipment - Wind	345.01			
	Tucannon			4.54
Miscellaneous Plant Equipment	346			
	Port Westward II			2.96
Miscellaneous Plant Equipment - Wind	346.01			
	Tucannon			3.47
Transmission Plant				
Poles & Fixtures	355	50-R1	-50	
Overhead Conductors & Devices	356	65-R2.5	-20	
Distribution Plant				

Poles, Towers & Fixtures	364	45-R1	-50	
Line Transformers	368	50-R2.5	-15	
Meters - AMI	370.01	15-S2.5	-10	
Circuits - Other	373.01	40-L2.5	-30	
Fixtures, Ornamental Posts & Devices	373.02	25-L1	-30	
Sentinel Lighting Equipment	373.07	29-L0.5	-30	
<b>General Plant</b>				
Heavy Duty Trucks	392.04	20-S2	5	
Medium Duty Trucks	392.05	16-S1.5	5	
Light Duty Trucks	392.06	13-L2.5	5	
Trailers	392.08	30-S0	5	
Autos	392.09	11-S1.5	5	
Helicopter	392.1	20-S4	5	
<b>Total Depreciation Change</b>				

## lated Annual Depreciation Rates

SETTLEMENT			
AGREEMENT			
Survivor Curve	Net Salvage Percent	ASL Rate	Annual Change in Depreciation
		2.43	(\$36,760)
		2.72	(\$31,054)
50-R3	-6		(\$8,665)
50-R3	-5		(\$15,454)
50-R3	-7		(\$3,375)
50-R3	-7	2.57	(\$20,444)
50-R3	-10		(\$3,395)
42-R1.5	-6		(\$7,373)
42-R1.5	-5		(\$125,934)
42-R1.5	-7		(\$167,658)
42-R1.5	-7	2.93	(\$2,640,113)
		3.62	(\$2,572,144)
		5.08	(\$15,257)
		2.72	(\$52,124)
		3.61	(\$145,723)
		2.57	(\$12,412)
		2.79	(\$3,296)
50-R1	-45		(\$44,619)
65-R2.5	-15		(\$89,328)



48-R0.5	-45		(\$755,100)
50-R2.5	-10		(\$645,131)
16-S2.5	-10		(\$1,066,017)
40-L2.5	-27		(\$32,828)
25-L1	-27		(\$108,461)
29-L0.5	-27		(\$16,301)
20-S2	8		(\$38,058)
16-S1.5	8		(\$58,979)
13-L2.5	8		(\$55,038)
30-S0	8		(\$11,652)
11-S1.5	8		(\$7,819)
20-S4	8		(\$7,151)
			(\$8,797,663)