EXHIBIT NO. ___(JJS-1T)
DOCKETS UE-17___/UG-17___
2017 PSE GENERAL RATE CASE
WITNESS: JOHN J. SPANOS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-17____** **Docket UG-17____**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

JOHN J. SPANOS

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 13, 2017

PUGET SOUND ENERGY

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PUGET SOUND ENERGY

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I. INTRODUCTION

Q. Please state your name, business address, and position.

A. My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania 17011. I am Senior Vice President of the firm of Gannett Fleming Valuation and Rate Consultants, LLC (“Gannett Fleming”). I am testifying on behalf of Puget Sound Energy (“PSE”).

Q. Have you prepared an exhibit describing your Professional qualifications?

A. Yes, I have. It is Exhibit No. ___(JJS-2).

Q. What is the nature of your testimony in this proceeding?

A. I sponsor the depreciation study performed for PSE submitted herewith as Exhibit No. ___(JJS-3). The depreciation study sets forth the calculated annual depreciation accrual rates by account as of September 30, 2016 for all electric, gas and common plant.

II. PSE’S DEPRECIATION STUDY

Q. Please define the concept of depreciation.

A. Depreciation refers to the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes that are known to be in service, against which PSE is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, obsolescence, changes in the art, changes in demand and the requirements of public authorities.

Q. Please identify the depreciation study you performed for PSE.

A. The study is a report entitled, “2016 Depreciation Study - Calculated Annual Depreciation Accruals Related to Electric, Gas and Common plant as of September 30, 2016.” This report sets forth the results of my depreciation study for PSE. The study was prepared and the analyses that underlie the report were conducted under my direction and supervision.

Q. What was the purpose of your depreciation study?

A. The purpose of the depreciation study was to estimate the annual depreciation accruals related to electric, gas and common plant in service for financial and ratemaking purposes and determine appropriate average service lives and net salvage percentages for each plant account.

Q. Please describe Exhibit No. ___(JJS-3).

A. My report is presented in nine parts. Part I, Introduction, describes the scope and basis for the depreciation study. Part II, Estimation of Survivor Curves, includes descriptions of the methodology of estimating survivor curves. Parts III and IV set forth the analysis for determining life and net salvage estimation. Part V, Calculation of Annual and Accrued Depreciation includes the concepts of depreciation and amortization using the remaining life. Part VI, Results of Study, presents a description of the results and a summary of the depreciation calculations. Parts VII, VIII and IX include graphs and tables that relate to the service life and net salvage analyses, and the detailed depreciation calculations.

The tables on pages VI-4 through VI-15 present the estimated survivor curve, the net salvage percent, the original cost as of September 30, 2016, the book depreciation reserve and the calculated annual depreciation accrual and rate for each account or subaccount. The section beginning on page VII-3 presents the results of the retirement rate analyses prepared as the historical bases for the service life estimates. The section beginning on page VIII-5 presents the results of the salvage analysis. The section beginning on page IX-3 presents the depreciation calculations related to surviving original cost as of September 30, 2016.

Q. Please explain how you performed your depreciation study.

A. I used the straight line remaining life method of depreciation, with the average service life procedure. The annual depreciation is based on a method of depreciation accounting that seeks to distribute the unrecovered cost of fixed capital assets over the estimated remaining useful life of each unit, or group of assets, in a systematic and rational manner.

For General Plant Accounts 391.1, 391.2, 393, 394, 395, 397 and 398 in electric; 391.1, 391.2, 393, 394, 395, 397 and 398 in gas; and 391.1, 391.2, 393, 394, 397 and 398 in common plant; I used the straight line remaining life method of amortization. The account numbers identified throughout my testimony represent those in effect as of September 30, 2016. The annual amortization is based on amortization accounting that distributes the cost of fixed capital assets over the amortization period authorized for each account and vintage.

Q. How did you determine the recommended annual depreciation accrual rates?

A. I did this in two phases. In the first phase, I estimated the service life and net salvage characteristics for each depreciable group, that is, each plant account or subaccount identified as having similar characteristics. In the second phase, I calculated the composite remaining lives and annual depreciation accrual rates based on the service life and net salvage estimates determined in the first phase.

A. Service Life and Net Salvage Characteristics

Q. Please describe the first phase of the depreciation study, in which you estimated the service life and net salvage characteristics for each depreciable group.

A. The service life and net salvage study consisted of compiling historic data from records related to PSE's plant; analyzing these data to obtain historic trends of survivor and net salvage characteristics; obtaining supplementary information from PSE's management, and operating personnel concerning practices and plans as they relate to plant operations; and interpreting the above data as well as estimates used by other electric and gas utilities to form judgments of average service life and net salvage characteristics.

Q. What historic data did you rely on to estimate service life characteristics?

A. I analyzed PSE's accounting entries relating to plant additions, transfers, and retirements recorded during the period 1987 through 2015. PSE records also included surviving dollar value by year installed for each plant account as of September 30, 2016.

Q. What method did you use to analyze this service life data?

A. I used the retirement rate method for all accounts. This is the most appropriate method when aged retirement data are available, because this method determines the average rates of retirement actually experienced by PSE during the period of time covered by the study.

Q. Would you explain how you used the retirement rate method to analyze PSE's service life data?

A. I applied the retirement rate method to each different group of property in the study. For each property group, I used the retirement rate method to form a life table which, when plotted, shows an original survivor curve for that property group. Each original survivor curve represents the average survivor pattern experienced by the several vintage groups during the experienced band studied. The survivor patterns do not necessarily describe the life characteristics of the property group; therefore, interpretation of the original survivor curves is required in order to use them as valid considerations in estimating service life. The Iowa-type survivor curves were used to perform these interpretations.

Q. What is an "Iowa-type Survivor Curve" and how did you use such curves to estimate the service life characteristics for each property group?

A. Iowa-type curves are a widely used group of generalized survivor curves that contain the range of survivor characteristics usually experienced by utilities and other industrial companies. The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observing and classifying the ages at which various types of property used by utilities and other industrial companies have been retired.

Iowa-type curves are used to smooth and extrapolate original survivor curves determined by the retirement rate method. We used Iowa curves and truncated Iowa curves in this study to describe the forecasted rates of retirement based on the observed rates of retirement and the outlook for future retirements.

The estimated survivor curve designations for each depreciable property group indicate the average service life, the family within the Iowa system to which the property group belongs, and the relative height of the mode. For example, the Iowa 38-R2.5 indicates an average service life of thirty-eight years; a right-moded, or R, type curve (the mode occurs after average life for right-moded curves); and a moderate height, 2.5, for the mode (possible modes for R type curves range from 1 to 5).

Q. What approach did you use to estimate the lives of significant structures and production facilities?

A. I used the life span technique to estimate the lives of significant facilities for which concurrent retirement of the entire facility is anticipated. In this technique, the survivor characteristics of such facilities are described by the use of interim survivor curves and estimated probable retirement dates. The interim survivor curve describes the rate of retirement related to the replacement of elements of the facility, such as, for a building, the retirements of plumbing, heating, doors, windows, roofs, etc., that occur during the life of the facility. The probable retirement date provides the rate of final retirement for each year of installation for the facility by truncating the interim survivor curve for each installation year at its attained age at the date of probable retirement. The use of interim survivor curves truncated at the date of probable retirement provides a consistent method for estimating the lives of the several years of installation for a particular facility inasmuch as a single concurrent retirement for all years of installation will occur when it is retired.

Q. Has Gannett Fleming used this approach in other proceedings?

A. Yes, we have used the life span technique in performing depreciation studies presented to many public utility commissions across the United States and Canada, including the previous study for PSE in its 2007 general rate case, Dockets UE-072300 and UG-072301.

Q. Have there been any changes to the probable retirement dates estimated in the current depreciation study?

A. Yes, there have been changes to the retirement dates for the Colstrip units and for PSE's hydro facilities.

Q. How have the retirement dates changed for the Colstrip units?

A. The probable retirement dates incorporated into OSEEE's current depreciation rates were established during PSE's 2007 rate case. The operating and regulatory environment for many power plants across the country has changed since 2007, especially for coal-fired power plants. As a result, the probable retirement dates estimated for both Colstrip Units 1 and 2 and for Colstrip Units 3 and 4 have changed. The current depreciation rates for these units were established by a settlement stipulation, which set probable retirement dates of 2035 for Colstrip Units 1 and 2, 2044 for Colstrip Unit 3 and 2045 for Colstrip Unit 4. However, the depreciation study filed by PSE in its 2007 rate case included probable retirement dates of 2019 for Colstrip Units 1 and 2, 2024 for Colstrip Unit 3 and 2025 for Colstrip Unit 4.

In the time since PSE's 2007 rate case the combination of new environmental regulations and lower costs for other energy sources (in particular natural gas) have led to the closure and planned closure of many coal-fired power plants across the country. For this reason, the outlook for Colstrip (or any coal plant) is different than it was in 2007. While Colstrip's units have environmental equipment such as scrubbers, the need for additional capital investment to meet environmental rules is likely. Additionally, the federal Clean Power Plan ("CPP") – the proposed federal rule to regulate carbon emissions – could have an impact as well. In Montana, where Colstrip is located, the CPP could result in significant reductions in carbon dioxide emissions by 2025.

PSE has reached an agreement with stakeholders to close Colstrip Units 1 and 2 by July 1, 2022. Based on these plans, a probable retirement date of 2022 is recommended for Colstrip Units 1 and 2. Given the impact of environmental rules, as well as the costs of replacement generation, it is also appropriate to modify the probable retirement dates for Colstrip Units 3 and 4. Probable retirement dates of 2035 are recommended for Colstrip Units 3 and 4. While the recommended retirement dates for each of the Colstrip units represent a decrease in life span when compared to the current depreciation rates, they do represent a longer life span than those proposed by PSE in the depreciation study filed in the 2007 rate case.

Q. How have the retirement dates changed for PSE's hydro facilities?

A. The probable retirement dates for PSE's hydro facilities are determined based on the current FERC operating licenses. PSE has been granted new operating licenses for its hydro facilities, and therefore the probable retirement dates have been changed accordingly. There have also been changes to probable retirement dates for some of PSE's combined cycle or wind plants. The estimates in the study are generally consistent with the estimates for similar plants for other utilities.

Q. What factors did you consider in your estimates of service life and net salvage percentages?

A. The primary factors I considered to estimate service life are the statistical analyses of data, current PSE policies and outlook, and survivor curve estimates from prior depreciation studies. The primary factors I considered to estimate the future net salvage are analyses of historical cost of removal and salvage data, expectation regarding future removal requirements, and markets for retired equipment and materials. For more discussion of the factors I considered in estimating service lives and net salvage percentages are presented in Parts III and IV of Exhibit No. ___(JJS-3).

Q. Would you please explain the concept of "net salvage"?

A. Net salvage is a component of the service value of capital assets that is recovered through depreciation rates. The service value of an asset is its original cost less its net salvage. Net Salvage is the salvage value received for the asset upon retirement less the cost to retire the asset. When the cost to retire exceeds the salvage value, the result is negative net salvage.

Inasmuch as depreciation expense is the loss in service value of an asset during a defined period (e.g., one year), it must include a ratable portion of both the original cost and the net salvage. That is, the net salvage related to an asset should be incorporated in the cost of service during the same period as its original cost so that customers receiving service from the asset pay rates that include a portion of both elements of the asset's service value, the original cost and the net salvage value.

Q. Please describe how you estimated net salvage percentages.

A. I estimated the net salvage percentages incorporating the historical data for the period 1998 through 2014 and considered estimates for other electric and gas companies.

Q. Were the net salvage percentages for electric generating facilities based on the same analyses?

A. Yes, for the analyses of interim net salvage. The net salvage percentages for electric generating facilities were based on two components, the interim net salvage percentage and the final net salvage percentage. The interim net salvage percentage is determined based on the historical indications of the cost of removal and gross salvage amounts expressed as a percentage of the associated plant retired from the period 1998 through 2015. The final net salvage or dismantlement component was determined based on the assets anticipated to be retired at the concurrent date of final retirement.

Q. Have you included a final net salvage component into the overall recovery of electric generating facilities?

A. Yes. A dismantlement component has been included to the net salvage percentage for steam and hydro production facilities.

Q. How has the final net salvage component been estimated for PSE's electric generating facilities?

A. For Colstrip Units 1 and 2 and Colstrip Units 3 and 4 there are two types of costs that will be incurred subsequent to the retirement of the facilities. The first is for the dismantlement and decommissioning of the power plant itself. The second is for environmental remediation of the site, primarily due to the requirements of the federal Coal Combustion Residuals ("CCR") rule. Both types of costs represent net salvage costs associated with the Colstrip plant, and therefore should be incorporated into depreciation rates and allocated over the time that the plant is in service.

The cost of dismantling and decommissioning the plant was based on estimates used for other utilities as well as the experience of plants that have been dismantled. A cost of $40 per kilowatt was estimated for each unit at Colstrip for the dismantlement portion of final net salvage. For the remediation of the site, PSE has a legal obligation to comply with regulations such as the CCR rule. The terminal net salvage associated with the remediation of the site was based on the estimates used for PSE's legal obligation for remediation. The combination of the dismantlement and remediation costs formed the basis of the final net salvage used for the Colstrip units. These amounts are escalated to the date of retirement when the costs will be incurred. The same calculations were performed for hydro production units except the cost of $10 per kilowatt was estimated.

Q. Are you familiar with the recent engineering study conducted by Geosyntec, Inc. regarding remediation requirements for Colstrip?

A. Yes, I am. Geosyntec, Inc. conducted a study estimating the costs for remediation of Colstrip Units 1 and 2 on behalf of Talen Energy Montana (formerly PPL Montana, the plant operator and 50 percent owner of Colstrip Units 1 and 2).

Q. Have you incorporated the estimates of remediation costs of the Geosyntec, Inc. study into your estimated depreciation rates for Colstrip?

A. No. The remediation costs included in PSE's depreciation study are based on PSE's existing legal obligations recorded on the books as of September 30, 2016. As a result, the depreciation study incorporates a smaller estimate for remediation than is set forth in the more recent Geosyntec study.[1] The estimates in the depreciation study are therefore likely conservative estimates of the future costs of retiring Colstrip Units 1 and 2.

Q. Can you explain how the final net salvage component is included in the depreciation study?

A. Yes. The final net salvage component is part of the overall net salvage for each location/unit within the production assets. Based on studies for comparable facilities of other electric utilities, it was determined that the final net salvage costs for steam and hydro production facilities is best calculated by dividing the final net salvage cost by the surviving plant at final retirement. These location

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[1] Master Plan Summary Report Update, dated September 23, 2016.

basis amounts are added to the interim net salvage percentage of the assets anticipated to be retired on an interim basis to produce the weighted net salvage percentage for each location. The detailed calculation for each location is set forth on pages VIII-2 and VIII-3 of Exhibit No. ___(JJS-3).

B. Calculation of Remaining Life and Annual Depreciation Rates

Q. Please describe the second phase of the process that you used in the depreciation study in which you calculated composite remaining lives and annual depreciation accrual rates.

A. After I estimated the service life and net salvage characteristics for each depreciable property group, I calculated the annual depreciation accrual rates for each group based on the straight line remaining life method, using remaining lives weighted consistent with the average service life procedure. The calculation of annual depreciation accrual rates were developed as of September 30, 2016.

Q. Please describe the straight line remaining life method of depreciation.

A. The straight line remaining life method of depreciation allocates the original cost of the property, less accumulated depreciation, less future net salvage, in equal amounts to each year of remaining service life.

Q. Please describe amortization accounting.

A. In amortization accounting, units of property are capitalized in the same manner as they are in depreciation accounting. Amortization accounting is used for accounts with a large number of units, but small asset values. Depreciation accounting is difficult for these assets because periodic inventories are required to properly reflect plant in service. Consequently, retirements are recorded when a vintage is fully amortized rather than as the units are removed from service. That is, there is no dispersion of retirements. All units are retired when the age of the vintage reaches the amortization period. Each plant account or group of assets is assigned a fixed period which represents an anticipated life during which the asset will render full benefit. For example, in amortization accounting, assets that have a 15 year amortization period will be fully recovered after 15 years of service and taken off PSE's books, but not necessarily removed from service. In contrast, assets that are taken out of service before 15 years remain on the books until the amortization period for that vintage has expired.

Q. For which plant accounts is amortization accounting being utilized?

A. Amortization accounting is utilized for certain General Plant or General Plant related accounts. These accounts are Accounts 391.1, 391.2, 393, 394, 395, 397 and 398 in electric; 391.1, 391.2, 393, 394, 395, 397 and 398 in gas; and 391.1, 391.2, 393, 394, 397 and 398 in common plant. These accounts represent less than 3 percent of PSE's depreciable plant.

Q. Have you made additional recommendations for these amortization accounts?

A. Yes. In order to achieve a more stable accrual rate for these accounts in the future, I have recommended a five-year amortization to adjust unrecovered reserve. This approach will achieve consistent amortization rates for existing assets as well as future assets.

Q. Please use an example to illustrate the development of the annual depreciation accrual rate for a particular group of property in your depreciation study.

A. I will use Electric Plant Account 365.00, Overhead Conductors and Devices, as an example because it is one of the largest depreciable groups.

The retirement rate method was used to analyze the survivor characteristics of this property group. Aged plant accounting data were compiled from 1987 through 2015 and analyzed to best represent the overall service life of this property. The life tables for the 1987-2015 and 2001-2015 experience bands are presented on pages VII-57 through VII-62 of Exhibit No. ___(JJS-3). The life tables display the retirement and surviving ratios of the aged plant data exposed to retirement by age interval. For example, page VII-57 shows $949,320 retired during age interval 0.5-1.5 with $356,505,882 exposed to retirement at the beginning of the interval. Consequently, the retirement ratio is 0.0027 ($949,320/$356,505,882) and the surviving ratio is 0.9973 (1-.0027). The percent surviving at age 0.5 of 0.9995 percent is multiplied by the survivor ratio of 99.73 to derive the percent surviving at age 1.5 of 99.68 percent. This process continues for the remaining age intervals for which plant was exposed to retirement during the period 1987-2015. The resultant life tables, or original survivor curves, are plotted along with the estimated smooth survivor curve, the 38-R2.5 on page VII-56.

The net salvage percent is presented on pages VIII-45 and VIII-46 of Exhibit No. ___(JJS-3). The percentage is based on the result of annual gross salvage minus the cost to remove plant assets as compared to the original cost of plant retired during the period 1998 through 2015. The 18-year period experienced negative $20,421,184 ($2,573,002 - $22,994,186) in net salvage for $80,038,743 plant retired. The result is negative net salvage of 26 percent ($20,421,184/$80,038,743); while the most recent five-year average is negative 31 percent. Therefore, based on the statistics for this account as well as the three-year rolling averages and trend in recent years, the recommended net salvage for distribution overhead conductor is negative 25 percent.

My calculation of the annual depreciation related to original cost of Account 365, Overhead Conductors and Devices at September 30, 2016, is presented on pages IX-52 and IX-53 of Exhibit No. ___(JJS-3). The calculation is based on the 38-R2.5 survivor curve, the 25 negative net salvage percent, the attained age, and the allocated book reserve. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual. These totals are brought forward to the table on page VI-8.

Q. Were there any rates developed for future assets?

A. Yes. There are new electric, gas and common facilities planned to be installed in the near future. These new asset classes have depreciation rates established for potentially being placed in service after September 30, 2016 which are presented in Table 1, page VI-10, Table 2, page VI-13 and Table 3, page VI-14 of Exhibit No. ___(JJS-3). The rates are based on average service lives, survivor curves and net salvage percentages as of September 30, 2016. Each of the parameters is based on estimates of comparable facilities for PSE as well as other units installed by other electric companies. The rates are also based on the most appropriate life and net salvage parameters.

Q. In your opinion, are the depreciation rates set forth in Exhibit No. ___(JJS-3) the appropriate rates for the Washington Commission to adopt in this proceeding for PSE?

A. Yes. These rates appropriately reflect the rates at which the value of PSE's assets are being consumed over their useful lives. These rates are an appropriate basis for setting electric and gas rates in this matter and for PSE to use for booking depreciation and amortization expense going forward including the rates for future assets.

III. CONCLUSION

Q. Does that conclude your testimony?

A. Yes, it does.