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EXHIBIT: KSM-1T
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BEFORE THE

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION Complainant, v. NORTHWEST NATURAL GAS COMPANY, Respondent.	DOCKET UG-18___

NORTHWEST NATURAL GAS COMPANY

Direct Testimony of Kevin S. McVay

REVENUE REQUIREMENT

Exh. KSM-1T

December 31, 2018

DIRECT TESTIMONY OF KEVIN MCVAY

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I. INTRODUCTION AND SUMMARY

Q. Please state your name, address, and position with Northwest Natural Gas Company.

A. My name is Kevin S. McVay. My business address is 220 N.W. Second Avenue, Portland, Oregon 97209. I am a Revenue Requirements Analytics Consultant in the Rates and Regulatory Affairs Department of Northwest Natural Gas Company (NW Natural or company).

Q. Mr. McVay, please state your educational background and experience.

A. I received a Bachelor of Science Degree in Accounting from George Mason University, Fairfax, Virginia, and a Master of Business Administration degree from George Washington University, Washington, D.C. Before my employment with NW Natural, I held positions in accounting, auditing, and forecasting for Washington Gas Light Company in Washington, D.C. In 1987, I joined NW Natural, where I have held positions primarily in finance and regulatory affairs, as well as business development.

Q. What is the purpose of your testimony?

A. I present the analysis of test year results (October 1, 2017 through September 30, 2018), describe the Company's proposed test year adjustments, and present the calculation of the revenue requirement increase requested by the company in this proceeding.

Q. Please summarize the results of the analysis of test year results and adjustments to those results.

A. As shown in my accompanying Exh. KSM-2, the test year results in column (a) indicate an overall rate of return on rate base (ROR) of 5.17 percent at line 16, and a corresponding rate of return on equity (ROE) of 5.33 percent on line 17. After adjusting the test year results for normal weather, the addition of new facilities, and other restating and pro forma normalizing amounts in column (b), the overall ROR is 4.25 percent, with a corresponding ROE of 3.48%. Finally, to achieve the ROE of 10.3% as recommended by Dr. Villadsen and the ROR of 7.63 percent presented in Mr. Brody Wilson's testimony (shown in column (e), line 16) the analysis shows that an increase in revenue of $8,312,044 is required, as shown in column (d), line 4.

II. TEST YEAR RESULTS

Q. What is the purpose of this section of your testimony?

A. The purpose of this section of testimony is to establish the Company's financial results for its Washington operations for the test year. The test year that is being evaluated by the Company to determine the need for a rate increase is the 12 months ended September 30, 2018. The determination of actual results for the test year is primarily accomplished by a state allocation of discrete revenue and expense items, as well as the construction of rate base for the period. I will refer to Exh. KSM-3, which I have prepared for the explanation of the test year results.

Q. Why was the twelve months ended September 30, 2018 chosen as the test year for this rate case?

A. The period was chosen because 1) it provided data that included full quarterly information for accounting purposes, and 2) it was the most recent such data available for the preparation of our rate case filed at year-end 2018.

Q. Please describe Exh. KSM-3.

A. Page 1 of the exhibit presents the results of operations for the entire utility for the test year in column (a), and the results of operations for Washington in column (b). The only other jurisdiction in which the Company has gas utility operations is Oregon.

The revenues on lines 1 through 4 and the gas cost on line 5 reflect 12 month ended results through September 2018. The revenues for Washington are almost all direct; that is, they are the actual revenues generated from Washington during the 12 months. The exceptions are the allocation of utility property rental income under Miscellaneous Revenues, which are allocated between Washington and Oregon. The gas costs for Washington are calculated to correspond precisely to the gas costs collected in billing rates over the period, which parallels the deferral treatment accorded gas costs in Washington.

Line 6 identifies uncollectible expense and line 7 represents other Operations & Maintenance (O&M) Expense. Because there are substantial common costs within O&M Expense, it is necessary for a large number of system amounts to be allocated to Washington. Pages 2 through 3 of Exh. KSM-3 show the allocation of O&M Expense to Washington and Oregon.

Q. Please describe the allocation methodology.

A. NW Natural's state allocation methodology for ratemaking has been consistently applied in all Washington and Oregon general rate cases since its original implementation in 2000. The Company's method to allocate common costs begins with an initial identification of non-common costs, with a direct assignment of those costs to the appropriate jurisdiction. The remaining costs are then considered with respect to specific "drivers," or elements such as volumes or customers that have a causative effect on costs. If a cost is related to a particular driver, it is allocated on that basis. Lastly, if there is a common cost with a mix of drivers, it is allocated on the basis of a multi-part allocation factor, the 3-factor rate. This 3-factor rate is composed of the average of 1) the proportion of one jurisdiction's directly assigned gross plant to the system total, 2) the proportion of one jurisdiction's number of customers to the system total, and 3) the proportion of employees directly assigned to the system total.

There are 26 primary allocation factors available for use in assigning O&M Expense, as shown on page 4 of Exh. KSM-3. Even though the number is somewhat high when considering the desired simplicity of a method, a review of the nature of the factors shows that most are just refinements of the drivers typically relied on, namely volumes and customers.

System and jurisdictional O&M as shown on pages 2 and 3 of Exh. KSM-3 indicates the total amounts of O&M Expense allocated to each state, and the overall percentage of O&M Expense allocated to Washington of 11.43 percent. These total O&M Expense amounts include uncollectible expense, so when returning to the

results of operations on page 1, lines 6 and 7 represent a breakout of the total O&M Expense.

Q. Please continue your explanation of page 1 of Exh. KSM-3.

A. Lines 9 and 10 of page 1 represent the federal income taxes and Oregon excise taxes reported for the test year for the system basis, and the federal taxes for Washington. Page 5 of Exh. KSM-3 shows the derivation of the tax expense for Washington. Net Operating Revenues excluding income taxes was used as the basis of the calculation of the Washington test year tax provision, and the interest deduction to that amount was taken as the cost of long- and short-term debt multiplied by the proportion of rate base supported by the debt components. Additionally, an allocation of permanent tax differences and federal tax credits were included in the provision calculation. Determined in this way, taxes for Washington operations need not be recalculated from actuals as an adjustment to account for the exclusion of typically included interest income and expense as well as the revision of the interest expense level to reflect capital structure and rate base. Further, the new federal tax rate resulting from the 2017 Tax Cuts and Jobs Act ("TCJA") was used to calculate the taxes for the entire test year, rather than attempting to include both the prior rate of 35 percent as well as the new rate of 21 percent to calculate income taxes for the test year. Furthermore, because tax expense is calculated to reflect the TCJA federal rate of 21 percent, and part of the intent of the filing is to include the benefit of the lower tax rate in new rates, the deferral activity for the nine months of the test year that the new rate was in effect (January 1, 2018 through September 30, 2018) has been omitted for

Washington. That activity was a decrease in revenue with a corresponding credit to a deferred refund account on the balance sheet. The deferral is considered an interim period tax deferral (between January 1, 2018 and the day prior to the effective date of rates in this rate case), and is discussed fully in the testimony of Mr. Sean Borgerson.

Line 11 details the System and Washington expenses for property taxes during the test year. The Washington amount reflects the direct assignment of property taxes incurred.

Other Taxes on line 12 include franchise taxes and regulatory Commission fees, which are assigned directly to each jurisdiction. Payroll Taxes are allocated using a payroll factor generated in the O&M Expense allocation model that reflects the weighted average of all other cost allocations as they were used for accounts containing payroll expense. Miscellaneous other taxes are almost all directly assigned.

Because of their interdependence, Depreciation and Amortization on line 13 can be explained in conjunction with the determination of System and Washington Total Rate Base on line 16, which are detailed on pages 6 and 7 of Exh. KSM-3. The following explanation of the allocation of gross plant in rate base applies as well to the allocation of depreciation and amortization expense and accumulated depreciation in rate base. As with O&M expense, the use of direct assignment is the default approach, and is applicable to the allocation of production, non-storage transmission, and distribution plant. Intangible plant concerning computer software is allocated

using all customers due to its service to customers generally. Storage and storage transmission plant is allocated on the basis of firm volumes, insofar as it is considered a substitute to pipeline capacity. CNG and LNG refueling facilities (not storage) are allocated using the 3-factor approach, due to their contribution to various Company activities. General plant is allocated on both the direct as well as by using a 3-factor approach.

The other elements of rate base are 1) cushion gas in storage which, following the storage plant, is allocated on firm volumes; 2) customer advances, which are directly assigned; 3) unamortized leasehold improvements, which have been allocated on a 3-factor approach for improvements in One Pacific Square (NW Natural's headquarters); and 4) deferred taxes, which are directly assigned in the case of state deferred taxes and allocated on the basis of percentage of total gross plant for federal deferred taxes, after grossing up for the effect of state deferred taxes on the federal amount.

Q. Please explain lines 17 and 18 on page 1 of Exh. KSM-3.

A. For System results in column (a) and Washington specific results in column (b), line 17 represents the overall ROR using the Net Operating Revenue on line 15 divided by the Total Rate Base on line 16. Line 18 is the resulting ROE when the debt cost components of the capital structure are removed from the overall return. Page 8 of Exh. KSM-3 provides the capital structure, debt costs, proposed weighted average cost of capital, and revenue sensitive rates.

III. TEST YEAR ADJUSTMENTS

Q. What is the purpose of this section of your testimony?

A. In this section, I describe the adjustments the Company has made to the test year results to annualize changes that occurred during the period and to include pro forma changes that are known and measurable after the end of the period. As described above, the Company is using the 12 months ended September 30, 2018 as the test year in this proceeding. The rate increase that is required for the Company to earn its proposed 10.3 percent ROE is $8.3 million. I will refer to Exh. KSM-4, which I have prepared for the explanation of the adjustments.

Q. Please describe Exh. KSM-4.

A. As described in the initial section of this testimony, page 1 of the exhibit presents the Company's results of operations for the test year (column (a)), the results for the test year normalized and adjusted at present rates (column (c)), and the results for the test year at the proposed rates (column (e)). Column (b) of the exhibit represents the sum of all adjustments made to normalize the test year and column (d) represents the proposed increase to revenues to achieve the Company's requested ROR. Column (b) is explained in numeric detail on pages 2 and 3 of the exhibit. Those pages provide an issue-by-issue accounting of the adjustments, and each column or adjustment is supported by one or more workpapers that are included in the exhibit and labeled by the corresponding column heading letters. Because many of the adjustments are related to issues that affect the Company at a System level, those adjustments are

performed at a System level first, and the amount of the adjustment is then allocated to Washington with the same factors used to allocate the historical test year results.

Further, pages 4 and 5 of the exhibit provide calculations of the tax impact of each adjustment on pages 2 and 3, in a matching columnar format.

Q. Please describe the adjustments shown on page 2 of Exh. KSM-4.

A. Column (a) on page 2 adjusts the company's revenues and gas costs for the following items: 1) residential and commercial usage is normalized to reflect normal weather; 2) usage for industrial customers is annualized; 3) delivered volumes are priced to reflect permanent rates currently effective in Washington (Docket UG-180785, effective November 1, 2018); and 4) the cost of gas expense is adjusted to reflect the gas costs currently embedded in rates.

Q. Please explain the methodology used to normalize residential and commercial gas use.

A. Residential usage and commercial usage were normalized on a rate schedule specific basis with respect to the effects of weather (as measured by heating degree days).

Q. Please define heating degree days.

A. The degree day is a unit of measurement based on the difference between the average temperature for a day and 59 degrees for residential schedules and 58 degrees for commercial schedules. For example, if the average temperature is 50 degrees on a given day, the degree days for that day would be 9 for residential and 8 for commercial. Degree days are additive in that the sum of the daily degree days over the course of the month are taken to represent that month's weather. The degree day

is a common unit of measurement that allows for an analysis of increasing usage as a function of increasingly colder weather.

Q. Please contrast the current degree day calculation based on 58 and 59 degrees to the past metric based on 65 degrees.

A. In the past, the Company has used a measure of degree days based on a set point of 65, as compared to the 58 and 59 degree set points above. The set point is taken to be the temperature at which customers begin to use energy for heating. The company has found that the temperature where heating largely begins is actually lower for customers, perhaps as a result of building code improvements. To obtain the best linear relationship for statistical purposes in relating usage to temperature, using the set point that provides the best fit as to when heating begins is important, so the lower set points have been adopted.

Q. Please explain how usage for residential and commercial customers is normalized.

A. Rate schedule specific valuations of normalized residential and commercial use-per-customer (UPC) were developed by accumulating actual historical UPC and heating degree days (HDDs) for the period of September 2012 through May 2018. A simple linear regression relating UPC per day as a function of HDD per day was performed, using the 59 degree day set point for the residential rate schedules and a 58 degree day set point for the commercial schedules. The intercept value from the regression represents customer base load use, and was further specified for differences in summer and winter base use using a dummy variable. The regression slope

coefficient is multiplied by the daily normal HDD value to calculate the heating load for each day. The sum of the base load and heat load provides a daily UPC value, and the aggregation of the 365 daily results produces an annual UPC level.

The normal daily HDD amounts were developed using daily HDD values from a weather data set spanning 20 years (June 1998 through May 2018). The Company uses a 20 year average of weather observed in Vancouver (NOAA Station 94298 Vancouver Pearson Airport) to derive normal degree days. Where gaps in the data are present, NOAA Stations 458773 (Vancouver 4NNE) and 356751 (Portland International Airport) are used to estimate, using a simple linear regression, normal degree days at Station 94298. The calculated UPC was then reduced by the estimated demand side management savings forecast from the Company's current Integrated Resource Plan (IRP) to estimate UPC at the rate effective date. Page 6 of Exh. KSM-4 supports the adjustment in column (a) on page 2 of Exh. KSM-4, and shows the calculations of normalized use for the test year.

Q. Please explain how volume normalization for industrial customers was addressed in the adjustment in column (a) on Page 2 of Exh KSM-4.

A. For the industrial class, the test year normalization of volumes and customers was developed using a customer-specific methodology. The customer-specific calculation begins with the test year 12-month period of actual usage and customer counts and is then annualized for new customers, discontinued customers, and rate schedule changes.

Q. Please explain why the normalized volumes are then priced at rates currently effective in Washington?

A. Pricing of the volumes at current rates is done to eliminate the effects of temporary increments in rates and to present revenues and costs at rates which are currently in effect. Because rates have changed during the course of the test year, re-pricing is necessary to accurately reflect current rate levels and gas costs.

Q. Please describe how this pricing is achieved?

A. The pricing is accomplished by multiplying normalized volumes by the currently effective Washington rates for base, commodity and pipeline capacity tariff rates. This is performed for all volumes and rates by each individual rate schedule.

Distribution capacity charges and sales service storage charges for large volume non-residential sales and transportation customers are calculated by multiplying the applicable current Maximum Daily Delivery Volume (MDDV) by the currently effective rates for each month of the test year.

Customer charges (the fixed portion of a customer's bill) are calculated by multiplying the actual number of customers by the applicable tariff customer charge. This is performed for all customers and monthly charges by each individual rate schedule. This calculation is performed for each month of the test year and the annual total is added to the result of the normalized volumes pricing to derive the total normalized revenue reflecting current rates.

Q. How are Special Contract revenues incorporated into the test year?

A. NW Natural has a single customer in Washington that is served under a special contract. The transportation revenue for our special contract customer is included in the test year results to provide its contribution to overall revenue requirement.

Q. Please explain how the cost of gas was calculated for the test year.

A. The total cost of gas is set forth on page 6 of Exh. KSM-4. Cost of gas for NW Natural can be segmented into demand costs and commodity costs. Demand costs reflect relatively fixed monthly charges that are incurred for pipeline transportation service from domestic and Canadian pipelines. Commodity costs reflect expenses for obtaining the physical gas. Each year the Company submits for approval its Purchased Gas Cost Adjustment filing which revises billing rates to include pricing for demand and commodity costs for the upcoming year. The ability to adjust prices on an annual basis for prevailing pricing of gas costs allows for the exclusion of the gas cost pricing issue from general rate cases.

Gas costs were developed using the gas cost rate elements included in the current tariff billing rates for sales rate schedules. This ensures an appropriate level of gas cost in relation to the test year normalized revenues.

In summary, pricing normalized volumes at current revenue rates adjusted to exclude temporary increments, and calculating costs built from the gas cost increments that are currently incorporated into those revenue rates ensures that a precise matching of revenues and gas costs is achieved in the case.

Q. Please explain the other adjustments on Page 2 of Exh. KSM-4.

A. Revenues are normalized in the adjustment in column (a), and set at end of period permanent rates, the temporary increments are removed, and this adjustment mirrors that with the removal of the offsetting amortization. Further, the adjustment in column (b) serves to set many of the miscellaneous revenue amounts to a three year average to partially remove any anomalies for the items during the test year. If the 3-year history for an item shows a trend up or down, the most recent year is used as the normal amount. Page 7 of Exh. KSM-4 provides support for the adjustment in column (b).

Column (c) adjusts the test year expenses for bonuses. The amount accrued during the year is removed and replaced by the three-year average of amounts paid. Page 8 of Exh. KSM-4 provides support for the adjustment in column (c).

Column (d) serves to replace the property taxes expenses during the test year with the amount most recently paid. Page 9 of Exh. KSM-4 provides support for the adjustment in column (d).

Column (e) adjusts uncollectible expenses to reflect the average of the past three years of actual net write-off percentages, mitigating any anomaly that may have been present during the test year. Page 10 of Exh. KSM-4 provides support for the adjustment in column (e).

Column (f) is an adjustment to rate base for working capital, which generates a return on investments in storage gas inventory and other critical assets necessary to perform the utility function. Page 11 of Exh. KSM-4 provides support for the adjustment in column (f).

Column (g) adjusts O&M to reflect disallowances of marketing, promotional, and customer communications expenses for regulatory purposes. Page 12 of Exh. KSM-4 provides support for the adjustment in column (g).

Column (h) adjusts O&M and rate base to include actual ordinary claims for the test year, replacing the expense accrual activity that is used for claims reserve accounting. The adjustment also serves to include a three-year average of extraordinary claims (claims potentially exceeding $250,000). The use of the three-year average is meant to mirror the treatment of normalizing uncollectible expense, which corrects for year-to-year anomalies in expense levels. Page 13 of Exh. KSM-4 provides support for the adjustment in column (h).

A. Column (i) adjusts O&M to provide recovery of estimated rate case expenses assuming a rate case frequency of three years. Rate case expenses for this case include amounts for consultants for Return on Equity and Cost of Service/Rate Design, as well as for outside legal assistance in processing the case. Page 14 of Exh. KSM-4 provides support for the adjustment in column (i).

Column (j) adjusts O&M and rate base for additional amounts that were not expensed through the clearing process. The clearing process involves expensing original costs to holding, or clearing accounts, which are then attributed to final O&M and Capital accounts based on payroll or other activity. On a calendar year basis, utilization rates are adjusted to assure that clearing accounts are brought to zero. For the 12 months ended on September, however, it is normal to have a slight

mismatch in the amounts subject to clearing and the amounts cleared. Page 15 of Exh. KSM-4 provides support for the adjustment in column (j).

Column (k) provides a subtotal of the effects of all the restating adjustments.

Column (l) adjusts payroll expense to include 1) costs attributable to end-of-period employee counts, and 2) the wages for those employees given the known and measurable increases that have occurred and will occur due to CPI adjustments, bargaining unit contract terms, and step progressions for employees. Pages 16 and 17 of Exh. KSM-4 provides support for the adjustment in column (l).

Q. Please explain each adjustment on page 3 of Exh. KSM-4.

A. Column (m) adjusts health and life insurance expenses allocated to O&M for end-of-period premium rates and employee counts. Payroll taxes are adjusted for normalized payroll as provided in adjustment (l). Pension expense is adjusted to reflect the expense recorded in 2018. Page 18 of Exh. KSM-4 provides support for the adjustment in column (m).

Column (n) adjusts depreciation expense to reflect the new depreciation rates that were approved by the Commission and effective on November 1, 2018 (Docket UG-180251). To calculate the expense for the test year, the average gross plant for the year on an average of monthly averages basis was used with the new rates. Part of the implementation of the new study was to move some of the general plant accounts to an amortization schedule, as opposed to a depreciation schedule, and a retirement of fully depreciated assets included in those accounts was scheduled to occur in November 2018. The average gross plant was reduced for the planned

retirement, which resulted in a lower overall depreciation expense level for the test year. Because the entry to retire assets equally reduces both gross plant and the accumulated reserve for depreciation, no adjustment was included in the calculation of net plant in rate base reflecting the retirements. Page 19 of Exh. KSM-4 provides support for the adjustment in column (n).

Column (o) adjusts rate base and depreciation expense for several projects that have been completed or are expected to be completed soon after the rate case filing, but which were not complete at the end of the test year (September 30, 2018). Page 20 of Exh. KSM-4 provides support for the adjustment in column (o).

Column (p) adjusts deferred taxes in rate base to reflect the amortization of excess deferred taxes resulting from the TCJA. The adjustment amount represents the 3-year average of the total amount amortized over the 3-year period beginning with the effective date of rates in this rate case. Page 21 of Exh. KSM-4 provides support for the adjustment in column (p).

Column (q) adjusts O&M to reflect the amounts that are allocable to affiliates of the newly established holding company. Costs related to financial administration and corporate governance are subject to allocation. Page 22 of Exh. KSM-4 provides support for the adjustment in column (q).

Column (r) adjusts O&M to include an additional Director on the Board of Directors per the ring-fencing provisions established in the holding company approval docket (Docket UG-170094). Page 23 of Exh. KSM-4 provides support for the adjustment in column (r).

Column (s) provides a subtotal of the effects of all the pro forma adjustments.

Column (t) shows the total of all restating and pro forma adjustments on Pages 2 and 3 of Exh. KSM-4. This column is replicated on Page 1 of Exh. KSM-4 as column (b), where rate base is shown in total on a single line.

Q. What is the total effect of the above adjustments on the company's actual results of operations for the test year?

A. As shown on Page 1 of Exh. KSM-4, column (c) represents the results of operations for the company once annualizing and pro forma adjustments have been included. Line 16 of column (c) shows that the Company is earning an overall ROR of 4.25 percent and line 17 details the corresponding ROE of 3.48 percent.

IV. CONCLUSION

Q. Considering these results, what revenue increase is required to support the ROE being requested by the Company?

A. The operating revenue increase required to allow the Company its requested ROE of 10.3 percent in Washington is $8,312,044, as shown in column (d) of Page 1 of Exh. KSM-4. This amount, net of income taxes and other revenue sensitive expenses, is added to the Company's adjusted results, resulting in column (e). Column (e) represents the normalized and adjusted results for the Company at the proposed rates, with an achieved ROE of 10.3 percent.

Q. Does this conclude your direct testimony?

A. Yes, it does.

V. LIST OF EXHIBITS

Exh. KSM-2	Analysis of Test Year Results/Adjustments
Exh. KSM-3	Test Year Financial Results
Exh. KSM-4	Explanation of Adjustments