Exh. AEW-1T
Docket Nos. UE-190529, UG-190530, UE-190274, UG-190275
Witness: Amy E. Wheeless

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION

COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PUGET SOUND ENERGY, Respondent.	DOCKET NOS. UE-190529, UG-190530, UE-190274, UG-190275 (*Consolidated)*

RESPONSE TESTIMONY OF

AMY E. WHEELESS

ON BEHALF OF

NW ENERGY COALITION

November 22, 2019

TABLE OF CONTENTS

I. INTRODUCTION 1

II. GAS LINE EXTENSION ALLOWANCES AND METHODOLOGY 2

III. CHANGES IN GAS USE IN PSE'S SERVICE TERRITORY 12

IV. RECOMMENDATIONS FOR LINE EXTENSION ALLOWANCES 15

V. CONCLUSION 21

EXHIBIT LIST

Exh. AEW-1T, Direct Testimony of Amy Wheeless.

Exh. AEW-02, PSE Response to NWEC Data Request No. 007, Attachment B.

Exh. AEW-03, PSE Response to NWEC Data Request No. 002, Attachment A.

Exh. AEW-04, PSE Response to NWEC Data Request No. 018, Attachment A.

Exh. AEW-05, PSE Response to NWEC Data Request No. 002, Attachment D.

Exh. AEW-06, *In re Revision to Tariff WN U-2 to Establish a New Line Extension Policy*, Docket No. UG-161268, PSE Cover Letter (Dec. 6, 2016).

Exh. AEW-07, *In re Investigation of Natural Gas Distribution Infrastructure Expansion*, Docket No. UG-143616, Comments of Avista Utilities (Sept. 17, 2015).

Exh. AEW-08, *In re Investigation of Natural Gas Distribution Infrastructure Expansion*, Docket No. UG-143616, Presentation by Avista Utilities (Sept. 23, 2015).

Exh. AEW-09, PSE Response to Staff Data Request No. 015, Attachment A.

Exh. AEW-10, PSE Response to Staff Data Request No. 215, Attachment A.

Exh. AEW-11, PSE Response to NWEC Data Request No. 009.

Exh. AEW-12, PSE Response to NWEC Data Request No. 015, Redacted Version.

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Amy Wheeless. I am a Policy Associate at the NW Energy Coalition (NWEC or the Coalition). My business address is 811 1st Ave, Suite 305, Seattle, WA 98104.

Q. Please describe your background and experience.

A. I have bachelor's degrees in Chemistry and Political Science from North Carolina State University and a Master's in Public Administration from the University of Washington. I have worked at consultancies on environmental policy, process facilitation, program evaluation, and industry research, as well as specifically on energy efficiency and clean energy program development. I have been employed by the NWEC since 2017, working on energy policy and program work in Washington State and regionally.

Q. Have you provided testimony before the Washington Utilities and Transportation Commission before?

A. Yes, I provided formal written testimony in the Avista general rate case (Docket UE-190334/UG-190335/UE-190222, *consolidated*) before the Washington Utilities and Transportation Commission (UTC or Commission). In addition, I have provided verbal and written comments in various dockets related to energy efficiency targets and programming and contributed to comments related to integrated resource planning. I also provided written and verbal comments before the Commission regarding Avista's natural gas line extension methodology and proposed extension of its line extension allowance program pilot in Docket UG-180920.

Q. On whose behalf are you appearing in this proceeding?

A. I am testifying as a witness for the NWEC.

Q. How is your testimony organized?

A. My testimony will focus on Puget Sound Energy's (PSE or the Company) line extension methodology for natural gas and how it has changed since 2014. I will discuss the changes in natural gas use and customers in PSE's gas service territory and possible drivers. Finally, I will provide recommendations for how the Company should change its methodology and steps the Commission should further take on this issue.

II. GAS LINE EXTENSION ALLOWANCES AND METHODOLOGY

Q. What is a utility line extension allowance?

A. A utility line extension allowance, sometimes called a "construction allowance," is the amount of funding a utility will provide toward extending distribution services to a new customer. In the case of a gas utility, it is how much funding a utility contributes toward the construction of distribution infrastructure for a new natural gas customer. Any remainder between the cost of construction and the line extension allowance is left to the customer to provide; this customer funding is sometimes also called the "customer contribution" or "contribution in aid of construction."

Q. Are there rules or laws in Washington State regarding natural gas utility line extensions?

A. Yes, there is a rule in the Washington Administrative Code (WAC), though it is brief:

> *WAC 480-90-033*
>
> *Distribution line extension tariff.*

Each gas utility must file, as a part of its tariff, a distribution line extension rule setting forth the conditions under which it will extend its facilities to make service available to an applicant.[1]

Q. How does PSE calculate natural gas line extensions for its residential customers in Washington?

A. PSE uses the "perpetual net present value" (PNPV) methodology to calculate line extensions. To implement this methodology for a new extension, the Company uses its "After-Tax Return Grossed Up for Taxes" figure and its annual allowed revenue per customer ("Per Customer Annual Revenue") to result in an allowance:

Per Customer Annual Revenue / After-Tax Return Grossed Up for Taxes = Allowance

Where

*Per Customer Annual Revenue = (Basic Monthly Charge*12) + Annual Allowed Revenue per Customer*

The After-Tax Return Grossed Up for Taxes figure is the pre-tax cost of capital. PSE's response to a data request shows how this figure is calculated, as well as the formulas that make up the line extension allowance I reference above.[2]

Q. What is PSE's current natural gas line extension allowance for its residential customers?

A. PSE's current After-Tax Return Grossed Up for Taxes is 9.24% and the Per Customer Annual Revenue for residential customers is $399.89, or equal to the basic monthly charge, $11, times 12 months, plus the annual allowed revenue per customer of $267.89. $399.89 divided by 9.24% equals the allowance of $4,327.81. That is the allowance listed in PSE's current tariff for natural gas line extension for new facilities

[1] WAC 480-90-033.

[2] Exh. AEW-02 (PSE Response to NWEC Data Request No. 007, Attachment B).

for residential customers, Rule No. 6.[3] The current tariff sheet was filed in docket UG-180092 with supporting workpapers.[4]

Q. Under the general rate case filing proposed by PSE in these consolidated Dockets, what would the new natural gas line extension allowance be for residential customers?

A. As provided in a data request response by PSE, the new natural gas line extension allowance for residential customers with proposed rate case figures would be $5,271.97.[5]

Q. Has PSE always used this line extension methodology?

A. No. PSE proposed this new methodology in UG-161268, which the Commission allowed to take effect with no action, beginning March 1, 2016.[6]

Q. What was PSE's previous methodology for calculating line extension construction allowances for residential customers in Washington?

A. Prior to UG-161268, PSE used a "Facilities Investment Analysis," or FIA. This methodology provided an allowance based on the estimated annual revenue from the customer, which was estimated based on the square footage of the house if heating with natural gas and the use of other natural gas powered appliances, as well as other factors, including whether a main extension was required, how soon service would begin, and whether there would be other new customers along the same main extension.[7]

---

[3] Exh. AEW-03 (PSE Response to NWEC Data Request No. 002, Attachment A).

[4] *See In re Adjustments to Natural Gas Margin Allowances in PSE Rule No. 6 for the Extension of Distribution Facilities,* WUTC Docket No. UG-180092.

[5] Exh. AEW-04 (PSE Response to NWEC Data Request No. 018, Attachment A).

[6] *See In re Revision to Tariff WN U-2, to Establish New Line Extension Policy,* WUTC Docket No. UG-161268.

[7] Exh. AEW-05 (PSE Response to NWEC Data Request No. 002, Attachment D).

Q. What prompted PSE to make the change from its previous methodology to the current one?

A. I do not know the Company's motivations for requesting the change, but the cover letter for the filing notes that the new "Rule No. 6 [the proposed line extension allowance tariff] incorporates the concept of Perpetual Net Present Value in the margin allowance determination and other concepts that have been approved by the Commission in Docket Nos. UG-152394 and UG-160967 for the natural gas line extension filings of Avista Corporation [Avista] and Cascade Natural Gas Corporation [Cascade Natural Gas], respectively."[8]

Q. Are you familiar with the natural gas line extension filings of Avista and Cascade Natural Gas?

A. Yes, I am.

Q. Please describe the changes that these utilities made in these dockets.

A. Avista was the first utility in Washington to make the shift to the Perpetual Net Present Value methodology for natural gas line extension allowances. In UG-152394, Avista proposed to pilot the use of the Perpetual Net Present Value methodology for its line extension allowance calculation on a three-year term, moving from an allowance based on estimated customer revenue. The Commission approved this pilot[9]; in UG-180920, Avista proposed to make the line extension

[8] Exh. AEW-06 at 2 (*In re Revision to Tariff WN U-2 to Establish a New Line Extension Policy*, Docket No. UG-161268, PSE Cover Letter (Dec. 6, 2016)).

[9] *See In re Matter of the Petition of Avista Corp. for an Order Authorizing Approval of Changes to the Company's Natural Gas Line Extension Tariff and Accounting Ratemaking Treatment*, WUTC Docket No. UG-152394, Order 01 at 4 (Feb. 25, 2016).

allowance methodology change permanent, and the Commission approved this change.[10]

In UG-160967, Cascade Natural Gas proposed changing its line extension allowance calculation from an allowance based on estimated customer revenue to the use of the Perpetual Net Present Value methodology.[11] This proposal was allowed to take effect with no action from the Commission on September 1, 2016.

Q. Is this shift in methodology by the utilities a result of any new public policy in Washington State?

A. Not directly. In 2014, the Washington State legislature considered a bill, HB 2177, that would have directed the UTC to conduct a process that allows customers and utilities to bring forth proposals for the financing and building of natural gas infrastructure, with a particular focus on rural and underserved areas.[12] The bill did not pass the full legislature, but did pass the House, and the sponsoring State representative requested that the UTC open a docket to fulfill the spirit of the bill. In response, the UTC opened a collaborative docket, UG-143616, to "discuss the need for natural gas distribution infrastructure expansion, and investigate the options available to implement such expansion."[13] As a commenter in this docket, Avista

---

10 *See In re Matter of the Petition of Avista Corp. for an Accounting Order Authorizing Approval of Changes to the Company's Natural Gas Line Extension Tariff and Associated Accounting and Ratemaking Treatment,* WUTC Docket No. UG-180920, Order 01 (Feb. 28, 2019).

11 *See In re Revision to Tariff WN U-3, Rule 8, Extension of Distribution Facilities,* WUTC Docket No. UG-160967.

12 *See* H.B. 2177, 63rd Leg., Reg. Sess. (Wa. 2014) available at http://lawfilesext.leg.wa.gov/biennium/2013-14/Pdf/Bills/House%20Bills/2177-S.E.pdf.

13 *See In re Investigation of Natural Gas Distribution Infrastructure Expansion,* WUTC Docket No. UG-143616, Notice of Workshop and Opportunity to Comment (Oct. 6, 2014).

raised the idea of changing the line extension methodology as one strategy for lowering the barriers for new customers to join the natural gas system.[14] Avista subsequently brought forward a petition in UG-152394 to pilot this methodology and referenced UG-143616 and the discussions therein as the impetus.[15]

Q. In UG-143616, did the Commission issue a policy statement or other guidance regarding the need and implementation for natural gas distribution infrastructure expansion?

A. No, the Commission did not.

Q. What reason did Avista give for proposing the change in line extension methodology in its initial pilot petition in UG-152394?

A. In its initial petition on the change, regarding all of the proposed changes, Avista stated:

> Avista believes that the proposed changes discussed below will help to expand natural gas distribution infrastructure to address environmental concerns associated with emissions, and further promote the efficient end-use of natural gas. Avista proposes that the changes be approved on a temporary basis (pilot period), with a subsequent review to determine the effectiveness of the changes.[16]

Specific to the line extension methodology change, Avista stated:

> Avista believes that changes in the methodology used to calculate the Company's line extension tariff will increase the likelihood that natural gas mains will be more accessible, and that customers will be more inclined to connect to the system.[17]

Q. What reasons did Avista give to make the PNPV methodology permanent?

A. In their initial filing in UG-180920, Avista stated:

---

[14] Exh. AEW-07 (*In re Investigation of Natural Gas Distribution Infrastructure Expansion,* Docket No. UG-143616, Comments of Avista Utilities (Sept. 17, 2015)).

[15] *See In re Avista Corp Petition for an Order Authorizing Approval of Changes to the Company's Natural Gas Line Extension Tariff and Accounting Ratemaking Treatment,* WUTC Docket No. UG-152394, Petition at 3 (Dec. 16, 2015).

[16] *Id.* at 4.

[17] *Id.* at 5.

> The Company believes that the PNPV methodology will continue to provide further natural gas hookups through an economically supported formula. Commission staff found that the PNPV methodology "allows the Company to make natural gas service more accessible to single family residences in its service territory." At the same time, the line extension allowance will continue to be easier for customers to understand, for the Company to administer, and for the Commission to audit, given that just a few Commission-approved inputs are used in the calculation.[18]

Further in the petition, Avista also noted:

> Finally, the allowance methodology is similar to what the Commission has approved, on an ongoing (non-pilot basis) for Cascade Natural Gas and Puget Sound Energy (subsequent to the Commission approving Avista's on a pilot basis).[19]

Q. Was an internal or external evaluation conducted of the pilot line extension methodology prior to the Commission approving it as a permanent method for Avista, Puget Sound Energy, or Cascade Natural Gas?

A. To the best of my knowledge, neither the Companies nor the UTC specifically reviewed the pilot of using the line extension methodology change to determine the effectiveness of the change or its impacts on customers.

Q. What was the basis for Avista choosing the PNPV methodology for calculating line extension allowances?

A. In the Company's petition in UG-152394 and in the collaborative docket, UG-143616, Avista referenced a paper by the National Regulatory Research Institute (NRRI), "Line Extensions for Natural Gas: Regulatory Considerations," published in February 2013.[20]

---

18 *See In re Petition of Avista Corp. for an Accounting Order Authorizing Approval of Changes to the Company's Natural Gas Line Extension Tariff and Associated Accounting and Ratemaking Treatment,* WUTC Docket No. UG-180920, Petition at 4 (Nov. 9, 2018) (footnotes omitted).

19 *Id.* at 5.

20 *See* WUTC Docket No. UG-152394, Petition at 5; *See also* Exh. AEW-07 (*In re Investigation of Natural Gas Distribution Infrastructure Expansion,* Docket No. UG-143616, Comments of Avista Utilities at 2 (Sept. 17, 2015)).

Q. Is this paper publicly available?

A. Yes, it is published by the National Regulatory Research Institute, an arm of the National Association of Regulatory Utility Commissioners. The paper can be found on their website.[21]

Q. Have you read this paper?

A. Yes.

Q. In sum, what is the paper about?

A. The paper references the growing demand for natural gas due to low gas prices and notes that a factor for energy consumers considering switching to natural gas is the line extension policies of utilities. The paper provides an overview of line extension considerations and prompts utility commissions to consider revising line extension policies in light of private and public benefits of switching to natural gas.

Q. Does the paper discuss benefits of switching from electricity to natural gas?

No. Though the paper mentions a few examples of public utility commissions referencing electric to gas fuel switching, the author explicitly notes that, "[t]his paper focuses on fuel switching from oil and propane to natural gas that requires gas-line extensions," with a further footnote that "[f]uel switching can include electricity and activities that do not involve the expansion of gas lines. These cases fall outside the scope of this paper."[22]

---

[21] Ken Costello, National Regulatory Research Institute, *Line Extensions for Natural Gas: Regulatory Considerations* (February 2013) available at https://pubs.naruc.org/pub/FA86B6C6-E91D-FF76-882F-04081293B088.

[22] *Id.* at 2.

Q. What does the NRRI paper say about the PNPV method?

A. The paper examines different economic tests for line extensions, including those that compare the expected revenues from new customers with the utility's incremental costs of serving that customer. The paper defines the perpetual net present value method as:

> The maximum level of "economical" investment equals the annual distribution margin divided by the required rate of return. The assumption is that the recovery period approaches infinity. If, for example, the average new customer contributes $300 annually to the utility's distribution margin and the utility's required rate of return is 10 percent, the utility would consider spending $3,000 per new customer to be economical.[23]

In sum, as Avista noted in a presentation in the collaborative docket UG-143616, use of this methodology "[r]eflects the fact that once hooked up, service will be permanent."[24]

Q. What was the reasoning provided by the UTC in approving this methodology change for Avista?

In UG-152394, Order 01 states "[w]e agree with Staff that Avista's revised gas line extension allowance methodology is appropriate. The change in methodology will better ensure that the Company is acquiring new customers who will aid in lowering fixed costs recovered from existing customers."[25] The Staff memorandum in support of the change states, "[s]taff supports using this methodology because it produces the maximum line extension allowance that is economically-viable for the company… A

---

23 *Id*. at 20.

24 Exh. AEW-08 (*In re Investigation of Natural Gas Distribution Infrastructure Expansion,* Docket No. UG-143616, Presentation by Avista Utilities (Sept. 23, 2015)).

25 WUTC Docket No. UG-152394, Order 01 at 2.

benefit of this methodology is that it [is] simple to calculate, and uses figures that are established by the commission during a rate case."[26]

Q. Were the Commission's reasons for approving the change for Cascade Natural Gas and Puget Sound Energy similar to the reasoning for approving Avista's change?

A. Both Puget Sound Energy's and Cascade Natural Gas's line extension methodology changes were on the Commission's "No Action Agenda," so the petitions for these changes took effect with no action from the Commission. The Staff memoranda about these changes recommended that the Commission take no action on these petitions for similar reasons as for Avista's change—the PNPV methodology is the maximum line extension allowance that is economically-viable for the company and it is simple to calculate.[27]

In the case of Puget Sound Energy, the staff memo further states: "PSE's proposal aligns its natural gas line extension policies with the current policies of other investor owned utilities in Washington. Further, it implements the recommendations discussed in Docket UG-143616 and encourages more widespread adoption of natural gas throughout PSE's service territory."[28]

---

[26] *See In re Avista Corp Petition for an Order Authorizing Approval of Changes to the Company's Natural Gas Line Extension Tariff and Accounting Ratemaking Treatment* WUTC Docket No. UG-152394, Open Meeting Memo at 1 (Feb. 25, 2016).

[27] *See In re Revision to Tariff WN U-2 to Establish a New Line Extension Policy*, WUTC Docket No. UG-161268, Open Meeting Memo at 1-2 (Jan. 12, 2017); *See also In re Revision to Tariff WN U-3, Rule 8, Extension of Distribution Facilities,* WUTC Docket No. UG-160967, Open Meeting Memo at 1-2 (Aug. 30, 2016).

[28] *See* WUTC Docket UG-161268, Open Meeting Memo at 2.

Q. Are you aware of other gas utilities in the United States that use this PNPV method?

A. I have not done a comprehensive study, but I have seen a few examples of gas utilities that use a present value calculation with a discrete timeframe (e.g., 30 or 40 years). For example, Washington Gas Light Company in the District of Columbia uses a present value calculation with a 30-year economic life; utility contributions to a customer are limited to 80% of this calculation.[29] I have not, in my research, seen a gas utility that uses the PNPV methodology other than the three gas utilities in Washington State.

III. CHANGES IN GAS USE IN PSE'S SERVICE TERRITORY

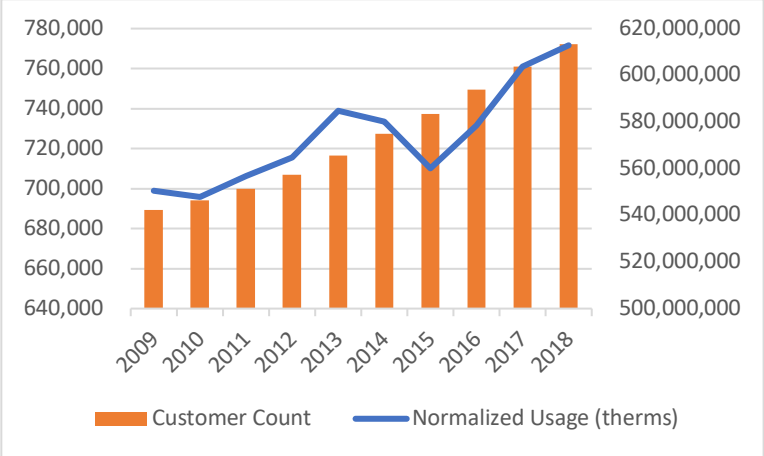
Q. What has been the recent change in gas use in PSE's service territory?

A. Based on PSE data provided in discovery to Staff in DR 015, I prepared the following chart (Figure 1) and have included it and the supporting data as an exhibit.[30] The left vertical axis represents annual gas customer count for Schedule 23 customers (the main schedule for residential customers), and the left vertical axis represents annual normalized delivered therms for the same Schedule between 2009 and 2018.

[29] Washington Gas Light Company Rate Schedules and General Service Provisions for Gas Service in the District of Columbia, available at https://www.washingtongas.com/-/media/d1be3e9e1ee34a19bcbb97849f9cc9e1.pdf.

[30] Exh. AEW-09 (PSE Response to Staff Data Request No. 015, Attachment A).

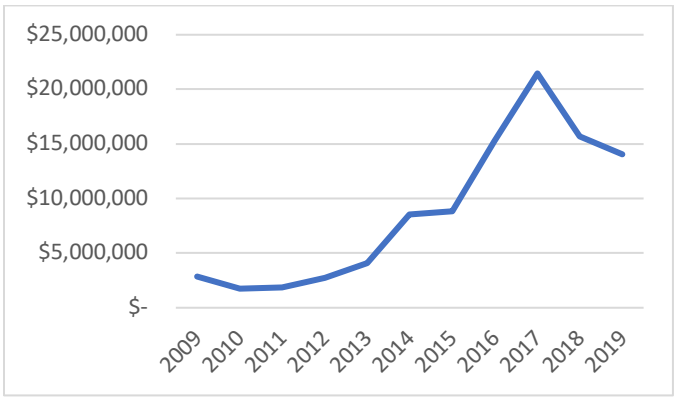
Figure 1. Residential Gas Customer Count and Normalized Gas Usage, 2009-2018



Q. What has been the recent change in line extension expenditures in PSE's service territory for residential customers?

A. Based on PSE's data provided in discovery to Staff in DR 215, I prepared the following chart (Figure 2) and have included it and the supporting data as an exhibit.[31] The chart shows the PSE annual costs for natural gas line extensions for residential customers between 2009 and October 2019, excluding customer contributions.

Figure 2. PSE Expenditures, Residential Gas Line Extension, 2009-Oct 2019



[31] Exh. AEW-10 (PSE Response to Staff Data Request No. 215, Attachment A).

Q. Do you believe that the change to the PNPV methodology for PSE has led to an increase in customers choosing natural gas?

A. Considering the lack of an evaluation of the methodology, which would have presumably examined questions like that in detail, it is difficult to determine. PSE's change to the PNPV methodology took effect at the beginning of 2017; Figure 1 shows a slight uptake in normalized usage and customer count in 2017 and 2018, but these are limited data points. Similarly, Figure 2 shows that the highest annual cost over the time period was in 2017; however, the chart also shows that there was already an upward trajectory in the previous years and that expenditures have fallen back off in 2018 and so far in 2019. With this information, I cannot draw a certain conclusion on whether the change in PNPV methodology led to an increase in customers choosing natural gas.

Q. Are there other factors that could be influencing uptake of natural gas by customers?

Yes, there are other factors that could influence an increase the use of or customers converting to natural gas, including population growth in PSE's service territory, increased economic activity, builder preference when constructing new homes, and recently low natural gas prices, among other factors. In addition, the Company has previously provided fuel conversion incentives for those who switch from electric resistance space and water heating appliances to natural gas appliances. This

program was retired at the end of 2017,[32] though some rebates were processed in 2018.[33]

IV. RECOMMENDATIONS FOR LINE EXTENSION ALLOWANCES

Q. Do you dispute that the PNPV method is simpler or easier to calculate than PSE's previous methodology?

A. No, I do not dispute that it is an easier to calculate for the Company and for the Commission.

Q. Do you dispute that there are environmental benefits of switching from other fuels to natural gas?

A. I think there are environmental and economic benefits for switching from oil heating or wood heating to natural gas heating, but that these same and additional benefits can occur when switching from these heating sources to electric heating with heat pumps.[34]

Q. Do you think that PSE should be pursuing policies and incentives that proactively expand new gas hook-ups and/or encourage conversions from electric to natural gas service?

A. I think it is time to question the rationale for aggressively expanding the natural gas customer base, and, certainly, to rethink the idea of incentivizing switching from electric to natural gas service. My reasoning has multiple considerations.

First, natural gas customers are currently subjected to a number of risks associated with the cost and feasibility of gas service. Natural gas prices are notoriously volatile, and though prices have been low in recent years, there is no

---

[32] *See In re Matter of PSE Report Identifying its 2018-2019 Electric Biennial Conservation Target Under RCW 19.285.040 and WAC 480-109-120,* WUTC Docket No. UE-171087, Initial Filing (Nov. 1, 2017).

[33] Exh. AEW-11 (PSE Response to NWEC Data Request No. 009).

[34] *See e.g.*, Rocky Mountain Institute, *The Economics of Electrifying Buildings* (2018) available at https://rmi.org/wp-content/uploads/2018/06/RMI_Economics_of_Electrifying_Buildings_2018.pdf.

guarantee that prices will remain low over the life of a natural gas appliance. For example, the Enbridge-owned West Coast pipeline rupture in October 2018, combined with the cold weather of 2018-2019 and a compressor outage at Jackson Prairie, has led to a 13.3% increase for the average PSE residential gas customer, effective November 1, 2019.[35] The NW Energy Coalition analyzed the impacts of climate change and an increasingly constrained natural gas market on electric power markets, but there are also profound implications for gas direct use customers: under high demand and constrained resource conditions, there are no alternatives for direct use of natural gas other than curtailment.[36] In addition, though there is not currently a carbon pricing mechanism in Washington State, there have been a number of legislative bills and public initiatives on the matter; the risk of a carbon price must be considered when considering future costs for a customer.

Second, new electric heating and water heating technologies are improving in efficiency and cost. Recent studies have shown that many residential end uses can be electrified to the benefit of the customer. For example, a recent Rocky Mountain Institute study analyzed different geographies for electrification and concluded:

---

35 *See In re Revision to Tariff WN U-2, Schedules 101 and 106, Purchased Gas Adjustment and proposed Deferred Account Adjustment (Tracker),* WUTC Docket No. UG-190789, PSE Cover Letter at 3 (Sept. 19, 2019).

36 NW Energy Coalition, *Double Squeeze: How the Arctic Express and natural gas constraints are turning the West Coast gas and power markets upside down*, (Mar. 6, 2019) available at https://nwenergy.org/wp-content/uploads/2019/03/double-squeeze-final.pdf.

> In many scenarios, notably for most new home construction, we find electrification of space and water heating and air conditioning reduces the homeowner's costs over the lifetime of the appliances when compared with performing the same functions with fossil fuels. Costs are also reduced for customers in several retrofit scenarios: for customers switching away from propane or heating oil, for gas customers who would otherwise need to replace both a furnace and air conditioner simultaneously, and for customers who bundle rooftop solar with electrification. New homes and homes currently lacking natural gas service also avoid the cost of gas mains, services, and meters not needed in all-electric neighborhoods.[37]

Other studies, though specific to California, have come to similar conclusions.[38] The bottom line is that natural gas service may not be the least cost and least risk choice for customers selecting new equipment.

Third, one of the original premises of encouraging more expansion of natural gas infrastructure was that use of electricity was more emissions intensive than heating space or water with direct use of natural gas. However, in 2019, Washington State's legislature passed the Clean Energy Transformation Act, SB 5116. This legislation will require Washington's electric sector to transform to being carbon-free. In addition, since HB 2177 and corresponding UTC collaboration docket were considered, the scientific community knows more about the climate impacts of methane emissions from natural gas, as well as the degree to which methane emissions leak throughout the natural gas supply chain.[39] A recent study found that,

---

37 Rocky Mountain Institute, *The Economics of Electrifying Buildings*, (2018) available at https://rmi.org/insight/the-economics-of-electrifying-buildings/.

38 *See e.g.,* Energy+Environmental Economics, *Residential Building Electrification in California*, (April 2019) available at https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

39 *E.g.,* Ramón Alvarez , et al., *Assessment of methane emissions from the U.S. oil and gas supply chain*, Science (June 21, 2018) available at https://science.sciencemag.org/content/361/6398/186.

even in the varied climates and utility fuel mixes of cities in the Intermountain West and Southwest, the use of a ductless heat pump was less emissions-intensive than the use of a combination gas furnace and central air conditioner.[40] The idea that natural gas use is more environmentally friendly than electric use should be strongly evaluated in light of this new information.

Fourth, growing national and international concerns about climate change are driving increasing public policy efforts to both price greenhouse gas emissions from fossil fuels and even a growing effort to outright ban fossil fuel usage in new construction at the local level. For example, a number of municipalities in California have banned new gas hook-ups to residential and some commercial buildings.[41] In Washington State, the City of Seattle—which PSE serves with natural gas—has a proposed ordinance that would ban all gas hook-ups in all new construction and direct a city agency to develop recommendations regarding limiting expansions of gas lines in existing buildings.[42] This policy context raises concerns about incenting customers to choose natural gas service, which commits customers to natural gas equipment and infrastructure for long periods of time. These policies also raise specific concern

---

40 Southwest Energy Efficiency Project, *Benefits of Heat Pumps for Homes in the Southwest* (June 2018) available at http://www.swenergy.org/Data/Sites/1/media/documents/publications/documents/heat-pump-study-final-2018-06-18-small-file.pdf.

41 Elizabeth Weise, *No More Fire in the Kitchen: Cities are Banning Natural Gas in Homes to Save the Planet* (Nov. 10, 2019) available at https://www.usatoday.com/story/news/2019/11/10/climate-change-solutions-more-cities-banning-natural-gas-homes/4008346002/.

42 Seattle City Council, *Healthy Homes, Healthy Buildings*, (Accessed Nov. 18, 2019) available at https://www.seattle.gov/council/meet-the-council/mike-obrien/healthy-homes-healthy-buildings.

about a methodology to calculate line extension allowances that assumes natural gas use will be permanent.

Q. Are there risks to using the PNPV methodology for existing customers?

A. Avista noted in a memo in UG-143616 that, with this methodology, there could be an impact on existing customers "if a new customer's usage is less than expected."[43] I agree with this statement: if a customer's usage is less than expected, due to inaccurate assumptions of initial installed uses, more efficient equipment due to efficiency upgrades or market transformation, or an overall shorter duration of natural gas usage, existing customers will be subsidizing new customers.

Additionally, the risks that I discuss above pertaining to the economics and political viability of long-term support for natural gas service call into question whether line extension allowances are still a prudent use of customer dollars. Perhaps more importantly, these same trends specifically call into question the premise of the PNPV line extension methodology: that the revenue recovery period approaches infinity. For example, if a customer was only expected to stay on the gas system for 15 years, the calculation of expected revenue would be the present value (PV) of the Per Customer Annual Revenue over 15 years at the Grossed Up After Tax Return, rather than a perpetual net present value:

$$PV = (\text{Per Cust. Annual Revenue}) / (1 + \text{Grossed Up After Tax Return})^{15 \text{ years}}$$

Or using the current values:

$$PV = \$399.89 / (1 + .0924)^{15 \text{ years}} = \$3{,}178 \text{ (rounded)}$$

[43] Exh. AEW-07 at 5.

For comparison, in 2019, the average construction cost of a new residential natural gas line in PSE's territory was $3,791, or higher than this number.[44] In summary, the current line extension policy is based on economic assumptions that have an increasing degree of risk associated with them for both existing customers and new customers. Additionally, from an environmental and climate perspective, growing understanding of the impacts of methane leakage due to the direct use of natural gas, as well as continuing improvements in clean energy in the electric sector, mean that natural gas is no longer the preferred option for most end uses frm any environmental perspective.

Q. What is your recommendation to the Commission in regards to PSE's natural gas line extension methodology?

A. The Commission should order that PSE revert to the previous line extension methodology or to a similar version. This methodology was more cautious on the expected revenue of a new given customer and thus reduces the risk of existing natural gas customers significantly subsidizing new gas customers.

Q. Do you have any other recommendations?

A. Yes, we think that the Commission should re-open UG-143616 or open a new collaborative docket to revisit the need for policies to push expansion of the natural gas system. Given policy changes in Washington State and the policy landscape nationwide, the Commission and interested stakeholders should have a real

---

[44] Exh. AEW-12 (PSE Response to NWEC Data Request No. 015, Redacted Version). Note that, per this data request, PSE does not separately track the amount of line extension dollars that an individual customer receives, but only the construction cost of the new line. However, we presume that a customer with an average cost of construction would be under the maximum line extension cost allowed, and thus able to cover all of the construction costs.

conversation needed about the future viability of natural gas infrastructure, how to adequately consider whether investments will remain used/useful over the life of assets, and other related issues. In addition, the pilot for the PNPV methodology change was never fully evaluated before it was made permanent for Avista, Puget Sound Energy, and Cascade Natural Gas.

Q. Are you objecting to only PSE's change to the PNPV methodology?

A. No, we also raised this concern in our response testimony in Avista's most recent General Rate Case.[45]

V. CONCLUSION

Q. Does this conclude your testimony?

A. Yes.

[45] *Wash. Util. Transp. Comm'n v. Avista Corp.,* Docket Nos. UE-190334, UG-190335, UE-190222, Response Testimony of Amy E. Wheeless, Exh. AEW-1T (Oct. 3, 2019).