BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of Northwest Natural Gas Company d/b/a NW Natural's 2022 Integrated Resource Plan	**DOCKET UG-210094**

COMMISSION STAFF COMMENTS REGARDING 2022 NATURAL GAS INTEGRATED RESOURCE PLAN RCW 80.01.040 and RCW 80.04.160 WAC 480-90-238

JANUARY 19, 2023

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Introduction

Background

WAC 480-90-238 requires each natural gas utility regulated by the Commission to develop an integrated resource plan (IRP or plan), describing the mix of natural gas supply and conservation selected to "meet current and future needs at the lowest reasonable cost to the utility and its ratepayers"[1] In preparing an IRP, utilities are required to consider changes and trends in energy markets, resource costs, state and federal regulatory requirements, and other shifts in the political and market landscape. The rule requires that each investor-owned utility (IOU) conduct a comprehensive analysis of the costs and benefits, including risk mitigation benefits of various approaches to meeting future resource needs using the best available information. The intent is for each IOU to develop a strategic approach that fits its unique situation, while minimizing risks and costs for the company and its ratepayers.

Procedural History

NW Natural's final IRP, filed September 23, 2022, comes roughly four years after its last plan, filed August 24, 2018. WAC 480-90-238(4) requires each IRP to be filed within two years of the previous plan, unless otherwise ordered by the Commission. NW Natural (NW Natural or Company) has petitioned for several due date extensions related to its 2022 IRP, most of which were to allow the Company to incorporate more accurate and up-to-date information into its plan.[2] The Commission ultimately granted each of these extensions, finding them in the public interest. The most recent extension changed the final IRP due date from July 29, 2022, to September 23, 2022. The final delay was due to an issue with multiple simulations running simultaneously in the PLEXOS model, the software package that NW Natural is using for the first time to conduct complex emissions modeling. Staff was supportive of the extensions, as this is the first natural gas IRP of such complexity to be modeled in the PLEXOS software, and the delay allowed more time for interested parties to thoroughly review the draft IRP results prior to the final plan being filed. Staff verified the Company filed its IRP on time, September 23, 2022, within the deadline of the most recent extension.

IRP Findings

Summary

NW Natural's 2022 IRP presents many changes from the previous plan filed in 2018. The regulatory landscape has changed considerably. This has resulted in forecasts that are markedly different both in nature and degree. Demand forecasts now incorporate more factors and consider multiple scenarios, but generally report lower demand into the future. NW Natural's

[1] *See* WAC 480-90-238(2)(a).

[2] *See* Docket UG-190711, *Revised Petition to Change the Filing Date of its Integrated Resource Plan,* (July 8, 2022).

conservation forecast has increased substantially. Further, NW Natural now incorporates climate change into their demand forecasts. NW Natural continues to look at alternative fuels, such as renewable natural gas (RNG) and hydrogen, but the Company must now consider these fuels as possible compliance resources in its long-term planning.

Key Components of 2022 IRP and Comparison to Previous Plan

Staff highlights some significant changes as compared with the Company's last IRP. For select topics, such as the modeling of climate change and consideration of the changing policy landscape, Staff also highlights areas of improvement and provides recommendations for consideration.

Demand Growth

First, NW Natural's demand side management projections changed substantially between the 2018 and the 2022 IRPs.[3] In contrast, in 2022, NW Natural now anticipates a spectrum of scenarios: from holding demand approximately constant to a roughly 90 percent reduction by 2050. The simulations' average results in a 25 percent reduction by 2050.[4]

Conservation

Comparing conservation between the 2022 and 2018 IRPs was challenging because the 2018 IRP aggregated energy savings between NW Natural's Oregon and Washington service territories, whereas the 2022 IRP presents each states' data separately. The projected savings described in the 2022 IRP represent an increase of roughly 32 million therms (approximately 22 percent) over the planning horizon compared to the 2018 IRP.[5] It should be noted however that the 2022 plan forecasts savings over a 30-year period rather than the 20-year period used in previous IRPs. This change was made to better incorporate the statewide emissions goals that have a target year of 2050.

NW Natural claims that other reasons for the increase include "emerging technologies" and the use of a "CE [cost effectiveness] override" in the model.[6] The Company defines emerging technologies as "technology that is not yet commercially available but is in some stage of development with a reasonable chance of becoming commercially available within a 20-year

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[3] See Figure 3.27, 2018 Integrated Resource Plan, Docket UG-170911, p. 3.29 (2018 IRP) (filed Aug. 24, 2018).

[4] (See Figure 1.7 on page 20-21 showing a roughly 25% decline. Whereas Table 5.10 on page 164, shows a baseline load projection increase of 1.4% annually) 2022 Integrated Resource Plan, Docket UG-210094, p. 20-21 and 164 (2022 IRP) (filed Sept. 23, 2022).

[5] See Table 5.7 on page 5.19 of the 2018 IRP and Tables 5.5 and 5.11 on pages 152 and 165 respectively of the 2022 IRP.

[6] See page 151 of the 2022 IRP.

timeframe" with the costs, potential, and risks of these measures being quantified in the model.[7] The CE override is an option within the model that essentially forces non-cost-effective measures to be used when they meet one of two criteria: Either the measure is not currently cost-effective but is expected to become cost-effective in the near future, or the measure is cost-effective using the Energy Trust of Oregon's blended gas avoided costs and is currently offered through Energy Trust programs but is not cost-effective when modeled with NW Natural-specific avoided costs.[8] **In summary, Staff views NW Natural's changes in conservation as reasonable. The changes account for potential over a longer time horizon and incorporate valuable insights into high-efficiency technologies that may not be commercially ready in the near-term. However, Staff recommends that NW Natural expand the emerging technologies evaluation in future analyses to include non-gas appliances and to consider such appliances in the context of price competitiveness compared to gas technologies.**

Price Forecasting

NW Natural's natural gas price forecasting also changed significantly between the 2018 and 2022 IRP. The natural gas price forecasting has two prominent changes. First, the anticipated prices in 2022 contain much higher seasonal peaks as well as a large, though brief, increase for the near future.[9]Additionally, NW Natural uses a Monte Carlo simulation of historical volatility tied to the price forecast to assess their portfolio preferences.[10] Despite these improvements, Staff raises concerns about the forecasting methodology. Specifically, Staff questions whether historic volatility and price highs seem greater than the area bounded by the Monte Carlo simulation and whether the forecast itself should be a probability mapping rather than a set of discreet lines. Put another way, NW Natural's methodology assumes historic, but known/bounded, volatility going into the future, but does not adequately evaluate a price trend itself. **Staff questions what impacts modeling price uncertainty could have on NW Natural's portfolio selections, especially as it relates to the price competitiveness of natural gas and impacts on customer counts. Further, Staff recommends additional discussion on this topic within the Advisory Group during the next IRP cycle.**

Climate Change Modeling

The 2022 IRP also introduced climate change into the weather modeling. NW Natural followed the lead of the Northwest Power and Conservation Council (NWPCC) and used five of the climate models used by NWPCC for their climate modeling.[11] This has resulted in a gradual decline in Heating Degree Days (HDD) and is responsible, in part, for the anticipated reduction

[7] See footnote 90 on page 142 of the 2022 IRP.

[8] See pages 148, 149, and table 5.4 on page 151 of the 2022 IRP.

[9] Compare Figure 2.14 on page 2.14 of the 2018 IRP with Figure 2.10 on page 48 of the 2022 IRP.

[10] See figure 2.11 on page 49, and Figure 7.10 on pages 360 and 361 of the 2022 IRP.

[11] See "IPCC Climate Models" page 76 of the 2022 IRP.

of energy used per customer.[12] However, in the short run these models have not significantly changed the Design Peak Weather and Design Winter Weather impacts on capacity design. Note, when Staff asked, the Company did not provide a clear explanation for why they chose the five climate models they did. **For future improvement, Staff recommends that NW Natural develop clear criteria for the selection of climate models and discuss within the Advisory Group.**

Mist Recall

NW Natural's treatment of the Mist storage resource in its 2022 IRP does not differ much from previous plans. In addition to gas supply shipped from Canada and the U.S. Rockies, NW Natural owns and operates three storage facilities within its service territory – Mist, Portland LNG, and Newport LNG. As the Company describes in its plan, storage capacity at Mist can be recalled for use by core utility customers.[13] The IRP models the recallable portion of Mist as an incremental resource, known as Mist Recall. Mist Recall is the second least-cost marginal capacity resource while providing the most deliverability and the added benefit of storage. Consistent with the last several IRPs, Mist Recall is the marginal capacity resource selected in the near-term, in this case for 99 percent of the draws.

Portland LNG "Cold Box" Replacement

In the IRP, NW Natural asserts that a key component of the Portland LNG facility known as the Cold Box is well past its design life and is showing signs of deterioration, including several leaks on the box itself as well as its interconnecting piping.[14] Some of these leaks have been temporarily mitigated using specialty pipe clamps, but NW Natural suspects that more leaks exist within the box itself that cannot be addressed without replacing the entire component. NW Natural contracted a third party – Sanborn & Head – to conduct a study to evaluate the unit and create cost estimates for a replacement.[15] Replacing the Portland LNG Cold Box was selected by the model as the least cost capacity resource in all scenarios except for extreme electrification.

Transportation Customers

One area of improvement is the analysis related to transportation customers, which are typically large industrial users that pay to utilize NW Natural's distribution system to deliver fuel purchased from another supplier. NW Natural has not previously modeled transportation customer loads outside of distribution planning and includes load from these schedules in resource and emissions modeling for the first time in the 2022 IRP. Staff is pleased that NW Natural is exploring conservation potential for these customers, where the Company observed meaningful cost-effective savings under Climate Commitment Act (CCA) compliance (discussed

[12] See Figure 3.8 on page 80 of the 2022 IRP.

[13] Docket UG-210094, "2022 NW Natural Integrated Resource Plan" (2022 IRP), at pg. 226.

[14] Docket UG-210094, "2022 NW Natural Integrated Resource Plan" (2022 IRP), at pg. 228.

[15] Docket UG-210094, "2022 NW Natural Integrated Resource Plan" (2022 IRP), Appendix, at pg. 147.

below).[16] While no energy efficiency programs are currently in place for these customers, NW Natural is currently working on rolling out an energy audit program for Washington industrial and transportation schedule customers in 2023, with hopes of offering energy efficiency programs by 2024. **Staff commends NW Natural for evaluating transportation customer conservation potential during its most recent conservation potential assessment conducted in 2021, well before the CCA established gas companies as the point of regulation for transportation customer emissions.**

The Changing Regulatory Landscape

The Climate Commitment Act [RCW 70A.65]

The CCA has dramatic implications for natural gas utilities in Washington. The act introduces a cap-and-invest program that places a price on emissions. While NW Natural has clearly gone to great lengths to update their scenario modeling in light of this changing landscape, Staff highlights the following areas of concern with regard to assumptions, modeling, and scenario development.

Fixed Costs

Starting on page 265 (of the IRP?), NW Natural presents a series of scenarios for analysis. The first area of concern relates to scenarios 4, 5, and 6; respectively, these are New Gas Customer Moratorium, Aggressive Building Electrification, and Full Building Electrification. In each scenario, NW Natural reports the "Residential Average Annual Payment" [sic]. In the moratorium scenario the Washington residential bill impacts are *only* a 36 percent increase by 2050. However, in the other two scenarios we see exponentially increasing residential annual bills: "352% higher in 2050" and "459% higher in 2050." NW Natural attributes this dynamic to spreading out fixed costs over a declining customer count.[17] NW Natural provides no further analysis of the risks faced by ratepayers.[18] Staff questions whether model results that increase exponentially like this are unstable. Staff also questions whether lower income households, including some seniors and named communities, will be less able to electrify and escape this dynamic. **In the next IRP, Staff recommends that NW Natural further analyze the risks**

[16] AEG's assessment of transportation customers points to over 1,410,000 therms of cumulative achievable economic potential by 2050 under the Total Resource Cost test (TRC). See Table 5.17, pg. 171 of 2022 IRP.

[17] See page 322, 2022 IRP

[18] WAC 480-90-238(2)(b) "At a minimum, this analysis must consider ...the risks imposed on ratepayers"

imposed on rate payers in these scenarios,[19] ratepayer responses to these risks, and the corollary risk of over investment and stranded assets.[20]

The Washington State Building Code Council has moved to restrict natural gas fixtures in new commercial buildings[21] and is tasked with a 70 percent reduction in net annual energy consumption in newly constructed residential and nonresidential buildings by 2031. Additionally, RCW 19.27A.020(2)(a) states that the Washington state energy code shall be designed to construct increasingly energy efficient homes and buildings that help achieve the broader goal of building zero fossil-fuel greenhouse gas emission homes and buildings by 2031.[22] Therefore, it is Staff's assessment that it is not a question of whether one or more of scenarios 4, 5, and 6 are likely, but rather which one, when, and how fast they will unfold. **Staff recommends that NW Natural further evaluate and consider the use of the Washington State Building Code Council's statutory obligations as a basis for their current customer growth expectations for scenarios rather than projecting historical trends forward.[23] [24]**

Hydrogen and Synthetic Methane

NW Natural proposes portfolio options that include hydrogen and synthetic methane, and Staff questions some of the assumptions of these portfolios.

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[19] WAC 480-90-238 (2)(a) "'Integrated resource plan' or 'plan' means a plan … to meet current and future needs at the lowest reasonable cost to the utility and its ratepayers."
(2)(b) "At a minimum, this analysis must consider ...the risks imposed on ratepayers"
(3)(g) "The integration of the demand forecasts and resource evaluations into a long-range ... integrated resource plan describing the mix of resources that is designated to meet current and future needs at the lowest reasonable cost to ... its ratepayers."
(h) "A short-term plan outlining the specific actions to be taken by the utility in implementing the long-range integrated resource plan during the two years following submission."

[20] WAC 480-90-238 (2)(b) "At a minimum, this analysis must consider ... demand-side resource uncertainties."

[21] The Spokesman Review, "Washington council significantly restricts use of natural gas heating in new commercial buildings," April 22, 2022. Available at Washington council significantly restricts use of natural gas heating in new commercial buildings | The Spokesman-Review

[22] Diane Glenn, State Building Code Council Chair, WASHINGTON STATE ENERGY CODE Progress toward 2030, 2018 Report to the Legislature, November 25, 2020. Available at https://sbcc.wa.gov/sites/default/files/2020-12/Final 2018 Report.pdf

[23] See Table 7.3, page 261, 2022 IRP.

[24] WAC 480-90-238 (2)(b) "Lowest reasonable cost means the lowest cost mix of resources determined through a detailed and consistent analysis of ... public policies regarding resource preference adopted by Washington state or the federal government,..."

In each scenario NW Natural provides "Washington Compliance Resources".[25] It appears that every scenario considered by NW Natural relies on hydrogen as a compliance resource.[26] Staff questions if the efficiency lost in production of hydrogen can be overcome such that hydrogen gas presents a lowest-cost portfolio relative to energy conservation or other compliance resources. Further, blending hydrogen with natural gas decreases the energy per volume of fuel combusted by end users.[27] Staff questions if end-use behaviors with blended fuels will result in emissions savings.

NW Natural did not analyze the future availability of price-competitive green hydrogen. Furthermore, it is still not clear that generating hydrogen and saving it for peak use is more efficient if used directly in furnaces rather than generating electricity to meet the same demand. NW Natural did not analyze this alternative. Staff questions the feasibility of NW Natural's hydrogen portfolio options as presented since it left important interstitial questions unanswered. Staff questions (1) whether hydrogen will be available in the quantities and at the prices hoped by NW Natural, and (2) if not, how it might impact the price-competitiveness of NW Natural's services and impact customer counts. **Staff recommends that NW Natural analyze possible customer responses to future changes in price-competitiveness of NW Natural's services.[28] Staff recommends that NW Natural commit to holding robust discussions about the future availability of green hydrogen.**

Synthetic methane presents the same questions as hydrogen but more so. Synthetic methane requires the same steps to produce as hydrogen, but adds additional steps including carbon capture and the combination of hydrogen and CO2 to produce methane. This process incurs further energy losses and costs than does hydrogen production. Synthetic methane is methane, and pipe infrastructure leaks. These fugitive emissions are potent greenhouse gasses and non-

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[25] Oregon Docket LC 79, "OPENING COMMENTS BY GREEN ENERGY INSTITUTE AT LEWIS & CLARK LAW SCHOOL, CLIMATE SOLUTIONS, COLUMBIA RIVERKEEPER, COMMUNITY ENERGY PROJECT, ELECTRIFY NOW, METRO CLIMATE ACTION TEAM, NATURAL RESOURCES DEFENSE COUNCIL, and SIERRA CLUB," at pg. 12.

[26] Note, some of the portfolios include more than 20 percent hydrogen. 20 percent is the current industry-acknowledged upper limit on hydrogen-natural gas blending safety. When asked, NW Natural staff described the possibility of on-site or near-site hydrolysis operations to provide 100 percent hydrogen fuels to industrial customers to offset natural gas sales.

[27] "Hydrogen is about one-third less energy dense (per unit volume) than natural gas, so an equal percent by volume results in 3 times less heat input." PCI Energy Solutions, "Can Hydrogen Help Decarbonize Your Turbine Fleet?" January 2023. Available at Can Hydrogen Help Decarbonize Your Turbine Fleet? | PCI (pcienergysolutions.com)

[28] WAC 480-90-238 (2)(b)"At a minimum, this analysis must consider ... demand-side resource uncertainties."
WAC 480-90-238(3)(a) "(a) A range of forecasts of future natural gas demand in firm and interruptible markets for each customer class that examine the effect of economic forces on the consumption of natural gas and that address changes in the number, type and efficiency of natural gas end-uses."
(3)(c) "(c) An assessment of conventional and commercially available nonconventional gas supplies."

negligible.[29] Staff questions if neither hydrogen nor synthetic methane are lowest reasonable cost compared to the cost of energy conservation.

To be clear, Staff appreciates the open-mindedness that NW Natural has shown toward considering compliance resources. Staff is fully supportive of utilities evaluating these alternatives. Staff encourages NW Natural to continue exploring compliance resources and solving these complex issues.

Methodology Issues

Finally, Staff highlights two methodological issues of the NW Natural IRP. First, the IRP does not adequately assess or incorporate an electrification strategy into any of its analysis, and second, the IRP does not dynamically consider the impacts of customer bill increases/costs on customer counts.

The first issue is most evident in two portions of the IRP's analysis. In scenario 3 NW Natural examines the impacts of the mass adoption of dual-fuel heat pumps.[30] The analysis concludes that this scenario "results in residential gas utility bills being 15 % higher in 2030 and 9 % lower in 2050." However, this conclusion comes with a large caveat: "this figure can be misleading as most of the heating needs that would otherwise be served by natural gas are served by electricity."[31] Next, NW Natural's analysis issue is further shown in their consideration of "emerging technologies."[32] Here, emerging technologies only includes "condensing gas rooftop units, gas absorption heat pump water heaters, gas fired heat pumps, industrial advanced wall insulation, and thin triple pane windows." It appears that the conservation potential assessment does not include any consideration of electrification or electric alternatives that might reduce gas consumption, be more efficient, and cost-effective. Thus, the IRP does not offer any assessment of the comparative efficiency or costs of electrification for customers. Staff questions how consideration of electrification and electricity rates could impact the dynamics shown in scenarios 4, 5, and 6 (discussed above). **Staff recommends that NW Natural consider incorporating an electrification strategy into its next IRP. Staff encourages NW Natural to refer to the most recent general rate case orders for Avista Corporation and Puget Sound Energy for context on how the Commission has ordered those two utilities to consider electrification in their next natural gas IRPs.[33]**

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[29] RCW 80.28.380. "For the purposes of RCW 80.28.380, the cost of greenhouse gas emissions resulting from the use of natural gas, including the effect of emissions occurring in the gathering, transmission, and distribution of natural gas to the end user..."

[30] See page 281 of the 2022 IRP.

[31] See page 286 of the 2022 IRP.

[32] See page 151 of the 2022 IRP.

[33] *See* Dockets UE-220053, UG-220054, and UE-210854 (consolidated), "Full Multiparty Settlement Stipulation" (Appendix A to Final Order 10/04), at 12; and Dockets UE-220066 and UG-220067

The Company dynamically feed customer bill impacts back into their customer count estimate.[34] As PLEXOS simulates each time interval of a given scenario customer counts are drawn from a preset estimate rather than responding to the outputs of the previous time interval. Staff believes that there is an inflection point where bill impacts, and electrification pricing would be a driving determinant in decreasing customer counts. Staff encourages the Company to estimate where this inflection point might be in terms of competing costs and how far in the future it might be. Finally, each scenario the Company presents includes a chart titled "Unbundled Price Paths."[35] Staff questions the impact dynamic customer counts might have on the dynamics shown in scenarios 4, 5, and 6. **Staff recommends that the Company include the cost of electricity in the unbundled price path charts to ensure NW Natural is adequately considering electric fuel switching options, conservation measures available, and the price-competitiveness of the services they provide.[36]**

Renewable Natural Gas

As compared to previous IRPs, all scenarios described in NW Natural's 2022 IRP include significant amounts of RNG to meet CCA compliance obligations through 2027, with the Company seeking to acquire 14 million therms of RNG in 2024-25, representing 6 percent and 8 percent of normal weather compliance gas in those years. When evaluating RNG as a resource in the IRP, NW Natural created two distinct tranches – Tranche 1 representing 1/3 of the total RNG available to the Company (about 13 million MMBtu annually) that can be acquired for a portfolio cost of roughly $14/MMBtu, and Tranche 2 representing the other 2/3 of available RNG (about 27 million MMBtu annually) at a portfolio cost of roughly $19/MMBtu.[37] This two-

(consolidated), "Settlement Stipulation and Agreement on Revenue Requirement and All Other Issues Except Tacoma LNG and PSE's Green Direct Program," at 37.

[34] WAC 480-90-238(3)(a) "A range of forecasts of future natural gas demand in firm and interruptible markets for each customer class that examine the effect of economic forces on the consumption of natural gas and that address changes in the number, type and efficiency of natural gas end-uses."

(3)(g) "(g) The *integration* of the demand forecasts and resource evaluations into a long-range (e.g., at least ten years; longer if appropriate to the life of the resources considered) integrated resource plan describing the mix of resources that is designated to meet current and future needs at the lowest reasonable cost to the utility and its ratepayers." [emphasis added by Staff]

[35] See page 257 of the 2022 IRP.

[36] WAC 480-90-238(3)(a) "A range of forecasts of future natural gas demand in firm and interruptible markets for each customer class that examine the effect of economic forces on the consumption of natural gas and that address changes in the number, type and efficiency of natural gas end-uses."

(3)(g) "(g) The *integration* of the demand forecasts and resource evaluations into a long-range (e.g., at least ten years; longer if appropriate to the life of the resources considered) integrated resource plan describing the mix of resources that is designated to meet current and future needs at the lowest reasonable cost to the utility and its ratepayers." [emphasis added by Staff]

[37] Docket UG-210094, "2022 NW Natural Integrated Resource Plan" (2022 IRP), at pg. 5.

tiered approach was selected due to the uncertainty posed by a nascent RNG market, where specific resources are not always available throughout the planning horizon. The scenarios explored in the IRP typically only selected RNG from Tranche 1, which leads Staff to question the benefit of including two distinct tranches. **Staff recommends discussing the benefits of two Tranches in the next IRP cycle within the Advisory Group.**

NW Natural is currently interconnected to three RNG facilities, though the Company is only purchasing *brown gas* from these facilities. Brown gas is a term used to describe RNG that is separate from the environmental attributes associated with the project.[38] Renewable thermal certificates represent a claim to the environmental benefits associated with RNG (the "R" in RNG). These environmental attributes can be claimed or paid for by an entity separate from the gas, which leaves the *brown gas* that NW Natural is acquiring from these projects. This is similar to how electric utilities purchase the renewable attributes of electricity generation in the form of renewable energy credits (RECs), without acquiring the physical electricity. NW Natural models the brown gas purchased from these projects as a capacity benefit, but not a compliance benefit. Staff finds this method to be appropriate as brown gas does not contain the environmental benefits of bundled RNG.

Further, each RNG project has a carbon intensity (CI) associated with it, which typically represents the full lifecycle of the RNG, including the production, transmission, and distribution of the gas. In Docket U-190818, the Commission provided guidance to companies on the incorporation of CI when "tracking and verifying RNG environmental attributes acquired for these tariffed programs" under RCW 80.28.390, stating that "CI accounting provides the best comparator for valuing different sources of RNG."[39] **While this guidance was referring to specific programs, Staff encourages the Company to consider modeling a range of CI scores as part of a modeling sensitivity or sensitivities. RNG represents a key component of NW Natural's resource portfolio in the 2022 IRP, and while there is no regulatory structure in place to incentivize low-CI RNG projects, Staff encourages the Company to work with its Advisory Group(s) to consider how it might develop a method which incorporates and appropriately values the CI scores of RNG when evaluating resources in the IRP process.**

Upstream and Distribution Emissions [RCW 80.28.395 and 80.28.380]

As of 2019, gas companies must account for "emissions occurring in the gathering, transmission, and distribution of natural gas."[40] While this requirement pertains only to the conservation planning required under RCW 80.28.380, Staff nonetheless sees value in quantifying in an IRP

[38] Docket UG-210094, "2022 NW Natural Integrated Resource Plan" (2022 IRP), at pg. 184.

[39] Docket U-190818, *Report and Policy Statement on Investigation of Renewable Natural Gas Programmatic Design and Pipeline Safety Standards,* 12/16/2020.

[40] See RCW 80.28.395

setting a gas utility's emissions that are upstream from customers. NW Natural's IRP is opaque on this point.[41] NW Natural notes that PLEXOS accounts for assumed upstream emissions.[42] Staff found a mention of "line losses,"[43] however, NW Natural does not provide additional information beyond this passing reference. The IRP cautions that "the Cold Box is purged with natural gas and *constantly bleeds*, creating an atmosphere around the Cold Box that consistently registers at least 0.5% gas concentration (10% LEL)."[44] Again, NW Natural provides no estimation of the scale of these emissions in the IRP. **Staff strongly encourages NW Natural to provide a written and, where appropriate, graphic analysis of greenhouse gas emissions, sources and size of greenhouse gas emissions, and explicitly state assumptions used by NW Natural in their analysis of greenhouse gas emissions.**[45]

Washington Low-Income Energy Efficiency Program

Staff notes a large gap between the number of homes served in Oregon and Washington's low-income energy efficiency programs.[46] In 2020-2021, 341 homes were served in Oregon, while 11 homes were served in Washington. In the IRP, no data was provided for this analysis. **Staff recommends that NW Natural analyze the difference in low-income energy efficiency program outcomes and discuss it with the advisory group.**

Typographical errors

Normally it would be beyond the scope of Staff comments to note typographical errors. However, the instant IRP has considerable typographical errors, many that persisted after Staff noted them in comments throughout the drafting and public participation period. For example, "Error! Reference source not found." occurs 9 times in the document – at one point with 3 consecutive occurrences. At other places diagrams have been updated but the surrounding text has been left outdated. For example: figure 2.9 on page 46 contradicts the text immediately above it that had been left unchanged from the previous IRP 4 years ago. Further there are repeated spelling errors. Such as "Annaul" which appears twice in each of the 9 resource portfolio scenarios. Finally, contributions from AEG stumble with significant figures. See Table 5.11 on page 165, the cumulative savings percentages clearly indicate that their significant figures are off and should only include a tenth of a percentage in accuracy. These typographical errors can cause unnecessary confusion for readers. Staff recommends that NW Natural put a greater emphasis on editing.

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[41] See page 223, footnote 133 of the 2022 IRP.

[42] See page 119, section 4.2.2 of the 2022 IRP.

[43] See page 119, 2022 IRP

[44] See pages 234 & 235 of the 2022 IRP. [emphasis added by Staff]

[45] See RCW 80.28.395

[46] See pages 178-179 of the 2022 IRP.

Public Comments

Docket UG-210094 has not received any public comments to date. However, its counterpart docket in Oregon, LC 79 did receive comments.[47] Oregon staff comments are lengthy and share many of the themes about modeling, the likelihood of declining future customer counts, uncertainty vs volatility (risk), compliance resource prices and uncertainty, among other issues. Of further note, Climate Advocates submitted a combined comment to the Oregon docket recommending the use of performance incentive mechanisms to promote emissions reduction and decarbonization pathways.[48]

Public Outreach

This round of IRP planning saw an increase in participation. However, in conversation with NW Natural staff, NW Natural does not attribute this increase to actions taken by NW Natural. Rather, NW Natural staff attributed this increased interest to the changing regulatory landscape.

NW Natural took the following steps to engage interested parties:

1. Information about the IRP process was included in bill inserts.
2. NW Natural has increased the size of their IRP distribution email list. Though no statistics were provided to demonstrate the scale of this improvement.
3. NW Natural created the Community and Equity Advisory Group. However, this group was created relatively late into the IRP process. The group was created in September of 2022, the same month the final draft of the IRP was filed. So, its impact on participation is yet to be seen.

Staff plans to continue working with NW Natural to find ways to improve public outreach and participation as it is essential to equitable participation in Commission proceedings.

Closing Remarks

A lot has changed between the 2018 IRP and the 2022 IRP. The regulatory landscape has changed in substantial ways very quickly. Staff wants to acknowledge that NW Natural has put in considerable effort to adapt to these changes and has attempted to model some policy assumptions. However, it is not clear to Staff that NW Natural has been entirely successful meeting all of the challenges and changes specific to Washington, such as the CCA. Fundamentally, the IRP process is an iterative process, Staff has highlighted select problematic dynamics, and the Company has left some essential questions unanswered. It is Staff's hope that NW Natural will adopt Staff recommendations to build a more complete understanding of the dynamics and hurdles in the coming years.

[47] Docket Summary, Docket LC 79. available here State of Oregon: Public Utility Commission of Oregon

Summary of Staff Recommendations

Before the next IRP, Staff recommends the Company address the following topics and discuss within advisory groups:

- Develop clear criteria for the selection of climate models.
- Analyze the risks imposed on rate payers in scenarios 4, 5, and 6, ratepayer responses to these risks, and the corollary risk of over investment and stranded assets.
- Use the Washington State Building Code Council's statutory obligations as a basis for NW Natural's current customer growth expectations for scenarios rather than projecting historical trends forward.
- Analyze possible customer responses to future changes in price-competitiveness of NW Natural's services.
- Commit to holding robust discussions about the future availability of green hydrogen.
- Consider including the cost of electricity in the unbundled price path charts to ensure NW Natural is adequately considering conservation measures available and the price competitiveness of the services they provide.
- Consider electrification in its next IRP and that the Company consider comparative electrical costs.
- Consider incorporating an electrification strategy into its next IRP. Staff encourages NW Natural to refer to the most recent general rate case orders for Avista Corporation and Puget Sound Energy for context on how the Commission has ordered those two utilities to consider electrification in their next natural gas IRPs.
- Provide a written and, where appropriate, graphic analysis of greenhouse gas emissions, sources and size of greenhouse gas emissions, and explicitly state assumptions used by NW Natural in their analysis of greenhouse gas emissions.
- Analyze the difference in low-income energy efficiency program outcomes and discuss it with the advisory group.
- Include non-gas appliances in emerging technologies evaluation and consider such appliances in the context of price competitiveness compared to gas technologies.
- Discuss the benefits of two tranches in the next IRP cycle within the Advisory Group.
- Place a greater emphasis on editing.
- Work with Advisory Group(s) to consider how NW Natural might develop a method which incorporates and appropriately values the CI scores of RNG when evaluating resources in the IRP process.