BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of Northwest Natural Gas Company 2018 Integrated Resource Plan	**DOCKET UE-170911**

COMMISSION STAFF COMMENTS REGARDING 2018 NATURAL GAS INTEGRATED RESOURCE PLAN RCW 80.01.040 and RCW 80.04.160 WAC 480-90-238

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Introduction

RCW 19.280.030 and WAC 480-90-238 direct investor-owned utilities (IOUs) to develop an integrated resource plan (IRP) every two years, which identifies "the mix of energy supply resources and conservation that will meet current and future needs at the lowest reasonable cost to the utilities and its ratepayers." 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 IOUs 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 regulated company to develop a strategic approach that fits its unique situation, while minimizing risks and costs for the company and its ratepayers.

Northwest Natural Gas Company (NW Natural or company) provides natural gas service to approximately 2.5 million people through over 740,000 customer accounts in Washington and Oregon. NW Natural Gas customers in Washington account for approximately 11 percent of NW Natural's total customers. Around 90 percent of these Washington customer accounts are residential.

On August 24, 2018, Northwest Natural Gas submitted its IRP. The plan describes the analysis and evaluation of potential resource strategies for meeting the company's resource needs over the next twenty years. This document provides Commission staff's (Staff) comments on the final 2018 natural gas IRP submitted by NW Natural to the Washington Utilities and Transportation Commission (Commission). NW Natural's IRP meets the expectations regarding clarity, transparency and thoroughness. Staff recommends the Commission acknowledge NW Natural's 2018 IRP.

The IRP touches every aspect of the company's operations and provides essential public participation opportunities for stakeholders to assist in the development of an effective plan. This participatory process is the cornerstone of the utility's planning and operations. The company submitted its work plan and held six technical working group meetings (TWG) in Portland, Oregon throughout 2017 and 2018. The TWG is a mix of external participants, including staff from the Oregon and Washington Commissions, Energy Trust, Washington Public Counsel, Citizen's Utility Board of Oregon, Alliance of Western Energy Consumers, Northwest Pipeline Corporation, Northwest Gas Association, Williams Pipeline, Transcanada-GTN, Avista Utilities, Cascade Natural Gas, Northwest Energy Efficiency Alliance (NEEA), Fortis B.C., Northwest Energy Coalition, and other interested parties. Staff attended each of the TWG meetings and is satisfied with the NW Natural's public outreach efforts. NW Natural representatives responded to all questions and comments, and were consistently available for and amenable to further conversations to increase Staff's understanding of the company's decisions and methodology.

In the following sections, we highlight significant differences between NW Natural's 2016 and 2018 IRPs, and provide an overview of the company's base case resource portfolio for the next twenty years. Further, staff provides specific comments and requests for improvement in certain areas for the next IRP.

Areas of Interest in the Commission's Acknowledgement of NW Natural's 2016 IRP

In its letter acknowledging NW Natural's 2016 IRP, the Commission highlighted three general areas of interest. A summary of the Commission's previous suggestions and requests is below. NW Natural has complied with all of these requests either within the 2018 IRP analysis or in other dockets.

1. The company should pursue all conservation measures made cost effective by the projected rise in the company's avoided cost.
2. The company must continuously monitor the usage pattern of the interstate pipeline to determine whether the assumptions in its IRP continue to hold true.
3. The company should monitor the conditions that affect the zonal configuration of NW Pipeline's system.

All three of these requests are still valid going forward. Particularly, the reliance on segmented capacity in NW Pipeline's system should be monitored closely.

NW Natural's 2018 Base Case Resource Portfolio (2019 – 2038)

NW Natural projects its Washington/Oregon peak demand will grow 0.9 percent annually after adjusting for energy efficiency acquisition over the planning horizon. Sales are expected to grow only 0.6 percent, slightly less than peak demand, due to the predominance of space heating in the company's system load. The company expects a resource deficiency of 250,000 Dth/day in 2038, net of energy efficiency.

In the short term, NW Natural's resource portfolio does not differ significantly from the 2016 IRP. The resource acquisition identified within the two year action plan still consists of energy efficiency and Mist recall.[1,2] As shown in Table 1, the amount of cost-effective energy efficiency has increased significantly, as a result of improvements the company has made to its avoided cost calculations, explained on page five of these comments.[3] The amount of Mist recall chosen as least-cost in 2019 has dropped slightly from 30,000 Dth/Peak Day to 20,000 Dth/Peak Day.

As compared to the 2016 IRP, the company conducted a more granular analysis of the Christensen Compressor, which divided the project into three phases, resulted in only the first

[1] NW Natural's 2016 IRP (Docket UG-151776) pages 1.18-1.19.
[2] NW Natural's 2018 IRP (Docket UG-170911) pages 1.21-1.22.
[3] In the 2018 IRP, 181,140 Dth/day of energy efficiency is acquired by 2036, in the 2016 IRP 150,220 Dth/day of energy efficiency is acquired by 2036.

phase being chosen as least-cost.[4] This smaller resource was also chosen at a later date in the 2016 IRP (entire project in 2022) than in the 2018 IRP (single phase in 2030).

Table 1 Northwest Natural's resource plan for the current (2018) and previous (2016) IRP (without a regional pipeline project)

2018 IRP			**2016 IRP**		
2018 IRP Resource Name	***Year Acquired***	***Dth/Peak Day***	***2016 IRP Resource Name***	***Year Acquired***	***Dth/Peak Day***
Energy Efficiency	2018-2038	8,490-207,242	*Energy Efficiency*	2016-2036	5,956-106,274
Mist Recall	2019-2029	20,000-220,300	*Mist Recall*	2019-2027	30,000-220,300
Central Coast Feeder 1	2030	15,000	*Christensen Compressor*	2022	40,000
Central Coast Feeder 2	-	13,000			
Central Coast Feeder 3	-	12,000			
North Mist II	-	-	*North Mist IIa*	2027	50,000
On-system RNG 2	2029	3,000	N/A	-	-
Local Pipeline Expansion	2031	30,000	*Sumas Expansion Local*	2033	18,355

Areas of Interest and Staff Recommendations

Capacity Planning Standard

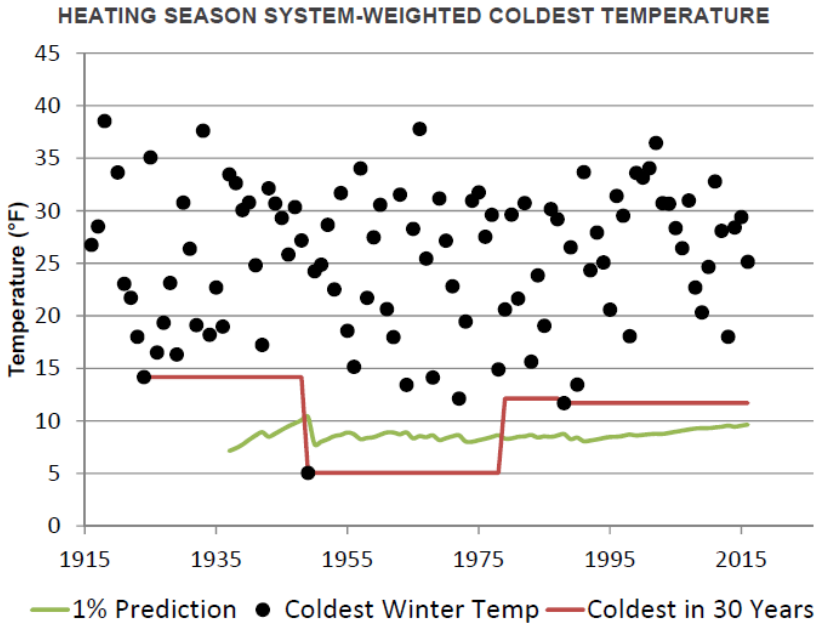
The most significant change NW Natural has made in the 2018 IRP is moving to a peak day planning standard that uses a risk-based methodology. Instead of planning to the coldest day in the previous thirty years, the company has developed a statistical approach to serve the highest

[4] NW Natural's 2018 IRP (Docket UG-170911) pages 6.41-6.42

firm sales demand day with 99 percent certainty. While Staff was initially hesitant about this major change, we have come to support the new methodology.

The new capacity planning standard has a distinct advantage. This standard allows for a more consistent planning structure for the company and potentially prevents a shift to a less reliable planning standard for the customer. As shown in Figure 1, the 30 day planning standard (Coldest in 30 Years) causes significant shifts in the temperature of the peak day NW Natural plans to in comparison to the new planning standard (1 percent prediction).[5]

Figure 1 Relative Stability of a Risk-based Planning Standard



The new method naturally adjusts for the trend of warmer winters in NW Natural's service territory as more data is added each year, without disregarding the very real possibility of severe weather. Since 1995, as shown by Figure 1, there is a marked trend in warmer winters. In fact, a few more years of mild winters would move the peak day coldest temperature up to approximately 18 degrees using the previous standard. However, extreme weather events are increasingly likely and using a planning standard that accounts for this possibility is prudent.[6]

Additional refinements should be made to this methodology in future IRP cycles, including further analysis of how many years of historical data is appropriate to use in the modeling. Staff

[5] NW Natural's 2018 IRP (Docket UG-170911) Figure 3.36: Relative Stability of a Risk-based Planning Standard; page 3.42.
[6] "U.S. National Climate Assessment" https://nca2014.globalchange.gov/highlights/report-findings/extreme-weather#intro-section Retrieved November 2, 2018.

encourages the company to continue engaging with the advisory group on this particular refinement.

New Supply-side Resources

Staff applauds NW Natural's transparent and evidence-driven investigation of alternative resources in the 2018 IRP. The company's definition of supply-side resources encompasses pipeline capacity required for transportation, gas storage options, major system upgrades necessary for distribution, and the source of gas itself.

Of note is the treatment of renewable natural gas (RNG). While RNG has been mentioned as a possible future resource in past IRPs, NW Natural recognized the significant risk of carbon regulation and the continued maturation of the RNG industry made the resource potentially cost-effective and reliable within the planning cycle. The 2018 IRP analyzes five different generic resources of RNG as scenarios, assigning (among other values) different carbon intensities, monetization of market credits, and value to the distribution system. NW Natural's analysis clearly illustrates the variable costs and benefits of different configurations of RNG resources and makes it clear that RNG cannot reasonably be evaluated as a single generic resource. Staff encourages the Commission to highlight this as a recommendation in other natural gas IRP acknowledgement letters.

The methodology to evaluate RNG resources described in Apppendix H is a laudable attempt to capture the full value of the resources. NW Natural is seeking acknowledgement of this methodology to procure potential RNG resources. While staff appreciates the transparency and opportunity to comment, the prudence of obtaining resources using this methodology cannot be determined in this venue. Staff recommends the Commission decline to acknowledge a particular methodology for acquisition as this could easily be misconstrued as preapproval and the prudence of any resource acquisition should be determined in the context of a rate case.

Another alternative resource analyzed by the company for the first time in this IRP is power-to-gas (P2G). P2G is a relatively new technology that could take advantage of low-cost electricity caused by over-generation events on the regional electric system to create hydrogen that could then be blended directly into the natural gas pipeline. This could be used in direct-use of natural gas applications or as long term storage for the electric system. While this resource is not selected in any scenario except deep decarbonization, NW Natural's exploration of both supply-side and demand-side emerging technologies will help ensure it can make optimal resource choices for its ratepayers in the future.

Avoided Costs

NW Natural made several improvements to the avoided cost methodology in the 2018 IRP. These changes include a more robust calculation of avoided distribution infrastructure costs. The new method adds three additional end-use specific avoided costs for energy efficiency measures, bringing the total to seven; and applies avoided costs to alternative resources in order to capture

the full value as compared to conventional resources. The company presents the six components it uses in the company's avoided cost separately. This transparency is much appreciated by Staff.

NW Natural raises the possibility of applying the ten percent Northwest Power & Conservation Credit toward low-carbon gas supply resources.[7] This adder is applied towards electric conservation measures and has been adopted by regional natural gas utilities to calculate the cost-effectiveness of their conservation programs as well. Staff believes this credit represents a clearly defined resource preference for conservation measures, and that it should only be applied to alternative resources in Washington if the company is given clear policy direction by the Commission or the Legislature.

Forecast of Emissions

In addition to sensitivities around gas transportation infrastructure and economic growth, the IRP provides four separate environmental policy sensitivities. These are much more useful than simply varying the price of carbon because they are based on different possible policy structures.[8] NW Natural provides an emissions forecast by sensitivity which provides invaluable information to policy makers about the effect of various decisions on the company's system.

The estimated system cost and estimated emissions reductions vary significantly over the planning horizon across the nine sensitivities. The customer moratorium scenario reduces carbon dioxide equivalent (CO_2e) by 2.8 million tons, while the deep decarbonization scenario reduces CO_2e by 15.2 million tons.[9] For the base case, which encompasses a carbon price that begins at just below $15/metric ton of CO_2e in 2018 and ramps to just over $40 in Washington and $32 in Oregon, the company forecasts a reduction of 3.3 million tons of CO_2e.[10]

Staff recommends NW Natural reevaluate the sensitivities chosen in the 2020 IRP to model the changing risk of regulation. In addition, NW Natural should include a sensitivity that does not include a price on carbon for comparison of both emissions and price.

[7] NW Natural's 2018 IRP (Docket UG-170911) page 4.8-4.9

[8] The four sensitivities are: 1. Social cost of carbon in resource planning. 2. Deep decarbonization – Assumes the most aggressive adoption of high-efficiency end use equipment and developing shell improvements aimed to effectively reduce carbon emissions while still providing all energy services demanded. 3. Compressed natural gas adoption in medium- and heavy-duty transportation – Considers how the societal carbon reduction from displacing diesel adds roughly five million therms to NW Natural's annual load each year over the next twenty years. 4. New direct use gas customer moratorium in 2025 – models a policy scenario that would ban any new natural gas customers from new construction or conversions starting in 2025.

[9] NW Natural's 2018 IRP (Docket UG-170911) 7.10 Timing of RNG Resources and Emissions Reductions by Sensitivity; page 7.38.

[10] NW Natural's 2018 IRP (Docket UG-170911) Figure 2.17 Expected Greenhouse Gas (GHG) Emissions Compliance Cost; page 2.24.

Public Comments

On September 12, 2018, the Commission issued a notice of opportunity to file written comments. All comments were required to be submitted to the Commission by November 2, 2018. As of November 1, 2018, no public comments had been received.

Conclusion

In summary, NW Natural has produced a thorough, and innovative IRP. Staff is confident the company's planning team will continue to refine assumptions and analysis as technology and the planning environment change.

Staff notes that the direction and forecasts indicated by the results of NW Natural's IRP are not binding on the company or the Commission in determining the appropriateness or prudence of any NW Natural decisions regarding future resource acquisition.

The work plan for the 2020 NW Natural IRP should be filed with the Commission by August 23, 2019. Staff looks forward to working with NW Natural and stakeholders again during the development of its 2020 IRP.

Staff has thoroughly reviewed the IRP and recommends the Commission acknowledge that NW Natural's 2018 Natural Gas IRP complies with WAC 480-90-238.