

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

LC 71

In the Matter of

NORTHWEST NATURAL GAS
COMPANY, dba NW NATURAL,

2018 Integrated Resource Plan

ORDER

DISPOSITION: STAFF'S RECOMMENDATION ADOPTED

This order memorializes our decision, made and effective at our February 26, 2019 Regular Public Meeting to find that Northwest Natural Gas Company, dba NW Natural, complied with our IRP guidelines, to adopt Staff's recommendations as outlined in the February 20 2019 Staff Report, and to acknowledge the Action Plan as modified and supplemented by the recommendations in the February 20, 2019 Staff Report. The Staff Report is attached as Appendix A.

Made, entered, and effective Mar 04 2019.



Megan W. Decker
Chair



Stephen M. Bloom
Commissioner



Letha Tawney
Commissioner



A party may request rehearing or reconsideration of this order under ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements in OAR 860-001-0720. A copy of the request must also be served on each party to the proceedings as provided in OAR 860-001-0180(2). A party may appeal this order by filing a petition for review with the Circuit Court for Marion County in compliance with ORS 183.484.

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: February 26, 2019

REGULAR X CONSENT _____ EFFECTIVE DATE _____ Upon Commission's Approval _____

DATE: February 20, 2017

TO: Public Utility Commission

FROM: ^{RA}
Rose Anderson

THROUGH: ^J Jason Eisdorfer and ^{JB} JP Batmale

SUBJECT: NORTHWEST NATURAL: (Docket No. LC 71) Acknowledgement of 2018 Integrated Resource Plan.

STAFF RECOMMENDATION:

Staff recommends that the Commission acknowledge Northwest Natural Gas Company's 2018 IRP as consistent with the Commission's IRP guidelines, along with Staff's fifteen Recommendations. Acknowledge the Action Plan to the Company's 2018 IRP as amended and set forth in Staff's memorandum.

DISCUSSION:

Issue

Whether the Commission should acknowledge NWN's 2018 IRP.

Applicable Law

The Commission adopted least-cost planning as the preferred approach to utility resource planning in 1989.¹ In 2007, the Commission updated its existing least-cost planning principles and established a comprehensive set of "IRP Guidelines" to govern the IRP process. The IRP Guidelines found in Order No. 07-002 (corrected by 07-047) clarify the procedural steps and substantive analysis required of Oregon's regulated

¹ Order No. 89-507.

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utilities in order for the Commission to consider acknowledgement of a utility's resource plan.²

The IRP Guidelines and Commission rules require a utility to file an IRP with a planning horizon of at least 20 years within two years of its previous IRP acknowledgment order, or as otherwise directed by the Commission.³ Further, the IRP must also include an "Action Plan" with resource activities that the utility intends to take over the next two to four years.⁴ The utility's IRP should satisfy the IRP Guidelines and Commission rules for its determination of future long-term resource needs, its analysis of the expected costs and associated risks of the alternatives reviewed to meet its future resource needs, and its near-term Action Plan to achieve the IRP goal of selecting the "portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers."⁵ This is often referred to as the "least cost/least risk portfolio."

The Commission reviews the utility's plan for adherence to the procedural and substantive IRP Guidelines and generally acknowledges the overall plan if it is reasonable based on the information available at the time.⁶ However, the Commission explains: "We may also decline to acknowledge specific action items if we question whether the utility's proposed resource decision presents the least cost and risk option for its customers."⁷

Also relevant is whether this IRP complies with all of the Commission's requirements in the Company's previously acknowledged IRP. NW Natural's 2016 IRP (LC 64) was acknowledged in Order No. 17-059, but the Commission required several activities for NWN to undertake and include in its 2018 IRP filing. Thus, in addition to IRP Guideline compliance, Staff reviews whether NWN has complied with the Commission's order in LC 64.

² Orders 07-002 and 07-047. Additional refinements to the process have been adopted: See Order No. 08-339 (IRP Guideline 8 was later refined to specify how utilities should treat carbon dioxide (CO2) risk in their IRP analysis); Order No. 12-013 (guideline added directing electric utilities to evaluate their need and supply of flexible capacity in IRP filings).

³ Order No. 07-002 (Guidelines 1(c) and 3(a)) and OAR 860-027-0400.

⁴ Order No. 14-415 at 3.

⁵ Order No. 07-002 at 1-2.

⁶ *Id.* at 1.

⁷ *Id.*

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Analysis

Background

General Description of the IRP

NWN's 2018 IRP is a plan for meeting customer natural gas needs over the next 20 years. The IRP focuses on forecasting future customer demand for natural gas, determining the options available to meet customer demand, and identifying a resource portfolio with the best blend of cost and risk for customers. The IRP brings together customer demand forecasts with available resource options, including supply-side resources as well as demand-side measures, to provide a valuable planning tool for NW Natural, its customers, regulatory agencies, and other stakeholders.

Procedural History

The Company filed its 2018 IRP on August 24, 2018. On October 15, 2018, Staff, the Citizens' Utility Board (CUB), and AWEC filed their initial comments. NW Natural filed reply comments on November 19, 2018. Staff filed its final comments on December 31, 2018. Finally, NWN, CUB, and AWEC filed their final comments on February 8, 2019.

Prior to the filing of the IRP, the Company held a series of informal technical working group meetings for stakeholders beginning in October 2017.

Following the technical working group meetings, NWN shared a draft IRP with stakeholders on July 6, 2018. Informal comments regarding the draft plan were submitted by some of the technical working group participants in August 2018.

NW Natural's 2018 Integrated Resource Plan

In NW Natural's 2018 IRP, the Company used the resource planning model SENDOUT to evaluate both the cost and risk of supply side resources including:

- Mist Recall,
- new storage wells at the North Mist facility,
- a project to increase takeaway capacity at Newport LNG,
- five different types of RNG project, and
- a power-to-gas project at the Mist facility.

All resources were evaluated with consideration for any emissions compliance benefits they might provide, as well as avoided capacity and distribution costs of any on-system resources. The Company assessed nine different sensitivities to evaluate the potential impacts of a regional or local pipeline, several economic growth scenarios, and several environmental regulation scenarios. In the Base Case scenario with no regional pipeline, capacity needs were met with energy efficiency and Mist recall until 2029, when on-system RNG was chosen by SENDOUT. Other sensitivities reflecting higher

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economic growth or environmental regulation resulted in RNG selection as early as 2019.⁸

The distribution modeling software Synergi was used in combination with actual operational data to identify distribution reinforcement projects the Company plans to complete in the next four years.

The Company continued its work with Energy Trust of Oregon (Energy Trust or ETO) to identify and include in its IRP all possible cost-effective energy efficiency.

The IRP Action Plan represents the Company's intended actions over the near term. In the 2018 IRP, The Company's original Action Plan included six distribution reinforcement projects, a Renewable Natural Gas methodology, Mist Recall for the next two years, and continued work with Energy Trust of Oregon to acquire therm savings.

The proposed Action Plan is as follows:

JOINT MULTIYEAR ACTION PLAN

Supply Resource Investments

- 1) Recall 10,000 Dth/day of Mist storage capacity for the 2020-21 gas year. Recall 35,000 Dth/day of Mist storage capacity for the 2021-22 gas year.
- 2) Use the methodology detailed in Appendix H to evaluate renewable natural gas resources against conventional sources based on all-in costs.

OREGON-ONLY ACTION PLAN

Distribution System Planning Projects

- 3) Proceed with the Hood River Reinforcement project to be in service for the 2019 heating season and at a preliminary estimated cost ranging from \$3.5 million to \$7 million.
- 4) Proceed with the Happy Valley Reinforcement project to be in service for the 2019 heating season and at a preliminary estimated cost ranging from \$3 million to \$5 million.
- 5) Proceed with the Sandy Feeder Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$15 million to \$21 million.
- 6) Proceed with the North Eugene Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$5 million to \$11 million.

⁸ NW Natural 2018 Integrated Resource Plan. Page 7.36.

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- 7) Proceed with the South Oregon City Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$4 million to \$6 million.
- 8) Proceed with the Kuebler Road Reinforcement project to be in service for either the 2020 or 2021 heating season and at a preliminary estimated cost ranging from \$14 million to \$20 million.

Demand-side Resources

- 9) Working through Energy Trust, NW Natural will acquire therm savings of 5.2 million therms in 2019 and 5.4 million therms in 2020, or the amount identified and approved by the Energy Trust board.

The Action Plan has been amended by Staff and NW Natural through the IRP process, and the final action plan is presented in this Staff Report, below.

Compliance with Commission IRP Guidelines

After reviewing the Company's IRP and the IRP Requirements documentation provided by the Company in Appendix B, Staff concludes that NWN has complied with the Commission's IRP guidelines and previous orders. However, in Final Comments, Staff identified additional analysis that should be completed as part of NWN's next IRP.

Additionally, upon reviewing NW Natural's final comments, Staff identified several opportunities to accommodate a more useful IRP process for all parties going forward into the next IRP. Staff also worked with the Company extensively on the issue of data, information, and transparency in the Company's distribution reinforcement projects. The Staff Recommendations below reflect these changes. Staff and NW Natural have also collaborated on an updated Action Plan. This updated Action Plan is included after Staff's updated Recommendations. Staff notes that the Company has demonstrated a willingness to work with stakeholders throughout this IRP process and in future IRPs.

Staff Recommendations

Staff's Recommendations are set forth below along with Staff's proposed revisions to NWN's 2018 Action Plan.

Staff Recommendation No. 1

In the 2018 IRP, NWN reported using a Subject Matter Expert (SME) panel forecast for the first three years of the peak day load forecast and annual energy forecast. In the fourth year, the Company transitioned to a forecast that blended the SME forecast and an econometric forecast. In the fifth year and beyond, an econometric forecast was used.⁹ This process was a change from the 2016 IRP, which blended the forecasts in

⁹ NW Natural. 2018 Integrated Resource Plan. Page 3.6.

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the third year. Staff assessed the Company's analysis and reviewed the Company's responses to Staff data requests throughout the IRP process. In final comments, Staff requested that NWN include a narrative in the next IRP explaining the reasoning for choosing which year to transition from a Subject Matter Expert (SME) panel forecast to an econometric forecast.

NWN reported in its final comments that the Company "looks forward to working with Staff to continue to improve on this balance and determining the right balance of narrative explanation related to SME panel forecasts in future IRPs."

Staff Conclusion:

Staff thanks NWN for its willingness to work with Staff on the blending of SME panel forecasts with econometric forecasts, and recommends the Company provide additional information in the next IRP.

Staff Recommendation No. 1

Staff recommends that the Company provide a narrative in the next IRP to explain the factors that led to the Company's choice for the blending and transitioning years from the SME panel forecast to the econometric forecast, as well as supporting statistical analysis.

Staff Recommendation No. 2

Regarding the blending of the SME panel forecasts and econometric forecasts, in final comments Staff recommended NWN use a consistent standard for the year after which NWN begins using an econometric forecast.

NWN explained in its final comments that the Company's standard is to use the most accurate methodology, and that the Company discovered in the process of developing the 2018 IRP that it achieved a forecast improvement by changing the blending year.

Staff Conclusion:

Staff appreciates NWN's explanation and requests that future IRPs provide statistical reasoning for any further changes in blending year.

Staff Recommendation No. 2

Staff recommends the establishment of a consistent standard relating to the year in which the Company blends and fully transitions from the SME panel to the econometric forecast. The standard should stay the same from one IRP to the next unless the Company provides statistical and narrative evidence it has found a substantial improvement over the current method.

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Staff Recommendation No. 3

In the 2018 IRP, the Company projected higher future commercial customer usage than in the 2016 IRP. Staff reviewed Company responses to data requests on this topic and in final comments, Staff recommended NWN use the NAICS or SICS database to improve its commercial load forecasting.

NWN replied in final comments that it currently collects commercial activity data for new customers and will “investigate the viability of tracking usage by market segments by NAICS industry for future IRPs.”

Staff Conclusion:

Staff appreciates NWN’s willingness to investigate the use of NAICS in future IRPs and looks forward to seeing this methodology in future IRPs.

Staff Recommendation No. 3

A common tool used within load forecasting to track the usage of market segments is tracking customers with the NAICS or SICS database. Staff recommends that NW Natural pursue the creation of such a tool for the next IRP.

Staff Recommendation No. 4

In the Company’s load forecasting, the Company used nine different “interaction terms.” Generally in forecasting, an interaction term should be included when the forecaster believes that the impact of one variable on demand is dependent on the value of another variable. In final comments, Staff recommended NWN follow the forecasting principle of parsimony and use automated stepwise regression and cross validation in load forecasting.

NW Natural expressed openness in its final comments to working with stakeholders through technical working groups (TWG) to “address Staff’s concerns regarding model evaluation and specification testing for the 2020 IRP.”

Staff Conclusion:

Staff appreciates the Company’s willingness to work with stakeholders and looks forward to further conversation on this topic.

Staff Recommendation No. 4

Staff recommends the Company work with Staff and stakeholders through technical working groups to address Staff’s concerns regarding model evaluation and specification testing for the 2020 IRP.

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Staff Recommendation No. 5

In the 2018 IRP, NW Natural changed how it approaches its capacity planning standard. The Company transitioned to a statistical planning methodology designed to "...serve the highest firm sales demand day in each gas year with 99% certainty". Previous IRPs used a standard based on a rolling 30 years of weather and non-weather variables. The new methodology is intended to reduce instability in planning resulting from the introduction of new record cold days into the rolling 30-year time period or from record-cold days falling off of the rolling 30-year time period. In opening comments, Staff proposed using a rolling 50-year time horizon instead of an accumulating history beginning in 1916. Staff's concern was that incorporating data over the longer time horizon was unnecessary for stability and could mask climate trends in the nearer term.

In reply comments, the Company did not agree that a 50 year planning standard would represent an improvement over a standard that uses the "full historical temperature record." The Company stated that a 50-year timespan could add instability, or could overstate or understate temperature trends.

In final comments, Staff recommended NWN coordinate stakeholder workshops regarding concerns about the Company's new probabilistic methodology for its capacity planning standard and peak hour standard for distribution system planning.

NW Natural replied in final comments that it "presents methodological information early in the TWG process" and looks forward to working with Staff at the technical working groups for the next IRP.

Staff Conclusion:

Staff finds that a TWG focusing solely on the probabilistic methodology, with workpapers submitted at least one week in advance, would be sufficient for stakeholders to review the methodology going into the next IRP.

Staff Recommendation No. 5

Prior to the 2020 IRP, Staff recommends NW Natural coordinate a TWG focused on the Company's method of implementing probabilistic methodology for the capacity planning standard and peak hour standard for distribution system planning. NWN should share the relevant modeling inputs, outputs, and workpapers with stakeholders at least one week in advance of the TWG.

Staff Recommendation No. 6

In final comments, Staff expressed appreciation to NW Natural for its ongoing work to refine estimates for different aspects of avoided costs, including the creation of new

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end-use load profiles to model savings and costs over time. Staff recommended NWN work with Staff to review proposed end use load profiles in UM 1893.

NW Natural replied in final comments that it looks forward to working with Staff, Energy Trust, and stakeholders in the UM 1893 process. However, the Company believes that it is the best party to collect data and estimate end use load profiles for its customers.

Staff Conclusion:

Staff appreciates the Company's continued participation in UM 1893, and hopes the Company will continue to consider the potential role of third parties in the development and review of any proposed end use load profiles. Further, Staff remains supportive of the end use load profiles selected and used by independent groups like Energy Trust and the Northwest Power and Conservation Council, per their own processes. Any future load shapes adopted by NWN that deviate from those used by independent groups should be clearly noted and explained in the IRP.

Staff Recommendation No. 6

Work with staff to review any proposed end use load profiles that deviate from those used by other independent regional organizations as part of UM 1893 and in their next IRP filing. The review may potentially involve third parties and additional supporting research.

Staff Recommendation No. 7

In the 2018 IRP, NWN proposed an Action Item to work through Energy Trust to acquire therm savings in 2019 and 2020. Staff appreciates NWN's cooperation in explaining to Staff details related to the modeling of demand side resources over the course of multiple meetings. Staff continues to recommend acknowledgement of NWN's action item to work through Energy Trust to acquire energy savings in 2019 and 2020.

Staff Recommendation No. 7

Staff recommends acknowledgement of NWN's Action Item number 9: Working through Energy Trust, NW Natural will acquire therm savings of 5.2 million therms in 2019 and 5.4 million therms in 2020, or the amount identified and approved by the Energy Trust board.

Staff Recommendation No. 8

NW Natural received acknowledgement of its 2016 IPR Action Item to
"Work with Energy Trust of Oregon to further scope a geographically targeted DSM pilot via accelerated and/or enhanced offerings ("Targeted DSM" pilot) to measure and quantify the potential of demand-side resources to cost-effectively avoid/delay gas distribution system reinforcement projects in a timely manner

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and make a Targeted DSM pilot filing with the Oregon Public Utility Commission (OPUC) in late 2017 or early 2018.”

Although the targeted DSM project was not included as an action item in the 2018 IRP, the Company is moving forward with the project. Since the 2018 IRP was filed, the Company has held several targeted DSM workshops with Staff and other stakeholders.

In final comments, Staff expressed concern about the apparent delay in a targeted DSM filing, especially given the significant distribution reinforcement projects included in the 2018 IRP. Staff recommended that NWN should launch its targeted DSM pilot in 2019.

Staff thanks NWN for presenting a proposed timeline for the GeoTEE pilot at a workshop on January 17, 2019, and for including in final comments a thorough description of the state of its GeoTEE locational DSM pilot. Pilot activities are expected to begin in the summer of 2019.

Staff Conclusion:

Staff understands that the pilot program is a complex multi-year process. Staff requests NWN continue working with Staff and stakeholders on the specific form that the pilot will take, especially during the third year of pilot activities.

Staff Recommendation No. 8

Staff recommends NWN continue to include Staff and stakeholders in the planning and implementation of the targeted DSM pilot with the Commission in 2019.

Staff Recommendation No. 9

Staff recommended in final comments that NWN hire a third party to perform a Demand Response Potential study. Staff elaborated that a more thorough consideration of demand response as an alternative to pipeline reinforcements and RNG would be a valuable improvement to the IRP process.

In its final comments, NWN expressed uncertainty as to how the Company could have better evaluated additional options currently available to NWN. NWN expressed uncertainty regarding whether a third party is a preferable option.

Staff Conclusion:

Staff appreciates that the Company plans to study additional demand response options. While NW Natural has put in both reasonable and proactive effort to explore Demand Response resource options, Staff wishes to ensure all plausible avenues are explored before embarking on potentially more expensive and more risky options. Recently

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launched pilots, like those of Consolidated Edison in New York, give Staff confidence that options can be explored prior to launching any programs.¹⁰

Staff finds that an investment in a third party study is a reasonable way to determine whether or not there are other demand response opportunities. It is standard practice for electric utilities to have a third party perform this kind of study. Staff continues to recommend a third party Demand Response Potential Study to help NWN identify additional potential sources of demand response.

Staff Recommendation No. 9

Staff recommends NWN hire a third party to perform a Demand Response Potential Study in its service territory. This analysis should include an independent review of NWN's analysis of their interruptible rates as a DR option.

Staff Recommendation No. 10

In the 2018 IRP, NWN provided information on supply side resource plans for the near-term that it did not also include in the 2018 Action Plan. These actions included capital projects at the Portland Gasco LNG Plant that could have a total cost of roughly \$40 million, and a study on compressor replacement at the Miller Station.¹¹ In final comments, Staff recommended NWN provide more detail on potential future supply-side resource investments in future IRPs. Staff also recommended the Company include any significant investments in the IRP Action Plan.

In final comments, NWN indicated that it believes its criteria for including a resource in an Action Plan is consistent with "past guidance from OPUC Staff and Commission." The Company explained that the Portland Gasco plant study was not included in the Action Plan because it can be qualified as 'normal good business practice.'

Staff Conclusion:

Staff appreciates the Company's explanation of its criteria for including items in its Action Plan. Staff agrees that the Portland Gasco plant study could potentially be qualified as 'normal good business practice,' however the actual repair and/or replacement of components of the Gasco plant is likely to be a major investment.

In evaluating all known resources, whether they are currently available or not, more, rather than less, information is preferred to be included in the IRP.¹² Staff appreciates

¹⁰ See "Consolidated Edison gets approval for natural gas demand response pilot," November 2, 2018, US DOE Energy Information Agency, <https://www.eia.gov/todayinenergy/detail.php?id=37412>.

¹¹ NW Natural. 2018 Integrated Resource Plan. Pages 6.23 and 6.24.

¹² Order No. 07-002 at 3-4.

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the information the Company has provided regarding its evaluation of the Gasco plant. With respect to the action plan, resources included in the action plan are not limited to major resources, but encompass:¹³

“Resource activities the utility intends to undertake over the next two to four years to acquire the identified resources, regardless of whether the activity was acknowledged in a previous IRP, with the key attributes of each resource specified as in portfolio testing.”

The question of whether to include the Gasco study in the Action Plan highlights some ambiguity about the criteria for an item of this nature to be included in an Action Plan. The Gasco study and potential Gasco maintenance expenses are not necessarily resource decisions in the same way that a new pipeline or a new RNG facility would be a resource acquisition but are significant investments that may facilitate future use of the resource. Staff notes significant capital investment in electricity generation units that allow the unit to continue to operate are generally considered appropriate for inclusion in an electric utility’s IRP action plan. Acknowledgement of this type of investment in an action plan could provide helpful background for future Staff during prudence review for inclusion of these expenses in rates. By not including this investment in the action plan NWN is signaling that it is not seeking acknowledgement of the investment and recovery of the costs will be reviewed accordingly. Staff agrees with NWN that inclusion of this investment in the plan should not be equated with acknowledgment of the facility as a resource acquisition.

Staff Recommendation No. 10

For significant maintenance projects and studies that could result in significant capital investments to facilitate future use of the resource, Staff recommends the Company consider including these projects in future Action Plans.

Staff Recommendation No. 11

In the 2018 IRP, NW Natural included four carbon price paths in its stochastic portfolio risk analysis. However, it did not include a price path to represent the risk that no carbon price is enacted over the planning horizon. In final comments, Staff recommended including a carbon price path to represent the risk of a low or zero carbon price over the planning horizon and to represent the possibility that a carbon price does not start until 2030.¹⁴

In final comments, NWN agreed to include a carbon price path to represent the risk of no carbon price. However NWN also stated that “compliance costs are likely to occur in

¹³ Id at 23, Appendix A at 5.

¹⁴ LC 71. Staff Final Comments. Page 10.

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the near future and delaying the potential start date back to 2030 is a less reasonable assumption than 2026.”

Staff Conclusion:

Staff has considered NWN’s final comments and finds that extending the carbon price timeline from 2026 to 2030 is not necessary given the current momentum for carbon pricing in both Oregon and Washington. However, Staff notes that the timeline could be extended in the future if the political environment changes.

Staff Recommendation No. 11

For any state that continues not to have a carbon policy by the next IRP, include an additional carbon price path in the stochastic analysis that is near or equal to zero.

Staff Recommendation No. 12

In the 2018 IRP, NWN requested acknowledgement of six different distribution reinforcement projects. However, in opening comments, Staff found that the Company had not provided sufficient information for Staff to recommend acknowledgement of \$65 million in distribution projects.¹⁵

Through the IRP process, Staff worked with the Company at distribution workshops and reviewed responses to Staff data requests. In final comments, Staff recommended acknowledgement of the Hood River and South Oregon City distribution projects, but could not recommend acknowledgement of NWN’s four other proposed distribution projects because there was still a lack of data and justification provided by NWN through the IRP process until that point in time.

Following Staff’s final comments, NWN met with Staff at a distribution workshop on February 7, 2019. At the workshop, Staff provided NWN with a list of the additional data and information that Staff required before reconsidering its recommendation. Specifically, Staff requested: all relevant pressure readings from the area surrounding the proposed projects, modeling output from Synergi for the same weather conditions at the same location of each pressure reading, and an in-depth explanation of the engineering basis for NWN’s high-pressure distribution system reinforcement standards.

In response to Staff’s request, NWN provided additional data and information in its final comments, including supplemental responses to two Staff data requests.¹⁶ The Company provided tables comparing the actual pressure reads near the Happy Valley and Eugene projects with Synergi model output to demonstrate the accuracy of the

¹⁵ LC 71. Staff Opening Comments. Page 23.

¹⁶ LC 71. NW Natural Final comments. Attachments 1 and 2.

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model. The tables provided in NWN's final comments contain precisely the information that Staff requested at the distribution workshop of February 7, 2019.

For the Happy Valley project, the Company was able to locate additional pressure readings from the area surrounding the proposed distribution projects. The new data shows that a NWN system standard was violated in Happy Valley on January 4, 2017. Additionally, NWN provided a side-by-side comparison of actual pressure readings with Synergi modeling output, demonstrating the accuracy of the Synergi model.

For the Sandy Feeder and Kuebler projects, the company provided pages from the Gas Engineering and Operating Practices (GEOP) engineering textbook justifying the Company's high-pressure distribution reinforcement standard along with explanation and further justification of the standard.¹⁷

Staff Conclusion:

NWN's final comments, in combination with the supplemental responses to Staff Data Requests 52 and 95, demonstrate to Staff's satisfaction that the Kuebler, Sandy Feeder, and Happy Valley projects are justified.

Staff Recommendation No. 12

Based on evidence made available by NWN since Staff's final comments, Staff recommends acknowledgement of the following distribution projects:

- The Hood River project;
- The South Oregon City project;
- The Kuebler project;
- The Sandy Feeder project; and the
- Happy Valley project.

Staff Recommendation No. 13

In the 2018 IRP, NW Natural described its distribution system planning process as using a peak hour forecast in its Synergi distribution model.¹⁸ However, throughout the IRP process, there was continued uncertainty about whether the Company had based its distribution system modeling on actual temperatures from a January 2017 weather event, or had used a peak forecast to justify the need for distribution reinforcement.

After a meeting with Staff regarding distribution projects on February 7, NWN reported to Staff that, for the Happy Valley and North Eugene projects, the distribution modeling used system peak weather, and not actual weather conditions. All other distribution modeling had used actually observed weather conditions. The Company further

¹⁷ LC 71. NWN Final Comments. Attachment 1. Pages 4-12.

¹⁸ NW Natural 2018 Integrated Resource Plan. Page 8.5.

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reported that when the North Eugene project is modeled using actual weather data, no reinforcement standard violations are reported by the model.

In final comments, NWN explained that because system reinforcement standard violations have not been shown for the North Eugene reinforcement project in the operational data, and modeling does not show distribution system planning standard violations at actual temperatures from January 2017, the Company will remove the Eugene project from the Action Plan in the 2018 IRP while continuing to monitor the area of concern.

Staff Conclusion:

The lack of standard violations under observed 2017 weather, in combination with the concerns expressed by CUB regarding potential fuel switching in Eugene, lead Staff to believe the Eugene project is not needed at this time.

Staff Recommendation No. 13

NW Natural should continue to monitor the area of concern in North Eugene and report back in a future IRP or IRP update if there is a violation of distribution system planning standards.

Staff Recommendation No. 14

The RNG evaluation methodology in Appendix H of the 2018 IRP proposes using avoided cost values to establish whether a specific RNG contract or project is cost effective compared to the procurement of conventional gas. On-system RNG has the potential to provide value to customers by allowing NW Natural to delay or forego distribution and capacity investments. Additionally, both on-system and off-system RNG may provide cost savings from avoided greenhouse gas compliance costs. NW Natural proposes to use an avoided cost methodology to evaluate RNG resources outside of the IRP process.

In opening comments, Staff commended NWN for its leadership in presenting the Appendix H methodology for evaluating RNG. Staff indicated that it would like to better understand how the Appendix H methodology meets the IRP guideline that "all resources must be evaluated on a consistent and comparable basis." Staff requested an additional RNG methodology workshop.

In final comments, Staff expressed concerns about the difficulty of accurately predicting greenhouse gas policy outcomes, the importance of up-to-date modeling inputs and assumptions, and the lack of a detailed description of how the RNG evaluation methodology is implemented in the SENDOUT modeling software. To address these concerns, Staff requested NWN re-file Appendix H with several changes:

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- Update GHG policy expectations.
- Include zero or low-price carbon price path in stochastic analysis and allow a carbon price to begin as late as 2030.
- Update any inputs, assumptions, or forecasts to the Appendix H methodology at the time the Company evaluates a potential RNG project.
- Provide a detailed description of the SENDOUT RNG modeling process.

NWN indicated in final comments that it will re-file Appendix H and agreed with the following points:

- Assumptions regarding GHG policy should be updated.
- Include a zero-price carbon price path in the stochastic analysis.
- Use the best knowledge available at the time of evaluating a potential RNG project.
- File a more detailed description of the SENDOUT RNG modeling process in the revised Appendix H.

NWN did not agree with Staff's proposal to allow a carbon price to begin as late as 2030.

Staff Conclusion:

Staff is amenable to keeping NWN's original assumption that a carbon price will begin by 2026. However, this assumption may be revisited in the future if a carbon price begins to look less probable in Oregon and Washington.

Staff Recommendation No. 14

Staff recommends that NW Natural Re-file Appendix H to address the concerns identified by Staff in Final Comments and further elaborated in the Staff Report.

Staff Recommendation No. 15

In the 2018 IRP, NWN included an Action Item to use the methodology detailed in Appendix H to evaluate renewable natural gas (RNG) resources against conventional sources based on all-in costs, where all-in costs are defined as:

All-in costs = Net Present Value ([cost for delivered gas] + [net GHG emissions intensity*Cost of GHG Emissions Compliance] – [avoided supply capacity costs] – [avoided distribution capacity costs]).

After a thorough evaluation of the RNG evaluation methodology in Appendix H and several workshops with the Company on the subject of RNG, Staff expressed concern in final comments about the risks to ratepayers in acknowledgement of an evaluation methodology without any limit on the quantity of RNG acquisition in the near-term.

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Staff recommended that NWN re-file the Renewable Natural Gas (RNG) action item in its 2018 IRP. Staff proposed a limited and guided process of bringing RNG deemed cost-effective by the Appendix H RNG evaluation methodology onto NWN's system. Specifically, Staff recommended NWN file a revised action item requesting acknowledgement of up to 3.5 million therms of RNG acquisition over the next two years. Staff also recommended NWN participate in an investigation into the Appendix H RNG evaluation methodology with Staff and stakeholders. Staff proposed a limit of 3.5 million therms of RNG acquisition over the next two years as a limit representing about one-third the amount of energy efficiency the Company will acquire over the next two years.

In NWN's final comments, NWN indicated that the limit proposed by Staff "could present complications due to the dynamics of the RNG market."¹⁹ NWN indicated that a two-year cap would likely not be workable given that delivery of gas may occur over a longer time horizon than two years. NWN also stated that the total amount of RNG acquired by NWN would likely exceed the 3.5 million therms limit proposed by Staff. NWN proposed to instead use a limit of 2 percent of NW Natural's forecasted annual sales load. NWN reports that this would equal roughly 15.5 million therms per year by today's sales load.

Staff appreciates NWN's consideration of Staff's proposal. After reviewing NWN's final comments, Staff would like to clarify two points:

1. Staff's proposal is not intended to preclude long-term RNG contracts. NWN's 2018 IRP contemplated long-term RNG contracts of ten years or more. In line with the 2018 IRP, Staff's recommendation is for acknowledgement of long-term contracts or other investments deemed cost-effective by Appendix H, up to a reasonable limited quantity.
2. Staff intends for NWN to be able to act quickly to respond to RNG opportunities deemed cost effective by Appendix H, without waiting for Staff or stakeholder review. Staff simply requests that in the investigation, NWN share the modeling inputs, outputs, and contract details for any RNG projects the Company intends to pursue, thirty days in advance of acquiring any RNG. To be clear, the Company would not be expected to wait for Staff or stakeholders to review the workpapers before signing a contract or beginning a project. The workpapers would be provided for the information of the Commission, Staff, and stakeholders to help inform the investigation.

¹⁹ LC 71. NW Natural Final Comments. Page 23.

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Staff Conclusion:

Having considered NWN's final comments, Staff is supportive of increasing the amount of RNG NWN may acquire within the investigation to 4.5 million therms per year, over a timespan of up to 10 years. In total, this would mean acknowledgement of up to 45 million therms of RNG. While this is less than thirty percent of the amount requested by NWN in final comments, it is on the scale of existing RNG projects described by NWN in final comments. NWN described landfill projects as having an average size of about 4.5 million therms per year, and other types of RNG having a similar scale to landfill RNG. NWN has also indicated that it could be possible to pursue contracts for only part of the output of a RNG project. Therefore, Staff believes that up to 4.5 million therms per year for up to ten years is a reasonable limit that is large enough to allow the Company to subscribe to a medium-scale project and benefit from the diversification of its resource portfolio beyond conventional gas. This quantity is also small enough to manage risk to ratepayers involved in the adoption of a new resource acquisition methodology. 4.5 million therms represents less than half of one percent of NWN's forecasted Oregon sales load in 2019.²⁰

Staff Recommendation No. 15

- (a) As part of an RNG investigation, Staff recommends NWN provide modeling inputs, outputs, and other relevant workpapers to parties in the investigation docket at least 30 days before signing any RNG contract or initiating any RNG project.
- (b) Staff recommends acknowledging a revised action item for RNG: "NW Natural will participate in an investigation into the use of the Company's proposed methodology to evaluate renewable natural gas (RNG) cost-effectiveness. Until the investigation is complete, NW Natural will procure RNG deemed cost-effective through the methodology in revised Appendix H, up to a 4.5 million therm annual limit on total delivery, for up to ten years (up to 45 million therms in total). The investigation will review the appropriate process for procuring cost-effective RNG resources that do not align with the timeline of acknowledgement in an IRP as well as review the 4.5 million therm annual limit on cost-effective RNG procurement. If NW Natural seeks to procure additional cost-effective RNG before the conclusion of the investigation, it will seek acknowledgment in an IRP update. If the investigation results in the 4.5 million therm annual limit being adjusted or eliminated, or in other changes, the Commission may direct NW Natural to file an update to reflect its findings."

²⁰ Based on data from UG 344, NWN's recent Oregon rate case.

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Summary of CUB's Final Comments

In its final comments, CUB agreed with Staff on the acknowledgement of Hood River and South Oregon City reinforcement projects, as well as the need for more data before recommending acknowledgement of the Happy Valley, Kuebler, Sandy Feeder, and North Eugene reinforcement projects. CUB emphasized the importance of addressing fuel switching when assessing the North Eugene Reinforcement project. CUB was generally supportive of Staff's recommendations regarding the Company's RNG evaluation methodology. CUB also recommended a RNG pilot program that would be subject to prudence review.

Summary of AWEC's Final Comments

AWEC emphasized that NW Natural has the burden to demonstrate the need for each distribution reinforcement project, and supported Staff's recommendation to await more data and analysis before acknowledgement of the Happy Valley, Kuebler, Sandy Feeder, and North Eugene projects.

AWEC also cautioned that a RNG pilot program may be premature, given that legislation is currently being proposed to allow RNG acquisition by Oregon utilities. AWEC was not opposed to efforts to get biogas to the utility's system, but was concerned about creating unrealistic expectations or driving up costs. AWEC expressed concerns about acknowledging an RNG evaluation methodology without clear guidelines, goals, cost limitations and prudence reviews.

Conclusion

In conclusion, Staff recommends that the Commission acknowledge the following fifteen recommendations and two revisions to NWN's 2018 Action Plan:

Staff Recommendation No. 1

Staff recommends that the Company provide a narrative in the next IRP to explain the factors that led to the Company's choice for the blending and transitioning years from the SME panel forecast to the econometric forecast, as well as supporting statistical analysis.

Staff Recommendation No. 2

Staff recommends the establishment of a consistent standard relating to the year in which the Company blends and fully transitions from the SME panel to the econometric forecast. The standard should stay the same from one IRP to the next unless the Company provides statistical and narrative evidence it has found a substantial improvement over the current method.

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Staff Recommendation No. 3

A common tool used within load forecasting to track the usage of market segments is tracking customers with the NAICS or SICs database. Staff recommends that NW Natural pursue the creation of such a tool for the next IRP.

Staff Recommendation No. 4

Staff recommends the Company work with Staff and stakeholders through technical working groups to address Staff's concerns regarding model evaluation and specification testing for the 2020 IRP.

Staff Recommendation No. 5

Prior to the 2020 IRP, Staff recommends NW Natural coordinate a TWG focused on the Company's method of implementing probabilistic methodology for the capacity planning standard and peak hour standard for distribution system planning. NWN should share the relevant modeling inputs, outputs, and workpapers with stakeholders at least one week in advance of the TWG.

Staff Recommendation No. 6

Work with staff to review any proposed end use load profiles that deviate from those used by other independent regional organizations as part of UM 1893 and in their next IRP filing. The review may potentially involve third parties and additional supporting research.

Staff Recommendation No. 7

Staff recommends acknowledgement of NWN's Action Item number 9: Working through Energy Trust, NW Natural will acquire therm savings of 5.2 million therms in 2019 and 5.4 million therms in 2020, or the amount identified and approved by the Energy Trust board.

Staff Recommendation No. 8

Staff recommends NWN continue to include Staff and stakeholders in the planning and implementation of the targeted DSM pilot with the Commission in 2019.

Staff Recommendation No. 9

Staff recommends NWN hire a third party to perform a Demand Response Potential Study in its service territory. This analysis should include an independent review of NWN's analysis of their interruptible rates as a DR option.

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Staff Recommendation No. 10

For significant maintenance projects and studies that could result in significant capital investments to facilitate future use of the resource, Staff recommends the Company consider including these projects in future Action Plans.

Staff Recommendation No. 11

For any state that continues not to have a carbon policy by the next IRP, include an additional carbon price path in the stochastic analysis that is near or equal to zero.

Staff Recommendation No. 12

Based on evidence made available by NWN since Staff's final comments, Staff recommends acknowledgement of the following distribution projects:

- The Hood River project;
- The South Oregon City project;
- The Kuebler project;
- The Sandy Feeder project; and the
- Happy Valley project.

Staff Recommendation No. 13

NW Natural should continue to monitor the area of concern in North Eugene and report back in a future IRP or IRP update if there is a violation of distribution system planning standards.

Staff Recommendation No. 14

Staff recommends that NW Natural Re-file Appendix H to address the concerns identified by Staff in Final Comments and further elaborated in the Staff Report.

Staff Recommendation No. 15

- (a) As part of an RNG investigation, Staff recommends NWN provide modeling inputs, outputs, and other relevant workpapers to parties in the investigation docket at least 30 days before signing any RNG contract or initiating any RNG project.
- (b) Staff recommends acknowledging a revised action item for RNG: "NW Natural will participate in an investigation into the use of the Company's proposed methodology to evaluate renewable natural gas (RNG) cost-effectiveness. Until the investigation is complete, NW Natural will procure RNG deemed cost-effective through the methodology in revised Appendix H, up to a 4.5 million therm annual limit on total delivery, for up to ten years (up to 45 million therms in total). The investigation will review the appropriate process for procuring cost-effective RNG resources that do not align with the timeline of acknowledgement in an IRP as well

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as review the 4.5 million therm annual limit on cost-effective RNG procurement. If NW Natural seeks to procure additional cost-effective RNG before the conclusion of the investigation, it will seek acknowledgment in an IRP update. If the investigation results in the 4.5 million therm annual limit being adjusted or eliminated, or in other changes, the Commission may direct NW Natural to file an update to reflect its findings.”

NWN's 2018 Revised Final Action Plan

Staff and NWN have worked together to develop a revised final Action Plan. The following are NWN's revised and final Action Items that are relevant to Oregon. The second Action Item has been amended to reflect Staff's proposal for limited acknowledgement of RNG acquisition through Appendix H. The North Eugene distribution reinforcement project has been removed from this revised, final Action Plan. Staff recommends acknowledgement of NW Natural's 2018 Action Plan as amended below

JOINT MULTIYEAR ACTION PLAN

Supply Resource Investments

- 1) Recall 10,000 Dth/day of Mist storage capacity for the 2020-21 gas year. Recall 35,000 Dth/day of Mist storage capacity for the 2021-22 gas year.
- 2) Use the methodology detailed in Appendix H to evaluate renewable natural gas resources against conventional sources based on all-in costs, where all-in costs are defined as:

All-in costs = Net Present Value ([cost for delivered gas] + [net GHG emissions intensity*Cost of GHG Emissions Compliance] - [avoided supply capacity costs] - [avoided distribution capacity costs])

NW Natural will participate in an investigation into the use of the Company's proposed methodology to evaluate renewable natural gas (RNG) cost-effectiveness. Until the investigation is complete, NW Natural will procure RNG deemed cost-effective through the methodology in revised Appendix H, up to a 4.5 million therm annual limit on total delivery, for up to ten years (up to 45 million therms in total). The investigation will review the appropriate process for procuring cost-effective RNG resources that do not align with the timeline of acknowledgment in an IRP as well as review the 4.5 million therm annual limit on cost-effective RNG procurement. If NW Natural seeks to procure additional cost-effective RNG before the conclusion of the investigation, it will seek acknowledgment in an IRP update. If the investigation results in the 4.5 million

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therm annual limit being adjusted or eliminated, or in other changes, the Commission may direct NW Natural to file an update to reflect its findings.

OREGON-ONLY ACTION PLAN

Distribution System Planning Projects

2. Proceed with the Hood River Reinforcement project to be in service for the 2019 heating season and at a preliminary estimated cost ranging from \$3.5 million to \$7 million.
3. Proceed with the Happy Valley Reinforcement project to be in service for the 2019 heating season and at a preliminary estimated cost ranging from \$3 million to \$5 million.
4. Proceed with the Sandy Feeder Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$15 million to \$21 million.
- ~~6) Proceed with the North Eugene Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$5 million to \$11 million.~~
- 6) Proceed with the South Oregon City Reinforcement project to be in service for the 2020 heating season and at a preliminary estimated cost ranging from \$4 million to \$6 million.
- 7) Proceed with the Kuebler Road Reinforcement project to be in service for either the 2020 or 2021 heating season and at a preliminary estimated cost ranging from \$14 million to \$20 million.

Demand Side Resources

- 8) Working through Energy Trust, NW Natural will acquire therm savings of 5.2 million therms in 2019 and 5.4 million therms in 2020, or the amount identified and approved by the Energy Trust board.

PROPOSED COMMISSION MOTION:

Acknowledge Northwest Natural Gas Company's 2018 IRP as consistent with the Commission's IRP guidelines, along with Staff's fifteen Recommendations. Acknowledge the Action Plan to the Company's 2018 IRP as amended and set forth in Staff's memorandum detailed in the conclusion above.