BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

NWN 2014

INTEGRATED RESOURCE PLAN

In the Matter of NORTHWEST NATURAL GAS UTILITIES COMPANY, dba NW NATURAL 2014 Integrated Resource Plan	STAFF'S INITIAL COMMENTS

The Public Utility Commission of Oregon Staff (Staff) files these initial comments on Northwest Natural Gas Company's (NWN or Company) 2014 Integrated Resource Plan (IRP or Plan), filed on August 29, 2014. Staff's comments are organized according to subject and address Staff's primary areas of initial focus. Staff continues to evaluate the Company's plan, conduct discovery and will review the participants' comments prior to issuing its final comments and recommendations in January 2015. A final order is expected to follow the Commission Public Meeting on February 24, 2015.

The informal technical working group meeting IRP process began in August of 2013. The informal process included seven technical meetings between August of 2013 and July of 2014.[1] Many participants attended and participated in these technical meetings, including Staff, Washington Utilities and Transportation Commission Staff, Citizens' Utility Board of Oregon (CUB), Northwest Industrial Gas Users (NWIGU), Northwest Power and Conservation Council (NWPCC), Washington Public Counsel, Northwest Energy Coalition, and Williams Pipeline.

Following the first four technical working group meetings, NWN filed a draft IRP on March 4, 2014. Informal comments regarding the draft plan were submitted by several of the participants. As a result of those comments and discussions during the technical meetings, NWN requested, and was granted, an extension to file its IRP on August 29, 2014, in order to allow NWN more time to perform additional analysis. The supplementary analysis resulted in a significantly different IPR Action Plan than that of its draft IRP plan.

[1] Technical working group meetings were held on August 22, 2013, October 2, 2013, January 23, 2014, March 7, 2014, April 3, 2014, and July 11, 2014, respectively.

The Action Plan

Resource Additions and Changes

The draft action plan in the draft IRP contained an action item that supported the development of a regional Cross-Cascades pipeline. The draft plan included moving forward with negotiation of a precedent agreement with Cross-Cascades pipeline sponsors and ultimate participation in the project as a shipper, contingent upon the results of an open season.

As a result of the additional analysis requested by the participants and completed by NWN during the four month extension granted by the Commission, the Company's conclusion regarding the Cross-Cascades pipeline moving forward without considering other options was revised in the filed IRP action plan (Action Plan). The Action Plan now contains an action item related to future pipelines and alternative resources. This approach is more flexible and preserves optionality for participating in multiple potential pipeline projects that may or may not ultimately move forward, as it is likely that if one pipeline is built another will not. The Action Plan now includes future additional analysis and future updates to the Commission before final resource decisions are made in the near term.

NWN is requesting acknowledgement of its Action Plan, which includes, but is not limited to, completing Clark County distribution projects to address Vancouver load center needs and refurbishments to its Newport Liquefied Natural Gas (LNG) Storage Facility. Both of these projects have phases that may have already commenced, which would exclude them from the Action Plan. Staff continues to investigate the status of these projects and will work with the Company and stakeholders to amend the Action Plan, if appropriate. Potentially, NWN could define the individual project phases that exist and include only those phases that have not begun for consideration for Commission acknowledgement.

Hedging

NWN is requesting acknowledgement of its revised hedging strategy intended to increase its long-term hedged position of gas requirements from the current level of approximately 10 percent up to 25 percent. At a Commissioner workshop on November 4, 2014, Commissioners stated that this is an important issue and indicated that there may be interest in bifurcation of the hedging consideration from the Company's 2014 IRP. Staff continues to explore the possibility of investigating NWN's proposed hedging strategy in a separate docket with the Company and IRP participants.

NWN's responses to Staff data requests DR 51 to DR 55 show that overall, NWN's hedging strategy has resulted in substantial losses for its customers for the period 2009 to 2014. Staff intends to request more data from the Company in order to make a more informed assessment of the rate impact of its hedging strategy. For NWN to increase its long-term hedge position of gas requirements from 10 percent up to 25 percent, the Company should also make a showing that its customers will be protected against unreasonable losses as a result of the increased long-term hedges. Staff will be

interested in a hedging strategy that provides the right incentives for the Company but at the same time protect its customers from gas price volatility and unreasonable losses.

Gas Requirement Forecast

Staff has performed a preliminary review of the load forecasting methodology contained in NWN's IRP. Data requests were propounded to facilitate an examination of the forecasting methodology and its performance. Below is a non-comprehensive list of issues that Staff will examine, with a brief description of each intended analysis.

- Commercial load growth forecast
  The Company is projecting substantially higher future commercial load growth compared to its 2013 Washington IRP. Staff will verify the assumptions and analysis behind this result.

- Existing customer attrition rates
  NWN uses attrition rates to approximate the number of existing customers that will remain in future periods. Staff will confirm that the rates used in the IRP are calculated using sound methods and reflect accurate and reliable trends during the planning period.

- Econometric forecasts
  NWN developed econometric models to forecast customer counts and usage per customer in the IRP. However, the specifications are not described in detail in the IRP. With regard to the econometric specifications, Staff will confirm that the models include appropriate key variables, do not exclude key variables, and appropriately specify the empirical model's error structure. With regard to forecast performance, Staff will confirm that the Company's forecast is not outperformed by other models that include appropriate explanatory variables and specifications of the error structure.

- Expert forecasts
  Several forecasts in the 2014 IRP rely solely, or in part, on projections developed by expert panels. Staff will confirm that the experts' assumptions are well-conceived, that the projections align with market conditions and recent economic trends, and that the panel members are qualified and capable subject matter experts.

- Design weather
  The IRP develops an annual HDD pattern that stresses the system based upon an annual load and system peak capabilities. Staff will examine this

"design weather" pattern to confirm that it is a reasonable representation of the potential stresses placed on the system by an extreme weather season. Staff will seek to understand the changes made to "design weather" from previous IRP's to ensure it represents an improvement of system planning.

- Price forecast
  The IRP uses a proprietary gas spot price forecast as an input to the SENDOUT resource planning optimization model. Staff will validate that the base forecast is appropriate and that the "High Gas" and "Low Gas" sensitivity forecasts used in the IRP appropriately reflect the band of uncertainty surrounding future gas prices.

- South Salem Feeder
  NWN is planning construction of the South Salem Feeder as a response to a reported increase in load. Staff will confirm that these projected load increases are appropriately forecasted and sufficient to warrant the construction project.

Supply-Side Resources

Supply Diversity and Risk Mitigation Practices

IRP Guideline 13 states:

> Guideline 13: Resource Acquisition.
>
> *b. Natural gas utilities should either describe in the IRP their bidding practices for gas supply and transportation, or provide a description of those practices following IRP acknowledgment.*

Staff notes that Chapter 3 of NWN's IRP includes a brief discussion of NWN's Supply Diversity and Risk Mitigation Practices. This discussion, however, does not provide sufficient detail to allow Staff to do a thorough review of the purchasing, hedging and risk management plans, policies and strategies. As a result, Staff issued data request 35 and NWN responded with the following response:

> "The Gas Supply Risk Management Policies (GSRMP) is provided each year to the OPUC in the Purchased Gas Adjustment filing. The most current version was included as Attachment 1 to V.6 in Exhibit C in UG 278. The GSRMP is highly confidential and was provided under the protections granted in the modified protective order No. 10-337.

> These policies apply to physical commodity as well as financial derivative transactions. The GSRMP establishes the approved trading instruments, limitations as to trade positions (volumes and dollars), and authorization levels for specified personnel within the Company."

Staff believes this response demonstrates that there is an inadequate recognition of the Guideline 13 requirement. First, the IRP, not the PGA, is the correct proceeding for vetting resource acquisition decisions, including the decision process. The PGA is the proceeding where the result of the vetted resource acquisition decisions and process is reviewed. Second, the IRP provides insufficient detail to allow Staff and participants to do a thorough review of the purchasing, hedging and risk management plans, policies and strategies.

Staff is reviewing the most current version of the GSRMP, which was attached to NWN's response to data request 35 and will include resulting concerns in its final comments.

NWN's plan for the South Salem Feeder project is discussed on page 7 and pages 13-14. The last sentence of the discussion states that the only other alternative is improved Grants Pass Lateral takeaway with new pipeline capacity to the Salem gate stations. Page 6.9 discusses that an Aurora Compressor or Newberg to Central Coast Feeder project could also satisfy the need. It is unclear from the IRP whether all three or four alternative approaches to satisfying the Salem need were included in the SENDOUT model for selection. If there was external analysis that resulted in the selection of the South Salem Feeder to satisfy the need, then the IRP is unclear that the analysis was conducted. Staff intends to recommend that a clear and comprehensive presentation of the alternatives, their analysis, and the conclusion be provided in this IRP.

Demand-Side Resources and Avoided Cost Determination

The IRP's Action Items related to demand side resources are 3.1, 3.2 and 5.6. These items state:

3.1 Explore assessing a premium value to account for any natural gas price volatility hedging value associated with DSM energy savings.

3.2 Follow Oregon Docket No. UM 1622 and revise annual DSM targets as needed in accordance with any changes to the program resulting from Energy Trust requested investigation into the exceptions to cost effectiveness guidelines.

5.6 Continue acquiring cost effective therm savings through energy efficiency programs administered by Energy Trust of Oregon.

NWN worked with the Energy Trust to forecast the 20-year demand side management (DSM) potential for the Company's service territory. The forecast of cost effective therm savings was included in NWN's IRP model as a reduction to demand for each load

center. Staff sent a data request to the Company and is working to verify how loads are being reduced to reflect cost effective DSM potential.

As part of establishing the cost effective savings potential, the Energy Trust, on behalf of NWN assessed the net present value of the costs that would be avoided by installing each measure. Staff has sent a data request to confirm the details of how avoided costs are being calculated. Staff is also confirming how spillover and free ridership are being accounted for.

Page 4.1 of the IRP states that the Company can achieve a DSM potential of 20.5 million therms by 2018 and over 47.7 million therms by 2033 in its Oregon service territory. Of the 47.7 million therms by 2033, 35 million represent cost effective therms of traditional DSM potential while the remaining 12.6 million therms represent market transformation savings. These numbers only include savings that are determined by the Energy Trust to be cost effective. They do not include savings from measures for which the Commission provided exceptions in OPUC Docket UM 1622, Order No. 14-322.

In response to Staff data request, the Company provided specific DSM savings targets for 2015 and 2016. These near term targets were not included in the filed IRP documents. The DSM targets provided for 2015 and 2016 are 4.6 million therms and 3.9 million therms, respectively. These also do not include non-cost effective measures for which exceptions were approved by the Commission as part of UM 1622. NW Natural filed their IRP on August 29, 2014 prior to Order No. 14-322 being issued in UM 1622 on October 1, 2014.

In Order No. 14-322, the Commission agreed to cost effectiveness exceptions for the following measures:

- Single family and multifamily residential ceiling insulation
- Air sealing pilot for air sealing as an added requirement for ceiling insulation
- Manufactured home air sealing and duct sealing
- 0.67 and 0.70 efficiency factor (EF) water heaters
- Spa covers
- New homes builder option package with 0.67 water heater
- New commercial buildings condensing tank water heater
- New commercial buildings market solutions packet

Additionally, in Order No. 14-322 the Commission stated:

1) The current weatherization measures will continue through April 30, 2014;
2) Staff is directed to report back in six months on the development of a hedge value for natural gas; and

3) In six months, the Commission is open to considering the idea of an incentive cap proposal-especially for moderate income and multi-family customers-that includes the following elements:
   a) Meaningful reduction in incentives;
   b) Strong protocols to minimize free riders; and
   c) A design that favors lowest cost, highest savings measures.

NWN indicates that it plans to include in its next annual IRP update a discussion of the impact that the conclusion of UM 1622 proceeding will have on its energy efficiency acquisition targets.

In response to a Staff data request, the Company provided savings potential for non-cost effective measures, including those which the Commission approved exceptions for in UM 1622. However, in response to a different Staff data request, the Company restates that it does not plan to update its savings targets to reflect UM 1622 during this IRP. Rather, the Company indicated it will provide an updated 20-year savings deployment as part of the IRP annual update that will be filed one year after acknowledgement of the 2014 IRP. The Company states that it is useful to wait to do this analysis because by then they should have a proxy hedge value added to avoided cost and "we may have a decision on the proposed incentive cap – both issues raised in UM 1622 that may offset some of the savings lost through measures that were not granted exceptions."

Staff sent additional data requests and is considering whether or not to recommend the Company update targets as part of this IRP to include savings for which the Commission granted cost effectiveness exceptions, or whether the Company's original targets should be supported with an understanding that updated numbers will be provided in the next annual IRP update. Outside of this docket, NW Natural and Energy Trust have agreed on DSM targets for 2015 and 2016, which are included in the Energy Trust's draft budget and action plan currently under review. These targets are higher than what is included in this IRP. Therefore, even if NW Natural waits until the next annual IRP update to update targets as a result of the UM 1622 outcome, the actual Energy Trust acquisition targets for 2015 are not limited to the pre-UM 1622 exception potential contained in this IRP.

The Company does not provide in its Action Plan the DSM targets for the next two to four years. IRP Guideline 4(n) from Order No. 07-047 states that all IRPs must include:

> *An action plan with 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.*

Guideline 1(a) of Order No. 07-047 states that all resources must be evaluated on a consistent and comparable basis, including supply-side and demand-side options.

Therefore, the Company needs to include demand side resource acquisition targets for all cost effective demand side resources for the next two to four years in its Action Plan.

Energy Policies and Environmental Considerations

Guideline 8 (Environmental Costs) requires utilities to conduct a time profile of CO_2 compliance requirements and to conduct an "analysis that recognizes significant and important upstream emissions that would likely have a significant impact on its resource decisions." Staff is concerned that all of the climate change risks and opportunities beyond the immediate regulatory effects of EPA's 111 (d) rule are not currently accounted for in the planning cycle. Indeed, EPA's 111(d) may well result in fuel substitution away from coal to natural gas which may significantly push natural gas prices upward. Increased demand for natural gas combined with increased natural gas prices would in turn lead to greater demand for demand side management solutions. Therefore, Staff believes it is time for NWN to begin exploring how to analyze climate change risks and opportunities. Staff will recommend that the Company and participants begin these discussions as part of NWN's next IRP process.

Linear Programming and Risk Analysis

The process of developing and comparing prospective supply portfolios is complicated in the current NWN context because of the Company's supply dependency on interstate pipeline companies whose future expansions are something which NWN can influence, but cannot control.

a) Illustration: Opening up coastal LNG export terminals will affect interstate pipeline expansion paths and also influence regional gas wholesale prices.

NWN's Coping Strategy: The Company develops several feasible basic environmental scenarios (e.g. capturing different interstate pipeline expansion routes) and then develops a few reasonable alternative portfolios more or less specific to each scenario.

b) For each of the five base scenarios, the portfolio with the lowest expected twenty-year present-value-revenue requirement (PVRR[2]) is identified.[3]
   i) The three cost components are Supply NPVRR, Transportation NVPRR, and Storage NVPRR. Ballpark figures for those components are, respectively, in millions, $4,750, $1,400, and $450.[4]

c) The analysis does not go beyond that by virtue of developing PVRR probability distribution functions so that, for example, the 90-percentile high PVRRs can be determined. (For example, Portfolio B may be chosen over minimum-expected-

[2] "NVPRR" first appears on page 7.14, but is not defined. Staff is assuming the twenty years and that the NPVRRs assume normal weather.
[3] *See* page 7.17.
[4] *See* page 7.15.

PVRR portfolio A if B's 90-percentile-high-PVRR is substantially lower than A's. That represents the cost-risk trade-off.)

i) "Each portfolio is constructed around a weather pattern that represents the 90th percentile of winter weather conditions with an extreme weather event imposed…."[5] But, it is unclear if NWN did any optimization on the basis of normal weather with an eye to performance under adverse weather conditions. Assuming least cost portfolios that targeted normal weather had been constructed, a meaningful cost/risk evaluation would have been to plot, for each portfolio, the normal-weather NPVRR on the X-axis and the 90th-percentile-weather NPVRR on the Y-axis. The apparent best-risk portfolio may well have been the one with neither the lowest normal-weather NPVRR nor the lowest 90th-percentile-weather NPVRR.

The conventional approach to risk evaluation which Staff performs with electricity does not work as well for natural gas. The electricity-based approach is as follows: For each studied resource portfolio, develop revenue requirement probability distribution functions by using Monte Carlo simulations whose inputs are the probability distribution functions for weather (primarily hydro conditions), gas and electricity wholesale market prices, and load volatility. Because electric utilities can deploy resources that employ different fuels and can substitute its own production for market purchases, the revenue requirement distributions have meaning in terms of making a best cost/risk portfolio selection. But Oregon gas utilities do not generally produce natural gas, nor is there a meaningful fuel substitution that would make one particular portfolio less risky than another.

That being said, NWN did estimate levels of lost sales (i.e., "energy-not-served") *assuming* the one-in-five year GASCO LNG facility outage,[6] and also the impacts of high and low interstate pipeline construction costs.

Major Conclusion regarding the fulfillment of the IRP Compliance Requirement is that "the plan include…two measures of PVRR risk: one that measures the variability of costs and one that measures the severity of bad outcomes": The Company claimed that "NWN assesses both the variability of costs and the severity of bad outcomes in the scenario and sensitivity analyses discussed in Chapter Seven." Staff believes the requirement, as stated was not met for the following reason (*see* 2) b) i) above): While NWN provided cost estimates for various portfolios based upon a certain weather standard, they did not provide 95 percent (or other) upper limits for those PVRRs, taking into account both weather variability and gas purchase price uncertainties.

[5] *See* page 7.25.
[6] *See* pages 7.24 and 7.25.

Conclusion

Staff appreciates the amount of work that has been required throughout the completion of NWN's IRP and the Company's willingness to work with participants throughout this process. NWN will file reply comments in by December 22, 2014.

Dated at Salem, Oregon, this 24th day of November, 2014

Lisa Gorsuch
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CERTIFICATE OF SERVICE

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I certify that I have, this day, served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-001-0180, to the following parties or attorneys of parties.

Dated this 24th day of November, 2014 at Salem, Oregon

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