

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

LC 59

In the Matter of

CASCADE NATURAL GAS  
CORPORATION

2014 Integrated Resource Plan

Staff's Comments

Following are the comments of Staff of the Public Utility Commission of Oregon (Staff) related to the Cascade Natural Gas Corporation (Cascade) 2014 Integrated Resource Plan (IRP). Staff's comments are grouped by subject. Before filing final recommendations, Staff will further review Cascade's filed plan, responses to recent information requests (IRs) and parties' comments.

**Demand Side Management**

Staff has three general comments related to Demand Side Management (DSM) in the IRP.

1. Page 114 provides a reference and link to a 2014 energy efficiency resource assessment report by Navigant Consultants for Energy Trust of Oregon's territory (2014 report). The report is useful for showing the underlying methodology used by the Oregon model but the results in the report are based on input assumptions from 2014, which may not align with the input assumptions used in the 2014 IRP. In addition, the report provides gas efficiency results for both Northwest Natural and Cascade Natural Gas service territories in Oregon. Through information requests, Staff has requested more Cascade specific results related to emerging technologies as well as a list of assumptions that have been updated in the IRP compared to the referenced study. Staff suggests, in future IRPs, Cascade provide additional tables and graphs to show useful summaries of the model output similar to those provided in the 2014 report but reflective of Cascade's service territory only, and aligned with the IRP input assumptions.

2. Page 166, number three in the action plan, states that “Cascade will continue to monitor the effectiveness of the Oregon Public Purpose Fund to ensure the funds are adequate to capture significant portions of achievable therm savings in Oregon.” The Public Utility Commission of Oregon (Commission), through Order No. 89-507, adopted “least-cost planning” as the preferred approach to utility resource planning. Utility resource plans are expected to identify resources that provide the best mix of cost and risk. All resources, including energy efficiency, must be evaluated on a consistent and comparable basis and as a result, all cost effective energy efficiency should be identified and acquired within the long term planning process. It is not clear to Staff that the use of the phrase “capture significant portions of achievable therm savings” is in line with “least cost planning” practices. Further discussion by Cascade is needed to resolve this Staff concern.
3. Throughout the IRP, Cascade mentions the capacity value of energy efficiency yet it is unclear how Cascade attributes capacity value to conservation. Page 26 last full paragraph notes that it is important “to review the impacts of proposed conservation resource on anticipated distribution constraints.” The balance of the paragraph provides reasoning for why Cascade does not anticipate the peak day load reductions from conservation will be adequate to eliminate distribution system constraint areas at this time but could in the future. No further discussion or plans are provided. Staff recommends, for future IRPs, that Cascade defines specific actions to improve recognition of capacity value from efficiency, specifically including incorporation of avoided capacity value in efficiency avoided costs and in translating energy savings load shapes into capacity savings. As Cascade mentions in the reference paragraph, the accumulation of benefits could have targeted benefits that would benefit ratepayers beyond the energy savings aspects of efficiency.

Staff has a number of information requests currently with Cascade which will help to inform Staff’s final recommendations regarding DSM.

## **Portfolio Analysis**

### **GENERAL**

Section 7 Resource Integration presents the scenario (deterministic), simulation (stochastic), and sensitivity analyses performed for various portfolios of resources. The presentation blends the three analysis steps without delineating that the three analyses steps are progressive.

To comply with Order No. 07-002 Guidelines, principally Guideline 1(c), Oregon utilities generally perform risk analysis using three steps. For reference, Staff describes the deterministic, stochastic and sensitivity analysis steps as follows:

1. Deterministic Analysis – a process where various more or less “worst case” scenarios are defined, and the expected 20-year present value revenue requirement (PVRR) outcomes from the alternate portfolios of resources are

compared. Combining these outcomes with the expected PVRR under “normal” conditions, the more attractive portfolios become the pool warranting further consideration – in stochastic analysis and refining sensitivity analysis.

2. Stochastic Analysis – a process where various conditions (e.g. weather, gas prices) are “shocked/sampled” using defined probability distribution functions in order to create, in turn, and for each resource portfolio under consideration, a probability density function of discounted, twenty-year future PVRR.
3. Sensitivity Analysis – a process used to refine and test analysis outcomes for specific conditions.

Future Cascade IRPs will benefit from Cascade conducting portfolio analyses and presenting the analysis results clearly delineating the three analysis steps, and how those steps progressively lead to identification of the preferred portfolio of resources.

In addition, related to the presentation on page 164, the primary purpose of conducting stochastic/Monte Carlo analyses is to be able to trade-off risk and expected or deterministic outcomes when selecting the “best risk-cost” portfolio. For example, a portfolio with a very low stochastic mean or deterministic outcome may have an unacceptably high Monte-Carlo upper-tail value. There is no indication that Cascade’s IRP has conducted that sort of trade-off studies. Future Cascade IRPs will benefit from performing and clearly presenting this trade-off analysis.

## PEAK LOAD-RESOURCE BALANCE

Figure 1-A depicts that, on a system basis, Cascade is resource sufficient until 2033. Figure 7-B-2 depicts that Oregon is resource deficient in 2015. Figure 7-C-2 depicts that Cascade plans to use city gate/capacity releases to fill the Oregon resource deficiency through 2017. Then, beginning in 2018, the figure depicts that Cascade plans to replace those short-term release solutions with incremental Gas Transmission Northwest pipeline (GTN) southbound capacity, and beginning in 2021 plans to add incremental GTN northbound capacity, satellite LNG capacity, and incremental off-system gas storage. From the 2014 IRP it is not clear where the Oregon resource deficiency exists.

Staff noted that the Second Supplemental Update in Docket No. LC 54 included Action Item 2:

Investigating and analyzing storage and transport alternatives to resolve the central Oregon shortfall, targeting completion late 2016-early 2017.

For background, Cascade filed its second 2011 IRP Supplemental Update (Second Supplemental Update) on February 5, 2015. In relevant part, the Second Supplemental Update presents the following:

The April 16, 2012, 2011 IRP replacement filing shows in the bar chart on page 45 that the central Oregon shortfall in 2016-2017 is about 12,500 Dth/day, and

about 17,000 Dth/day in 2020. The August 13, 2013, 2011 IRP Update discusses on page 3 that Cascade has secured an additional 10,000 Dth/day seasonal capacity on Ruby. The February 5, 2015, 2011 IRP Supplemental Update presents on page 7 that 5,000 Dth/day of Ruby capacity was secured in November 2014. This means Cascade has secured an additional 15,000 Dth/day for central Oregon since the April 16, 2012, forecasted shortfall of 12,500 Dth/day in 2016-2017. This additional 15,000 Dth/day in capacity will resolve the central Oregon shortfall at least until 2016-2017, when a proposed storage and transportation alternative analysis is scheduled for completion.

Staff notes, however, that the zone-level load-resource balance figures in Appendix Section F (page 5 for Zone 24 - Ontario, page 6 for Zone 26 - NW Oregon, page 7 for Zone GTN - Central Oregon, and page 8 for Zone ME - NE Oregon) depict Oregon resource sufficiency through 2034, except for Zone GTN which is sufficient through 2027.

Staff recommends that Cascade resolve the apparent conflict between the Oregon resource deficiency depicted in Figures 7-B-2 and 7-C-2 and described in the LC 54 Second Supplemental Update, and the Appendix Section F load-resource balance figures.

As a related concern, to summarize the above load-resource balance information Staff had to consult the Executive Summary, Section 7, and Appendix Section F. Future Cascade IRPs will benefit from clear, complete, and concise presentation of the portfolio analysis results in a single section of the IRP.

Finally, while Cascade discusses on page 26 the potential role of DSM in avoiding or delaying other investments, there is no analysis to show how much of the peak day load could be reduced or delayed by an accelerated DSM program or by a recallable service agreement program. In Cascade's IRP Update, due one year from acknowledgement of this IRP, Cascade should present an analysis to show how much the peak day load could be reduced or delayed by accelerated DSM and recallable service agreement programs.

## PREFERRED RESOURCE PORTFOLIO

Page 147, first bullet, presents that the 20-year portfolio analysis costs range between \$4.8 and \$5.7 billion. Staff notes that this range, as noted above, blends the three analysis steps into a single conclusion. For clarity, Staff notes that the range of 20-year portfolio analysis costs for the 12 deterministic scenario analyses is \$5.2 to \$5.3 billion, approximately a two percent range. As Cascade presents on page 154, last full paragraph, the narrow range in analysis results indicates there is no resource portfolio with a clear "best combination of expected costs and associated risks and uncertainties for the utility and its customers."<sup>1</sup> Thus, Staff recommends Cascade not foreclose any mix of resources until a resource decision must be made.

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<sup>1</sup> Order No. 07-002 Guideline 1(c).

## Demand Forecast

After reviewing Cascade's demand forecast, Staff has a general recommendation regarding sales forecast methodology. Staff believes that going forward, Cascade should work with Staff and other interested parties to develop a comprehensive database comprising of both economic and weather variables such as price, income, employment, different Heating Degree Days (HDD) cutoffs, seasonality, etc., and formulate alternative regression models to identify the drivers of the forecasted values and plausibility of the parameter estimates relative to the economic theory on demand for natural gas.

## Natural Gas Purchasing and Hedging

### GENERAL

IRP Guideline 13b. states:

*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 Section 5 of Cascade's IRP includes a brief discussion of Cascade's Portfolio Purchasing Strategy (beginning on page 49). This discussion does not provide sufficient detail to allow Staff to do a thorough review of the purchasing, hedging and risk management plans/policies/strategies. As a result, Staff issued IR 1-7 requesting the various plans, documents, strategies and programs that guide gas purchasing and hedging.

Future Cascade IRPs will need to include detailed descriptions of, and basis for, the gas purchasing plan and hedging strategy, as well as the gas purchasing risk management plan/policy/strategy. As allowed in the Guideline, the description may be provided following IRP acknowledgement. In that event, the IRP should contain a summary level description and note that the detailed description will be submitted following acknowledgement. In either case, the detailed description should be in sufficient detail to allow Staff to do a proper review of the purchasing, hedging and risk management plans/policies/strategies.

### HEDGING STRATEGY

Staff's review of Cascade's hedging strategy focused on whether Cascade's IRP addresses Guideline 1c of the IRP Guidelines adopted in Order No. 07-002 of Docket No. UM 1056, which reads as follows:

*"Discussion of the proposed use and impact on costs and risks of physical and financial hedging."*

In parts of Section 5 (i.e., the Supply Side Resources section), Cascade presents the use of physical and financial hedging. Staff notes the following as the most relevant parts of the presentation:

*“[Cascade] constantly seeks methods to ensure ratepayers of price stability. In addition to methods such as long-term physical fixed price gas supply contracts and storage, another means for creating stability is through the use of financial derivatives.”<sup>2</sup>*

*“[Cascade’s] Gas Supply Oversight Committee (GSOC) oversees the Company’s gas supply purchasing strategy.... [Cascade employs a] procurement strategy for both physical supplies for up to three years (based on a warmer-than-normal weather pattern). The company’s current gas procurement is to have physical gas supplies under contract for 100% of year one’s warmer than normal core needs, 66% of year two, and 33% of year three. This strategy results in the need to contract annually for approximately one-third of the core portfolio supply needs for the upcoming three-year period. Under this procurement strategy, this leaves roughly 10 to 20% of the annual portfolio to be met with spot purchases.”<sup>3</sup>*

*“[Cascade’s] GSOC also oversees the Company’s gas supply hedging strategy. The Company’s current gas hedging strategy is to hedge 40% of the contracted physical supplies of Year One, 25% of Year Two, and 20% of Year Three. Depending on market conditions, the strategy allows for the ratchets to increase to 75%, 50% and 30%, respectively, provided current market information supports moving to a higher level.... The Company’s current strategy is to rely primarily on fixed-price physical supplies for hedging purposes.”<sup>4</sup>*

Staff’s evaluation of Cascade’s approach for hedging the price of natural gas for the upcoming three-year period concludes that its approach is conservative because the amount of natural gas purchased in advance (Purchased Gas or Gas Purchased for Warmer-than-normal Demand) and the hedged portion of such natural gas purchased (Hedged Gas) are smaller than the anticipated natural gas demand (Forecasted Demand). In other words, the amount of Purchased Gas is intended to approximate the Warmer-than-normal Demand as opposed to the Forecasted Demand. Additionally, the amount of Hedged Gas is smaller than the amount of Purchased Gas. This hedging approach allows Cascade to not purchase in advance more gas than it expects to use. In addition, this hedging approach potentially precludes Cascade from speculating in the natural gas marketplace. In this context, “to speculate” means, for example, to purchase amounts of gas that are not expected to be needed with the intent to profit from market prices movements.

Staff concludes that Cascade’s approach to the use of physical and financial hedging, as discussed in its IRP, is not unreasonable. However, Staff recommends that in the next IRP, Cascade should comprehensively describe the rationale by which it chooses

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<sup>2</sup> See page 49 of Cascade 2014 IRP.

<sup>3</sup> See pages 49 and 50 of Cascade 2014 IRP.

<sup>4</sup> See page 50 of Cascade 2014 IRP.

the hedging percentage levels, including upper limits of hedged gas based on the market environments (e.g., price levels, volatility, etc.), Cascade's risk tolerance (e.g., tolerance bands of potential losses), etc. In the meantime, Cascade should continue to apprise Staff and other parties during the recurring quarterly meetings of changes in the hedged gas percentage levels.

## **Distribution Planning**

Section 4 presents a discussion of distribution system enhancements, or reinforcements, needed to eliminate distribution system delivery constraints. The section includes Table 4-1 listing the 2015-2019 specific projects. Appendix Volume 2 Section C presents tables listing the Table 4-1 projects, along with "loaded costs" by year. Staff appreciates the level of detail and presentation of project costs by year in Table 4-1 and Appendix Section C.

Table 4-1 and Appendix Section C comingle enhancement projects with replacement, gate, odorizer, regulator, valve, exposure, and relocation projects. Given the focus of Section 4 on distribution system enhancements, it will benefit future Cascade IRPs to present separate listings of enhancement projects from the other projects.

## **Climate Change Regulation**

Staff has three comments related to Cascade's IRP treatment and assessment of climate change and environmental regulatory risk, and assessment and projection of cost risk.

1. Staff is concerned that Cascade Natural Gas may have miscalculated its forecasted carbon costs shown on Table 6-1 of Cascade's 2014 IRP. The table uses different units than those found in the Energy Information Agency's table cited by Cascade Natural Gas. Cascade should check the units used and the calculation used to derive their carbon costs, and correct the calculation, if needed, in this IRP.
2. As presented on pages 37 and 38, Cascade has the option of purchasing and taking delivery of renewable natural gas. Staff suggests for future IRPs that Cascade inform the Commission in its IRP of the price of renewable natural gas as compared to traditional source of natural gas, and report to the Commission how much renewable natural gas it purchased between the IRP filing years.
3. Under EPA's Greenhouse Inventory Report under section 307(d) of the Clean Air Act, North American Industry Classification System NAICs, 221210 natural gas distribution companies must report greenhouse gas emissions from their facilities and infrastructure. Cascade is a natural gas distribution entity subject to the Environmental Protection jurisdiction and reporting requirements. To better inform the Commission as to the potential regulatory risk carried by Cascade and its ratepayers, Cascade should report this information to the Commission in each of its future IRPs for each year preceding each IRP. This way Staff can compare the relative environmental risk by comparing greenhouse emissions from prior years to

present, and Staff can better understand the full risk as Cascade customer base grows.

### **Action Items**

Pages 166-167 are intended to present the 2014 Action Plan. Staff notes that, excepting Action Items 1 and 9, all other items listed are business-as-usual. Per IRP Guideline 3n, the action plan should present specific, numbered, named, actions the utility will take over the next 2-4 year period to acquire the identified resources. The action items should not include actions that are business-as-usual utility activities. The action items should be specific and measurable. Future IRPs will benefit from presenting an Action Plan with Action Items meeting Guideline 3n. For this IRP, Cascade should revise Action Items 1 and 9 to be specific and measurable.

In addition, pages 166-167 are intended to present the 2014 Action Plan but do not include Action Item 2 from the Second Supplemental Update in LC54 - 2. Investigating and analyzing storage and transport alternatives to resolve the central Oregon shortfall, targeting completion late 2016-early 2017. Staff IR 24 requested that missing action item be included in a revised action plan for this IRP.

### **Other Comments**

The Executive Summary includes information not presented elsewhere in the IRP. For example, the Load Resource Balance discussion on page 6 was not found in the Section 7 discussion, and Figure 1-A contains two more years than does Figure 7-B-1. Future IRP's will benefit from using the Executive Summary to summarize the contents of the IRP, rather than to present additional information.

The IRP Guidelines outline certain expectations with regard to the execution of resource planning for regulated energy utilities in the State of Oregon. While the guidelines do not specifically outline a format for the final plan that is filed with the Commission, Staff expects that the IRP document be a succinct summary of the analysis completed by the utility with references made to the more detailed appendices, and the conclusions of the plan indicating near term action to be taken, if any.

To accomplish Staff's expectations it is suggested that each chapter/section include a description of the topic, an overview of the analysis and overall process that resulted in the preferred resource selection, business action, policy, etc., and an explanation of why it was selected over other options. Further, when a utility chooses a resource or makes a policy decision that is not obvious to someone that has not been intimately involved in the IRP process, the utility must explain why the decision was made. Finally, each chapter/section should wrap up with a conclusion. In the conclusion it should be clearly stated if there is action to be taken related to the subject matter of the chapter/section, and if so a reference should be made to where it is in the action plan. As discussed above, the Action Plan must include Action Items that present specific, numbered, named, actions the utility will take over the next 2-4 year period to acquire the identified resources.

This concludes Staff's comments.

Dated at Salem, Oregon, this 23rd of September, 2015.



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