

**BEFORE THE  
PUBLIC UTILITY COMMISSION OF OREGON**

In the Matter of

CASCADE NATURAL GAS COMPANY  
dba CASCADE NATURAL GAS, 2021

Natural Gas Fact Finding per Executive  
Order 20-04 (UM 2178)

Cascade Natural Gas Comments

**CASCADE NATURAL GAS CORPORATION**

**July 26, 2021**

## Introduction

Cascade Natural Gas (Cascade, CNG or Company) is grateful for the opportunity to provide feedback on the sensitivity analyses that will be most beneficial for Local Distribution Companies (LDCs) to model as part of Oregon's emissions reduction goals. The Company believes that the scenarios presented in this document provide a comprehensive picture of Cascade's opportunities and challenges in meeting the targets set by The Oregon Department of Environmental Quality (DEQ) and Oregon Public Utility Commission (OPUC).

## Opening Remarks

For the purposes of this document, sensitivities, outlined in Table 1, are defined as individual elements of the model that are modified for the purpose of stress testing Cascade's resource acquisition plan, while scenarios, outlined in Table 2, are a combination of sensitivities meant to simulate a world state, such as accelerated technological advancements or increased emissions reduction efforts from local municipalities. After the tables, the Company provides some additional narrative about each data item.

Table 1: Sensitivities

Sensitivities			
Data Item	Possible States		
RNG Availability	Expected Growth	High Growth	Low Growth
Hydrogen Availability	Expected Growth	High Growth	Low Growth
Load Growth	Expected Growth	No Load Growth	Negative Load Growth
RNG Cost	Flat Cost	Increasing Cost	Decreasing Cost
Hydrogen Cost	Flat Cost	Increasing Cost	Decreasing Cost
Energy Efficiency (EE)	Expected EE	Accelerated EE	Low EE
Traditional Gas Cost	Flat Cost	Increasing Cost	Decreasing Cost

- RNG availability could have multiple future avenues. First, the region could see what was expected and predicted regarding RNG growth. For example, developers may have adequate access to project financing, as well as determining if RNG projects are close to pipelines, and/or costs are manageable. Another possibility is that RNG projects see higher than expected growth numbers. If opportunities to invest in RNG flood the region, RNG markets flourish, and RNG technology advances faster than expected. Lastly, the low growth sensitivity would represent a slow uptake of RNG in the region. This could be caused by barriers to entry, such as high capital costs of upgrading equipment or pipeline interconnection and testing, or it could be caused by perceptions of

risks being too high with the RNG technologies, fuel sources, or the supply chain.

- Hydrogen availability could also see a few different futures. With expected growth of hydrogen, the region may not see hydrogen in the short-term as it is not currently ready for mass consumption. This sensitivity would show growth of hydrogen, just at a slower, gradual pace. The high growth possibility would represent large investments in R&D and rapid advances in technology allowing for the use of hydrogen much sooner than expected. The low growth possibility could represent reluctance in the region to invest in the necessary R&D or perhaps, hydrogen R&D discovered it has a much higher cost than expected to incorporate it into the region's energy portfolio. In modeling performed on behalf of the Rural Service Providers as part of their participation on the Regulatory Advisory Committee, Guidehouse modeled the deployment of hydrogen technologies in the form of hydrogen-enriched natural gas (HENG) and supply of industrial green hydrogen (see Appendix A). The Guidehouse energy and emissions model assumes that utilities begin blending hydrogen in the gas supply in 2035 and that hydrogen has displaced 5% of natural gas deliveries by 2050. Guidehouse's energy and emissions model likewise calculates the impacts associated with switching a portion of the industrial sector's energy consumption from pipeline gas sources to locally produced hydrogen.
- Load growth sensitivities are a very relevant part of this analysis as well. With expected load growth, all growth metrics used in the forecast models were reliable, meaning both customer and use-per-customer forecasts were accurate. This includes no major customer changes such as new large customers beyond what was predicted. The no load growth sensitivity would represent a flat growth curve going forward. This could be no new customers and steady use-per-customer values or it could include new customers but with reduced use-per-customer values; either resulting in a flat growth situation. This could result from an increase in the number of localities banning new natural gas projects, or technology advances to the point where energy efficiency savings increase exponentially, essentially balancing use-per-customer decrease with customer growth. Negative load growth could represent rapid uptake of electrification in the region, causing a net decrease in load.
- RNG Costs and Hydrogen Cost have three different states: Flat Cost, Increasing Cost, and Decreasing Cost. The Increasing Cost case represents an RNG/Hydrogen market that sees a very large increase in competition driving up the price of RNG. The Decreasing Cost case represents an RNG/Hydrogen market that sees technology become cheaper and more efficient driving the prices down. The Flat Cost case represents a sensitivity where the RNG/Hydrogen market takes time to develop or sees a clash between the other two cases, where there is improved technology bringing prices down but increased competition driving the price back up.
- Energy Efficiency sensitivities are Expected EE, Accelerated EE, and Low EE.

Expected EE represents the current energy efficiency efforts and targets in the Company's current Integrated Resource Plan. Accelerated EE represents an effort to acquire the cost-effective energy efficiency potential in earlier years where RNG/Hydrogen supplies are lower. Lower EE would represent a sensitivity where the Company EE targets aren't met requiring another way to meet carbon reduction offsets.

- Traditional Gas Cost sensitivities include Flat, Increasing, and Decreasing Costs. Flat traditional costs would capture current price forecasts of traditional natural gas. Increasing costs would represent a case where prices increase because of production decreases, due to legislation for example, an increase in regional demand, or a combination of production decreasing and demand increasing. Decreasing costs would represent a decrease in demand for traditional gas while supply remains plentiful.

Table 2: Scenarios

Scenarios				
Scenario	Variables			
Accelerated Technological Advancements	High RNG Availability	High Hydrogen Availability	Low RNG Cost	Low Hydrogen Cost
Increased Municipal Reduction Efforts	Negative Load Growth	Accelerated EE	Low Traditional Gas Cost	
Increased Competition for Green Resources	High RNG Cost	High Hydrogen Cost	Low RNG availability	Low Hydrogen availability
Concentrated Hydrogen investment	High Hydrogen Availability	Low RNG availability	Low Hydrogen Cost	High RNG Cost
Concentrated RNG Investment	High RNG Availability	Low Hydrogen availability	Low RNG Cost	High Hydrogen Cost

- Accelerated Technological Advancements – The objective of this scenario is to model a world where technologies related to generation, purification, and distribution of RNG and hydrogen follow a rapid adoption curve. If this industry were to mature at an accelerated pace, with competition for these resources staying constant, the cost of these resources would fall and access to them would rise, creating a favorable environment for the utilization of these resources to meet emissions reduction goals.
- Increased Municipal Reduction Efforts - The objective of this scenario is to model a world where local governments within Cascade's service territory commit to their own climate action plans separate from statewide efforts being undertaken by DEQ and OPUC. These efforts could include natural gas bans, electrification targets, and

targeted/accelerated energy efficiency programs. This scenario assumes these efforts occur statewide, leading to a lower industry wide demand for natural gas and thus, lower prices for traditional natural gas.

- Increased Competition for Green Resources - The objective of this scenario is to model a world where Cascade faces the challenge of additional demand for RNG and Hydrogen from new unforeseen parties, such as LDCs from other western states that unexpectedly adopt emissions reduction goals. This competition would lead to the cost of these resources rising, and access to them falling, creating an unfavorable environment for the utilization of these resources to meet emissions reduction goals.
- Concentrated Hydrogen Investment - The objective of this scenario is to model a world where investment towards clean natural gas is primarily directed towards hydrogen, at the expense of the development of renewable natural gas technologies. This scenario would lead to higher amounts of hydrogen available at a lower cost, with the inverse impact to RNG.
- Concentrated RNG Investment - The objective of this scenario is to model a world where investment towards clean natural gas is primarily directed towards renewable natural gas, at the expense of the development of hydrogen technologies. This scenario would lead to higher amounts of RNG available at a lower cost, with the inverse impact to renewable natural gas.

The Company wants to note that this list of scenarios is not intended to be static. Cascade welcomes feedback from all stakeholders regarding items to include or remove, with the understanding that the ultimate objective is to create an analysis that is both comprehensive and respectful of the time constraints of the schedule as presented in the UM 2178 meeting on 7/20/21.

This concludes Cascade's comments.

Dated at Kennewick, Washington, this 26<sup>th</sup> day of July 2021.

*/s/ Michael Parvinen*

Michael Parvinen  
Director, Regulatory Affairs



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**RE: UM 2178 Natural Gas Fact Finding Per EO 20-04**

Attention: Filing Center

Enclosed for filing is Cascade Natural Gas Corporation's (Cascade or Company) Comments regarding scenario's and sensitivities in the Climate Protection Plan Fact Finding Document.

If there are any questions regarding this request, please contact me at (509) 734-4593 or via email at [Michael.Parvinen@cngc.com](mailto:Michael.Parvinen@cngc.com) or Brian Robertson at (509) 734-4546 or via email at [Brian.Robertson@cngc.com](mailto:Brian.Robertson@cngc.com).

Sincerely,  
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