



In the Community to Serve

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February 18, 2021

Oregon Public Utility Commission
Attn: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

RE: LC 76 Cascade Natural Gas Corporation's Final Comments

Attention: Filing Center

Enclosed for filing is Cascade Natural Gas Corporation's (Cascade or Company) Final Comments regarding LC 76. Cascade thanks OPUC for the opportunity to file Response Final.

If there are any questions regarding this request, please contact me at (509) 734-4589 or via email at mark.sellers-vaughn@cngc.com or Brian Robertson at (509) 734-4546 or via email at Brian.Robertson@cngc.com.

Sincerely,
CASCADENATURAL GAS CORPORATION

Marcus Sellers-Vaughn
Manager, Supply Resource Planning

LC 76 CNGC Enclosed

LC 76 Cascade Final Comments 2-18-2021.pdf

**BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON**

In the Matter of

CASCADE NATURAL GAS
CORPORATION dba CASCADE
NATURAL GAS, 2020

2020 Integrated Resource Plan (LC 76)

Cascade Natural Gas Final
Comments

CASCADE NATURAL GAS CORPORATION

February 18, 2021

Introduction

Cascade Natural Gas (Cascade, CNG or Company) files these Final Comments regarding the Cascade 2020 Integrated Resource Plan (IRP or Plan), filed in Docket No. LC 76 in response to Final Comments submitted by the Oregon Public Utility Commission Staff (OPUC, Commission Staff, or Staff). Please note the Oregon Citizens' Utility Board (CUB), and Alliance of Western Energy Consumers (AWEC) informed the Commission they would not be filing final Comments.

Opening Remarks

Cascade appreciates all of the feedback the IRP stakeholders have provided, not only in opening and final comments, but during the entire IRP process as well. The ultimate goal of the IRP process is to produce a plan with the best combination of expected costs and associated risks and uncertainties for the utility and its customers. This is best accomplished with inputs from all stakeholders.

The Company emphasizes it went to great effort to communicate during all phases of this IRP. Cascade's five TAG meetings were marked by robust, transparent, and candid discussions around policy and analytics. The four page Stakeholder Engagement Document, as stated in Chapter 10 of the IRP and included as Appendix A, was intended to promote best practices and clearly describe CNGC's dedicated approach and commitments. Throughout, the Company emphasized its openness for analyst-to-analyst communications at any time. Cascade's desire for best-in-class stakeholder engagement was challenged by having three different Staff lead analysts assigned over the course of this cycle.

Cascade wishes to acknowledge the efforts of Staff and other stakeholders whose valuable feedback contributed to the successful development of the 2021 OR IRP. All stakeholders faced many challenges during the course of this IRP cycle. Events such as the COVID-19 virus and its wide-ranging impact on our daily lives, as well as other challenges occurring during this IRP cycle required all IRP participants to be adaptive, patient and flexible. This IRP also proved the importance of collaboration which the Company plans to continue to emphasize and nurture as the expectations of IRPs continue to grow.

Cascade's Final Comments to Staff's Final Comments

The following bullets are recommendations made by Commission Staff in Staff's final comments that need to be addressed in the Company's final comments:

- *Compare outputs from both the weather-adjusted new methodology and the old forecasts to post-2018 actuals.*

Response: It is the Company's understanding that the purpose of this request is

to answer two questions; Is the new methodology better than the old methodology and is four years of historical data enough?

This response will refer to both the “Old Model” and the “New Model.” The Old Model refers to the forecasting methodology that was used in the past through a statistical software program called SAS. The New Model refers to the newer methodology in which Cascade uses a statistical software program called R. The primary differences between the methodologies are: 1) Amount of historical data used, and 2) Type of models, regressions vs dynamic regressions.

To compare these methodologies, Cascade wanted to use true out-of-sample testing to cross-validate the results with real time data. For reference, out-of-sample testing refers to the process of comparing a model’s forecast to data that wasn’t used in creating the model. This type of testing is a strong validation technique. In-sample testing is simply the reverse, comparing forecasting results to data that was used when creating the model. In-sample testing is useful for interpolation or seeing how well the model fits the data. Out-of-sample testing is useful for extrapolation or seeing how well the model predicts. Unfortunately, Cascade no longer has the ability to perform out-of-sample testing, meaning rerun the old models with less data. Cascade ended its subscription to SAS and replaced it, as suggested by OPUC staff from a previous IRP cycle, with the free and more powerful software, R. The results for the Old Model below are not true out-of-sample testing, but instead, compare the forecast with data that was used to generate the forecast. This results in the Old Model having deceptively better error terms than if out-of-sample testing was performed. Despite this advantage the Old Model has when comparing error terms, Cascade believes it provides a good reference for the accuracy of the New Model. Below is a brief summary of the difference between in-sample and out-of-sample as well as the comparison of error terms.

New Model: Out-of-sample testing

The New Model uses only data from 2015-2016 to generate a model; then compared 2017-2020 real time data for out-of-sample cross-validation.

Old Model: In-sample

The Old Model used data from 2015-2018 to generate a model, then compared it to 2017-2019 data. The years 2017 and 2018 are in-sample.

Yakima Loop	Res		Com		Ind	
	MAPE	RMSE	MAPE	RMSE	MAPE	RMSE
Old Model	33.17	393,458.48	28.59	354,769.47	28.59	354,769.47
New Model	22.95	280,972.45	23.17	274,109.21	60.14	888,997.29
Sumas Loop	Res		Com		Ind	
	MAPE	RMSE	MAPE	RMSE	MAPE	RMSE
Old Model	21.65	674,394.33	20.98	302,157.71	76.15	1,111,221.01
New Model	27.30	717,910.97	31.82	356,009.98	73.40	1,181,992.68

Bend Loop	Res		Com		Ind	
	MAPE	RMSE	MAPE	RMSE	MAPE	RMSE
Old Model	25.50	594,447.21	27.75	348,388.74	94.52	1,108,972.25
New Model	26.49	610,624.60	27.51	307,773.11	94.06	1,104,867.86

For reference, a MAPE difference between the two models of <10% is not significant, 10% to 30% is somewhat significant, and a difference of 30% or more is significant.

As shown in the figures above, the New Model’s performance meets or exceeds the Old Model, even though the Old Model isn’t a true out-of-sample analysis. The only exception is Yakima Industrial which is a very volatile rate class to forecast. Cascade will continue to cross-validate models, especially the high volatility rate classes, in order to ensure optimal forecasting strategies are maintained.

Since this analysis utilized two separate models, it cannot be concluded with this analysis that more data is better. However, the Company does agree that more historical data would provide better results and will continue to work with the Company’s information technology group to gather more historical data.

- *Host a workshop with Staff at least one month prior to the filing of the Staff Report on March 26, 2021.*

Response: The purpose of this workshop was to discuss the distribution system plans that Cascade is seeking acknowledgment on. With the 2020 OR IRP, Cascade was caught in a transition period with the Engineering group. This transition included Engineering moving to a consistent reporting process to justify projects under the MDU utilities group which includes eight states. The transition also included a small reorganization which has moved engineers who were in charge of several of the projects mentioned in the IRP off of those projects. Because of this, Cascade believes the best approach would be for Cascade to not seek any acknowledgement on the distribution system plans at this time.

Cascade would rather take the necessary amount of time, approximately four to six months to update the engineering models and detailed justification for the models, and then re-present them in an IRP Update this summer with the intent of seeking acknowledgment on all plans.

Cascade is committed to providing the essential detail and justification for any distribution system plans and apologizes for any confusion caused by the current project details provided in the IRP. Cascade will hold the necessary number of workshops with stakeholders to discuss the projects in detail that Cascade seeks acknowledgement on. The Company will ensure stakeholders have sufficient amount of time to review those projects prior to filing the distribution system plan updates.

- *Provide requested detail from Staff's Opening Comments as part of the Company's Final Comments.*

Response: The detail information in this request is regarding the distribution system plans that are mentioned in the previous response. Please see previous response.

The following bullets are recommendations made by Commission Staff in Staff's final comments that need to be addressed in the Company's 2020 IRP Update filing:

- *Report on efforts explored and undertaken to avoided infrastructure upgrades in Bend, Oregon through DSM value. The Company should base this cost on a contract quote for a 20-year contract provided by its Asset Management Agreement partner.¹*

Response: The Company will provide an update on any efforts to avoid infrastructure upgrades. As always, safety and reliability of service will continue to be primary regarding decisions about infrastructure upgrades. However, Cascade is unclear about the connection to the infrastructure upgrades and a 20 year contract quote from our Asset Manager. The Company will commit to further discussions with stakeholders regarding Staff's recommendation, with the goal of properly addressing this item.

- *Provide potential RNG program revenue from Washington voluntary RNG Service program, and, as applicable, any and all other revenue related to RNG activities.*

Response: At this time, Cascade has not identified a specific RNG project(s) associated with developing the voluntary RNG service program. The Company will keep stakeholders informed about the development of a voluntary RNG program via the regular PGA quarterly meetings, in addition to the Annual IRP Update.

- *As applicable, provide RNG revenues that could be derived from participation in California's LCFS market and/or Oregon's Clean Fuels Program.*

Response: As applicable, the Company will endeavor to provide this information in the Annual IRP Update.

- *Include an RNG case scenario that reflects DEQ's Climate Protection Program design elements, insofar as program details are available.*

¹ LC 76, Cascade 2020 Integrated Resource Plan, page 5-5.

Response: Cascade will include an RNG case scenario that reflects DEQ's Climate Protection Program design element in the IRP update filing as long as program details are available.

The following bullets are recommendations made by Commission Staff in Staff's final comments that need to be addressed in the Company's next full IRP filing:

- *Host a workshop with Staff prior to the 2022 cycle to consider options for improved communication among the Company and stakeholders.*

Response: The Company agrees with this recommendation and looks forward to such a workshop prior to the next cycle. Cascade will have several suggestions for improvements including the provision of a formal charter for the 2022 process. A formal charter for consideration could be based on the four-page Stakeholder Engagement Document (included as Appendix A of the IRP). The Company looks forward to implementing this recommendation for the next IRP process.

- *Provide its demand forecast workpapers with its initial filing of the next IRP.*

Response: Cascade will file relevant demand forecast workpapers with its initial filing of the next IRP.

- *Include price as an explanatory variable in its demand forecast.*

Response: Cascade will work with all stakeholders in the next IRP cycle to determine the best approach for including price as an explanatory variable in the demand forecast.

- *Publish variables included in the model as part of an appendix.*

Response: Cascade will work with Staff in the 2022 IRP process to incorporate more details regarding the models into Appendix B.

- *Conduct a sensitivity or scenario where UPC falls over time due to the adoption of high efficiency furnaces.*

Response: Cascade will investigate data-driven methodologies to reduce UPC over time as either a scenario or sensitivity.

- *Revise the stochastic modeling so that the Sumas gas price forecasts do not have multiple Enbridge rupture-type events.*

Response: Cascade will commit more time during the public process to present the methodology and rationale behind its stochastic modeling. The Company does not believe that it is unrealistic for a forecast representing a 1 in 100 pricing

event to include multiple significant price shocks over the course of a 20-year planning horizon. That being said, Cascade welcomes a robust discussion during the public process and is open to adjusting its methodology based on the results of conversations with stakeholders during the 2022 IRP process.

- *Continue to work with Staff and stakeholders through UM 1893 on refining distribution costs avoided through energy efficiency for use in its 2022 IRP.*

Response: Cascade looks forward to working with Staff and stakeholders through the UM 1893 process to refine its avoided distribution cost calculation methodology for use in the 2022 IRP.

- *Include an explanation of how the Washington RNG program may interact with programs being developed for customers in Oregon and whether RNG programs developed in Oregon might be used to comply with legislation in other states.*

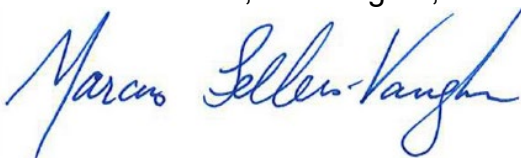
Response: Cascade welcomes this recommendation and appreciates Staff identifying this concern. Ideally, the Company's preference is to develop RNG programs that can meet the requirements of both jurisdictions, with minimal differences. At this time, the Company has not finalized a Washington RNG program. However, as work towards a Washington program continues, the Company will keep Staff's recommendation in mind and will provide updates via the PGA quarterly meetings and the next full IRP, as appropriate.

Concluding Remarks

An IRP is a dynamic document that will continue to improve when all participants are active and engaged. Again, the Company thanks all participants for the feedback and time devoted to this IRP. Cascade is dedicated to improving the collaborative process and will continue to work closely with stakeholders in this regard. Hopefully, the challenges of the past year will ease for all participants during the remainder of 2021. The Company looks forward to working with stakeholders under hopefully more normal circumstances.

This concludes Cascade's comments.

Dated at Kennewick, Washington, this 18th day of February 2021.



Marcus Sellers-Vaughn
Manager, Supply Resource Planning