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June 20, 2018

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

**RE: Cascade Natural Gas Corporation's Amended Four-Year Action Plan regarding LC 69
2018 Integrated Resource Plan**

Attention: Filing Center

Attached is Cascade Natural Gas Corporation's Response Comments regarding LC 69 2018 Integrated Resource Plan ("IRP"). This filing will replace the Company's Amended Four-Year Action Plan that was filed on May 1, 2018 to replace Section – 10 Two-Year Action Plan.

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

A handwritten signature in black ink that reads "Mark Sellers-Vaughn". The signature is written in a cursive, flowing style.

Mark Sellers-Vaughn
Manager, Supply Resource Planning

SECTION 10

AMENDED FOUR-YEAR ACTION PLAN

2018 Action Plan

The four-year action plan demonstrates Cascade's commitment to implementing its Integrated Resource Plan and creating a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers.

Key Points

Cascade's 2018 Action Plan focuses on:

- Demand Forecast
- Avoided Cost
- Demand Side Management
- Distribution System Planning
- Resource Integration
- IRP Process

Demand Forecast

The Company has purchased SAS analytics, a statistical analysis software, and uses it in conjunction with R, another analysis software, to run its ARIMA forecast models. Cascade will analyze the Auto-ARIMA functionality in R for possible inclusion in its future demand forecasts. The Company will provide an update on this analysis with Cascade's IRP update annual filing.

Avoided Cost

At this time, Cascade's distribution system costs are not included in the Company's avoided cost calculation. The Company will work on developing a methodology for quantifying its distribution costs for inclusion in its 2020 IRP. The Company will provide a progress report with Cascade's IRP update annual filing. Cascade will continue participating in UM 1893, Staff Investigation of Methodology and Process of Energy Efficiency Cost-Effectiveness.

Demand Side Management (Conservation)

DSM Action Item 1

Cascade will strive to acquire the following amount of cost-effective gas therm savings over the next two years:

	2018	2019
Oregon	609,093	631,223
Washington	876,574	921,441
Total	1,485,667	1,552,664
<small>*stated as gross therms</small>		

The Company will acquire cost-effective therm savings by partnering with Energy Trust in Oregon and by delivering programs under the oversight of the Company's Conservation Advisory Group in Washington. Short-term annual therm savings

targets are refined annually in Oregon by the Energy Trust through the budgeting process and in Cascade's Conservation Plan, which the Company files each December 1st in Washington.

DSM Action Item 2

The Company will examine the impact changes such as revised building codes, OPUC exemptions granted for non-cost-effective measures, and changes to avoided cost calculations stemming from Docket No. UM 1893, may have on the Company's long- and short-term conservation potential. Success shall be measured by the following:

- The Company shall hold at least one meeting with the Energy Trust to discuss any changes that might affect the Company's energy efficiency therm savings targets, and, if applicable, what actions may need to be taken to comply with or adapt to the changes.
- Cascade will provide a summary of its meeting with the Energy Trust in its 2019 IRP Annual Update. In compliance with OAR 860-021-0400(9), the Company will file an update as soon as is reasonably possible if any changes result in a significant deviation from the 2018 IRP.

DSM Action Item 3

The Company will work with the Energy Trust of Oregon to discuss how various carbon tax scenarios impact which energy conservation measures are undertaken. This analysis will be included in future IRPs.

Distribution System Planning

As previously mentioned in the Avoided Cost subsection, the Company will work on developing a methodology for quantifying its distribution costs for inclusion in its 2020 IRP.

Cascade has identified seven areas in Oregon where the Company plans to undertake system enhancement projects for purposes of addressing growth. These projects, along with their costs, have been provided under confidentiality in Appendix I – Distribution System Planning.

Resource Integration

Cascade will examine modifications to its methodology for producing stochastic analysis, specifically related to Monte Carlo simulations. Currently, the Company utilizes 200 Monte Carlo draws for the stochastic analysis portion of Resource Integration. The idea is to expand the number of draws for stochastic analysis while remaining sensitive to the amount of time each draw takes.

The Company will continue discussions with upstream pipeline and other parties to address the potential shortfall in the early 2020s along the I-5 corridor through incremental upstream pipeline capacity or through other parties via capacity release or other resources.

Cascade will evaluate the cost of purchasing incremental GTN capacity now versus in 4 years. The company will confirm with GTN on the availability of upstream capacity either from Kingsgate to Malin or from Turquoise Flats to Kingsgate.

IRP Process

Cascade recognizes the importance of gathering best practices from its fellow local distribution companies (LDCs). To that end, the Company will participate in the IRP process of at least three regional utilities over the course of the next two years with the objective of incorporating aspects that may enhance Cascade's IRP.

Table 10-1 highlights specific activities of the 2018 Action Plan.

Cascade Natural Gas Corporation
2018 Integrated Resource Plan

Table 10-1: Highlights of Amended 2018 Action Plan

Functional Area	Anticipated Action	Timing
Demand Forecast	Expanding forecast to test Auto-ARIMA functionality in R.	Beginning in 2018 for inclusion in 2020 IRP
Demand Forecast	Cascade will examine replacing its peak day methodology with a statistically based peak day analysis.	Beginning in 2019 for inclusion in 2022 IRP
Avoided Cost	Investigate incorporating distribution system costs into the avoided cost calculation, following guidance from UM 1893.	Beginning in 2018 for inclusion in 2020 IRP
DSM	The Company will acquire cost-effective therm savings by partnering with Energy Trust in Oregon and by delivering programs under the oversight of the Company's Conservation Advisory Group in Washington.	Ongoing, for inclusion in 2020 IRP
DSM	The Company will examine the impact changes such as revised building codes, OPUC exemptions granted for non-cost-effective measures, and changes to avoided cost calculations stemming from Docket No. UM 1893, may have on the Company's long- and short-term conservation potential.	Summary will be provided in the 2019 Annual IRP Update
DSM	Cascade will examine how carbon tax scenarios impact which energy conservation measures are undertaken with ETO, and how a variety of potential energy efficiency forecasts impact resource integration decisions.	Ongoing, for inclusion in 2020 IRP
Distribution System Planning	Cascade will expand on the narrative related to the cost-effectiveness evaluation of proposed infrastructure repairs/replacements in the 2020 IRP.	Ongoing, for inclusion in the 2020 IRP
Distribution System Enhancements	Cascade plans to undertake the following distribution system enhancement projects over the next four years: <ul style="list-style-type: none"> • Umatilla 2" Reinforcement • Pendleton 4" IP Reinforcement • Pendleton 4" HP Reinforcement • Pendleton Korvola Road 4" PE RE • Bend 8" /6" HP Steel Reinforcement • RF; 4" PE; Bend; 600' Hayes Ave • RF; 4" PE; Bend; 600' Archie Briggs Rd 	Ongoing over the next four years
Resource Integration	Cascade will examine modifications to its methodology for producing stochastic analysis, specifically related to Monte Carlo simulations.	Beginning in 2019 for inclusion in 2022 IRP
Resource Integration	The Company will continue discussions with upstream pipeline and other parties to address the potential 2022 shortfall along the I-5 corridor through incremental upstream pipeline capacity or through other parties via capacity release or other resources. Provide Gas Supply Oversight Committee (GSOC) with the model results from the most recent proposals from the upstream pipeline and other parties. Perform any additional analysis requested by GSOC. Communicate these findings to the WA IRP stakeholders for input and feedback. Seek GSOC approval of the appropriate action regarding acquiring additional capacity along the I-5 corridor.	Discussions began in 2017 and on-going: In July 2018 will update GSOC and WA 2018 IRP stakeholders with updated shortfall volumes and current modeling results. Submit the updated timeline, modeling results and actions regarding capacity acquisition at each quarterly PGA meeting and in the Company's Annual IRP Update.

*Cascade Natural Gas Corporation
2018 Integrated Resource Plan*

Resource Integration	Evaluate the cost of purchasing incremental GTN capacity now versus in 4 years. Confirm with GTN on the availability of upstream capacity either from Kingsgate to Malin or from Turquoise Flats to Kingsgate. At a minimum, on a quarterly basis analyze the potential availability and price of GTN capacity currently compared to at least four years out. Provide the results of this analyses to GSOC to determine actions necessary to meet Bend capacity shortfalls anticipated late in the upcoming decade.	Discussions with GTN begun in 2018. A report on the 4-year analysis comparison to be given to GSOC July 2018, and then ongoing. Updates will be provided during quarterly PGA meetings and in the Annual IRP Update.
IRP Process	Active participation in regional LDC IRP processes.	Beginning in 2017 for inclusion in 2020 IRP, with updates during the quarterly PGA meetings