



# FIXED NETWORK AND LOAD STUDY OVERVIEW

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OVERVIEW DOCUMENT

MARCH 2021

This document describes Cascade's overall fixed network, load study, and its timeframe for these to be completed.

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## **I. Introduction.**

The Commission requested that Cascade provide a written plan for its load study. While Cascade has not yet developed a formal written plan addressing all aspects of the load study, Cascade has prepared this Fixed Network and Load Study Overview document to summarize the Company's efforts to date and plans for future work on these issues. Specifically, this document and related appendices describe:

- The history and regulatory context for the Company's commitment to prepare and file a load study;
- The equipment and processes needed to collect data for a load study;
- The installation of equipment the Company has completed to date;
- The need for and plans to retain additional full-time employees and contractor support for the fixed network installation;
- The Company's plans to analyze the data collected to date;
- Timing for completing a load study.

## **II. History and Regulatory Context for Cascade's Load Study**

In its 2015 rate case, Docket UG-152286, Cascade Natural Gas Corporation (Cascade or Company) entered into a settlement agreement that included a commitment to "initiate a load study" before filing its next general rate case. The Washington Utilities and Transportation Commission (Commission) approved the settlement in Order 04 in that proceeding. Working with its own technical experts, Cascade determined that installing the equipment for the load study would cost millions of dollars and take at least several years to get all the equipment installed and begin collecting data to complete such a study. In light of the Company's concerns about cost and timing, Cascade began exploring less costly and time-consuming alternatives that could meet the objectives of the settlement commitment. As a result, the Company began focusing on developing a forecast demand model, which could provide a load forecast at the daily citygate level by each customer class.

In its 2017 rate case, Docket UG-170929, Cascade presented its alternative load study approach using citygate level customer class information based on its new load forecasting demand model. However, Staff asserted that this approach did not meet the definition of a load study provided in the 2015 settlement, and as part of the settlement in the 2017 rate case, parties agreed that Cascade should still perform a load study using actual data. However, given the timing concerns associated with collecting actual data, Cascade and the parties agreed to an approach that would allow Cascade to continue to file rate cases while taking the steps necessary to begin collecting individual actual usage data to perform a load study. Specifically, the parties agreed that until the Company completed a load study or load analysis based on actual core class usage data, in any future rate case filings the Company would keep basic charges at the same level agreed to in the settlement, and that rate spread would be applied on an equal percent of margin increase or decrease to each schedule, except for Special Contracts.

In Cascade’s 2019 rate case, Docket UG-190210, the Company proposed to use the same approach for rate spread that was outlined in the 2017 settlement. As part of the settlement in the 2019 rate case, the parties agreed that cost of service study issues would be addressed in the then-pending rulemaking proceeding, Docket UG-170003, and agreed to again hold the basic charges flat and use the same rate spread approach outlined in the 2017 settlement.<sup>1</sup>

In the 2020 rate case, Docket UG-200568, the Company followed the approach described in the settlement in the 2019 rate case. Subsequent to the Company’s Initial Filing in the 2020 rate case, the Commission issued its order in the cost-of-service study rulemaking proceeding, which includes a requirement that utilities file a cost-of-service study with their rate case filing.<sup>2</sup> Given the Commission’s adoption of new rules that require a load study based on actual data in all future rate case filings, the Company determined that developing a fixed network would provide a more durable, long-term solution for collecting the data needed to perform a load

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<sup>1</sup> *Washington Utilities & Transportation Commission v. Cascade Natural Gas Corp.*, Docket UG-190210, Joint Settlement Agreement at ¶¶ 13-14 (Sept. 20, 2019).

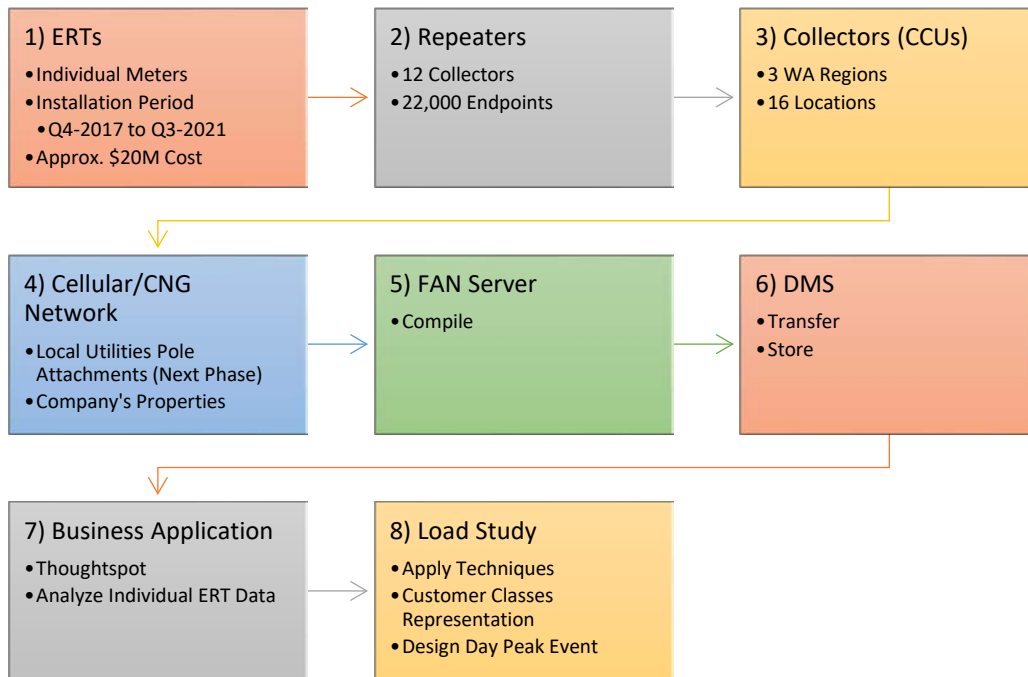
<sup>2</sup> *See In the Matter of Amending WAC 480-07-510 and Adopting Chapter 480-85 WAC Relating to Cost of Service Studies for Electric and Natural Gas Investor-Owned Utilities*, Dockets UE-170002 and UG-170003, General Order R-599 at ¶ 33 (July 7, 2020) (“Proposed WAC 480-85-020 states that the rules will apply to any person or party filing a cost of service study in any proceeding before the Commission. The interrelation with the proposed amendments to WAC 480-07-510(6) clarifies that the *initial* filing of a general rate case should contain a cost of service study in compliance with proposed chapter 480-85 WAC.”).

study, and would also provide operational benefits and costs savings once it is fully deployed, including reduced O&M costs associated with meter reading.

### III. Overview of Equipment and Data Collection Process Needed for Load Study

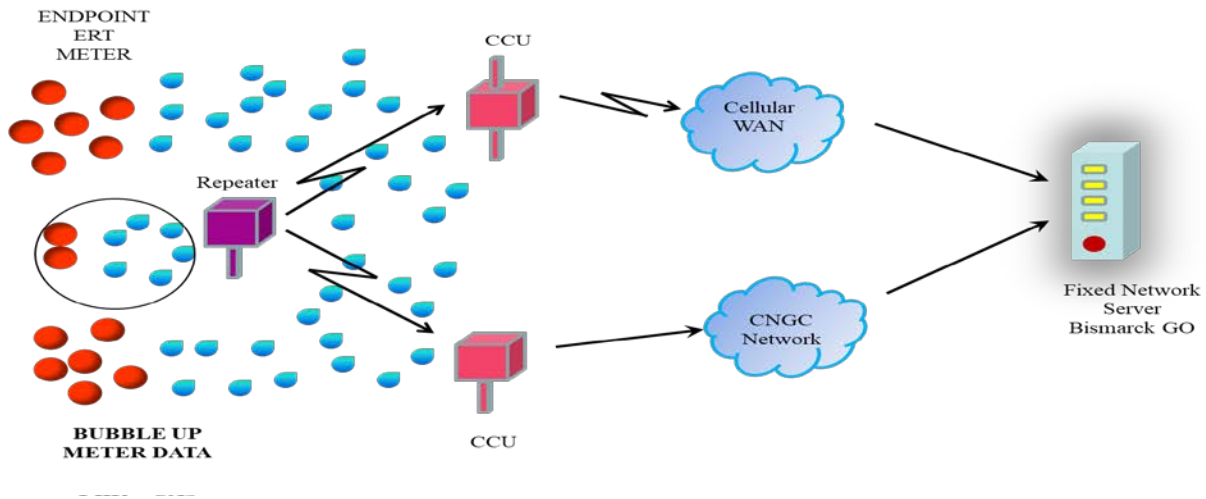
To begin collecting the data required for a load study, Cascade determined that it needed to install equipment to collect and transmit daily customer usage data. Specifically, the Company needed to install metering equipment capable of electronically capturing and transmitting data, which are called Encoder Receiver Transmitters (ERTs), and develop meter reading capabilities to receive the data and transmit and store the data for subsequent use in the load study analysis. Cascade determined that it would develop a Fixed Area Network (FAN or fixed network) to provide the needed meter reading capabilities. A fixed network is constructed with collectors and repeaters, which are devices that relay the data from the ERTs and transmit these data over cellular and Company support connections back to the Company’s FAN servers, where the individual data is compiled to a data management system (DMS) so business applications and software programs can analyze the data. Below in Figure 1 is a flow chart to help illustrate the fixed network components and steps necessary to complete a load study.

**Figure 1. Flowchart for Load Study Data Collection and Analysis**



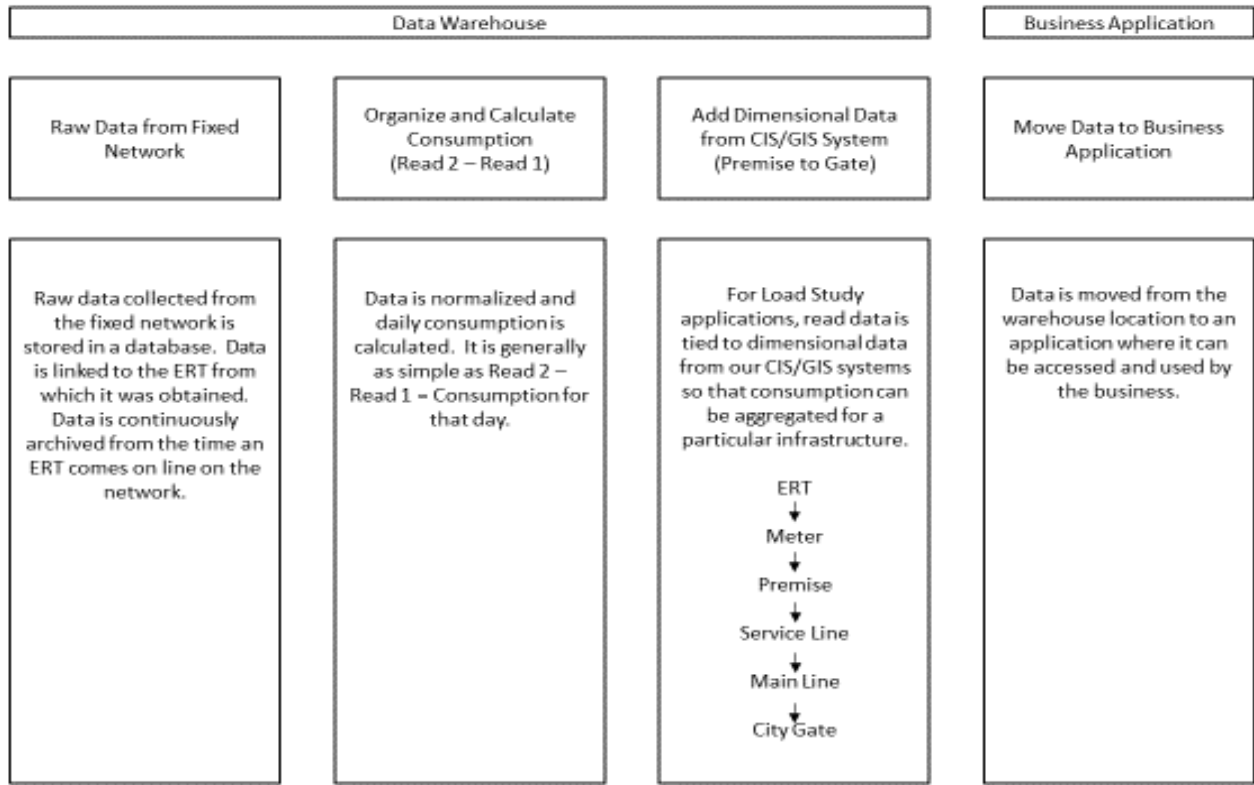
The collectors and repeaters are installed at an elevated height to maximize range, which in favorable terrain, can result in readings of up to five miles from the receiver. In addition, these collectors and repeaters are installed at both the Company’s properties (district offices, gate stations, and rectifiers) and as pole attachments local utility poles in the next phase, to allow suitable coverage for the fixed network. Once installed, the fixed network can be programmed to bring daily ERT reads and allow for automated readings in areas supported by fixed network, thus allowing for the Company to reduce its meter reading expenses and reduce or eliminate the need to drive out to individual locations in the future. A visual diagram of the first five steps described in the flowchart (Figure 1) to collect, transmit, and store data is shown in Figure 2 on the next page.

**Figure 2. Visual Diagram – Stages 1 - 5 – Collecting and Transmitting Data**



Once on the fixed network server, the individual data and information needs to be transferred, organized, and prepared into the Company’s DMS for business applications or load studies. This process is described in the procedure table below in Figure 3.

**Figure 3. Procedure Table – Stages 6 – 7 – Storing and Analyzing Data**



**IV. Cascade’s Installation of ERTs and Fixed Network Equipment**

The first step in deploying a fixed network is getting the individual ERTs in place. In 2017, during the pendency of the 2017 rate case, Cascade began scoping and deploying a three year design plan to install ERTs across its service territory in Washington and Oregon. The ERT deployment was scheduled from the fourth quarter of 2017 (initial installation) through the third quarter of 2021 (final ERT installation), and projected to cost approximately \$15.2 million in Washington and another \$5 million in Oregon.

As of January 2021, the Company has installed twelve (12) collectors which are collectively capable of reading 22,000 endpoints over a 24-hour period. These collectors have captured just over ten percent (10%) of Cascade’s 215,000 Washington service area ERT meters and cover all three regions of Washington, collectively known as the Central, Northwest, and Western Regions.

## **V. New Cascade Employee and Contractors for Fixed Network Installation**

In October 2020, Cascade began working on a job description and requisition for a new engineering position in the Gas Measurement Department to provide technical experience and to manage the fixed network project. Ultimately, the position was posted on March 5, 2021; the job description documents are included as Appendix 1a and 1b. Although there are two documents, Cascade is only hiring one position, and title for that position will depend on the experience level and qualifications of the individual hired. The purpose of this position is to work on program design, materials procurement, and project management for the fixed network projects. This position will have the following responsibilities:

1. Manage fixed network installation and contractor(s).
2. Identify locations/ROWs for collectors and repeaters.
3. Work with customers and property owners to create use agreements.
4. Create and manage contracts and agreements.
5. Maintain system.
6. Coordinate and schedule field work.
7. Meter Set Design and Customer Load Summary (CLS) Process.
8. Prepare drawings for CLS requests across Utility Group.
9. Complete Gas Measurement portion of CLS spreadsheet.
10. Develop and maintain meter set standard drawings.
11. Provide details for purchase and installation of new equipment.
12. Project Management.

Cascade also expects to use contractor support for fixed network installation and is in the process of negotiating a contract with Itron for installation of fixed network equipment. Once Cascade has hired its project manager for the fixed network installation, Cascade expects to finalize negotiations of the Network Installation Statement of Work with Itron to provide network design and network installation services in Cascade's service territory. Cascade anticipates that it will finalize the contract with Itron by June 2021 at the latest, and the duration of the project will be approximately twenty (20) months. A working draft of the contract with Itron can be found in Confidential Appendix 2. Cascade believes it is still on target to meet the goal of having the fixed network in place by the end of 2022.



## **VI. Analysis Methodology for Data Collected**

Where the fixed network equipment has been installed—such as district or field office locations—the Company has begun collecting data and plans to analyze the data from the most recent winter season and February 2021 region-wide snowstorm to see if the data collected is a good representation of the Company’s customer classes and whether a design day peak usage event occurred or can be extrapolated. Based on this analysis, the Company will evaluate whether the data adequately represents the total system for a preliminary load study without the entire fixed network in place.

In addition, the Company has prepared a document called “Cascade Natural Gas Load Study Analysis” that outlines the estimation techniques that will be used to analyze the data and complete a load study. A copy of this document can be found in Appendix 3. The Company expects to discuss this document with stakeholders at a workshop in summer 2021.

## **VII. Timing for Completing a Load Study**

If the February 2021 weather event is determined adequate and a suitable representation of Cascade’s customer classes that represents a peak or design day event, then Cascade may be able to prepare a preliminary load study this year. Additionally, the Commission’s new cost of service rules require that a load study include an entire year’s worth of data.

Accordingly, Cascade does not expect to be able to complete a load study this year, but plans instead to continue evaluating the data collected and will prepare a load study once adequate data has been collected. While Cascade will continue to evaluate the adequacy during the rollout of the fixed network, it may not be able to complete the load stud until after the fixed network is complete and Cascade has meaningful data from the 2022-23 winter season, assuming a peak weather event also occurs during that heating season.