

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,

Complainant,

v.

CASCADE NATURAL GAS  
CORPORATION,

Respondent.

DOCKET UG-240008

**CASCADE NATURAL GAS CORPORATION  
DIRECT TESTIMONY OF PATRICK C. DARRAS**

**March 29, 2024**

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1 I. INTRODUCTION

2 Q. Please state your name and business address.

3 A. My name is Patrick C. Darras and my business address is 400 North Fourth Street,  
4 Bismarck, North Dakota 58501.

5 Q. By whom are you employed and in what capacity?

6 A. I am employed by Cascade Natural Gas Corporation (“Cascade” or “Company”),  
7 a wholly-owned subsidiary of MDU Resources Group, Inc. (“MDU Resources”),  
8 as Vice President – Engineering & Operations Services for Cascade, Montana-  
9 Dakota Utilities Co. (“Montana-Dakota”), Great Plains Natural Gas Co. (“Great  
10 Plains”), and Intermountain Gas Company (“Intermountain”), collectively known  
11 as “MDU Utilities Group”.

12 Q. Please describe your duties and responsibilities with Cascade.

13 A. I have executive responsibility for the development, coordination, and  
14 implementation of Cascade’s strategies and policies relative to areas of  
15 engineering and operations including design, construction, compliance, and  
16 pipeline integrity and safety.

17 Q. Please outline your educational and professional background.

18 A. I am a graduate of North Dakota State University with a Bachelor of Science  
19 Degree in Construction Engineering. I also hold an MBA along with a Master’s  
20 Degree in Management, both from the University of Mary in Bismark, North  
21 Dakota. In June of 2014, I attended the Utility Executive Course at the University  
22 of Idaho in Moscow, Idaho.

23 I began my career in 2002 as a gas engineer with Montana-Dakota in

1 Bismarck, North Dakota. I held that position for four years primarily working  
2 with the construction and service group in day-to-day operations. In 2006, I was  
3 promoted into the role of Region Gas Superintendent where I was responsible for  
4 the overall gas engineering, construction, and service of the Dakota Heartland  
5 Region of Montana-Dakota. I worked in that capacity for two years and was then  
6 promoted to Region Director for Montana-Dakota's Dakota Heartland Region and  
7 Great Plains. My responsibility in this role was oversight of all gas and electric  
8 operations for the Region. In January 2015, I was promoted to Vice President of  
9 Operations for Montana-Dakota and Great Plains. My responsibilities in this role  
10 included gas and electric distribution operations and engineering across the five  
11 states of North Dakota, South Dakota, Montana, Wyoming, and Minnesota. In  
12 June of 2018, I accepted my current role of Vice President – Engineering and  
13 Operations Services.

14 Prior to joining Montana-Dakota, I worked for a local industrial contractor  
15 specializing in refinery and power plant maintenance along with turn-key  
16 construction of industrial facilities such as refineries and food processing plants. I  
17 spent seven years with this group in various capacities in engineering,  
18 construction, and project management.

19 **Q. What is the purpose of your testimony?**

20 A. The purpose of my testimony is to: 1) discuss the Company's efforts to improve  
21 the safety and reliability of its system through public awareness and damage  
22 prevention; 2) provide an overview of the Company's project selection and  
23 budgeting process; 3) provide an overview of the Company's major capital

1 projects that have been completed since the last rate case; and 4) provide an  
2 overview of capital projects included in the two provisional periods.

3 **II. PUBLIC AWARENESS AND DAMAGE PREVENTION**

4 **Q. Please describe the Company's Public Awareness and Damage Prevention**  
5 **efforts and related recommended practices.**

6 A. Public Awareness: Cascade follows the American Petroleum Institute  
7 Recommended Practice (API RP) 1162 which is incorporated by reference into  
8 federal regulations.<sup>1</sup> API RP 1162 is an industry consensus standard that provides  
9 guidance and recommendations to pipeline operators for development and  
10 implementation of enhanced public awareness programs. In Washington,  
11 Cascade's public awareness activities include educating the public, appropriate  
12 government organizations, and persons engaged in excavation activities on the  
13 following: (1) use of the Washington 811 one call system prior to excavation; (2)  
14 possible hazards associated with unintended releases from a gas pipeline facility;  
15 (3) physical indications that such a release may have occurred; (4) steps that  
16 should be taken for public safety in the event of a gas pipeline release; and (5)  
17 procedures for reporting such an event.

18 Damage Prevention: The Company engages in location of gas facilities prior to  
19 excavation work (when notified by the excavator) through its contractual  
20 relationship with Washington 811. Excavators can call Washington 811 at no  
21 charge to the excavator. Washington 811 then contacts a Company representative  
22 who locates Cascade gas facilities within 48 hours of the request. Additionally,

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<sup>1</sup> See 49 C.F.R. 192.616(a).

1 Company representatives regularly meet with excavators to educate them about  
2 the importance of safe excavation.

3 **Q. How does the Company's one-call notification process work in Washington?**

4 A. An excavator, prior to conducting an excavation in the State of Washington, must  
5 typically notify the underground facility owner by way of a one-call service. For  
6 the Company, which owns underground natural gas facilities, the one-call service  
7 is provided by its contractor, Washington 811. With few exceptions, the excavator  
8 must call the one-call notification center (Washington 811) at least two business  
9 days, but not more than ten business days before the scheduled date of excavation.

10 Upon receipt of the excavation notice, the underground utility owner or its agent  
11 must locate and mark facilities in the proximity of the proposed excavation  
12 location with "reasonable accuracy." Cascade employees perform locating as  
13 required by law within two business days after the receipt of an excavation  
14 notification.

15 **Q. How important is the one-call notification process for the enhancement of  
16 stakeholder and community safety related to underground facilities?**

17 A. In the Company's experience, the one-call notification process and its valuable  
18 relationships with excavating contractors and internal locators are vital to meeting  
19 and enhancing its important obligations to community and stakeholder safety  
20 around its natural gas facilities.

21 The role of Washington 811 is vital because they are the first point of  
22 contact with the excavator and gather important information related to the  
23 excavation in question. Utilizing database software, which cross-references the



1 territory with GPS coordinates and street-level information from Washington's  
2 county assessors, the one-call service provides a high degree of accuracy with  
3 each locate request. In addition, the one-call service notifies all facility owners  
4 within a proposed excavation area, who in turn perform their own facility locates  
5 within the period specified by state law. This allows for coordination of relevant  
6 stakeholders and is what makes the service so valuable to the Company's  
7 objective to ensure and enhance customer safety.

8 **Q. Is there a cost associated with the Company's use of Washington 811?**

9 A. Yes. While one-call notification services are provided free of charge to the  
10 general public, the Company does incur a nominal fee for every one-call locate  
11 requested. In the Company's case, Washington 811 charges the Company \$1.32  
12 per one-call locate ticket transaction.

13 **Q. Can the Company's costs associated with Washington 811 vary over time?**

14 A. Yes, as mentioned, Washington 811 currently charges Cascade \$1.32 per one-call  
15 locate ticket transaction. As the volume of locate tickets requested increases or  
16 decreases, the cost to the Company correspondingly fluctuates. For example,  
17 between 2022 and 2023 the number of locates requested in the Company's service  
18 territory increased from approximately 61,696 to 63,053, respectively. This  
19 increase in requested locates corresponds with the increase in costs for this  
20 service. The drivers behind the number of locates may be related to regional  
21 economic factors such as the expansion or contraction of the construction  
22 industry, for example, which would cause the one-call charges to increase or  
23 decrease accordingly.

1 **Q. Does the investment in the Company’s Public Awareness and Damage**  
2 **Prevention programs and one-call and locating practices save facility damage**  
3 **costs and enhance public safety over time?**

4 A. Yes. The Company believes its investment in public awareness and damage  
5 prevention activities, in coordination with its one-call and locating staff and  
6 contractors, has been an important factor in reducing the overall rate of damages  
7 per 1,000 incidents in the Company’s service territory. For example, in 2022, the  
8 rate of damages per 1,000 was observed by the Company to be 2.84. And in  
9 2023, that rate declined to 2.62. This reduction occurred despite the increase in  
10 the number of locate requests. Additionally, the Company maintains a policy of  
11 billing at-fault contractors for damages, including the labor and material costs of  
12 repairing the Company’s underground facility after a negligent excavation  
13 practice occurs.

14 **Q. Does the Company utilize marketing & outreach efforts?**

15 A. Yes, Cascade utilizes a third party, the Public Awareness Pipeline Association  
16 (“PAPA”), for stakeholder outreach required per API RP 1162. This outreach  
17 includes specific information and 811 education for emergency responders, public  
18 officials, excavators, and the general public. Cascade supplements the API RP  
19 1162 requirements and use of PAPA with targeted online banner ads, radio ads,  
20 mailers, community events, and training classes. Cascade also contracts with  
21 Culver to provide educational marketing to schools in the Company’s service  
22 territory. The goal of these additional forms of outreach is to relay the 811  
23 message and encourage all stakeholder groups to utilize the one-call system. Each

1 form of outreach/marketing is tracked to measure message success, along with the  
2 use of pulse surveying to determine the effectiveness of the messaging.

3 **III. OVERVIEW OF PROJECT SELECTION AND BUDGETING PROCESS**

4 **Q. What types of major capital projects are included in this testimony?**

5 A. Most of the major capital projects discussed in this direct testimony are pipeline  
6 replacement projects that have been identified for safety reasons and to reduce  
7 risk on Cascade’s system, or system reinforcements or system expansions that  
8 have been identified as needed to ensure system reliability and to accommodate  
9 growth on the Company’s system. A reinforcement is an upgrade to existing  
10 infrastructure or new system additions, which increases system capacity,  
11 reliability, and safety. An expansion is a new system addition to accommodate an  
12 increase in demand. Collectively, these are known as distribution enhancements.  
13 Distribution enhancements do not reduce demand, nor do they create additional  
14 natural gas supply. Instead, enhancements can increase the overall capacity of a  
15 distribution pipeline system while utilizing existing gate station supply points.  
16 The two broad categories of distribution enhancement solutions are pipelines and  
17 regulators.

18 **Q. Please provide an overview of Cascade’s identification and selection process  
19 for distribution enhancement projects.**

20 A. Cascade’s planning process for distribution enhancement projects relies on  
21 district-level information, the Company’s Integrated Resource Plan (“IRP”), and  
22 demand studies. At a district-level, Cascade’s engineering department works  
23 closely with the Company’s energy services representatives and district

1 management managers to meet existing and anticipated future needs while  
2 ensuring the system is safe and reliable. As towns develop and add new homes  
3 and businesses, the need for pipeline expansions and reinforcements increases.  
4 The system expansion projects are historically driven by new city developments  
5 or new housing plats. The Company will continue to evaluate the potential  
6 impacts on growth and usage of the proposed changes in building codes and the  
7 increased costs of natural gas due to compliance with the Climate Commitment  
8 Act. Before distribution enhancements can be constructed to serve these new  
9 customers, engineering analysis is performed. Using system modeling software to  
10 represent cold weather conditions, predictions can be made about the capacity of  
11 the system. As new groups of customers seek natural gas service, the models  
12 provide options on how best to serve them reliably.

13 The IRP is a critical planning tool for identifying needed projects,  
14 conducting alternatives analysis, and selecting distribution enhancement projects.  
15 System planning involves gate capacity analysis and forecasting. Over time, each  
16 gate station will take on more and more demand and it is Cascade's goal to stay  
17 ahead of potential reliability issues by predicting and identifying constraints on its  
18 system. The IRP growth data, along with design day modeling (discussed below),  
19 allows Cascade to forecast necessary gate upgrades. SCADA technology utilized  
20 by Cascade allows verification of numbers with real time and historic gate flow  
21 and pressure data.

22 Demand studies facilitate modeling multiple demand forecasting scenarios,  
23 identifying constraints, and optimizing corresponding combinations of pipe

1 modification and pressure modification solutions to maintain adequate pressures  
2 throughout the network. After developing a working demand study, the Company  
3 analyzes every system at design day conditions to identify areas where potential  
4 outages may occur. Within a given area, projects/reinforcements are selected  
5 using the following criteria:

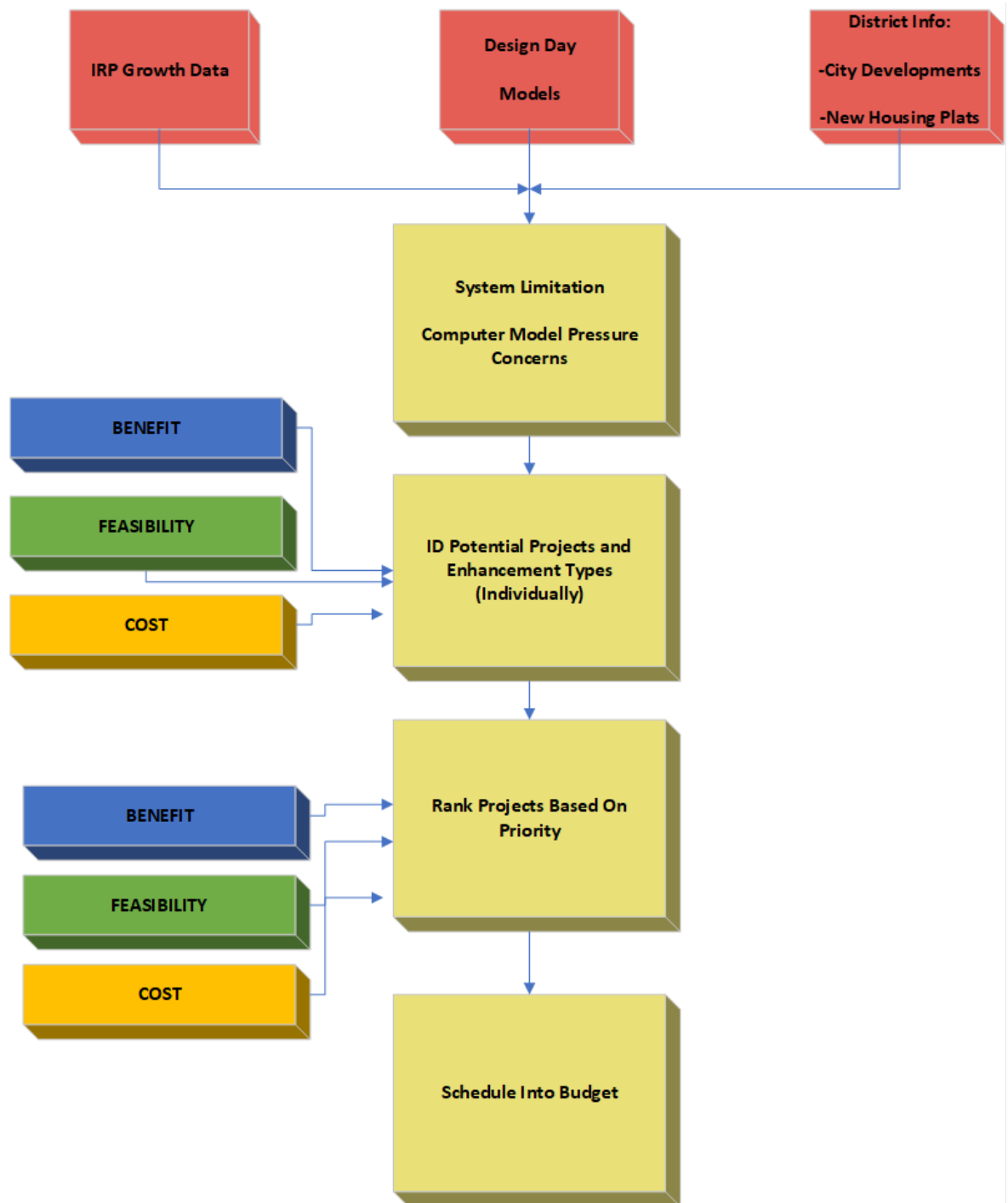
- 6 • The shortest segment(s) of pipe that improves the deficient part of the  
7 distribution system.
- 8 • The segment of pipe with the most favorable construction conditions,  
9 such as ease of access or rights, fewer traffic issues, and minimal to no  
10 water, railroad, major highway crossings, etc.
- 11 • The segment of pipe that minimizes environmental concerns including  
12 minimal to no wetland involvement, and the minimization of impacts to  
13 local communities and neighborhoods.
- 14 • Total construction costs including restoration.

15 In addition to the above criteria, Cascade is developing a standard cost benefit  
16 analysis template that can be used to solicit feedback from the Equity Advisory  
17 Group and/or other community stakeholders to guide equity considerations related  
18 to projects and reinforcements. Equity and stakeholder engagement are discussed  
19 more fully in the prefiled direct testimonies of Daniel L. Tillis, Exh. DLT-1T and  
20 Noemi Ortiz, Exh. NO-1T.

21 Once a project/reinforcement is identified, the design engineer or energy  
22 services representative begins a more thorough investigation by surveying the  
23 route and filing for permits. This process may uncover additional impacts, such as  
24 moratoriums on road excavation, underground hazards, discontent among  
25 landowners, etc., resulting in another iteration of review of the above  
26 project/reinforcement selection criteria. Figure 1, below, provides a schematic

1 representation of the distribution project process flow.

2 **Figure 1. Distribution Planning Project Process Flowchart**



3

1 **Q. Does the Company also consider demand side management alternatives?**

2 A. Yes. The Company also reviews the impacts of proposed conservation resources  
3 on anticipated distribution constraints through its IRP process. Although Cascade  
4 provides utility-sponsored conservation programs throughout its Washington  
5 service territory, there may be instances where a more targeted approach could  
6 reduce or delay the estimated reinforcement for a specific area. While Cascade  
7 attempts to influence these decisions through its conservation programs, the  
8 consumer is still the ultimate decision maker regarding the purchase and use of a  
9 conservation measure. Therefore, in the short term, Cascade does not anticipate  
10 that the peak day load reductions resulting from incremental conservation will be  
11 adequate to eliminate distribution system constraint areas at this time. However,  
12 over the longer term, the Company plans to continue to explore opportunities for  
13 targeted conservation programs to provide a cumulative benefit that offsets  
14 potential constraint areas. Potential decarbonization initiatives that may also  
15 impact distribution planning in the long term, are discussed in the prefiled direct  
16 testimony of Scott W. Madison, Exh. SWM-1T.

17 **Q. How does the Company's Integrated Resource Planning process inform**  
18 **project selection?**

19 A. Cascade's IRP evaluates safe, economical, and reliable full-path delivery of  
20 natural gas from basin to the customer meter. Securing adequate natural gas  
21 supply and sufficient pipeline transportation capacity to Cascade's city gates are  
22 necessary elements for providing gas to the customer. The other essential element  
23 is ensuring the distribution system growth behind the city gates is not constrained.

1 Important parts of the distribution planning process include forecasting local  
2 demand growth, determining potential distribution system constraints, analyzing  
3 possible solutions, alternative analysis, and estimating costs for distribution  
4 system enhancements.

5 Analyzing resource needs in the IRP ensures adequate upstream capacity  
6 is available to the city gates, especially during a peak event. Distribution planning  
7 focuses on determining if adequate pressure will be available during a peak hour.  
8 Given this nuance, distribution planning addresses many of the same goals,  
9 objectives, risks, and solutions as resource planning.

10 **Q. Are all of the major projects identified in the Company's IRP?**

11 A. No. Safety-related projects are not typically included in the IRP since safety-  
12 related projects are required by Federal and State Pipeline Safety regulations and  
13 to ensure the Company is operating its gas system safely. Generally, the projects  
14 that are included in the IRP are distribution enhancement projects, which address  
15 system capacity, maintenance, and growth.

16 **Q. How does the Company identify safety-related projects?**

17 A. The Company uses the Distribution Integrity Management Program ("DIMP")  
18 and the expertise of its own engineers and district managers to identify areas of  
19 risk on its system and to develop the safety projects required to remediate risk.  
20 The DIMP is used to identify, assess, and prioritize integrity risks to Company-  
21 owned and operated infrastructure. The Company reviews and analyzes the DIMP  
22 risk model outputs after each model run to identify areas of highest risk and those  
23 areas where risk increased from the last model run.



1           Additionally, because the DIMP model does not perfectly capture all risk factors,  
2           the Company also considers input from its system engineers, district managers,  
3           and other subject matter experts (“SME”) who have intimate knowledge of  
4           specific portions of Cascade’s system to identify other areas of potential concern.  
5           The Company then considers and analyzes existing and proposed measures to  
6           address the threats to Cascade’s pipeline system. The prioritization and selection  
7           of the appropriate remediation actions depends on the type of threat being  
8           addressed, whether the threat is current or potential, and the viability of the  
9           remedial action in managing the relevant risk factors.

10   **Q.    What types of projects are typically performed to address safety-related**  
11   **concerns?**

12   A.    Pipeline replacement is typically the most viable option to remediate risks  
13         associated with corrosion, natural forces, material, weld, joint, and/or equipment.  
14         If Cascade determines that replacement is an appropriate action to reduce the risk,  
15         the Company establishes a replacement project.

16   **Q.    How does the Company prioritize and select safety-related projects?**

17   A.    Once pipe segments requiring replacement have been identified via the DIMP, the  
18         Company plans and prioritizes specific projects within these segments. This  
19         process ensures that higher risk threats are mitigated in a timely manner.

20   **Q.    Please explain the capital projects included in this case.**

21   A.    Capital projects addressed in this prefiled direct testimony fall into two  
22         categories: 1) Specific or 2) Programmatic. As defined by the Commission’s  
23         Policy Statement on Property that Becomes Used and Useful After Rate Effective

1 Date in Docket U-190531 (“Used and Useful Policy”), specific projects are  
2 clearly defined, identifiable, or discrete investments. Programmatic projects are  
3 made according to a schedule, plan, or method and are generally investments that  
4 are necessary to provide safe, reliable service to Washington customers.  
5 Cascade’s capital project budgeting process is explained in the prefiled direct  
6 testimony of Lori A. Blattner, Exh. LAB-1T. Each of the projects and programs  
7 discussed in this prefiled direct testimony have been approved by Cascade  
8 management in accordance with that process and Cascade’s Approval  
9 Authorization Policy, which is provided as the first exhibit to Lori Blattner’s  
10 prefiled direct testimony, Exh. LAB-2.

11 My prefiled direct testimony will first discuss specific projects with actual  
12 costs over one million dollars that have been placed in service since the  
13 Company’s last test year. These projects are summarized in Exh. PCD-2.  
14 Additional detail has been provided on funding projects over ten million dollars in  
15 Exh. PCD-3. The next section will address specific and programmatic projects  
16 with actual or estimated costs over one million dollars that will be placed in  
17 service in each of Cascade’s provisional periods in this multiyear rate case (2024  
18 and 2025), as summarized in Exh. PCD-4. Finally, provisional period projects  
19 under one million dollars are included in Exh. PCD-5.

20 Table 1 below illustrates the requested plant additions included in my  
21 testimony.

<b>Table 1 – Plant Additions</b>			
<b>Description</b>	<b>Specific Projects</b>	<b>Programmatic Projects</b>	<b>Total</b>
2021 - 2023 Major Projects	\$65,455,450	\$0	\$65,455,450
2024 Major Projects	81,866,097	12,388,676	94,254,773
2025 Major Projects	57,556,668	14,819,626	72,376,293
Provisional Period Minor Projects	12,385,358	3,890,292	16,275,650
<b>Total Additions to Plant In-Service</b>	<b>\$217,263,572</b>	<b>\$31,098,594</b>	<b>\$248,362,166</b>

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**IV. MAJOR PROJECT ADDITIONS TO PLANT PLACED IN SERVICE IN 2021 THROUGH 2023**

**FP-316032 - 2-inch and 3-inch Sunnyside HP Replacement Project**

**Q. Please describe the 2-inch and 3-inch Sunnyside HP replacement project.**

A. The 2-inch and 3-inch Sunnyside HP replacement project included the replacement of 4,494 feet of 3-inch diameter and 4,018 feet of 2-inch diameter steel high-pressure main. Existing pipeline segments were replaced with 4-inch diameter steel high-pressure main. This project also replaced four regulator stations and seven high pressure service sets. A final phase of the project that captures the costs of restoration will be placed in service in 2024.

**Q. Why did the Company undertake the 2-inch and 3-inch Sunnyside HP Replacement project?**

A. The segments of the 2-inch and 3-inch Sunnyside high-pressure line that were replaced were installed from 1956 to 1959. The pipeline segments (Work Order #'s: Fish-L1-1, 42C2530) were identified in Cascade’s Maximum Allowable Operating Pressure (MAOP) Determination and Validation Plan, in accordance

1 with Docket PG-150120,<sup>2</sup> as lacking sufficient documentation to validate the  
2 pipeline segments MAOP. Cascade’s MAOP Determination and Validation Plan  
3 is provided as Exh. PCD-10 to my prefiled direct testimony. Replacement was  
4 chosen as the best option to address the missing documentation and to validate the  
5 pipeline segments MAOP based on the age of the pipeline segments.

6 **Q. How will Cascade customers benefit from the 2-inch and 3-inch Sunnyside  
7 HP Replacement project?**

8 A. This project addressed the documentation gaps that existed to be able to continue  
9 to safely operate the pipeline segment at its current MAOP and replaced pipeline  
10 segments installed pre-1970 with higher integrity management risk. The 2-inch  
11 and 3-inch Sunnyside high-pressure lines feeds the Sunnyside distribution system;  
12 thus, replacement allows Cascade to continue to serve Cascade’s customer base in  
13 that region with a safe and reliable natural gas system. Replacement also increases  
14 the efficiency of Cascade’s distribution system by establishing a higher  
15 documented design pressure, which would allow Cascade the ability to continue  
16 to serve future customers in the area.

17 **Q. Did the Company consider alternatives for the 2-inch and 3-inch Sunnyside  
18 HP Replacement project?**

19 A. Yes, Cascade considered alternatives for this project. One alternative considered  
20 was to take the pipeline segments out of service and conduct a pressure test to  
21 validate the pipeline segments MAOP. Pressure testing presents additional  
22 challenges compared to replacement, which includes being able to maintain

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<sup>2</sup> See *WUTC v. Cascade Natural Gas Corporation*, Docket PG-150120, Maximum Allowable Operating Pressure Determination & Validation Plan (filed March 29, 2018).

1 service to customers while the pressure test is completed, and safety risks  
2 associated with testing an existing pipeline installed pre-1970 with higher  
3 integrity management risks. A second alternative that was considered was to  
4 downrate the pipeline segments MAOP to a safe pressure based on historical  
5 operating pressures. But downrating would have restricted Cascade's ability to  
6 continue to serve current customers, so it was not considered the preferred  
7 alternative.

8 **Q. When was the work completed for the 2-inch and 3-inch Sunnyside HP**  
9 **Replacement project?**

10 A. This project was put into service on November 14, 2023.

11 **Q. What are the estimated or final costs for the 2-inch and 3-inch Sunnyside HP**  
12 **Replacement project?**

13 A. The total capital investment for the 2-inch and 3-inch Sunnyside HP replacement  
14 project through December 2023 is \$4,249,588.47. Remaining project costs are  
15 estimated to be \$427,000, which includes final restoration to be completed in the  
16 Spring of 2024.

17 **1. FP-316406 - 8-inch Bremerton HP Replacement Project**

18 **Q. Please describe the 8-inch Bremerton HP Replacement project.**

19 A. This project consisted of replacing two sections totaling roughly 550 feet of the 8-  
20 inch high-pressure line feeding Bremerton, WA. One section was in the bottom of  
21 a creek bed which had washed out, leaving the existing line exposed and  
22 vulnerable to external forces and raising integrity concerns. The other section

1 conflicted with a planned bridge reconstruction project and needed to be  
2 relocated.

3 **Q. What work has been completed or will be performed on the 8-inch**  
4 **Bremerton HP Replacement project?**

5 A. Both sections have been replaced with new pipe.

6 **Q. How will Cascade customers benefit from the 8-inch Bremerton HP**  
7 **Replacement project?**

8 A. The pipe in conflict with the bridge reconstruction project needed to be relocated  
9 and did not involve separate construction risk during the city project. And  
10 integrity and outside force risks associated with the other section of exposed pipe  
11 was addressed by this project. Cascade customers benefit with continued safe and  
12 reliable natural gas service to the area.

13 **Q. Did the Company consider alternative ways to meet the need for the 8-inch**  
14 **Bremerton HP Replacement project?**

15 A. Since the exposed and conflicting high-pressure lines in question were single  
16 feeds, abandonment was not feasible. Alternative replacement routes were  
17 considered, but ultimately the routes taken during construction were the most  
18 cost-effective replacement solution.

19 **Q. What is the timing or when was the work completed for the 8-inch**  
20 **Bremerton HP Replacement project?**

21 A. Construction started in 2022 and was completed in 2023.

1 **Q. What are the estimated costs of the 8-inch Bremerton HP Replacement**  
2 **project?**

3 A. Costs related to the replacements totaled \$1,588,750.

4 **2. FP-316429 - 8-inch HP Reinforcement Basich Blvd Project**

5 **Q. Please describe the 8-inch HP Reinforcement Basich Blvd project.**

6 A. This project was discussed in Cascade's 2018 and 2023 IRP filings.<sup>3</sup> This project  
7 reinforced Cascade's distribution system to support core and industrial growth  
8 predicted in Aberdeen, Washington. The 8-inch high pressure reinforcement was  
9 installed on Basich Boulevard and consisted of installing 12,500 feet of high  
10 pressure steel with a new regulator station in the center of town. Additional detail  
11 related to this project is included in Exh. PCD-3.

12 **Q. Why did the Company perform the 8-inch HP Reinforcement Basich Blvd**  
13 **project?**

14 A. This project was completed to support core growth in Aberdeen by addressing a  
15 distribution system deficit. Prior to this project, the town of Aberdeen was served  
16 by a single regulator station on the northeast side of town which experienced low  
17 pressure events during peak demand events on the westside of town. This high-  
18 pressure reinforcement brought a second regulator station into the center of town  
19 to boost pressures on the westside of Aberdeen to support long term core growth.  
20 By adding a second regulator station, this project also provided a redundant feed  
21 to the town and increased service reliability.

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<sup>3</sup> Cascade Natural Gas Corporation, 2018 Integrated Resource Plan at Appendix I, pages 18-19 (Dec. 14, 2018) (provided as Exh. PCD-6C); Cascade Natural Gas Corporation, 2023 Integrated Resource Plan at Appendix I, pages 33-24 (Feb. 24, 2023) (provided as Exh. PCD-7C).

1 **Q. What work has been completed for the 8-inch HP Reinforcement Basich**  
2 **Blvd project?**

3 A. The 8-inch high pressure pipeline and regulator station have been installed.

4 **Q. How will the 8-inch HP Reinforcement Basich Blvd project benefit Cascade's**  
5 **customers?**

6 A. This project addressed a distribution system deficit in the Aberdeen area and  
7 improved pressures on the westside of Aberdeen during peak demand to support  
8 core growth predictions. This project also added a second regulator station to  
9 Aberdeen, which improves service reliability.

10 **Q. Did the Company consider alternative ways to meet the need for the 8-inch**  
11 **HP Reinforcement Basich Blvd project?**

12 A. Alternatives were discussed in detail in Cascade's 2023 IRP filing,<sup>4</sup> including an  
13 option of installing a north and south 23,600 foot long 12-inch plastic pipe to  
14 reinforce the distribution system from the existing regulator station. This  
15 alternative was determined to have higher costs than the 8-inch high pressure  
16 reinforcement on Basich Boulevard and was not selected.

17 **Q. What is the timing of the 8-inch HP Reinforcement Basich Blvd project?**

18 A. The project was completed in 2023.

19 **Q. What were the costs of the 8-inch HP Reinforcement Basich Blvd project?**

20 A. The project cost was \$12,455,762.

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<sup>4</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 34-37.



1           **3.     FP- 316872 - 8-inch Yakima HP Reinforcement Project**

2     **Q.     Please describe the 8-inch Yakima HP Reinforcement project.**

3     A.     This project consisted of extending an 8-inch high pressure line into western  
4           Yakima to support a distribution system deficit to meet core growth predictions.  
5           Over the years, the west side of Yakima has seen significant development, which  
6           has caused a distribution system deficit due to limited high pressure and regulator  
7           stations on the westside of Yakima. The Yakima high pressure system was  
8           isolated to the east side of the city. Design day models shows that in the event of a  
9           cold weather event, the distribution system would not be able to support the  
10          predicted load. The 8-inch reinforcement project allowed Cascade to extend the  
11          Yakima high pressure system to the west side of the city to provide gas directly to  
12          the area of the city where low pressures were modeled.

13                 The project was designed to be installed in two phases, with each phase  
14                 strengthening the distribution system. The first phase extended approximately two  
15                 miles and terminated in a new regulator station feeding into the distribution  
16                 system. The second phase extended from the end of the first phase and extended  
17                 about 1.3 miles to terminate in an existing pipeline that was previously pressure  
18                 tested to support high pressure gas. The combination of these two phases and the  
19                 existing pipeline allowed Cascade to move high pressure gas 5.75 miles to where  
20                 the pressure was most needed to address the distribution system deficit and  
21                 support core growth in western Yakima. Additional detail related to this project is  
22                 included in Exh. PCD-3.

1 **Q. Why did the Company install the 8-inch Yakima HP Reinforcement project?**

2 A. As noted above, the purpose of this project was to extend high pressure gas to the  
3 western side of Yakima to address a distribution system deficit and meet long  
4 term core growth predictions. This project will allow Cascade to continue to  
5 provide reliable service to the west side of Yakima and avoid manually bypassing  
6 regulator stations during cold weather events, which has been required for the last  
7 couple of winters to keep westside pressures above critical levels and to avoid  
8 outages.

9 **Q. What work has been completed on the 8-inch Yakima HP Reinforcement**  
10 **project?**

11 A. Phase 1 of the project was installed in 2021 and phase 2 was completed in 2022,  
12 with the existing pipeline being utilized in 2023.

13 **Q. How will the 8-inch Yakima HP Reinforcement project benefit Cascade**  
14 **customers?**

15 A. This project increases the reliability of Cascade's distribution system in Yakima  
16 during peak cold weather events, and also allows for additional growth to take  
17 place on the western side of the city.

18 **Q. Did the Company consider alternative ways to meet the need for the 8-inch**  
19 **Yakima HP Reinforcement project?**

20 A. Cascade considered adding another gate station. But the Company determined  
21 that that option would have also required a pipeline to extend to the western side  
22 of the city to supply the needed pressure, which would have involved similar  
23 project costs.

1 **Q. What were the final costs of the 8-inch Yakima HP Reinforcement project?**

2 A. The total project cost for both phases was \$14,639,787.

3 **4. FP-318992 & FP-316980 - Yakima Gate Upgrade**

4 **Q. Please describe the Yakima Gate Upgrade.**

5 A. The Yakima Gate Upgrade consisted of two parts to increase the Yakima gate  
6 capacity to meet core demand in Yakima, Washington. First is the upgrade to  
7 William's Northwest Pipeline's meter and associated facilities. This part of the  
8 project was designed and managed by William's Northwest Pipeline. The second  
9 was the upgrade of Cascade's facilities at the Yakima Gate, which included the  
10 addition of a new regulator station to regulate pressure from the William's  
11 Northwest Pipeline, the addition of a pipeline heater, as well as updating the  
12 telemetry and communications equipment, and associated facility piping.

13 **Q. Why did the Company undertake the Yakima Gate Upgrade?**

14 A. Due to the growth in the Yakima area, Cascade's design day models showed that  
15 the Yakima Gate would not have sufficient capacity to meet our customer's needs  
16 during a cold weather event.

17 **Q. What work has been completed for the Yakima Gate Upgrade?**

18 A. All work was completed in 2022.

19 **Q. How will Cascade's customers benefit from the Yakima Gate Upgrade?**

20 A. Customers in the Yakima area will benefit from increased capacity and Cascade's  
21 ability to support core and industrial growth in the area.

1 **Q. Did the Company consider alternative ways to meet the need for the Yakima**  
2 **Gate Upgrade?**

3 A. Yes, Cascade considered the alternative of adding a second gate to the Yakima  
4 system. However, due to the location of William's Northwest Pipeline's facilities,  
5 this new station would have also required a substantial pipeline project in addition  
6 to the new gate before capacity could be added to the Yakima system.

7 **Q. What are the estimated or final costs for the Yakima Gate Upgrade?**

8 A. Cascade's final facility costs were \$1,797,250 and the William's Northwest  
9 Pipeline facilities cost were \$1,584,485.

10 **5. FP-317064 - 6-inch Bellingham PE Reinforcement Fraser Road**

11 **Q. Please describe the 6-inch Bellingham PE Reinforcement Fraser Road**  
12 **Project.**

13 A. This project was identified and discussed in Cascade's 2020 IRP.<sup>5</sup> This project  
14 consisted of installing 6,700 feet of 6-inch plastic pipe to reinforce a low-pressure  
15 area in southeast Bellingham, Washington to support core growth.

16 **Q. What work has been completed or will be performed on the 6-inch**  
17 **Bellingham PE Reinforcement Fraser Road Project?**

18 A. Construction was completed in 2023.

19 **Q. How will Cascade customers benefit from the 6-inch Bellingham PE**  
20 **Reinforcement Fraser Road Project?**

21 A. This project addresses a distribution system deficit in southeast Bellingham and  
22 will allow Cascade to continue to support core growth in southeast Bellingham.

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<sup>5</sup> Cascade Natural Gas Corporation, 2020 Integrated Resource Plan at Appendix I, pages 13-14 (Feb. 26, 2021) (provided as Exh. PCD-8C).

1 Over the last couple of years, this area has experienced significant subdivision  
2 growth. In December of 2021 during a cold weather event, Cascade customers  
3 lost service in this low pressure area. This project would address these growth and  
4 reliability issues.

5 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
6 **Bellingham PE Reinforcement Fraser Road Project?**

7 A. Yes, alternatives were discussed in Cascade's 2020 IRP,<sup>6</sup> including the option of  
8 1) postponing the reinforcement and committing to bypassing the regulator station  
9 during cold weather events, 2) installing an 11,000 foot 6-inch plastic pipe  
10 reinforcement or 3) completing a shorter reinforcement. The shorter  
11 reinforcement was completed to help address the deficit and avoid regulator  
12 station bypassing to maintain service. Ultimately, the project as designed and  
13 constructed was the best option, given that limited reinforcements options were  
14 available to this isolated area in Bellingham based on existing trunk lines and  
15 regulator station feeds.

16 **Q. What are the estimated costs of the 6-inch Bellingham PE Reinforcement**  
17 **Fraser Road Project?**

18 A. The total cost for this project was \$3,433,158.

19 **6. FP- 317065 - 6-inch Bellingham HP Replacement, Meador**  
20 **Ave Project**

21 **Q. Please describe the 6-inch Bellingham HP Replacement project.**

22 A. This project is to replace 2,450 feet of 4-inch high-pressure steel on Meador Ave  
23 in Bellingham, Washington with 6-inch high pressure steel. The project is being

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<sup>6</sup> Exh. PCD-8C (Cascade's 2020 IRP at Appendix I) at page 15.

1 driven by a City of Bellingham bridge replacement on Meador Ave that is  
2 requiring Cascade to relocate a line to avoid conflicts with the bridge project. This  
3 high pressure feed is critical to the Bellingham high pressure system and must be  
4 replaced. The current 4-inch steel high pressure steel has been identified as a  
5 deficit and needs to be upgraded to 6-inch high pressure steel to support long term  
6 core growth. This project is in Cascade's 2023 IRP filing.<sup>7</sup>

7 **Q. What work has been completed or will be performed on the 6-inch**  
8 **Bellingham HP Replacement project?**

9 A. Construction was completed in 2023.

10 **Q. How will Cascade customers benefit from the 6-inch Bellingham HP**  
11 **Replacement project?**

12 A. Cascade customers will benefit from the project because it will support long term  
13 core growth in Bellingham and address a bridge relocation conflict.

14 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
15 **Bellingham HP Replacement project?**

16 A. Yes, alternatives were discussed in detail in Cascade's 2023 IRP filing,<sup>8</sup> including  
17 an option to install a second regulator station to feed the Bellingham high pressure  
18 system and extending 5,000 feet of 4-inch high pressure steel to south  
19 Bellingham. That option would have avoided a river crossing, but would have  
20 required an I-5 crossing, a separate project to address the bridge relocation, and  
21 would have involved greater cost and, therefore, was ultimately not chosen.

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<sup>7</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at page 25.

<sup>8</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 26-28.

1 **Q. What is the timing or when was the work completed for the 6-inch**  
2 **Bellingham HP Replacement?**

3 A. Construction was completed in 2023.

4 **Q. What are the estimated costs of the 6-inch Bellingham HP Replacement**  
5 **project?**

6 A. The project cost was \$1,763,214.

7 **7. FP-318192 – Cascade’s Fixed Network Equipment**

8 **Q. Please describe Cascade’s Fixed Network project.**

9 A. Cascade’s Fixed Network Project enables the Company to collect and utilize more  
10 granular data on customer usage data and is also addressed in the prefiled direct  
11 testimony of Zachary L. Harris, Exh. ZHL-1T. From 2018 to 2020, the Company  
12 installed metering equipment at each gas meter, capable of electronically  
13 capturing and transmitting data. Because this project is ongoing, costs related to it  
14 are also included in the provisional years below.

15 Generally, Cascade’s Fixed Network relies on devices called Encoder  
16 Receiver Transmitters (“ERTs”). The Fixed Network is constructed with  
17 collectors and repeaters, which are devices that relay the data from the ERTs via  
18 900 MHz radio signals and transmit these data over cellular connections back to  
19 the Company’s Fixed Network servers. The individual data is then compiled to a  
20 data management system so business applications and software programs can  
21 analyze the data. For the Fixed Network to gather the needed data, the devices  
22 must be placed in proximity to the gas meters (and the ERTs) and at a height of at  
23 least 20 feet above ground. These devices are typically placed on existing utility

1 poles owned by local power utility providers or existing communication towers  
2 owned by local entities or utilities.

3 **Q. Why did the Company undertake the Cascade Fixed Network project?**

4 A. In 2020, the Commission issued its order in the cost-of-service study rulemaking  
5 proceeding, which includes a requirement that utilities file a cost-of-service study  
6 with their rate case filing. Given the Commission's adoption of new rules that  
7 require a load study based on actual data in all future rate case filings, the  
8 Company determined that developing a fixed network would provide a more  
9 durable, long-term solution for collecting the data needed to perform a load study,  
10 and would also provide operational benefits and costs savings once it is fully  
11 deployed, including reduced O&M costs associated with meter reading.

12 **Q. How will Cascade customers benefit from the Cascade Fixed Network  
13 project?**

14 A. This project allows the Company to complete the required cost of service study in  
15 accordance with WAC 480-85 and provides operational benefits and costs savings  
16 once it is fully deployed, including reduced O&M costs associated with meter  
17 reading.

18 **Q. Did the Company consider alternative ways to meet the need for the  
19 Cascade's Fixed Network project?**

20 A. In Cascade's 2017 rate case, Docket UG-170929, Cascade presented an  
21 alternative load study approach using citygate level customer class information  
22 based on its new load forecasting demand model. However, Staff asserted that this  
23 approach did not meet the definition of a load study provided in Cascade's 2015



1 settlement. Thus, as part of the settlement in the 2017 rate case, parties agreed that  
2 Cascade would perform a load study using actual data or detailed load analysis to  
3 determine actual core class usage tied to the Company's future Advanced  
4 Metering Infrastructure program.<sup>9</sup> Cascade determined the best way to collect the  
5 data needed for a load study is the installation of Fixed Network devices  
6 throughout the service territory.

7 **Q. Are there any offsetting O&M cost savings associated with this project?**

8 A. Yes, once the Fixed Network is fully deployed, O&M costs associated with meter  
9 reading will be reduced because this process will be fully automated.

10 **Q. When is this project expected to be placed in service?**

11 A. As explained further in the prefiled direct testimony of Zachary L. Harris, Exh.  
12 ZLH-1T, Cascade anticipates completing full installation of the Fixed Network by  
13 the third quarter of 2024.

14 **Q. What are the estimated costs for the project?**

15 A. The actual costs associated with this project for the period of 2021 to 2023 were  
16 \$2,536,458. Estimated cost for 2024 are \$1,387,228.

17 **8. FP-318740 – 6-inch Walla Walla PE Reinforcement Cottonwood**  
18 **Road Project**

19 **Q. Please describe the 6-inch Walla Walla PE Reinforcement Cottonwood Road**  
20 **project.**

21 A. The 1.7 mile, 6-inch plastic pipeline, Cottonwood Road Reinforcement in Walla  
22 Walla, Washington is a continued system improvement project maximizing

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<sup>9</sup> *WUTC v. Cascade Natural Gas Corporation*, Docket UG-170929, Order 06, ¶¶ 69-72 (July 20, 2018).

1 utilization of the South Walla Walla gate station to provide increased flow for the  
2 low-pressure areas of northeast and east Walla Walla.

3 **Q. What work has been completed or will be performed on the 6-inch Walla**  
4 **Walla PE Reinforcement Cottonwood Road project?**

5 A. Work was completed on the 6-inch Cottonwood Road Reinforcement project in  
6 2023.

7 **Q. How will Cascade customers benefit from the 6-inch Walla Walla PE**  
8 **Reinforcement Cottonwood Road project?**

9 A. The Cottonwood Reinforcement project will address low-pressure issues on the  
10 distribution system in east and northeast Walla Walla, which will also provide  
11 capacity for continued core customer growth in the area. As a secondary benefit,  
12 this project will enhance the South Walla Walla gate station supply to this area of  
13 the distribution system, providing an improved loop source and additional supply  
14 security to core customers.

15 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
16 **Walla Walla PE Reinforcement Cottonwood Road project?**

17 A. Alternative reinforcements to the 6-inch Cottonwood Road project were not  
18 considered in lieu of a pipeline installation, but an alternative route option was  
19 considered. The alternative route extended into undeveloped areas of southern  
20 Walla Walla, unlocking potential for future core customer growth. However, the  
21 alternative route required an additional 1,800 feet of pipeline installation and  
22 provided a slightly lower capacity gain to the system, so the alternative route was  
23 not selected.

1 **Q. What are the estimated costs of the 6-inch Walla Walla PE Reinforcement**  
2 **Cottonwood Road project?**

3 A. The final cost of the 6-inch Cottonwood Road Reinforcement project is  
4 \$1,849,112.

5 **9. FP-318799 & FP-318800 - South Longview Gate Upgrade Project**

6 **Q. Please describe the South Longview Gate Upgrade project.**

7 A. This project consisted of upgrading the South Longview Gate where both  
8 Williams Northwest Pipeline (“Williams NWP”) and Cascade required upgrades  
9 to their gate facilities to increase the capacity of the gate to meet industrial and  
10 core customer growth predicted in Longview, Washington. In situations where a  
11 Williams NWP gate requires an upgrade, Cascade pays for the Williams NWP  
12 upgrade. This project was identified and discussed in Cascade’s 2020 IRP  
13 filing.<sup>10</sup>

14 **Q. Why is the Company undertaking the South Longview Gate Upgrade**  
15 **project?**

16 A. The South Longview Gate Upgrade project was needed to meet Cascade’s IRP  
17 growth predictions, support industrial customer growth in Longview and meet  
18 Cascade’s long-term plan of extending 500 psig high pressure into South  
19 Longview. Prior to this gate upgrade, the South Longview gate had been  
20 exceeding the Williams NWP contractual capacity.

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<sup>10</sup> Exh. PCD-8C (Cascade’s 2020 IRP at Appendix I at pages 36-37).

1 **Q. What work has been completed or will be performed for the South Longview**  
2 **Gate Upgrade project?**

3 A. The Cascade gate upgrade project was completed in 2022. And the Williams  
4 NWP gate upgrade was also completed in 2022.

5 **Q. How will Cascade customers benefit from the South Longview Gate Upgrade**  
6 **project?**

7 A. This project provides additional capacity to meet current and long-term growth  
8 predictions in Longview and will benefit customers in the area.

9 **Q. Did the Company consider alternative ways to meet the need for the South**  
10 **Longview Gate Upgrade project?**

11 A. Yes, an alternative to this project was discussed in the 2020 IRP.<sup>11</sup> The alternative  
12 was adding a third gate station to Longview to support core growth and industrial  
13 growth. This option was not considered due to feasibility and cost—adding a third  
14 gate would require a 2-mile pipeline to connect to the distribution system. There  
15 was not an existing pipeline route in right of way, so routing would have required  
16 private easements in addition to a river bore which was determined to be more  
17 costly than upgrading the existing gate in place.

18 **Q. What are the estimated or final costs for the South Longview Gate Upgrade**  
19 **project?**

20 A. Cascade's Gate Upgrade final cost was \$1,148,854 and the Williams NWP Gate  
21 Upgrade final cost was \$2,839,133.

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<sup>11</sup> Exh. PCD-8C (Cascade's 2020 IRP at Appendix I) at pages 36-37.

1           **10.    FP-319055 - 12-inch & 6-inch Richland HP Reinforcement Project**

2   **Q.    Please describe the 12-inch & 6-inch Richland HP Reinforcement project.**

3   A.    This project was discussed in the Cascade’s 2020 and 2023 IRP filings.<sup>12</sup> This  
4       project is to address the deficit on the existing 6-inch and 8-inch Richland high  
5       pressure lateral. The 8-inch high pressure line extending north to Richland,  
6       Washington is at capacity and cannot support core growth in Richland. Over the  
7       last ten to fifteen years, Richland and nearby Kennewick have experienced  
8       significant growth which has taxed the Richland high pressure system. This  
9       project consists of upgrading the Richland Y Gate and installing 5.5 miles of 12-  
10      inch high pressure steel along the Columbia Park Trail and 1.2 miles of 6-inch  
11      high pressure steel south on Leslie Road to tie into the existing 6-inch and 8-inch  
12      Richland high pressure lateral at Queensgate Drive and Leslie Road. FP-319055  
13      was completed in 2023 and is included in the test year. Additional information  
14      related to this project is included in Exh. PCD-3. Projects FP-320144, FP-320155  
15      and FP-320159 described in the provisional section are related projects that are  
16      scheduled to be completed in 2025.

17 **Q.    Why did the Company complete the 12-inch & 6-inch Richland HP**  
18 **Reinforcement project?**

19 A.    This project was completed to address the deficit and meet long term core growth  
20      predictions in Kennewick and Richland.

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<sup>12</sup> Exh. PCD-8C (Cascade's 2020 IRP at Appendix I) at pages 24-26; Exh. PCD-7C (Cascade’s 2023 IRP at Appendix I) at pages 3-8.

1 **Q. What work has been completed for the 12-inch & 6-inch Richland HP**  
2 **Reinforcement project?**

3 A. The 12-inch and 6-inch Richland HP reinforcement Phase 1 construction was  
4 completed in 2023. Phase 2 construction will be completed in 2025. Cascade's  
5 Richland Y Gate Upgrade is planned for 2025. And the Williams NWP Richland  
6 Y Gate Upgrade is planned for 2025.

7 **Q. How will the 12-inch & 6-inch Richland HP Reinforcement project benefit**  
8 **Cascade's customers?**

9 A. This project addresses the deficit on the Richland high pressure lateral and will  
10 support predicted core growth in the area. This project also provides a back feed  
11 to the Richland lateral and supports Cascade's long-term plan of retiring the  
12 Kennewick gate and retiring or downrating the 6-inch high pressure steel out of  
13 the Kennewick gate which is vintage pipe and was identified in Cascade's MAOP  
14 Determination and Validation Plan, in accordance with Docket PG-150120,<sup>13</sup> as  
15 lacking sufficient documentation to validate the pipeline segments MAOP.

16 **Q. Did the Company consider alternative ways to meet the need for the 12-inch**  
17 **& 6-inch Richland HP Reinforcement project?**

18 A. Yes, two alternatives were discussed in detail in Cascade's 2023 IRP filing.<sup>14</sup> The  
19 first alternative consisted of upgrading the existing Kennewick gate and then  
20 replacing and or uprating the existing 6-inch Richland high pressure lateral out of  
21 the Kennewick gate. The second alternative was to install a new gate station in  
22 North Pasco and then install a 11.5 mile 12-inch steel high pressure lateral across

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<sup>13</sup> Exh. PCD-10 at Attachment 1, page 3, and Attachment 3, page 3.

<sup>14</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 4-9.

1 the Columbia River, tying into the end of the 6-inch and 8-inch north Richland  
2 lateral within the Hanford DOE site. After vetting both alternatives, the 12-inch  
3 and 6-inch Richland high pressure reinforcement was chosen as the lowest cost  
4 alternative.

5 **Q. What are the costs for the 12-inch & 6-inch Richland HP Reinforcement**  
6 **project?**

7 A. The 12-inch & 6-inch Richland HP Phase 1 cost was \$10,526,903 in 2023.  
8 The 12-inch & 6-inch Richland HP Phase 2 cost is estimated at \$8,810,449 for  
9 2025. Cascade's Richland Y Gate Upgrade cost is estimated at \$2,531,050 for  
10 2025. And the Williams NWP Richland Y Gate Upgrade cost is estimated at  
11 \$5,054,117 for 2025. Total project cost is estimated at \$26,475,779.

12 **11. FP-320007 - 16-inch March Point Transmission Replacement Project**

13 **Q. Please describe the 16-inch March Point Transmission Replacement project.**

14 A. The 16-inch March Point Transmission Line Replacement project includes the  
15 replacement of a 21-foot segment of 16-inch diameter steel transmission main.  
16 Installation included the installation of stopple fittings and temporary bypass to  
17 complete the replacement.

18 **Q. Why did the Company undertake the 16-inch March Point Transmission**  
19 **Replacement project?**

20 A. The segment of the 16-inch March Point Transmission Line that was replaced was  
21 installed in 1993. The pipeline segment (Work Order # 45730) was identified in  
22 Cascade's MAOP Determination and Validation Plan, in accordance with Docket

1 PG-150120,<sup>15</sup> as lacking sufficient documentation to validate the pipeline  
2 segments MAOP. Replacement was chosen as the best option to address the  
3 missing documentation and to validate the pipeline segments MAOP.

4 **Q. How will Cascade customers benefit from the 16-inch March Point**  
5 **Transmission Replacement project?**

6 A. This project addressed the documentation gaps that existed and enables Cascade  
7 to continue to safely operate the pipeline segment at its current MAOP. The 16-  
8 inch March Point Transmission Line feeds many large industrial customers and  
9 the Anacortes distribution system; thus, replacement allows Cascade to continue  
10 to serve Cascade's customer base with a safe and reliable natural gas system.

11 **Q. Did the Company consider alternatives for the 16-inch March Point**  
12 **Transmission Replacement project?**

13 A. Yes, Cascade considered alternatives for this project. One alternative considered  
14 was to take the pipeline segment out of service and conduct a pressure test to  
15 validate the pipeline segments MAOP. But as discussed above, pressure testing  
16 presents additional challenges compared to replacement, including being able to  
17 maintain service to customers while the pressure test is completed, and safety  
18 risks associated with testing an existing pipeline. Pressure testing this short  
19 pipeline segment would have also required the same stopple fittings and  
20 temporary bypass that was required for replacement. A second alternative that  
21 was considered was to downrate the pipeline segments MAOP to a safe pressure

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<sup>15</sup> See Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1.



1 based on historical operating pressures. Downrating would have restricted  
2 Cascade's ability to continue to serve current customers.

3 **Q. When was the work completed for the 16-inch March Point Transmission**  
4 **replacement project?**

5 A. This project was put into service on March 2, 2023.

6 **Q. What are the costs for the 16-inch March Point Transmission replacement**  
7 **project?**

8 A. The total capital investment for the 16-inch March Point Transmission  
9 Replacement project was \$1,322,706.

10 **12. FP-320460 - 12-inch Wallula HP Line and Wallula Gate Station**  
11 **Project**

12 **Q. Please describe the 12-inch Wallula HP Line and Wallula Gate Station**  
13 **project.**

14 A. This project consisted of installing 5.6 miles of 12-inch Wallula high pressure  
15 steel with a new gate station off the GTN/Transcanada pipeline and a regulator  
16 station to back feed the 8-inch Attalia line in the Wallula, Washington area. This  
17 project created a back feed to the 8-inch Attalia transmission line and allowed the  
18 8-inch Attalia line MAOP to be downrated to a 200 psig MAOP which took the  
19 line from transmission to high pressure. This project addressed the lack of  
20 documentation needed to validate the pipeline segments MAOP as was identified  
21 in Cascade's MAOP Determination and Validation Plan,<sup>16</sup> integrity concerns, and  
22 enables Cascade to meet future core and industrial growth on the lateral.

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<sup>16</sup> See Exh. PCD-10 at Attachment 1, page 3, and Attachment 3, page 1.

1 **Q. Why did the Company undertake the 12-inch Wallula HP Line and Wallula**  
2 **Gate Station project?**

3 A. Cascade completed this project to address MAOP validation on the 8-inch Attallia  
4 transmission line, address integrity concerns, and meet long-term core growth on  
5 the lateral. The 8-inch Attallia transmission line was installed in 1958 and lacked  
6 MAOP validation records—specifically, grade and a valid pressure test to justify  
7 the 300 psig MAOP. Cascade also had integrity concerns on this line because the  
8 8-inch Attallia line has had several damages, material concerns, underrated  
9 fittings for the 300 psig MAOP, and shallow bury depth due to erosion/top soil  
10 loss in agricultural fields. This project also was completed to meet IRP core  
11 growth predictions identified and discussed in Cascade’s 2018 IRP.<sup>17</sup>

12 **Q. What work has been completed or will be performed on the 12-inch Wallula**  
13 **HP Line and Wallula Gate Station project?**

14 A. The 12-inch Wallula high pressure line was installed in 2020 and 2021. And the  
15 Wallula gate station was constructed in 2020.

16 **Q. How will Cascade customers benefit from the 12-inch Wallula HP Line and**  
17 **Wallula Gate Station project?**

18 A. This project provided additional capacity to the Attalia lateral to meet long-term  
19 growth predictions and addressed the MAOP validation and integrity concerns on  
20 the 8-inch Attalia transmission line. This project also created a back feed to the  
21 Attalia lateral which also benefits customers by increasing reliability since it has a  
22 north feed from Williams and provided a south feed from GTN/Transcanada.

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<sup>17</sup> Exh. PCD-6C (Cascade’s 2018 IRP at Appendix I) at page 6.

1 **Q. Did the Company consider alternative ways to meet the need for the 12-inch**  
2 **Wallula HP Line and Wallula Gate Station project?**

3 A. Yes, three alternatives to this project were discussed in Cascade's 2018 IRP.<sup>18</sup>  
4 First, Cascade considered replacing 8-inch Attalia transmission line with a 12-  
5 inch high pressure pipeline operating at 500 psig. Second, the Company  
6 considered installing a new Wallula gate and 12-inch Wallula pipeline and then  
7 repressure testing the 8-inch Attalia transmission line to certify the 300 psig  
8 MAOP. And third, Cascade considered installing a new Wallula gate and 12-inch  
9 Wallula pipeline and then replacing sections of the 8-inch Attalia pipeline.

10 **Q. What are the costs for the 12-inch Wallula HP Line and Wallula Gate**  
11 **Station project?**

12 A. The 12-inch Wallula HP Line and Wallula Gate Station project costs were  
13 \$1,003,658.

14 **13. FP-321609 - 6-inch Everson PE Reinforcement Project**

15 **Q. Please describe the 6-inch Everson PE Reinforcement project.**

16 A. This project was designed to bring a second source of gas into the Wiser Lake,  
17 Washington area to address a distribution system deficit. The Wiser Lake area  
18 distribution system has fallen below design day criteria. Cascade's modeling  
19 software has shown that pressure issues will arise during a cold weather event.  
20 And Cascade experienced customer outages during in a cold weather event in  
21 2021. The pipeline is approximately 2.7 miles of 6-inch MDPE pipe and 0.4

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<sup>18</sup> Exh. PCD-6C (Cascade's 2018 IRP at Appendix I) at pages 6-12.

1 miles of 4-inch high pressure steel. It is connected to existing pipeline on the west  
2 side of Everson and extends to the east side of the Wiser Lake area of Ferndale.

3 **Q. What work has been completed or will be performed on the 6-inch Everson**  
4 **PE Reinforcement project?**

5 A. This project was completed in 2022.

6 **Q. How will Cascade customers benefit from the 6-inch Everson PE**  
7 **Reinforcement project?**

8 A. This project increased the delivery pressure in the Wiser Lake area of Ferndale to  
9 help address the distribution system deficit identified.

10 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
11 **Everson PE Reinforcement project?**

12 A. Yes, several other pipeline routes were considered to provide gas to this area.  
13 Cascade considered increasing the size of existing infrastructure, but this route  
14 would have been more disruptive as it went through a more densely populated  
15 area. Cascade also considered providing gas from the north. That route proved to  
16 be slightly shorter but had a river and canal crossings which added to the  
17 difficulty and cost of this option.

18 **Q. What are the estimated costs of the 6-inch Everson PE Reinforcement**  
19 **project?**

20 A. The cost of this project was \$1,711,091.

1           **14.    FP-322683 - 6-inch Aberdeen PE Reinforcement Front St. Project**

2   **Q.    Please describe the 6-inch Aberdeen PE Reinforcement project.**

3   A.    This project reinforces a single feed, low pressure area of the Aberdeen,  
4           Washington distribution system in the southwest section of town. This portion of  
5           the system is isolated by a harbor crossing and has begun to experience an  
6           increase in core customer growth. The 6-inch plastic pipeline will be extended in  
7           increments as growth occurs to reduce near-term spending.

8   **Q.    What work has been completed or will be performed on the 6-inch Aberdeen  
9           PE Reinforcement project?**

10  A.    This project was completed in 2023.

11  **Q.    How will Cascade customers benefit from the 6-inch Aberdeen PE  
12           Reinforcement project?**

13  A.    Cascade customers will benefit from the increased capacity for core customer  
14           growth in an area experiencing increased demand.

15  **Q.    Did the Company consider alternative ways to meet the need for the 6-inch  
16           Aberdeen PE Reinforcement project?**

17  A.    Yes, Cascade considered an alternative route and smaller pipe diameter. But the  
18           reduced diameter pipe did not provide a capacity increase and the alternative route  
19           did not reduce cost but did reduce the Company's ability to serve new customers.

20  **Q.    What are the estimated costs of the 6-inch Aberdeen PE Reinforcement  
21           project?**

22  A.    The project cost was \$1,005,540.

1 V. MAJOR PROJECT PROVISIONAL ADDITIONS TO PLANT PLACED IN  
2 SERVICE -IN 2024 AND 2025

3 A. Specific Projects Over One Million Placed in Service in 2024 and 2025

4 1. FP-322776, FP-322783, & FP-322784 - 20-inch Burlington  
5 Transmission Reinforcement Project

6 Q. Please describe the 20-inch Burlington Transmission Reinforcement project.

7 A. This project consists of installing 6 miles of 20-inch transmission main to replace  
8 the existing 8-inch Anacortes transmission line. The 16-inch and 8-inch Anacortes  
9 Lateral is at capacity and currently has a deficit and needs a reinforcement to meet  
10 large volume contract demands, improve suction pressure to the Fredonia  
11 compressor station, and meet core growth needs along the lateral. The Anacortes  
12 lateral runs 19 miles from Sedro Woolley to Anacortes and serves several large  
13 refineries in Anacortes, Washington.

14 Q. What work has been completed or will be performed on the 20-inch  
15 Burlington Transmission Reinforcement project?

16 A. Pipeline permitting and design has been completed. Land acquisition is in  
17 progress. The project was bid and awarded in the fall of 2023, and the contractor  
18 is scheduled to start construction in July.

19 Q. How will Cascade's customers benefit from the 20-inch Burlington  
20 Transmission Reinforcement project?

21 A. This project will provide additional capacity to the Anacortes lateral, address the  
22 current deficit, and help get the Fredonia compressor back into a lower  
23 horsepower range on the compressor curve by increasing suction pressure to the  
24 compressor. Over the last couple of years, Cascade has experienced several  
25 operational issues and failures on the compressor. Running the compressor at

1 lower horsepower will take stress off the compressor and will have reduced  
2 operational costs. This project will also allow the Company to continue to support  
3 core growth predicted along the lateral.

4 **Q. Did the Company consider alternative ways to meet the need for the 20-inch**  
5 **Burlington Transmission Reinforcement project?**

6 A. Yes, two alternatives were considered in lieu of this project. The first alternative  
7 considered was to install a second compressor station on the Anacortes lateral  
8 upstream of the existing Fredonia compressor. A new compressor would need to  
9 be permitted and has the risk of not being permitted in Western Washington due  
10 to emission requirements. Cascade also has operational concerns of operating  
11 another compressor due to recent compressor issues and failures on the Fredonia  
12 compressor station, which caused interruptions to large volume customers. The  
13 second alternative considered was to back feed the Anacortes lateral from the  
14 Mount Vernon gate by installing 10 miles of 20-inch transmission line. This  
15 option has operational benefits of looping the Sedro Woolley and Mount Vernon  
16 gates, but had challenges since the entire pipeline route would need to be  
17 permitted and would likely require significant easement acquisition to support  
18 operations and maintenance on the 20-inch transmission line. Further, this option  
19 could not be phased and would require installation of the entire 10 miles to get the  
20 effective gain of the reinforcement. By contrast, replacing the 8-inch transmission  
21 line with 20-inch in the existing right of way allows for the project to be phased  
22 over time. And the Company has had positive experience with previous work  
23 completed on this line in 2015, 2016 and 2017. Thus, the option to replace the

1 existing 8-inch transmission line in existing easements was preferred because it  
2 provided numerous time and cost savings opportunities.

3 **Q. What is the timing or when was the work completed for the 20-inch**  
4 **Burlington Transmission Reinforcement project?**

5 A. Construction is planned for 2024.

6 **Q. What are the estimated costs of the 20-inch Burlington Transmission**  
7 **Reinforcement project?**

8 A. The Company estimates the project costs as follows:

- 9 • Pipeline cost is estimated at \$29,040,773.
- 10 • Regulator station cost is estimated at \$498,152.
- 11 • Land Acquisition is estimated at \$119,147.
- 12 • Total cost is estimated at \$29,658,070.

13 **2. FP-323431, FP-323432, FP-323434, & FP-323435 - Divert Inc., RNG**  
14 **Project (Longview)**

15 **Q. Please describe the Divert Inc., RNG Project.**

16 A. As described in the direct testimony of Scott Madison, the Divert Inc., RNG  
17 Project is a Transport Project that will allow renewable natural gas (“RNG”) from  
18 Divert Inc.’s (“Divert”) RNG production biorefinery to flow into Cascade’s  
19 distribution system and allow Cascade to provide RNG transportation service to  
20 Divert. The project consists of a new interconnect facility at the location of  
21 Divert’s biorefinery and 1,700 feet of 2-inch high pressure steel from the  
22 interconnect facility to Cascade’s existing 12-inch high pressure system located  
23 along Industrial Way in Longview, Washington.

24 Divert will become a new Cascade Rate Schedule 663 transportation



1 customer. Divert and Cascade exchanged a term sheet for this project in late 2021  
2 and signed an RNG Facilities Interconnect Agreement in March of 2022. Under  
3 this agreement, Cascade will install facilities required to flow RNG from Divert's  
4 biorefinery into Cascade's distribution system and provide transportation service  
5 to Divert. Divert will sign a RS-663 transportation service agreement with  
6 Cascade, where the facility cost to Divert was determined in accordance with  
7 Cascade's Extension of Distribution Facilities Rule 8 ("Rule 8", provided as Exh.  
8 PCD-9) in effect in late 2021 when the term sheet for the project was exchanged.  
9 Cascade estimated the annual margin from the transportation of RNG under  
10 Schedule 663 based on a contract demand of 5,760 therms/day at \$109,326. Based  
11 on Rule 8, the allowance toward the cost of the infrastructure was determined to  
12 be \$1,573,036. Because the calculated allowance was more than the estimated  
13 direct project cost, it was determined that there would be no cost to Divert for the  
14 project. This Transport Project, as defined in the prefiled direct testimony of Scott  
15 W. Madison, Exh. SWM-1T, will help facilitate the growth of the RNG industry  
16 in Washington even though none of the RNG from the project will be used to  
17 serve Cascade customers.

18 **Q. What is the timing or when was the work completed for the Divert Inc., RNG**  
19 **Project?**

20 A. The project is currently forecasted to be completed the second half of 2024.

21 **Q. What are the estimated costs of the Divert Inc., RNG Project?**

22 A. The Company estimates the project costs as follows:

- 23
- Pipeline cost is estimated at \$237,522.

- 1 • Interconnect cost is estimated at \$1,181,773.
- 2 • Regulator Station is estimated at \$582,325.
- 3 • Meter cost is estimated at \$97,719.
- 4 • Total Project cost is estimated at \$2,099,339.

5 **3. FP-323443, FP-323446, & FP-323452- Horn Rapids Landfill RNG**  
6 **Project (Richland)**

7 **Q. Please describe the Horn Rapids RNG Project.**

8 A. Cascade executed agreements with Pine Creek RNG for two RNG interconnect  
9 facilities located in close proximity to each other in Richland, Washington. This  
10 1) allows RNG from two of Pine Creek RNG’s biomethane refining systems  
11 located at the City of Richland’s Horn Rapids Landfill and Lamb Weston’s plant  
12 on Saint Street to flow into Cascade’s distribution system and 2) provides for  
13 Cascade to purchase at least 50% of the total environmental attributes and all of  
14 the biomethane related to the RNG produced by both facilities.

15 The Horn Rapids RNG Project will allow RNG from Pine Creek RNG’s  
16 biomethane refining system at the Horn Rapids Landfill to flow into Cascade’s  
17 distribution system. The Horn Rapids RNG Purchase Project consists of a new  
18 interconnect facility at the Horn Rapids Landfill at the location of Pine Creek’s  
19 biorefinery and approximately 9,100 feet of 6-inch plastic pipeline from the  
20 interconnect facility to Cascade’s existing distribution system on Kingsgate Way.

21 Cascade is making the investment in these project facilities as a part of the  
22 negotiated price to obtain the environmental attributes associated with the RNG  
23 produced by Pine Creek biorefineries. The facilities also allow the RNG to flow  
24 into Cascade’s distribution system so it can be consumed. Acquisition of the RNG

1 will allow Cascade to meet the requirements of the Washington CCA and allow  
2 Cascade to make RNG available to its customers on a voluntary basis as required  
3 by RCW 80.28.390.

4 Note that projects and opportunities to acquire RNG have different terms,  
5 capital costs, costs to purchase or produce the RNG, and volumes of RNG.

6 Cascade created a model that compares opportunities based on market value per  
7 decatherm per year, and revenue requirement per decatherm. The Company  
8 utilized these metrics to compare the investment in this project to the most  
9 favorably valued renewable thermal credit (“RTC”) only deals evaluated by the  
10 Company. This represents Cascade’s understanding of the existing market  
11 conditions around the cost of RTCs, and thus the marginal abatement cost for  
12 RTC procurement. This enables the Company to compare opportunities to meet  
13 needs that have different characteristics. There are a limited number of on-system  
14 RNG projects available and it will likely be necessary to purchase RNG from off-  
15 system projects to meet Cascade’s needs. This project compares favorably with  
16 opportunities to purchase off-system attributes as well as other on-system  
17 projects, as the total market value per decatherm per year and the total impact  
18 revenue requirement per decatherm were lower on this project than the  
19 aforementioned marginal abatement costs identified.

20 **Q. What work has been completed or will be performed on the Horn Rapids**  
21 **RNG Project?**

22 A. Construction of the Horn Rapids RNG Project is expected to be complete and the  
23 project placed in service during the first quarter of 2024.

1 **Q. How will Cascade customers benefit from the Horn Rapids RNG Project?**

2 A. This project will bring renewable natural gas onto Cascade's system and will  
3 provide a new gas supply to Richland. It also allows Cascade to acquire RNG  
4 which can be made available to customers through a voluntary tariff.

5 **Q. What is the timing or when was the work completed for the Horn Rapids  
6 RNG Project?**

7 A. The project is currently forecasted to be completed the first quarter of 2024.

8 **Q. What are the estimated costs of the Horn Rapids RNG Project?**

9 A. The Company estimates the project costs as follows:

- 10 • Interconnect cost is estimated at \$1,117,241.
- 11 • Regulator Station is estimated at \$365,958.
- 12 • Meter set is estimated at \$43,013.
- 13 • Total Project cost is estimated at \$1,526,212.

14 Costs shown above are the Washington allocated costs. This project will be  
15 considered an overall Cascade system asset with 75% allocated to Washington  
16 and 25% to Oregon.

17 **4. FP-323467, FP-323469, & FP-323472 - Lamb Weston RNG Project**  
18 **(Richland)**

19 **Q. Please describe the Lamb Weston RNG Project.**

20 A. This Purchase Project, as defined in the prefiled direct testimony of Scott W.  
21 Madison, Exh. SWM-1T, relates to the other Pine Creek RNG interconnect  
22 facility in Richland, Washington. As discussed above, the two interconnect  
23 agreements 1) allow RNG from two of Pine Creek RNG's biomethane refining  
24 systems located at both the City of Richland's Horn Rapids Landfill and Lamb

1 Weston's plant on Saint Street to flow into Cascade's distribution system and 2)  
2 provide for Cascade to purchase at least 50% of the RNG produced by both  
3 facilities and 100% of the RNG produced at the Lamb Weston facility. The Lamb  
4 Weston RNG Project will allow RNG from Pine Creek RNG's biomethane  
5 refining system at the Lamb Weston's plant at 2013 Saint Street, Richland,  
6 Washington to flow into Cascade's distribution system. The Lamb Weston RNG  
7 Project consists of a new interconnect facility at the Lamb Weston plant at the  
8 location of Pine Creek's biorefinery and approximately 2,800 feet of 4-inch steel  
9 pipeline from the interconnect facility to Cascade's existing distribution system  
10 on Hagel Road.

11 As with Cascade's other RNG Purchase Projects, Cascade is making the  
12 investment in these Purchase Project facilities as a part of the negotiated price to  
13 obtain the RNG produced by the Lamb Weston facility. Acquisition of the RNG  
14 has the added benefit of enabling Cascade to meet the requirements of the  
15 Washington CCA and allow Cascade to make RNG available to its customers on  
16 a voluntary basis as required by state law. Further, this project compares  
17 favorably with opportunities to purchase off-system attributes as well as other on-  
18 system projects, as the total market value per decatherm per year and the total  
19 impact revenue requirement per decatherm were lower on this project than the  
20 aforementioned marginal abatement costs identified.

1 **Q. What work has been completed or will be performed on the Lamb Weston**  
2 **RNG Project?**

3 A. Construction of the Lamb Weston RNG Project is expected to be complete and  
4 the project placed in service during the first quarter of 2024.

5 **Q. How will CNG customers benefit from the Lamb Weston RNG Project?**

6 A. This project will bring renewable natural gas onto Cascade's system and will  
7 provide a new gas supply to Richland. It also allows Cascade to acquire RNG  
8 which can be made available to customers through a voluntary tariff.

9 **Q. What are the estimated costs of the Lamb Weston RNG Project?**

10 A. The Company estimates the project costs as follows:

- 11 • Interconnect cost is estimated at \$1,117,316.
- 12 • Meter set cost is estimated at \$56,595.
- 13 • Regulator station cost is estimated at \$540,060.
- 14 • Total Project cost is estimated at \$1,713,971

15 Costs shown above are the Washington allocated costs. This project will be  
16 considered an overall system asset with 75% allocated to Washington and 25% to  
17 Oregon.

18 **5. FP-323775, FP-323824, FP-323840, & FP-323481 - Process Water**  
19 **Reuse Facility RNG Project (Pasco)**

20 **Q. Please describe the Process Water Reuse Facility RNG Project.**

21 A. The Process Water Reuse Facility RNG Project is a project that will allow RNG  
22 from Burnham's RNG production biorefinery to flow into Cascade's distribution  
23 system and will allow Cascade to purchase all of the biomethane and  
24 environmental attributes from this RNG project. The project consists of a new

1 interconnect facility at the location of Burnham’s biorefinery in Pasco,  
2 Washington, 2.3 miles of 4-inch high pressure steel from the interconnect facility  
3 to Cascade’s existing system, and a control valve system. The exact routing of the  
4 project will depend on the availability of private easements.

5 As with Cascade’s other RNG Purchase Projects, Cascade is making the  
6 investment in these project facilities as a part of the negotiated price to obtain the  
7 RNG produced by the Burnham biorefinery. And acquisition of the RNG has the  
8 added benefit of enabling Cascade to meet the requirements of the Washington  
9 CCA and allow Cascade to make RNG available to its customers on a voluntary  
10 basis as required by state law. Further, this project compares favorably with  
11 opportunities to purchase off-system attributes as well as other on-system projects,  
12 as the total market value per decatherm per year and the total impact revenue  
13 requirement per decatherm were lower on this project than the aforementioned  
14 marginal abatement costs identified.

15 **Q. What work has been completed or will be performed on the Process Water**  
16 **Reuse Facility RNG Project?**

17 A. Pipeline routing is currently being finalized. Design will be completed in early  
18 2024.

19 **Q. How will Cascade customers benefit from the Process Water Reuse Facility**  
20 **RNG Project?**

21 A. This project will bring renewable natural gas onto Cascade’s system and will  
22 provide a new gas supply to Pasco, Washington.

1 **Q. What is the timing or when was the work completed for the Process Water**  
2 **Reuse Facility RNG Project?**

3 A. This project is forecasted to be completed in early 2025.

4 **Q. What are the estimated costs of the Process Water Reuse Facility RNG**  
5 **Project?**

6 A. The Company estimates the project costs as follows:

- 7 • Pipeline cost is estimated at \$1,934,356.
- 8 • Interconnect cost is estimated at \$886,934.
- 9 • Regulator Stations are estimated at \$789,230.
- 10 • Meter Set cost is estimated at \$200,051.
- 11 • Total Project cost is estimated at \$3,810,571

12 Costs shown above are Washington allocated cost. This project will be considered  
13 an overall system asset with 75% allocated to Washington and 25% to Oregon.

14 **6. FP-320144 FP-320155 & FP-320159- 12-inch & 6-inch Richland HP**  
15 **Reinforcement**

16 **Q. Please describe the 12-inch & 6-inch Richland HP Reinforcement project.**

17 A. This is Phase 2 of the Richland HP Reinforcement Project described in the  
18 previous section. Phase 1 (FP-319055) was placed in service in 2023. The project  
19 was discussed in Cascade's 2020 and 2023 IRP filings.<sup>19</sup> This project is to address  
20 the deficit on the existing 6-inch and 8-inch Richland high pressure lateral. The 8-  
21 inch high pressure line extending north to Richland, Washington is at capacity  
22 and cannot support core growth in Richland. Over the last ten to fifteen years,

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<sup>19</sup> Exh. PCD-8C (Cascade's 2020 IRP at Appendix I) at pages 24-26; Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 3-8.



1 Richland and Kennewick have experienced significant growth which has taxed  
2 the Richland high pressure system. This project consists of upgrading the  
3 Richland Y Gate and installing 5.5 miles of 12-inch high pressure steel along  
4 Columbia Park Trail and 1.2 miles of 6-inch high pressure steel south on Leslie  
5 Road to tie into the existing 6-inch and 8-inch Richland high pressure lateral at  
6 Queensgate Drive and Leslie Road.

7 **Q. Why did the Company complete the 12-inch & 6-inch Richland HP**  
8 **Reinforcement project?**

9 A. This project was completed to address the deficit and meet long term core growth  
10 predictions in Kennewick and Richland.

11 **Q. What work has been completed for the 12-inch & 6-inch Richland HP**  
12 **Reinforcement project?**

13 A. The 12-inch & 6-inch Richland HP reinforcement Phase 1 construction was  
14 completed in 2023. Phase 2 construction will be completed in 2024. Cascade's  
15 Richland Y Gate Upgrade is planned for 2024. And the Williams NWP Richland  
16 Y Gate Upgrade is planned for 2024.

17 **Q. How will the 12-inch & 6-inch Richland HP Reinforcement project benefit**  
18 **Cascade customers?**

19 A. This project addresses the deficit on the Richland high pressure lateral and will  
20 support core growth predicted. This project also provides a back feed to the  
21 Richland lateral and supports Cascade's long term plan of retiring the Kennewick  
22 gate and retiring or downrating the 6-inch high pressure steel out of the  
23 Kennewick gate which is vintage pipe and was identified in Cascade's MAOP

1 Determination and Validation Plan, in accordance with Docket PG-150120,<sup>20</sup> as  
2 lacking sufficient documentation to validate the pipeline segments MAOP.

3 **Q. Did the Company consider alternative ways to meet the need for the 12-inch**  
4 **& 6-inch Richland HP Reinforcement project?**

5 A. Alternatives were discussed in detail in Cascade's 2023 IRP filing.<sup>21</sup> Two  
6 alternatives were discussed. The first alternative consisted of upgrading the  
7 existing Kennewick gate and then replacing and or uprating the existing 6-inch  
8 Richland high pressure lateral out of the Kennewick gate. The second alternative  
9 was to install a new gate station in North Pasco and then installing a 11.5 mile 12-  
10 inch steel high pressure lateral across the Columbia River and tying into the end  
11 of the 6-inch and 8-inch north Richland lateral within the Hanford DOE site. After  
12 vetting both alternatives, the 12-inch and 6-inch Richland high pressure  
13 reinforcement was chosen as the lowest cost alternative.

14 **Q. What are the costs for the 12-inch & 6-inch Richland HP Reinforcement**  
15 **project?**

16 A. The 12-inch & 6-inch Richland HP Phase 1 cost was \$10,526,903 as described  
17 above. The 12-inch & 6-inch Richland HP Phase 2 cost is estimated at  
18 \$8,810,449. The Richland Y Gate Upgrade cost is estimated at \$2,531,050. And  
19 the Williams NWP Richland Y Gate Upgrade cost is estimated at \$5,054,117.

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<sup>20</sup> Exh. PCD-10 at Attachment 1, page 3, and Attachment 3, page 3.

<sup>21</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 4-9.

1           7.       **FP-319057, FP-319061, & FP-320034 - South Kennewick Gate and**  
2                   **Reinforcement Project**

3       **Q.     Please describe the South Kennewick Gate and Reinforcement project.**

4       A.     This project was identified in Cascade’s 2020 and 2023 IRP.<sup>22</sup> This project  
5           consists of installing 2,500 feet of 8-inch plastic pipe and a new South Kennewick  
6           Gate and regulator station to address a pressure deficit in southeast Kennewick to  
7           continue to support core growth. The South Kennewick distribution system is  
8           isolated from high pressure and regulator stations, and subdivision growth in  
9           Kennewick has created a pressure deficit.

10      **Q.     What work has been completed or will be performed on the South**  
11           **Kennewick Gate and Reinforcement project?**

12      A.     No work has been completed on this project.

13      **Q.     How will Cascade customers benefit from the South Kennewick Gate and**  
14           **Reinforcement project?**

15      A.     This project will address a pressure deficit in South Kennewick and will allow the  
16           Company to continue to support core growth in the area. This project also  
17           supports Cascade’s long-term plan of retiring the Kennewick Gate which is in  
18           undesirable location.

19      **Q.     Did the Company consider alternative ways to meet the need for the South**  
20           **Kennewick Gate and Reinforcement project?**

21      A.     Yes, alternatives were discussed in detail in the 2023 IRP,<sup>23</sup> including an option  
22           to complete multiple distribution system enhancements within existing

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<sup>22</sup> Exh. PCD-8C (Cascade’s 2020 IRP at Appendix I) at pages 29-31; Exh. PCD-7C (Cascade’s 2023 IRP at Appendix I) at page 9.

<sup>23</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 10-12.

1 infrastructure. A specific alternative discussed was installing 10,500 feet of 6-inch  
2 plastic pipe, but this reinforcement had high cost due to construction in existing  
3 infrastructure and only addressed the immediate deficit and did not support long-  
4 term core growth.

5 **Q. What is the timing or when was the work completed for the South**  
6 **Kennewick Gate and Reinforcement project?**

7 A. This project is forecasted to be completed in 2024.

8 **Q. What are the estimated costs of the South Kennewick Gate and**  
9 **Reinforcement project?**

10 A. The Company estimates the project costs as follows:

- 11 • Pipeline cost is estimated at \$2,258,569.
- 12 • Cascade's South Kennewick Gate is estimated at \$1,901,518.
- 13 • Northwest Pipeline South Kennewick Gate cost is estimated at \$3,016,751.
- 14 • Total project cost is estimated at \$7,176,838.

15 **8. FP-302595 - Kitsap Phase V Reinforcement Project**

16 **Q. Please describe the Kitsap Phase V Reinforcement project.**

17 A. This project was identified in Cascade's 2018, 2020 and 2023 IRP.<sup>24</sup> This project  
18 is to address a deficit on the Kitsap lateral by installing 16,840 feet of 12-inch  
19 high pressure steel. The Kitsap lateral runs 35 miles from Shelton to Bremerton  
20 and serves the communities of Poulsbo, Bangor, Silverdale, Bremerton,  
21 Manchester, Port Orchard, Sunnyslope, Gorst, Belfair, and the Bremerton Naval

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<sup>24</sup> Exh. PCD-6C (Cascade's 2018 IRP at Appendix I) at page 3; Exh. PCD-8C (Cascade's 2020 IRP at Appendix I) at pages 6-8; Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 28-33.

1 Base in Washington. The original 8-inch Kitsap transmission line was installed in  
2 1963 and has had several multi-phase and multi-year upgrades of looping 12-inch  
3 high pressure steel with the long term goal of completing the parallel loop to meet  
4 core growth and to provide a redundant feed to the lateral.

5 **Q. What work has been completed or will be performed on the Kitsap Phase V**  
6 **Reinforcement project?**

7 A. No work has been completed on this project.

8 **Q. How will Cascade customers benefit from the Kitsap Phase V Reinforcement**  
9 **project?**

10 A. This project will address the current deficit on the Kitsap Lateral and will allow  
11 Cascade to continue to support core growth along the 35 mile lateral. This project  
12 will also complete the last phase of the Kitsap reinforcement and will provide a  
13 12-inch high pressure steel loop for the entire length of the lateral. Pipeline loops  
14 allow for operational flexibility and can reduce O&M activity costs on pipelines.

15 **Q. Did the Company consider alternative ways to meet the need for the Kitsap**  
16 **Phase V Transmission Reinforcement?**

17 A. Yes, alternatives were discussed in detail in Cascade's 2023 IRP,<sup>25</sup> including an  
18 option to install a compressor station in Belfair to boost the end of line pressures  
19 to meet predicted core growth. However, a compressor was not chosen due to  
20 higher predicted cost and unknowns with permitting and acquiring land for a  
21 compressor station in this area.

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<sup>25</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 32-33.

1 **Q. What is the timing or when was the work completed for the 2 Kitsap Phase V**  
2 **Reinforcement project?**

3 A. This project is forecasted to be completed in 2025.

4 **Q. What are the estimated costs of the Kitsap Phase V Reinforcement project?**

5 A. The Company estimates the project will cost \$5,827,349.

6 **9. FP-316018 - 2-inch and 4-inch Wheeler HP Replacement Project**

7 **Q. Please describe the 2-inch and 4-inch Wheeler HP Replacement project.**

8 A. The 2-inch and 4-inch Wheeler HP Replacement project includes the replacement  
9 of approximately 2,864 feet of 2-inch diameter and 3,734 feet of 4-inch diameter  
10 steel high-pressure main. Existing pipeline segments are being replaced with 4-  
11 inch diameter steel high-pressure main. This project also includes the installation  
12 of a new regulator station and high-pressure service set, and retirement of three  
13 existing regulator stations.

14 **Q. Why did the Company undertake the 2-inch and 4-inch Wheeler HP**  
15 **Replacement project?**

16 A. The segments of the 2-inch and 4-inch Wheeler HP Line that are being replaced  
17 were installed from 1962 to 1971. The pipeline segments (Work Order #'s: 15768,  
18 19482, WenL2-2, 58C5745, PRE-CNG (Inlet 029-R-054), PRE-CNG (Inlet 029-  
19 R-053)) were identified in Cascade's MAOP Determination and Validation Plan,  
20 in accordance with Docket PG-150120,<sup>26</sup> as lacking sufficient documentation to  
21 validate the pipeline segments MAOP. Replacement was chosen as the best option

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<sup>26</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 2-5.

1 to address the missing documentation and to validate the pipeline segments  
2 MAOP based on the age of the pipeline segments.

3 **Q. How will Cascade customers benefit from the 2-inch and 4-inch Wheeler HP**  
4 **Replacement project?**

5 A. This project addresses the documentation gaps that exist to be able to continue to  
6 safely operate the pipeline segment at its current MAOP and will replace pipeline  
7 segments installed pre-1970 with higher integrity management risk. The 2-inch  
8 and 4-inch Wheeler HP Lines feed multiple large volume customers east of Moses  
9 Lake, WA; thus, replacement allows Cascade to continue to serve Cascade's  
10 customer base with a safe and reliable natural gas system. Replacement also  
11 increases the efficiency of Cascade's distribution system by establishing a higher  
12 documented design pressure, which would allow Cascade the ability to continue  
13 to serve future customers in the area.

14 **Q. Did the Company consider alternatives for the 2-inch and 4-inch Wheeler HP**  
15 **Replacement project?**

16 A. Yes, Cascade considered alternatives for this project. One alternative considered  
17 was to take the pipeline segments out of service and conduct a pressure test to  
18 validate the pipeline segments MAOP. Pressure testing presents additional  
19 challenges compared to replacement, which includes being able to maintain  
20 service to customers while the pressure test is completed, and safety risks  
21 associated with testing an existing pipeline installed pre-1970 with higher  
22 integrity management risks. A second alternative was to downrate the pipeline  
23 segments MAOP to a safe pressure based on historical operating pressures.

1 Downrating would have restricted Cascade’s ability to continue to serve current  
2 customers.

3 **Q. When is this project expected to be placed in service?**

4 A. This project is expected to be in service in the first quarter of 2024.

5 **Q. What are the estimated costs for the 2-inch and 4-inch Wheeler HP  
6 Replacement project?**

7 A. The total capital investment for 2-inch and 4-inch Wheeler HP replacement  
8 project is \$2,430,743 in 2024.

9 **10. FP-316041 - 4-inch Montesano HP Replacement Project**

10 **Q. Please describe the 4-inch Montesano HP Replacement project.**

11 A. The 4-inch Montesano HP Replacement project includes the replacement of  
12 approximately 1,645 feet of 4-inch diameter steel high-pressure main. Existing  
13 pipeline segments are being replaced with 4-inch diameter steel high-pressure  
14 main.

15 **Q. Why did the Company undertake the 4-inch Montesano HP replacement  
16 project?**

17 A. The segment of the 4-inch Montesano HP Line that is being replaced was  
18 installed in 1964. The pipeline segment (Work Order #'s: 77C6321) was  
19 identified in Cascade’s MAOP Determination and Validation Plan, in accordance  
20 with Docket PG-150120,<sup>27</sup> as lacking sufficient documentation to validate the  
21 pipeline segments MAOP. Replacement was chosen as the best option to address

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<sup>27</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 3.



1 the missing documentation and to validate the pipeline segments MAOP, based on  
2 the age of the pipeline segment.

3 **Q. How will Cascade customers benefit from the 4-inch Montesano HP**  
4 **Replacement project?**

5 A. This project addresses the documentation gaps that exist to be able to continue to  
6 safely operate the pipeline segment at its current MAOP and will replace pipeline  
7 segments installed pre-1970 with higher integrity management risk. The 4-inch  
8 Montesano HP Lines feeds the Montesano distribution system; thus, replacement  
9 allows Cascade to continue to serve Cascade's customer base with a safe and  
10 reliable natural gas system. Replacement also increases the efficiency of  
11 Cascade's distribution system by establishing a higher documented design  
12 pressure to continue to serve future customers in the area.

13 **Q. Did the Company consider alternatives for the 4-inch Montesano HP**  
14 **replacement project?**

15 A. Yes, Cascade considered alternatives for this project. One alternative considered  
16 was to take the pipeline segments out of service and conduct a pressure test to  
17 validate the pipeline segments MAOP. But pressure testing presents additional  
18 challenges compared to replacement, including being able to maintain service to  
19 customers while the pressure test is completed, and safety risks associated with  
20 testing an existing pipeline installed pre-1970 with higher integrity management  
21 risks. A second alternative was to downrate the pipeline segments MAOP to a  
22 safe pressure based on historical operating pressures. Downrating would have  
23 restricted Cascade's ability to continue to serve current customers.

1 **Q. When is this project expected to be placed in service?**

2 A. This project is expected to be in service by the end of 2025.

3 **Q. What are the estimated costs for the 4-inch Montesano HP Replacement**  
4 **project?**

5 A. The total capital investment for 4-inch Montesano HP Replacement project is  
6 \$1,191,031 in 2025.

7 **11. FP-316046 - 8-inch Yakima HP Replacement Project**

8 **Q. Please describe the 8-inch Yakima HP Replacement project.**

9 A. The 8-inch Yakima HP Replacement project includes the replacement of  
10 approximately 4,367 feet of 8-inch diameter steel high-pressure main. The project  
11 includes a new crossing of the Yakima River. Existing pipeline segments are  
12 being replaced with 8-inch diameter steel high-pressure main. This project also  
13 includes the installation of a new regulator station (Yakima Regulator Station R-  
14 097 project, FP-322173), retirement of an existing regulator station, replacement  
15 of an existing regulator station (Yakima Regulator Station R-096, FP-322165),  
16 and retirement of multiple high-pressure service sets.

17 **Q. Why did the Company undertake the 8-inch Yakima HP Replacement**  
18 **project?**

19 A. The segments of the 8-inch Yakima HP Line that are being replaced were  
20 installed in 1956. The pipeline segments (Work Order #'s: Fish\_968,  
21 FISH\_968\_Lat\_26, 20375, 24188) were identified in Cascade's MAOP  
22 Determination and Validation Plan, in accordance with Docket PG-150120,<sup>28</sup> as

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<sup>28</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1–2.

1 lacking sufficient documentation to validate the pipeline segments MAOP.  
2 Replacement was chosen as the best option to address the missing documentation  
3 and to validate the pipeline segments MAOP, based on the age of the pipeline  
4 segments.

5 **Q. How will Cascade customers benefit from the 8-inch Yakima HP**  
6 **Replacement project?**

7 A. This project addresses the documentation gaps that exist to be able to continue to  
8 safely operate the pipeline segment at its current MAOP and will replace pipeline  
9 segments installed pre-1970 with higher integrity management risk. The 8-inch  
10 Yakima HP Lines feeds the Yakima distribution system; thus, replacement allows  
11 Cascade to continue to serve Cascade's customer base with a safe and reliable  
12 natural gas system. Replacement also increases the efficiency of Cascade's  
13 distribution system by establishing a higher documented design pressure, which  
14 would allow Cascade to limit reliability concerns within the Yakima distribution  
15 system and continue to serve future customers in the area.

16 **Q. Did the Company consider alternatives for the 8-inch Yakima HP**  
17 **Replacement project?**

18 A. Yes, Cascade considered alternatives for this project. One alternative considered  
19 was to take the pipeline segments out of service and conduct a pressure test to  
20 validate the pipeline segments MAOP. Pressure testing presents additional  
21 challenges compared to replacement, including being able to maintain service to  
22 customers while the pressure test is completed, and safety risks associated with  
23 testing an existing pipeline installed pre-1970 with higher integrity management

1 risks. A second alternative was to downrate the pipeline segments MAOP to a  
2 safe pressure based on historical operating pressures. Downrating would have  
3 restricted Cascade's ability to continue to serve current customers.

4 **Q. When is this project expected to be placed in service?**

5 A. This project is expected to be in service by the end of 2024, but this project has  
6 experienced challenges in obtaining a private easement, which may delay the  
7 project in-service date to 2025.

8 **Q. What are the estimated costs for the 8-inch Yakima HP Replacement**  
9 **project?**

10 A. The total capital investment for 8-inch Yakima HP Replacement project is  
11 \$3,037,183 in 2024.

12 **12. FP-318656 - 4-inch Oak Harbor PE Reinforcement Project**

13 **Q. Please describe the 4-inch Oak Harbor PE Reinforcement project.**

14 A. The city of Oak Harbor, Washington has a single regulator that feeds the majority  
15 of the city from the east. This project provided a second source of gas from the  
16 north. The distribution system currently has a deficit on the western end of the  
17 system and during cold weather events has unacceptable pressure levels.

18 **Q. What work has been completed or will be performed on the 4-inch Oak**  
19 **Harbor PE Reinforcement project?**

20 A. Construction started in 2023 with the first 6,300 feet of pipeline installed. The  
21 remaining 3,000 feet will be installed once Cascade receives permission to cross  
22 the U.S. Navy property and is expected to be completed by the end of 2024.

1 **Q. How will Cascade customers benefit from the 4-inch Oak Harbor PE**  
2 **Reinforcement project?**

3 A. This project will increase the reliability of the system by adding a second feed.  
4 This will also address the pressure deficit by bringing distribution system  
5 pressures back to acceptable levels and allow the Company to continue to support  
6 core growth on the west end of Oak Harbor.

7 **Q. Did the Company consider alternative ways to meet the need for the 4-inch**  
8 **Oak Harbor PE Reinforcement project?**

9 A. Yes, several alternative routes were examined but they either did not provide  
10 sufficient capacity to the low pressure area or were less cost effective due to  
11 length and constructability.

12 **Q. What are the estimated costs of the 4-inch Oak Harbor PE Reinforcement?**

13 A. The Company estimates the project will cost \$1,403,134.

14 **13. FP-319992 - 8-inch Bremerton HP Replacement Project**

15 **Q. Please describe the 8-inch Bremerton HP Replacement project.**

16 A. The 8-inch Bremerton HP replacement project includes the replacement of  
17 approximately 2,863 feet of 8-inch diameter steel high-pressure main. Existing  
18 pipeline segments are being replaced with 8-inch diameter steel high-pressure  
19 main.

20 **Q. Why did the Company undertake the 8-inch Bremerton HP Replacement**  
21 **project?**

22 A. The segment of the 8-inch Bremerton HP Line that is being replaced was installed  
23 in 1971. The pipeline segment (Work Order #'s: 18522) was identified in

1 Cascade's MAOP Determination and Validation Plan, in accordance with Docket  
2 PG-150120,<sup>29</sup> as lacking sufficient documentation as lacking sufficient  
3 documentation to validate the pipeline segments MAOP. Replacement was chosen  
4 as the best option to address the missing documentation and to validate the  
5 pipeline segments MAOP, based on the age of the pipeline segments.

6 **Q. How will Cascade customers benefit from the 8-inch Bremerton HP**  
7 **Replacement project?**

8 A. This project addresses the documentation gaps that exist to be able to continue to  
9 safely operate the pipeline segment at its current MAOP. The 8-inch Bremerton  
10 HP Lines feeds the Bremerton distribution system; thus, replacement allows  
11 Cascade to continue to serve Cascade's customer base with a safe and reliable  
12 natural gas system. Replacement also increases the efficiency of Cascade's  
13 distribution system by establishing a higher documented design pressure, which  
14 would allow Cascade the ability to continue to serve future customers in the area.

15 **Q. Did the Company consider alternatives for the 8-inch Bremerton HP**  
16 **Replacement project?**

17 A. Yes, Cascade considered alternatives for this project. One alternative considered  
18 was to take the pipeline segment out of service and conduct a pressure test to  
19 validate the pipeline segments MAOP. But pressure testing presents additional  
20 challenges compared to replacement, including being able to maintain service to  
21 customers while the pressure test is completed, and safety risks associated with  
22 testing an existing pipeline. A second alternative was to downrate the pipeline

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<sup>29</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 5.

1 segments MAOP to a safe pressure based on historical operating pressures.  
2 Downrating would have restricted Cascade’s ability to continue to serve current  
3 customers.

4 **Q. When is this project expected to be placed in service?**

5 A. This project is expected to be in service by the end of 2025.

6 **Q. What are the estimated costs for the 8-inch Bremerton HP Replacement  
7 project?**

8 A. The total capital investment for 8-inch Bremerton HP Replacement project is  
9 \$1,796,668 in 2025.

10 **14. FP-320004 - 3-inch Prosser HP Replacement Project**

11 **Q. Please describe the 3-inch Prosser HP Replacement project.**

12 A. The 3-inch Prosser HP Replacement project includes the replacement of  
13 approximately 6,255 feet of 3-inch and 4-inch diameter steel high-pressure main  
14 in Prosser, Washington. Existing pipeline segments are being replaced with 4-inch  
15 diameter steel high-pressure main.

16 **Q. Why did the Company undertake the 3-inch Prosser HP Replacement  
17 project?**

18 A. The segments of the 3-inch Prosser HP Line that are being replaced were installed  
19 between 1956 and 1964. The pipeline segments (Work Order #'s: YakimaL4-1,  
20 47C8256, 18687) were identified in Cascade’s MAOP Determination and  
21 Validation Plan, in accordance with Docket PG-150120,<sup>30</sup> as lacking sufficient  
22 documentation to validate the pipeline segments MAOP. Replacement was chosen

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<sup>30</sup> Exh. PCD-10 at Attachment 1, page 1; Attachment 2, page 1; and Attachment 3, page 1, 4.

1 as the best option to address the missing documentation and to validate the  
2 pipeline segments MAOP, based on the age of the pipeline segments.

3 **Q. How will Cascade customers benefit from the 3-inch Prosser HP**  
4 **Replacement project?**

5 A. This project addresses the documentation gaps that exist to be able to continue to  
6 safely operate the pipeline segment at its current MAOP and will replaced  
7 pipeline segments installed pre-1970 with higher integrity management risk. The  
8 3-inch Prosser HP Line feeds the Prosser distribution system; thus, replacement  
9 allows Cascade to continue to serve Cascade's customer base with a safe and  
10 reliable natural gas system. Replacement also increases the efficiency of  
11 Cascade's distribution system by establishing a higher documented design  
12 pressure, which would allow Cascade to limit reliability concerns within the  
13 Prosser distribution system and continue to serve future customers in the area.

14 **Q. Did the Company consider alternatives for the 3-inch Prosser HP**  
15 **Replacement project?**

16 A. Yes, Cascade considered alternatives for this project. One alternative considered  
17 was to take the pipeline segments out of service and conduct a pressure test to  
18 validate the pipeline segments MAOP. But pressure testing presents additional  
19 challenges compared to replacement, including being able to maintain service to  
20 customers while the pressure test is completed, and safety risks associated with  
21 testing an existing pipeline installed pre-1970 with higher integrity management  
22 risks. A second alternative was to downrate the pipeline segments MAOP to a



1 safe pressure based on historical operating pressures. Downrating would have  
2 restricted Cascade's ability to continue to serve current customers.

3 **Q. When is this project expected to be placed in service?**

4 A. This project is expected to be in service by the end of 2024.

5 **Q. What are the estimated costs for the 3-inch Prosser HP Replacement**  
6 **project?**

7 A. The total capital investment for 3-inch Prosser HP Replacement project is  
8 \$1,069,398 in 2024.

9 **15. FP-320106 - 6-inch Burlington South PE Reinforcement Project**

10 **Q. Please describe the 6-inch Burlington South PE Reinforcement project.**

11 A. This project is to install roughly 15,000 feet of 6-inch plastic pipe to address a  
12 distribution system deficit in south Burlington, Washington. The South  
13 Burlington distribution system is isolated by a BNSF railway crossing and State  
14 Route 20 and needs additional capacity to support core growth. This project is in  
15 Cascade's 2023 IRP filing.<sup>31</sup>

16 **Q. What work has been completed or will be performed on the 6-inch**  
17 **Burlington South PE Reinforcement?**

18 A. Cascade anticipates completing the project in 2024.

19 **Q. How will Cascade customers benefit from the 6-inch Burlington South PE**  
20 **Reinforcement project?**

21 A. Cascade customers will benefit from the project since it will support long-term  
22 core growth in South Burlington.

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<sup>31</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 21-25.

1 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
2 **Burlington South PE Reinforcement project?**

3 A. Yes, alternatives were discussed in detail in Cascade’s 2023 IRP filing,<sup>32</sup>  
4 including an option to install a new regulator station and 12,500 feet of 4-inch  
5 high pressure steel to provide a secondary feed to South Burlington to support  
6 core growth. This option was not chosen due to higher cost.

7 **Q. What are the estimated costs of the 6-inch Burlington South PE**  
8 **Reinforcement?**

9 A. The Company estimates the project costs at \$1,829,249.

10 **16. FP-321116 - 4-inch Wapato HP Replacement Project**

11 **Q. Please describe the 4-inch Wapato HP Replacement project.**

12 A. This project is to replace roughly 33,500 feet of 4-inch high-pressure steel that  
13 runs from Toppenish to Wapato, Washington. Over time, core growth in Wapato  
14 has gradually increased to exceed the capacity of the lateral and has created a  
15 deficit. The existing 4-inch Wapato high pressure was installed in the 1950’s and  
16 is currently lacking MAOP documentation. The pipeline segment (Work Order #:  
17 Fish-L7-1) was identified in CNGC’s Cascade’s MAOP Determination and  
18 Validation Plan, in accordance with Docket PG-150120<sup>33</sup>, as lacking sufficient  
19 documentation to validate the pipeline segments MAOP. Replacement was chosen  
20 as the best option to address the missing documentation and to validate the  
21 pipeline segments MAOP, based on the age of the pipeline segment. Due to lack  
22 of MAOP documentation this line cannot be uprated to support growth and must

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<sup>32</sup> Exh. PCD-7C (Cascade’s 2023 IRP at Appendix I) at pages 22-25.

<sup>33</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1.

1 be replaced to address the deficit and MAOP validation concerns. This project is  
2 in Cascade's 2023 IRP filing.<sup>34</sup>

3 **Q. What work has been completed or will be performed on the 4-inch Wapato**  
4 **HP Replacement project?**

5 A. Construction started in fall of 2023 and is expected to be completed in first  
6 quarter of 2024.

7 **Q. How will Cascade customers benefit from the 4-inch Wapato HP**  
8 **Replacement project?**

9 A. Cascade customers will benefit from the project since it will support long-term  
10 core growth in Wapato and addresses MAOP validation concerns in as identified  
11 in Cascade's MAOP Determination and Validation Plan, in accordance with  
12 Docket PG-150120,<sup>35</sup> as lacking sufficient documentation to validate the pipeline  
13 segments MAOP.

14 **Q. Did the Company consider alternative ways to meet the need for the 4-inch**  
15 **Wapato HP Replacement?**

16 A. Yes, alternatives were discussed in detail in Cascade's 2023 IRP filing,<sup>36</sup>  
17 including an option to install a new gate station in Donald, Washington and  
18 provide a back feed to Wapato by running 30,600 feet of 4-inch high pressure  
19 steel. This option would have provided a secondary source to the Zillah-  
20 Toppenish high pressure system and would have allowed for the existing 4-inch  
21 steel Wapato high pressure steel to be taken out of service and pressure tested to

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<sup>34</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 17-21.

<sup>35</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1.

<sup>36</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 18-21.

1 meet MAOP validation requirements. This option was not chosen due to higher  
2 cost associated with the new gate station.

3 **Q. What are the estimated costs of the 4-inch Wapato HP Replacement?**

4 A. The Company estimates the project costs at \$16,645,249.

5 **17. FP-321468 - 6-inch Toppenish-Zillah HP Replacement Project**

6 **Q. Please describe the 6-inch Toppenish-Zillah HP Replacement project.**

7 A. The 6-inch Toppenish-Zillah HP Replacement project includes the replacement of  
8 approximately 2,400 feet of 6-inch diameter steel high-pressure main. Existing  
9 pipeline segment is being replaced with 6-inch diameter steel high-pressure main.

10 **Q. Why did the Company undertake the 6-inch Toppenish-Zillah HP  
11 Replacement project?**

12 A. The segment of the 6-inch Toppenish-Zillah HP Line that is being replaced was  
13 installed in 1956. The pipeline segment (Work Order #'s: YakimaL5-1) was  
14 identified in Cascade's MAOP Determination and Validation Plan, in accordance  
15 with Docket PG-150120,<sup>37</sup> as lacking sufficient documentation to validate the  
16 pipeline segments MAOP. Replacement was chosen as the best option to address  
17 the missing documentation and to validate the pipeline segments MAOP, based on  
18 the age of the pipeline segment.

19 **Q. How will Cascade customers benefit from the 6-inch Toppenish-Zillah HP  
20 Replacement project?**

21 A. This project addresses the documentation gaps that exist to be able to continue to  
22 safely operate the pipeline segment at its current MAOP and will replace a

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<sup>37</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1.

1 pipeline segment installed pre-1970 with higher integrity management risk. The  
2 6-inch Toppenish-Zillah HP Line feeds the Zillah, Toppenish, Wapato, and  
3 Granger distribution systems; thus, replacement allows Cascade to continue to  
4 serve Cascade's customer base with a safe and reliable natural gas system.  
5 Replacement also increases the efficiency of Cascade's distribution system by  
6 establishing a higher documented design pressure, which would allow Cascade  
7 the ability to continue to serve future customers in the area.

8 **Q. Did the Company consider alternatives for the 6-inch Toppenish-Zillah HP**  
9 **Replacement project?**

10 A. Yes, Cascade considered alternatives for this project. One alternative considered  
11 was to take the pipeline segment out of service and conduct a pressure test to  
12 validate the pipeline segments MAOP. But pressure testing presents additional  
13 challenges compared to replacement, including being able to maintain service to  
14 customers while the pressure test is completed, and safety risks associated with  
15 testing an existing pipeline installed pre-1970 with higher integrity management  
16 risks. A second alternative was to downrate the pipeline segments MAOP to a  
17 safe pressure based on historical operating pressures. Downrating would have  
18 restricted Cascade's ability to continue to serve current customers.

19 **Q. When is this project expected to be placed in service?**

20 A. This project was placed in-service on January 8, 2024.

1 **Q. What are the estimated costs for the 6-inch Toppenish-Zillah HP**  
2 **Replacement project?**

3 A. The total capital investment for 6-inch Toppenish-Zillah HP Replacement project  
4 is \$1,111,422 in 2024.

5 **18. FP-321511 - 6-inch Pasco HP Reinforcement Project**

6 **Q. Please describe the 6-inch Pasco HP Reinforcement project.**

7 A. This project was identified in Cascade’s 2023 IRP.<sup>38</sup> This project consists of  
8 installing 5-miles of 6-inch high pressure steel from the Attalia Gate to Road 68 in  
9 Pasco, Washington. The Pasco high pressure system is currently served by three  
10 isolated gate stations, the North Pasco Gate, the Pasco Gate, and the  
11 Attalia/Burbank Heights Gate. The North Pasco Gate serves north Pasco from the  
12 Columbia River east to the airport and north of Interstate 182. The Pasco Gate  
13 serves south Pasco south of Interstate 182 from the Columbia River to Highway  
14 395. The Attalia Gate serves the 8-inch Attalia lateral which has high pressure  
15 laterals that serves eastern Pasco east of Highway 395. The Attalia Gate station  
16 and lateral was looped with the Wallula gate station and lateral in 2020. The areas  
17 served by the three gate stations are generally bound by Interstate 182 and  
18 Highway 395. Over the last fifteen years, Pasco has seen significant subdivision  
19 growth in northwest Pasco, which has taxed the North Pasco Gate and the high-  
20 pressure system out of that gate station, causing a capacity deficit in northern  
21 Pasco.

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<sup>38</sup> Exh. PCD-7C (Cascade’s 2023 IRP at Appendix I) at pages 12-17.

1 **Q. What work has been completed or will be performed on the 6-inch Pasco HP**  
2 **Reinforcement?**

3 A. No work has been completed on this project.

4 **Q. How will Cascade customers benefit from the 6-inch Pasco HP**  
5 **Reinforcement project?**

6 A. This project will address the high pressure deficit in Pasco and will allow Cascade  
7 to continue to support core growth. This project also supports Cascade's long-  
8 term plan of retiring the North Pasco Gate and feeding the Pasco high pressure  
9 system off the Attalia Gate. The North Pasco Gate during peak demand over the  
10 last couple of years has required bypassing by Williams NWP to maintain  
11 Cascade's end of line deliveries.

12 **Q. Did the Company consider alternative ways to meet the need for the 6-inch**  
13 **Pasco HP Reinforcement project?**

14 A. Yes, two alternatives were discussed in detail in Cascade's 2023 IRP.<sup>39</sup> Both  
15 alternatives required upgrading the North Pasco Gate and either replacing the 4-  
16 inch high pressure steel out of the gate or uprating the existing 4-inch high  
17 pressure steel out of the gate. Cost between the alternatives were comparable but  
18 construction on the existing 4-inch steel along Road 68, which is an arterial,  
19 would be challenging and would have additional cost due to restoration and traffic  
20 control requirements.

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<sup>39</sup> Exh. PCD-7C (Cascade's 2023 IRP at Appendix I) at pages 14-17.

1 **Q. What is the timing or when was the work completed for the 6-inch Pasco HP**  
2 **Reinforcement?**

3 A. Design is planned for late 2024. Construction is planned for 2025.

4 **Q. What are the estimated costs of the 6-inch Pasco HP Reinforcement?**

5 A. The Company estimates the project costs at \$5,365,866.

6 **19. FP-321879 - 8-inch Aberdeen HP Reinforcement Wishkah Road**  
7 **Project**

8 **Q. Please describe the 8-inch Aberdeen HP Reinforcement Wishkah Road**  
9 **project.**

10 A. This project consists of installing 1.7 miles of 8-inch high pressure steel from R-  
11 53 to R-77 to reinforce the 6-inch Aberdeen high pressure line that connects the  
12 Greys Harbor Lateral to Aberdeen, Washington. The Aberdeen high pressure  
13 system is at the end of the Gray Harbor lateral and requires a reinforcement to  
14 support core growth and industrial growth in Aberdeen. This project is also  
15 needed for existing core customers to expand their contract demand.

16 **Q. What work has been completed or will be performed on the 8-inch Aberdeen**  
17 **HP Reinforcement Wishkah Road project?**

18 A. Design, permitting, and easement negotiations were started in 2021.

19 **Q. How will Cascade customers benefit from the 8-inch Aberdeen HP**  
20 **Reinforcement Wishkah Road project?**

21 A. This project will address the high pressure deficit into Aberdeen and will allow  
22 Cascade to continue to support core growth and industrial customer requests.



1 **Q. Did the Company consider alternative ways to meet the need for the 8-inch**  
2 **Aberdeen HP Reinforcement Wishkah Road project?**

3 A. Yes, two alternatives were considered in lieu of this project. The first alternative  
4 considered was to retest and then uprate the existing 6-inch and 8-inch Aberdeen  
5 high pressure line. The second alternative was to install a new gate station in  
6 Satsop as a secondary feed to the Grays Harbor Lateral to boost end of lines  
7 pressures on the Grays Harbor Lateral. The uprate was not considered feasible  
8 due to MAOP validation and unknowns associated with pressure testing vintage  
9 pipe and the risk that this pipe could not pass the pressure test or uprate  
10 requirements, in addition to unknown cost if sections during the pressure test had  
11 to be isolated to find leaks and or be repaired. The Satsop gate was not chosen due  
12 to higher cost.

13 **Q. What is the timing or when was the work completed for the 8-inch Aberdeen**  
14 **HP Reinforcement Wishkah Road project?**

15 A. Construction is planned to be completed in 2023 pending easements and permits.

16 **Q. What are the estimated costs of the 8-inch Aberdeen HP Reinforcement**  
17 **Wishkah Road project?**

18 A. The project cost is estimated at \$3,973,423.

19 **20. FP-322391 - Camano Island Exposure Project**

20 **Q. Please describe the Camano Island Exposure project.**

21 A. This project is to address a bank exposure on the 6-inch Whidbey Island high  
22 pressure line in Skagit Bay. The 6-inch Whidbey Island high pressure line runs 20  
23 miles from Stanwood to Oak Harbor and serves Whidbey Island naval base. The

1 pipe exposure is against the bank which is exposed to the public and does not  
2 have protection from external forces. During flooding events, tree limbs and  
3 debris have run into the pipe which leaves the pipe susceptible to outside forces  
4 which puts additional stress on the pipe and may cause integrity concerns like  
5 coating damage and or dents and gouges to the steel pipe.

6 **Q. What work has been completed or will be performed on the Camano Island**  
7 **Exposure?**

8 A. Cascade has hired a consultant to help with scoping solutions in consideration  
9 with permitting and constructability. The exposure is in a challenging location to  
10 address due to the bay.

11 **Q. How will Cascade customers benefit from the Camano Island Exposure?**

12 A. This project will address the integrity concerns with the pipe exposure in the bank  
13 of the bay and continue to allow us to provide reliable service to the Whidbey  
14 Island service territory.

15 **Q. Did the Company consider alternative ways to meet the need for the Camano**  
16 **Island Exposure?**

17 A. The company is currently assessing alternatives. Several alternatives are being  
18 considered. One alternative is to address the current exposure with a shoreline  
19 project to protect the pipe, and hard shoring and soft shoring are both being  
20 considered. The second alternative that is being considered is to partially bore the  
21 cliff into the bay and to use a coffer dam during construction to tie into the  
22 existing concrete cased pipe on the bottom of the channel. A third alternative that  
23 was considered was rerouting the Whidbey Island feed to the north by extending

1 from La Conner and completing an alternate Skagit Bay crossing in a more  
2 desirable location that is easier to horizontally directional drill, this option had  
3 significantly more cost since it would require 13 miles of high pressure steel and  
4 has been eliminated from consideration.

5 **Q. What is the timing or when was the work completed for the Camano Island**  
6 **Exposure project?**

7 A. Design and permitting will be completed in 2024 with construction planned for  
8 2025.

9 **Q. What are the estimated costs of the Camano Island Exposure project?**

10 A. The Company estimates the project costs to be \$5,604,681.

11 **21. FP-322639 - 4-inch East Finley HP Replacement Project**

12 **Q. Please describe the 4-inch East Finley HP replacement project.**

13 A. The 4-inch East Finley HP replacement project includes the replacement of  
14 approximately 2,498 feet of 4-inch diameter steel high-pressure main. Existing  
15 pipeline segment is being replaced with 4-inch diameter steel high-pressure main.

16 **Q. Why did the Company undertake the 4-inch East Finley HP replacement**  
17 **project?**

18 A. The segment of the 4-inch East Finley HP Line that is being replaced was  
19 installed in 1967. The pipeline segment (Work Order #'s: 12614) was identified in  
20 CNGC's Maximum Allowable Operating Pressure (MAOP) Determination and  
21 Validation Plan, in accordance with Docket PG-150120,<sup>40</sup> as lacking sufficient  
22 documentation to validate the pipeline segments MAOP. Replacement was chosen

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<sup>40</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 5.

1 as the best option to address the missing documentation and to validate the  
2 pipeline segments MAOP, based on the age of the pipeline segment.

3 **Q. How will Cascade customers benefit from the 4-inch East Finley HP**  
4 **replacement project?**

5 A. This project addresses the documentation gaps that exist to be able to continue to  
6 safely operate the pipeline segment at its current MAOP and replaced pipeline  
7 segments installed pre-1970 with higher integrity management risk. The 4-inch  
8 Finley HP Line feeds large volume customers east of Finley, WA; thus,  
9 replacement allows Cascade to continue to serve Cascade's customer base with a  
10 safe and reliable natural gas system. Replacement also increases the efficiency of  
11 Cascade's distribution system by establishing a higher documented design  
12 pressure, which would allow Cascade the ability to continue to serve future  
13 customers in the area.

14 **Q. Did the Company consider alternatives for the 4-inch East Finley HP**  
15 **replacement project?**

16 A. Cascade considered alternatives for this project; one alternative considered was to  
17 take the pipeline segment out of service and conduct a pressure test to validate the  
18 pipeline segments MAOP. Pressure testing presents additional challenges  
19 compared to replacement which includes being able to maintain service to  
20 customers while the pressure test is completed, and safety risks associated with  
21 testing an existing pipeline installed pre-1970 with higher integrity management  
22 risks. A second alternative that was considered was to downrate the pipeline  
23 segments MAOP to a safe pressure based on historical operating pressures.

1 Downrating would have created restrictions in Cascade's ability to continue to  
2 serve current customers.

3 **Q. When is this project expected to be placed in service?**

4 A. This project is expected to be in service by the end of 2025.

5 **Q. What are the estimated costs for the 4-inch East Finley HP replacement  
6 project?**

7 A. The total capital investment for 4-inch East Finley HP replacement project is  
8 \$1,220,756 in 2025.

9 **22. FP-322677 - Knott Landfill RNG Project (Bend, Oregon)**

10 **Q. Please describe the Knott Landfill RNG Project.**

11 A. The Knott Landfill RNG Project is a Production Project that will allow RNG  
12 produced from landfill gas collected from Deschutes County's Knott Landfill to  
13 flow into Cascade's distribution system. Cascade has executed a contract with  
14 Deschutes County to purchase landfill gas and will design, construct, and operate  
15 an RNG plant to produce RNG that meets pipeline quality specifications from the  
16 landfill gas. The project consists of improvements to the landfill gas collection  
17 system, a new RNG production plant, and 1.1 miles of 2-inch high pressure steel  
18 from the RNG plant to Cascade's existing South Bend Gate Station where the  
19 RNG will be injected into Cascade's existing system.

20 Cascade is making the investment in these project facilities in order to  
21 produce RNG from landfill gas from the Knott Landfill. Cascade will receive 100  
22 percent of the biomethane and environmental attributes from this project. As with  
23 Cascade's other RNG projects, acquisition of the RNG has the added benefit of

1 enabling Cascade to meet the requirements of the Washington CCA and allow  
2 Cascade to make RNG available to its customers on a voluntary basis as required  
3 by state law. Further, this project compares favorably with opportunities to  
4 purchase off-system attributes as well as other on-system projects, as the total  
5 market value per decatherm per year and the total impact revenue requirement per  
6 decatherm were lower on this project than the aforementioned marginal abatement  
7 costs identified.

8 **Q. What work has been completed or will be performed on the Knott Landfill  
9 RNG Project?**

10 A. An agreement to purchase the equipment for the RNG production plant has been  
11 executed. Design and construction of the project is estimated to be complete in the  
12 second half of 2024 and first half of 2025.

13 **Q. How will Cascade customers benefit from the Knott Landfill RNG Project?**

14 A. This project will bring renewable natural gas onto Cascade's system and will  
15 provide a new gas supply to Bend. It also allows Cascade to acquire RNG which  
16 can be made available to customers through a voluntary tariff.

17 **Q. What is the timing or when was the work completed for the Knott Landfill  
18 RNG Project?**

19 A. The project is currently forecasted to be completed the first half of 2025.

20 **Q. What are the estimated costs of the Knott Landfill RNG Project?**

21 A. The Company estimates the project costs at \$17,454,194. The project cost is the  
22 Washington allocated portion. This project will be considered an overall system  
23 asset with 75% allocated to Washington and 25% to Oregon.

1           **23.    FP-324101 - 8-inch Anacortes Transmission Replacement Project**

2    **Q.    Please describe the 8-inch Anacortes Transmission Replacement project.**

3    A.    The 8-inch Anacortes Transmission Replacement project includes the replacement  
4           of approximately 2,946 feet of 8-inch diameter steel transmission main near  
5           Anacortes, Washington. Existing pipeline segments are being replaced with 8-  
6           inch diameter steel transmission main. The replacement segment crosses the  
7           Swinomish Channel, which will require significant permitting.

8    **Q.    Why did the Company undertake the 8-inch Anacortes Transmission**  
9           **replacement project?**

10   A.   The segment of the 8-inch Anacortes Transmission Line that is being replaced  
11        was installed in 1957. The pipeline segment (Work Order #'s: MTVL1-1) was  
12        identified in Cascade's MAOP Determination and Validation Plan, in accordance  
13        with Docket PG-150120,<sup>41</sup> as lacking sufficient documentation to validate the  
14        pipeline segments MAOP. MAOP validation work on this pipeline segment began  
15        in 2016. The segment was in-situ tested in 2016 and 2017. A total of 87,738 feet  
16        of the line were validated by pressure testing or replacement, and 11,381 feet are  
17        scheduled to be downrated. The remaining 2,946 feet were pressure tested in May  
18        2023, but during the test the segment sustained a constant pressure drop that did  
19        not appear to be consistent with temperature change. The segment was placed  
20        back into service, and has been leak surveyed multiple times, with no leaks  
21        discovered to date. Without being able to complete a successful pressure test or  
22        locate a leak, replacement was chosen as the best option to address the missing

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<sup>41</sup> Exh. PCD-10 at Attachment 1, page 1, and Attachment 3, page 1.

1 documentation and to validate the pipeline segments MAOP, based on the age of  
2 the pipeline segment.

3 **Q. How will Cascade customers benefit from the 8-inch Anacortes Transmission**  
4 **Replacement project?**

5 A. This project addresses the documentation gaps that exist to be able to continue to  
6 safely operate the pipeline segment at its current MAOP and will replace pipeline  
7 segments installed pre-1970 with higher integrity management risk. The 8-inch  
8 Anacortes Transmission Line feeds many large industrial customers and the  
9 Anacortes distribution system; thus, replacement allows Cascade to continue to  
10 serve Cascade's customer base with a safe and reliable natural gas system.

11 **Q. Did the Company consider alternatives for the 8-inch Anacortes**  
12 **Transmission Replacement project?**

13 A. Yes, Cascade considered alternatives for this project. One alternative was  
14 implemented and Cascade took the pipeline segment out of service and conducted  
15 a pressure test to validate the pipeline segments MAOP. This alternative was  
16 unsuccessful. A second alternative that was considered was to downrate the  
17 pipeline segments MAOP to a safe pressure based on historical operating  
18 pressures. But downrating would have restricted Cascade's ability to continue to  
19 serve current customers.

20 **Q. When is this project expected to be placed in service?**

21 A. Cascade anticipates this project will be in service by the end of 2024, but the  
22 project requires extensive permitting which may push completion into 2025.



1 **Q. What are the estimated costs for the 8-inch Anacortes Transmission**  
2 **Replacement project?**

3 A. The total capital investment for 8-inch Anacortes Transmission Replacement  
4 project is \$2,632,122 in 2024.

5 **24. FP-324560 - Picarro Leak Survey Equipment Project**

6 **Q. Please describe the Picarro – Advanced mobile leak detection system**  
7 **project.**

8 A. The Picarro – Advanced mobile leak detection system is a mobile application  
9 used to detect methane in the air. The system is used for leak survey,  
10 quantification of emissions during emissions survey, and prioritizing leaks for  
11 repair in natural gas systems.

12 **Q. Why did the Company undertake the Picarro – Advanced mobile leak**  
13 **detection system project?**

14 A. The federal government is proposing a new code that would require natural gas  
15 companies to leak survey their systems more frequently than Cascade currently  
16 does. Thus, the Company sought an efficient way to meet this requirement by  
17 using technology and determined that Picarro would meet the need. In addition,  
18 the Picarro system electronically captures leak data during surveys and provides  
19 data analytics to quantify leaks that Cascade anticipates using in company-  
20 specific emissions reporting to Washington Department of Ecology. Applying  
21 leak survey data from the Picarro system combined with the Company's  
22 established leak mitigation process will allow Cascade to quantify leaks more  
23 accurately and demonstrate emissions reductions.

1 **Q. How will Cascade customers benefit from the Picarro – Advanced mobile**  
2 **leak detection system project?**

3 A. With Picarro, Cascade will be able to perform leak surveys in a more efficient  
4 way, with increased accuracy in detecting leaks and quantifying emissions.

5 **Q. Did the Company consider alternative ways to meet the need for the Picarro**  
6 **– Advanced mobile leak detection system?**

7 A. Yes, Cascade conducted pilots with two other vendors and chose Picarro as the  
8 vendor.

9 **Q. Are there any offsetting O&M cost savings associated with this project?**

10 A. Yes, Cascade currently performs leak surveys by walking. Following  
11 implementation of the Picarro system, it is anticipated that there will be \$20,000  
12 O&M savings in 2024 and \$260,000 O&M savings in 2025 due to the efficiency  
13 of the leak survey process Picarro provides. These savings are included in the  
14 2024 and 2025 Provisional Year adjustments discussed in the direct testimony of  
15 Jacob A. Darrington, Exh. JAD-1T. Further, the Picarro system could  
16 demonstrate that fewer emission allowances or offsets would need to be  
17 purchased under Cascade’s “facility” regulated status under the CCA. Cascade  
18 currently applies nation-wide emission factors to all miles of pipe and  
19 appurtenances across the gas distribution system to estimate methane emissions  
20 for reporting, which estimates the company emits slightly over the CCA regulated  
21 entity threshold of 25,000 metric tons of CO<sub>2</sub>e. Use of nation-wide emission  
22 factors may overestimate emissions from Cascade’s distribution system. The  
23 allowance cost to comply with 25,000 metric tons of CO<sub>2</sub>e is approximately

1 \$1.25 million per year at an allowance price of \$50. If the Picarro system  
2 demonstrates Cascade’s distribution system emits lower than 25,000 metric tons  
3 CO<sub>2</sub>e, the company would not be regulated as a “facility” under the CCA and  
4 could reduce or avoid annual compliance costs for facility emissions, and  
5 subsequently lower the CCA compliance cost borne by customers.

6 **Q. When is this project expected to be placed in service?**

7 A. This project is planned to be fully implemented by 2027.

8 **Q. What are the estimated costs for the Picarro – Advanced mobile leak  
9 detection system?**

10 A. The cost for 2025 is \$1,813,571.

11 **25. FP- 324689 - 8-inch Elma HP Replacement Project**

12 **Q. Please describe the 8-inch Elma HP Replacement project.**

13 A. This project is to replace roughly 1,100 feet of 8-inch high-pressure steel because  
14 it is currently exposed in the bottom of Wildcat Creek near Elma, Washington.

15 **Q. What work has been completed or will be performed on the 8-inch Elma HP  
16 Replacement project?**

17 A. Patrols are currently being performed on the line to monitor the exposure. The  
18 line will be replaced with a new directionally drilled 8-inch steel high pressure  
19 main under Wildcat Creek.

20 **Q. How will Cascade customers benefit from the 8-inch Elma HP Replacement  
21 project?**

22 A. Cascade customers will benefit from the project with increased safety and  
23 reliability of the high-pressure distribution system. The project also addresses

1 integrity concerns, since the pipe is currently exposed and is susceptible to further  
2 washout stresses and flooding debris, which could damage the pipe.

3 **Q. Did the Company consider alternative ways to meet the need for the 8-inch**  
4 **Elma HP Replacement project?**

5 A. Yes, but single feed high pressure lines with exposures have limited alternatives.

6 Typically, the most efficient and effective solution is replace in-place the section  
7 with the exposure with a horizontal directional drill. An alternative could be to  
8 lower the existing line, but doing so would not be a preferred option because this  
9 would cause disturbance of the wetland area surrounding the creek, likely would  
10 require permitting, and could lead to future exposures in the disturbed area.

11 Replacing the line by directional drilling raises the new line below the riverbed of  
12 the creek and will avoid any future exposure of the new line at this location and  
13 was, therefore, the best option.

14 **Q. What is the timing or when was the work completed for the 8-inch Elma HP**  
15 **Replacement?**

16 A. Cascade plans to work on and complete this project during the 2025 construction  
17 season.

18 **Q. What are the estimated costs of the 8-inch Elma HP Replacement?**

19 A. The Company estimates the project costs at \$1,634,772.

20 **26. FP-324932 - 6-inch Oak Harbor Replacement Project**

21 **Q. Please describe the 6-inch Oak Harbor Replacement project.**

22 A. This is a project to reroute/replace an existing 1970s pipeline that currently runs  
23 down HWY 20 in Oak Harbor, Washington. This section of pipeline has a leak

1 that field personnel have not been able to locate using several exploratory digs.  
2 The new pipeline will reroute the pipeline outside of the HWY 20 travel area and  
3 retire the section of pipeline with the unlocated leak.

4 **Q. What work has been completed or will be performed on the 6-inch Oak  
5 Harbor Replacement project?**

6 A. Cascade has completed preliminary design work and scoping of the project.

7 **Q. How will Cascade's customers benefit from the 6-inch Oak Harbor HP  
8 Replacement project?**

9 A. This project will remove a monitored leak in a high traffic area and allow for  
10 easier access for maintenance and repair in the future.

11 **Q. Did the Company consider alternative ways to meet the need for the 6-inch  
12 Oak Harbor Replacement project?**

13 A. Yes, Cascade considered closing Hwy 20 temporarily to expose the pipeline until  
14 the leak can be located. However, this was not chosen due to the need to shut  
15 down and excavate the highway for an undetermined distance and time.

16 **Q. What is the timing or when was the work completed for the 6-inch Oak  
17 Harbor Replacement project?**

18 A. Construction is slated to start in 2024 and be completed in the same year.

19 **Q. What are the estimated costs of the 6-inch Oak Harbor Replacement  
20 project?**

21 A. The Company estimates the project costs at \$1,001,333.

1 **B. Programmatic Projects Over One Million Placed in Service in 2024 and 2025**

2 1. **FP-319111, FP-319112 - MAOP Main and Service Line Replacement**  
3 **Program**

4 **Q. Please describe the MAOP Main and Service Line Replacement program.**

5 A. The MAOP Main and Service Line Replacement project includes the replacement  
6 of short segments of steel high-pressure main and steel high-pressure service  
7 lines.

8 **Q. Why did the Company undertake the MAOP Main and Service Line**  
9 **Replacement program?**

10 A. The segments that are being replaced were identified in Cascade's MAOP  
11 Determination and Validation Plan, in accordance with Docket PG-150120,<sup>42</sup> as  
12 lacking sufficient documentation to validate the pipeline segments MAOP.  
13 Replacement was chosen as an option to address the missing documentation and  
14 to validate the pipeline segments MAOP, based on the age of the pipeline  
15 segments.

16 **Q. How will Cascade customers benefit from the MAOP Main and Service Line**  
17 **Replacement program?**

18 A. This project addresses the documentation gaps that exist to be able to continue to  
19 safely operate these pipeline segments at their current MAOP's.

20 **Q. Did the Company consider alternatives for the MAOP Main and Service**  
21 **Line Replacement program?**

22 A. Yes, Cascade considered alternatives for this project. One alternative considered  
23 was to take the pipeline segments out of service and conduct a pressure test to

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<sup>42</sup> See generally Exh. PCD-10.

1 validate the pipeline segments MAOP. However, pressure testing presents  
2 additional challenges compared to replacement, including being able to maintain  
3 service to customers while the pressure test is completed, and safety risks  
4 associated with testing an existing pipeline segment. A second alternative was to  
5 downrate the pipeline segments MAOP to a safe pressure based on historical  
6 operating pressures. But downrating would restrict Cascade’s ability to continue  
7 to serve current customers.

8 **Q. When is this program expected to be placed in service?**

9 A. Cascade will be completing and placing in service pipeline segment replacements  
10 throughout 2024 and 2025, so in-service dates will be the end of 2024 and 2025  
11 respectively.

12 **Q What are the estimated costs for the MAOP Main and Service Line  
13 Replacement program?**

14 A. The total capital investment for the MAOP Main and Service Line Replacement  
15 program is \$3,985,662 for 2024 and \$6,823,699 for 2025.

16 **2. FP-318186, FP-318187 - System Safety and Integrity Program - Pipe**  
17 **Replacement Program)**

18 **Q. Please describe the System Safety and Integrity Program.**

19 A. The System Safety and Integrity Program (“SSIP”) is a structured replacement  
20 program for replacing early vintage plastic pipe and early vintage steel pipe. Early  
21 vintage plastic pipes include plastic mains, service lines, and associated fittings  
22 installed earlier than January 1, 1995. Early vintage plastic pipes are further  
23 divided into Pre-1983 and Post-1982. Pre-1983 includes pipe installed prior to  
24 January 1, 1983 that may be susceptible to possible Low Ductile Inner Wall

1 characteristics that can result in slow crack growth and slit failures, as  
2 documented by the Pipeline and Hazardous Materials Safety Administration,  
3 PHMSA–2004–19856.<sup>43</sup> Post-1982 includes pipe installed between January 1,  
4 1983 and December 31, 1994 and are classified as early vintage plastic pipes to  
5 account for different inventory levels and rates of new material adoption  
6 throughout Cascades operating locations.

7 Early vintages steel pipes include steel mains, service lines, and associated  
8 fittings installed earlier than January 1, 1970. These pipeline segments present an  
9 increased risk of failure due to age and obsolete materials, parts, and/or  
10 equipment. Cascade’s SSIP replacement program focuses primarily on the  
11 replacement of early vintage steel pipes. The primary risks on these pipes include  
12 external corrosion; material, weld, or joint failure; equipment failure; MAOP  
13 documentation; and missing data.

14 External corrosion on early vintage steel pipes is attributed to bare,  
15 disbonded, damaged, or poorly performing pipe coatings; poor soil and backfill  
16 conditions; ineffective cathodic protection; and other factors. Material, weld, or  
17 joint failure on early vintage steel pipes is typically associated with issues with  
18 pipe welds made during installation (lack of weld standards and welder  
19 qualification), vintage acetylene gas welds, or pipe and fitting material leaks.  
20 Equipment failures that can contribute to leaks include main to service  
21 connections where O-rings have failed, mechanical couplings and fittings, and on  
22 other aging equipment installed when the pipe was originally installed. Finally,

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<sup>43</sup> Available at <https://www.federalregister.gov/documents/2007/09/06/07-4309/pipeline-safety-updated-notification-of-the-susceptibility-to-premature-brittle-like-cracking-of>.



1 there are also increased risks associated with early vintage steel pipes with  
2 unknown attributes or missing data, which includes unknown physical  
3 infrastructure (e.g., pipe material, pipe specifications, construction information),  
4 historical information (e.g., corrosion control records, maintenance records, leak  
5 records), and insufficient information to establish MAOP.

6 **Q. Why did Cascade start the System Safety and Integrity Program?**

7 A. Cascade's System Safety and Integrity Program is a direct result of Integrity  
8 Management Program ("IMP") mandates by the Pipeline and Hazardous  
9 Materials Safety Administration. The IMP requires pipeline operators to  
10 implement a comprehensive and cost-effective process that analyzes pipelines  
11 through all stages, including engineering, design, construction, operation,  
12 inspection, repairs, and replacement.

13 **Q. How does the Company prioritize and select safety-related projects as part of**  
14 **its SSIP?**

15 A. Cascade's Distribution Integrity Management Program assigns weightings and  
16 consequence factors to each pipeline segment based on attributes and key IMP  
17 threats. Cascade's SSIP then utilizes the DIMP risk model and relative risk score  
18 to establish a weighted average risk score for each town within Washington. The  
19 weighted average risk score is then used to identify towns with increased risk  
20 related to early vintage plastic pipes and early vintage steel pipes. Ongoing  
21 analysis of early vintage steel pipes continues to show that these pipes have a  
22 greater likelihood to leak, have corrosion, and/or substandard pipe conditions.

1           These segments of main and their associated service piping have an elevated risk  
2           of failure as validated by DIMP risk analysis and are, therefore, prioritized.

3   **Q.    Why did the Company undertake the SSIP pipe replacement program?**

4   A.    Pipeline replacement is typically the most viable option to remediate risks  
5           associated with corrosion, material, weld/joint, equipment failure, and missing  
6           data threats. Cascade's SSIP program will address safety, reliability, and  
7           operational risks by replacing pipeline systematically, where Cascade has  
8           determined that replacement is an appropriate action to reduce the risk.

9   **Q.    Did the Company consider alternatives for the SSIP pipe replacement  
10        program?**

11 A.    Yes, but as noted, systematic pipeline replacement is typically the most viable  
12        option for these early vintage pipes and, when feasible, Cascade will still work  
13        jointly with State, City, County, or general contractors performing highway, road,  
14        and underground infrastructure replacement projects within the same vicinity.  
15        This collaboration ultimately eliminates duplication of work, provides cost  
16        savings, and limits long-term interruptions to the public and Cascade's customers.

17 **Q.    How will Cascade customers benefit from the SSIP pipe replacement  
18        program?**

19 A.    Cascade's SSIP replaces and eliminates early vintage steel pipes and early vintage  
20        plastic pipes prone to external corrosion, material, weld, or joint failure,  
21        equipment failure, MAOP documentation, and missing data. The Company's  
22        replacement of these high-risk systems ultimately increases overall public safety,  
23        lowers O&M costs, and improves system reliability for Cascade's customers.

1 **Q. Would you please describe the SSIP pipe replacement projects that will be**  
2 **completed in 2024 and 2025?**

3 A Yes, Cascade will be completing SSIP pipe replacement in Shelton, Washington  
4 and Kelso, Washington during 2024 and 2025.

5 **Q. Would you please describe the Shelton SSIP pipe replacement?**

6 A. The Shelton SSIP pipe replacement is a multi-year project focusing on the  
7 replacement of early vintage steel pipe mains and services with polyethylene lines  
8 in Shelton, Washington.

9 **Q. Why did the Company undertake the Shelton SSIP pipe replacement?**

10 A. Shelton was identified as an area with high-risk bare early vintage steel pipe in the  
11 state of Washington. These pipes in Shelton are primarily “Pre-CNG Pipe”, which  
12 are distribution systems that were constructed to distribute manufactured gas or  
13 natural gas. These pipelines were originally installed, owned, operated, and  
14 maintained by others prior to 1955. Cascade acquired many of these systems in  
15 the late 1950s and throughout the 1960s. The pipe coating typically found on Pre-  
16 CNG Pipe is typically bare steel or poorly coated coal tar wrapped. This pipe is of  
17 concern since it is over 60 years old and operated with no or inadequate cathodic  
18 protection until the early 1970s, leaving the pipe suspect to elevated corrosion  
19 risk. Pre-CNG Pipe also has elevated risks associated with missing data and not  
20 fully knowing the physical infrastructure and historical information of the Pre-  
21 CNG Pipe.

1 **Q. What is the project timeline for Shelton SSIP pipe replacement?**

2 A. The current Shelton SSIP project pipe replacement was started in 2017 and will  
3 be completed in 2024.

4 **Q. Would you please describe the Kelso SSIP pipe replacement?**

5 A. The Kelso SSIP pipe replacement is a multi-year project focusing on the  
6 replacement of early vintage steel pipe mains and services with polyethylene lines  
7 in Kelso, Washington.

8 **Q. Why did the Company undertake the Kelso SSIP Replacement?**

9 A. Kelso was identified as an area with high-risk bare early vintage steel pipe in the  
10 state of Washington. Like Shelton, the early vintage steel pipe in Kelso is  
11 primarily Pre-CNG Pipe and thus carries heightened risks and concerns, as  
12 explained above.

13 **Q. What is the project timeline for the Kelso SSIP pipe replacement?**

14 A. The current Kelso SSIP pipe replacement was started in 2017 and is estimated to  
15 be completed by the end of 2025.

16 **Q. When is the Kelso SSIP pipe replacement expected to be placed in service?**

17 A. Replacement of the early vintage steel pipe in Kelso is expected to be in service  
18 by the end of 2024 and 2025.

19 **Q. What are the estimated costs for the SSIP Main and Service Replacement  
20 program?**

21 A. The total capital investment for the SSIP Main and Service Replacement project is  
22 \$7,015,787 for 2024 and \$7,995,926 for 2025.

1 **Q. Does the Company expect SSIP efforts to continue?**

2 A. Yes. Pipeline operators have a requirement to implement IMPs that evolve and  
3 mature to fit an operator's unique operating environment. The evolution of an  
4 operator's IMP program takes time and resources to collect and analyze data to  
5 accurately identify the most current high-risk pipelines within any given system.  
6 Once a system is prioritized and selected, it typically requires multiple years to  
7 develop and execute an action plan for full remediation or replacement.  
8 Based on this information, Cascade expects the SSIP program to continue for the  
9 foreseeable future.

10 **3. FP-318192 - CNG Fixed Network Equipment**

11 **Q. Please describe the CNG Fixed Network Equipment project.**

12 A. From 2018 to 2020, the Company installed metering equipment at each gas meter,  
13 capable of electronically capturing and transmitting data, which are called  
14 Encoder Receiver Transmitters (ERTs). The Fixed Network (FN) is constructed  
15 with collectors and repeaters, which are devices that relay the data from the ERTs  
16 via 900 MHz radio signals and transmit these data over cellular connections back  
17 to the Company's FN servers. The individual data is then compiled to a data  
18 management system (DMS) so business applications and software programs can  
19 analyze the data. For the fixed network to gather the needed data, the devices  
20 must be placed in proximity to the gas meters (ERTs) and at a height of at least 20  
21 ft above ground. These devices are typically placed on existing utility poles  
22 owned by local power utility providers or existing communication towers owned

1 by local entities or utilities. This plant that will be placed in service in 2024 is the  
2 final year of the CNG Fixed Network program.

3 **Q. Why did the Company undertake the CNG Fixed Network Equipment**  
4 **project?**

5 A. In 2020 the Commission issued its order in the cost-of-service study rulemaking  
6 proceeding, which includes a requirement that utilities file a cost-of-service study  
7 with their rate case filing. Given the Commission's adoption of new rules that  
8 require a load study based on actual data in all future rate case filings, the  
9 Company determined that developing a fixed network would provide a more  
10 durable, long-term solution for collecting the data needed to perform a load study,  
11 and would also provide operational benefits and costs savings once it is fully  
12 deployed, including reduced O&M costs associated with meter reading.

13 **Q. How will Cascade customers benefit from the CNG Fixed Network**  
14 **Equipment project?**

15 A. This project allows the Company to complete the required cost of service study in  
16 accordance with WAC 480-85 and provides operational benefits and costs savings  
17 once it is fully deployed, including reduced O&M costs associated with meter  
18 reading.

19 **Q. Did the Company consider alternative ways to meet the need for the CNG**  
20 **Fixed Network Equipment project?**

21 A. In its 2017 rate case, Docket UG-170929, Cascade presented its alternative load  
22 study approach using citygate level customer class information based on its new  
23 load forecasting demand model. However, Staff asserted that this approach did

1 not meet the definition of a load study provided in the 2015 settlement, and as part  
2 of the settlement in the 2017 rate case, parties agreed that Cascade should still  
3 perform a load study using actual data. Cascade determined the best way to  
4 collect the data needed for a load study is the installation of Fixed Network  
5 devices throughout the service territory.

6 **Q. Are there any offsetting O&M cost savings associated with this project?**

7 A. Yes, once it is fully deployed O&M costs associated with meter reading will be  
8 reduced.

9 **Q. When is this project expected to be placed in service?**

10 A. Cascade expects to complete installation in the third quarter of 2024.

11 **Q. What are the estimated costs for the CNG Fixed Network project?**

12 A. Actual costs for 2021-23 were \$2,536,458. And estimated cost for 2024 is  
13 \$1,387,228.

14 **VI. MINOR PROJECT PROVISIONAL ADDITIONS TO PLANT PLACED IN**  
15 **SERVICE IN 2024 AND 2025**

16 **Q. Is Cascade also seeking recovery of additions to plant in service for projects**  
17 **less than one million dollars in cost?**

18 A. Yes. Included in Exh. PCD-5 of my prefiled direct testimony are summaries for  
19 projects with actual or estimated costs less than one million dollars that are  
20 planned to be placed in service in each of the provisional years in this multi-year  
21 rate case (2024 and 2025). The table below summarizes the request for both  
22 Specific and Programmatic projects discussed in Exh. PCD-5.

<b>Table 2 – Provisional Additions to Plant Placed in Service in 2024 and 2025 – Minor Projects</b>		
<b>Description</b>	<b>WA 2024 Cascade Plant Additions</b>	<b>WA 2025 Cascade Plant Additions</b>
Total Specific Projects	\$9,597,630	\$2,787,727
Total Programmatic Projects	\$1,588,141	\$2,302,151
<b>Total Provisional Additions to Plant In-Service 2024-2025 - Minor Projects</b>	<b>\$11,185,771</b>	<b>\$5,089,878</b>

1

**VII. CONCLUSION**

2

**Q. Does this complete your direct testimony?**

3

A. Yes, it does.