

**NOTICE OF CONFIDENTIALITY**

**PORTIONS OF THIS TESTIMONY AND ATTACHMENTS HAVE BEEN FILED UNDER SEAL.**

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

\* \* \* \* \*

IN THE MATTER OF ADVICE NO. )  
1029-GAS OF PUBLIC SERVICE )  
COMPANY OF COLORADO TO )  
REVISE ITS COLORADO PUC NO. 6- )  
GAS TARIFF TO INCREASE )  
JURISDICTIONAL BASE RATE )  
REVENUES, IMPLEMENT NEW BASE )  
RATES FOR ALL GAS RATE )  
SCHEDULES, AND MAKE OTHER )  
PROPOSED TARIFF CHANGES )  
EFFECTIVE FEBRUARY 29, 2024 )

PROCEEDING NO. 24AL-\_\_\_\_G

**DIRECT TESTIMONY AND ATTACHMENTS OF A. RAY GARDNER**

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

**NOTICE OF CONFIDENTIALITY**

**PORTIONS OF THIS TESTIMONY AND ATTACHMENTS HAVE BEEN FILED UNDER SEAL.**

**Confidential:** Attachments ARG-3C, ARG-5C, ARG-7C, ARG-9C

January 29, 2024

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**DIRECT TESTIMONY AND ATTACHMENTS OF A. RAY GARDNER**

1 **I. INTRODUCTION, QUALIFICATIONS, AND PURPOSE OF TESTIMONY**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is A. Ray Gardner. My business address is 1123 West 3<sup>rd</sup> Avenue,  
4 Denver, Colorado 80223.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

6 A. I am employed by Xcel Energy Services Inc. ("XES") as the Area Vice President  
7 of Gas Engineering. XES is a wholly-owned subsidiary of Xcel Energy Inc. ("Xcel  
8 Energy") and provides an array of support services to Public Service Company of  
9 Colorado ("Public Service" or the "Company") and the other utility operating  
10 company subsidiaries of Xcel Energy on a coordinated basis.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THE PROCEEDING?**

12 A. I am testifying on behalf of Public Service.

1 **Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.**

2 A. As Area Vice President of Gas Engineering, my responsibilities include  
3 management and oversight of the Company's gas engineering and system design,  
4 gas system reliability and asset management, gas integrity management  
5 programs, critical gas facilities and peak shaving plants, system automation and  
6 controls, and gas capital project execution across the gas high-pressure systems  
7 within its service territories. I have the same responsibilities for all of the other gas  
8 utility operating companies of Xcel Energy. A description of my qualifications,  
9 duties, and responsibilities is set forth after the conclusion of my Direct Testimony  
10 in my Statement of Qualifications.

11 **Q. ARE YOU SPONSORING ANY ATTACHMENTS AS PART OF YOUR DIRECT**  
12 **TESTIMONY?**

13 A. Yes, I am sponsoring the following attachments:

- 14 • Attachment ARG-1: Gas Operations Capital Additions  
15 January 1, 2022 through December 31, 2023;
- 16 • Attachment ARG-2: Capital Additions – Mandatory  
17 Relocations;
- 18 • Attachment ARG-3: Mandatory Relocation Project  
19 Descriptions (Projects over \$3 million) (Confidential and  
20 Public versions);
- 21 • Attachment ARG-4: Capital Additions New Business;
- 22 • Attachment ARG-5: New Business Project Descriptions  
23 (Projects over \$3 million) (Confidential and Public versions);
- 24 • Attachment ARG-6: Capital Additions – Capacity Expansion;
- 25 • Attachment ARG-7: Capacity Expansion Project Descriptions  
26 (Projects over \$3 million) (Confidential and Public versions);

- 1 • Attachment ARG-8: Capital Additions – System Safety and  
2 Integrity;
- 3 • Attachment ARG-9: System Safety and Integrity Project  
4 Descriptions (Projects over \$3 million) (Confidential and  
5 Public versions);
- 6 • Attachment ARG-10: TIMP Assessment Projects 2022-2023
- 7 • Attachment ARG-11: ASV/RCV Projects 2022-2023; and
- 8 • Attachment ARG-12: System Safety and Integrity – Other  
9 Capital Additions.

10 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

11 A. The primary purpose of my Direct Testimony is to support the Company’s capital  
12 investment in its natural gas business since our last combined gas rate case,  
13 where the Commission adopted a historical test year ended December 31, 2021  
14 (“2021 HTY”).<sup>1</sup> The capital additions supported by my Direct Testimony include  
15 actual capital additions placed in service between January 1, 2022 through  
16 September 30, 2023, and forecasted capital additions for October 1, 2023 through  
17 December 31, 2023, which are incorporated into the cost of service presented by  
18 Company witness Mr. Arthur P. Freitas. My Direct Testimony provides extensive  
19 detail regarding the gas projects, programs, and routine investments we have  
20 undertaken, and is organized as follows:

- 21 • Section II – Overview. In Section II, I provide an overview of the  
22 Company’s capital investments since the 2021 HTY through the 2023  
23 Test Year, describing the core areas of focus for Public Service’s gas  
24 system investments and the categories of capital investments. I also  
25 describe the Company’s budgeting and cost control and project  
26 monitoring activities to support the capital projects expected to be placed  
27 in service through 2023.

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<sup>1</sup> Proceeding No. 22AL-0046G (“2022 Combined Gas Rate Case”).



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- Section III – Mandatory Relocations. In Section III, I discuss Public Service’s investments to undertake mandatory relocations.
  - Section IV – New Business. In Section IV, I discuss Public Service’s investments to serve new customers.
  - Section V – Capacity Expansion. In Section V, I describe the Company’s capacity planning and capacity and reliability investments.
  - Section VI – System Safety and Integrity. In Section VI, I discuss Public Service’s investments in safety and system integrity.
  - Section VII –Failed Meter Lot Exchange Program. In Section VII, I discuss the Company’s failed meter lots exchange program, which was addressed in a separate Commission proceeding, and costs are included in this case.

1           **II. GAS OPERATIONS CAPITAL INVESTMENT OVERVIEW**

2   **Q.    WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT TESTIMONY?**

3    A.    In this Section, I provide an overview of the Company’s capital investments since  
4           the 2021 HTY through the 2023 Test Year, describing the core areas of focus for  
5           Public Service’s gas system investments. I also discuss the categories of capital  
6           investments presented in this case. Additionally, I describe the Company’s  
7           budgeting and cost control and project monitoring activities to support the capital  
8           projects to be in-serviced through 2023.

9           **A.    Capital Investments in Core Areas**

10 **Q.    WHAT ARE THE CORE AREAS OF FOCUS FOR PUBLIC SERVICE’S GAS**  
11 **SYSTEM INVESTMENTS?**

12 A.    Safety and reliability are the key areas of focus for Public Service’s gas business.  
13           Providing heat to our customers is an essential service, with approximately 1.5  
14           million customers receiving gas service from us, relying on gas infrastructure we  
15           own, operate, and maintain during the coldest months of the year. Accordingly,  
16           we make foundational investments to ensure the safety, reliability, and resiliency  
17           of the system for current and future customers. In addition, investments on the  
18           gas system are required by new business resulting from new customers, customer  
19           growth, and mandated infrastructure relocations.

20           At the same time, the gas local distribution company (“LDC”) system is  
21           going through a policy transformation, and we are, among other things,  
22           implementing processes to aggressively explore a diversified set of alternatives to  
23           larger traditional investments that will still allow the Company to provide safe,

1 reliable service. Company witness Mr. Stephen G. Martz discusses this case in  
2 the context of separate ongoing efforts to meet State of Colorado energy policy  
3 objectives, while Company witness Ms. Lauren Gilliland, as the Vice-President of  
4 the Gas Business Unit, presents the Company's gas operational perspective  
5 regarding the demands on Public Service's natural gas business and system.

6 **Q. PLEASE PROVIDE THE CONTEXT FOR THE COMPANY'S CAPITAL**  
7 **INVESTMENTS INCLUDED IN THE RATE REQUEST IN THIS CASE.**

8 A. To a large extent, the capital investments included in the 2023 Test Year were  
9 planned – and in many cases in-serviced – prior to the Company's initial Gas  
10 Infrastructure Plan ("GIP") filing and inaugural Clean Heat Plan ("CHP") filing,  
11 which focus on forward-looking plans.<sup>2</sup> This case, by contrast, largely focuses on  
12 historical investments that are already supporting our customers and the services  
13 they require.

14 **Q. PLEASE IDENTIFY THE CATEGORIES OF GAS OPERATIONS CAPITAL**  
15 **INVESTMENT THAT YOUR DIRECT TESTIMONY SUPPORTS.**

16 A. The Company has identified and classified the projects presented in this testimony  
17 in the following categories, in alignment with the categories of capital investment  
18 set forth in the GIP Rules:<sup>3</sup>

- 19 • Mandatory Relocation includes projects to relocate gas  
20 infrastructure as required by a federal, tribal, state, county, or  
21 local governmental body,<sup>4</sup> as well as by contractual  
22 arrangements, such as easements.

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<sup>2</sup> The Company's initial GIP was filed May 18, 2023 (Proceeding No. 23M-0234G) and inaugural CHP was filed August 1, 2023 (Proceeding No. 23A-0392EG).

<sup>3</sup> Rules 4550 – 4555.

<sup>4</sup> GIP Rule 4553(a)(III)(D) and Rule 4001(dd).

- 1 • New Business projects include utility investment needed to  
2 provide gas service to new customers or customers requiring  
3 new gas service.<sup>5</sup>
- 4 • Capacity Expansion includes both individual projects and sets  
5 of inter-related facilities needed to maintain system reliability  
6 and meet a specified capacity expansion need, including for  
7 new customers or facilities that are not otherwise New  
8 Business projects, or for reliability and growth related to  
9 existing customers.<sup>6</sup>
- 10 • System Safety and Integrity includes projects related to  
11 maintaining the safety and integrity of the gas system,  
12 including, but not limited to, pipeline and storage integrity  
13 management programs, exposed pipe inspection and  
14 remediation, pipe or compressor station upgrades, projects  
15 undertaken to meet U.S. Department of Transportation  
16 Pipeline and Hazardous Materials Safety Administration  
17 (“PHMSA”) requirements, and Supervisory Control and Data  
18 Acquisition (“SCADA”) upgrades.<sup>7</sup>

19 **Q. PLEASE SUMMARIZE THE CAPITAL ADDITIONS INCLUDED IN THIS RATE**  
20 **CASE.**

21 A. Table ARG-D-1 below summarizes the Company’s gas operations capital  
22 additions since the end of the 2021 HTY approved as the basis for setting rates in  
23 our 2022 Combined Gas Rate Case<sup>8</sup> through the 2023 Test Year. The table  
24 provides actual capital additions through September 30, 2023, and forecasted  
25 capital additions for October 1, 2023 through December 31, 2023. The capital  
26 additions are also shown in Attachment ARG-1 to my Direct Testimony.

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<sup>5</sup> GIP Rule 4553(a)(III)(B).

<sup>6</sup> GIP Rule 4553(a)(III)(C).

<sup>7</sup> GIP Rule 4553(a)(III)(A).

<sup>8</sup> In the 2022 Combined Gas Rate Case (Proceeding No. 22AL-0046G), a historical test year ended December 31, 2021 was approved by the Commission.

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**Table ARG-D-1**  
**Gas Operations Capital Additions**  
**January 1, 2022 – December 31, 2023\* (\$ millions)**

| Budget Category                | 2022<br>(Actual) | 2023                   |                               |                | Total<br>Additions<br>Since<br>2021 Test<br>Year |
|--------------------------------|------------------|------------------------|-------------------------------|----------------|--|
|                                |                  | 1/1 – 9/30<br>(Actual) | 10/1 –<br>12/31<br>(Forecast) | Total          |  |
| Mandatory Relocation           | \$40.9           | \$21.3                 | \$7.3                         | \$28.7         | \$69.5   |
| New Business                   | \$112.3          | \$89.2                 | \$36.6                        | \$125.8        | \$238.1  |
| Capacity Expansion             | \$34.3           | \$52.9                 | \$40.3                        | \$93.2         | \$127.6  |
| System Safety and<br>Integrity | \$277.9          | \$170.3                | \$118.9                       | \$289.2        | \$567.1  |
| <b>Total</b>                   | <b>\$465.5</b>   | <b>\$333.7</b>         | <b>\$203.2</b>                | <b>\$536.8</b> | <b>\$1,002.2</b>                                 |

\* Any differences in sums due to rounding.

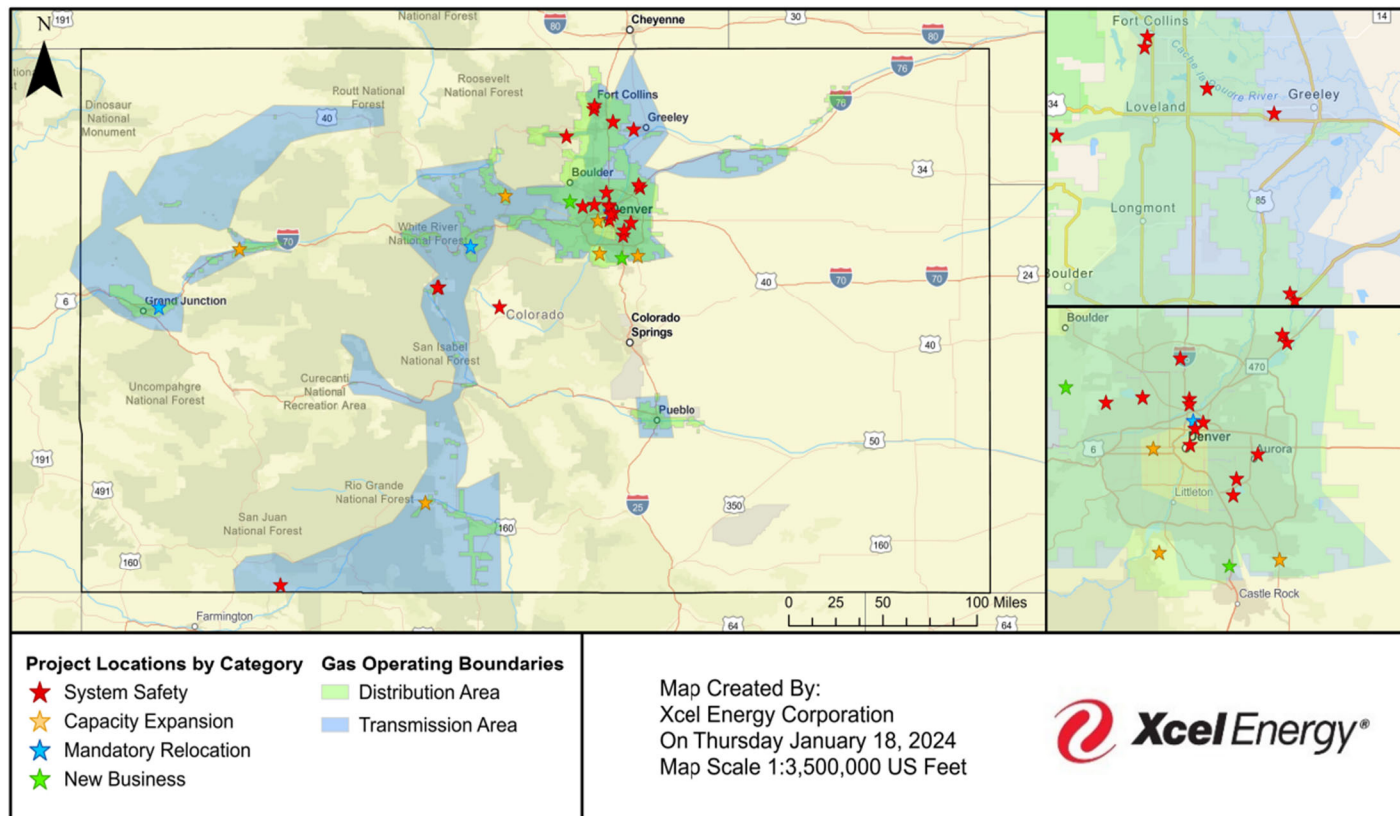
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**Q. CAN YOU PROVIDE INFORMATION ON WHERE THE DISCRETE PROJECTS ABOVE \$3 MILLION IN THE ABOVE CATEGORIES WERE CONDUCTED WITHIN THE COMPANY'S SERVICE TERRITORY?**

A. Yes. Below is a map indicating, at a very high level, where the discrete capital projects greater than \$3 million were located, geographically, and by project category type.

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**Figure ARG-D-1**  
**Gas Operations Key Capital Projects**  
**January 1, 2022 – December 31, 2023**

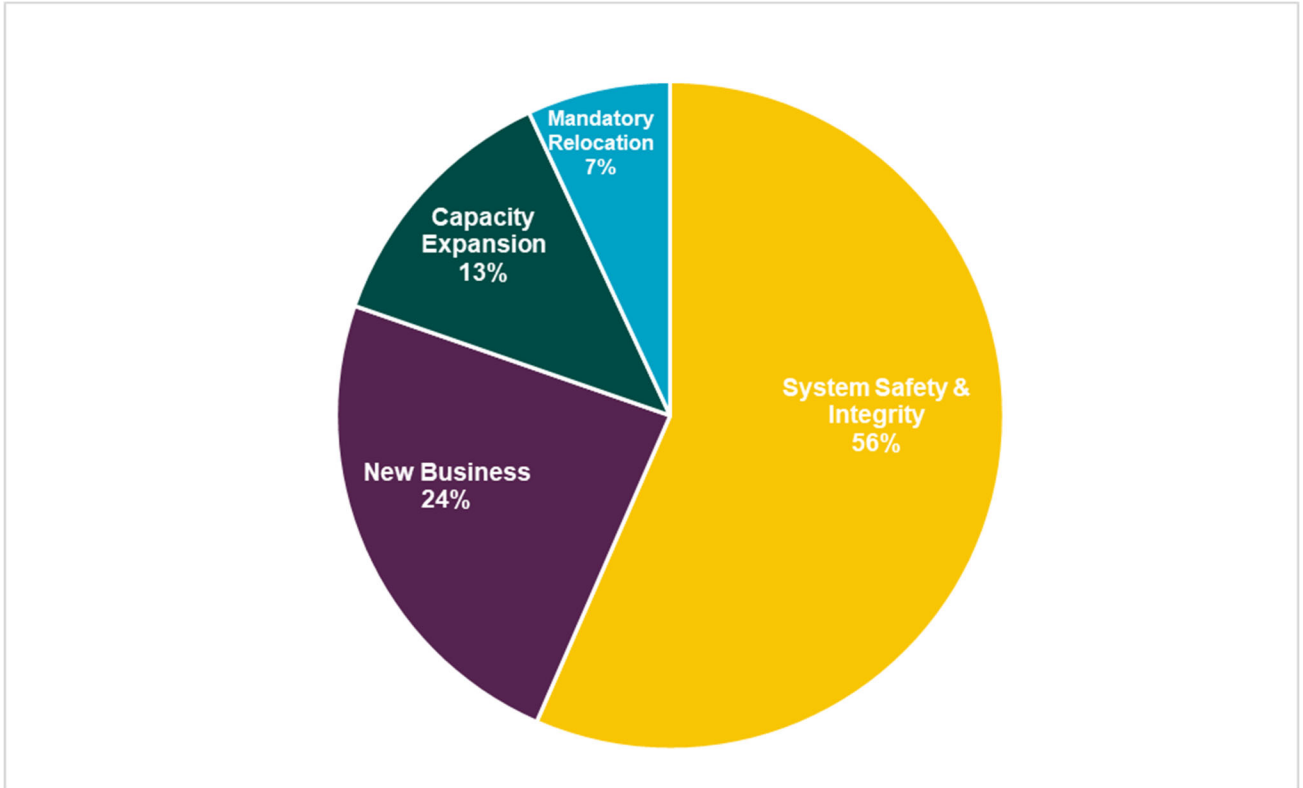


4 **Q. WHAT ARE THE PRIMARY DRIVERS OF GAS OPERATIONS' ACTUAL**  
5 **CAPITAL ADDITIONS SINCE THE 2021 HTY?**

6 **A.** As reflected on the Table above, and on the Figure below, the primary drivers of  
7 Gas Operations' actual capital additions since the 2021 HTY are system safety  
8 and integrity investments.

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**Figure ARG-D-2**  
**Gas Operations Capital Additions by Category**  
**January 1, 2022 – December 31, 2023**



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Given the GIP definitions, the System Safety and Integrity category includes safety investment presented in prior cases as PSIA safety and non-PSIA safety,<sup>9</sup> as well as asset health investment, as asset health has always been the broader, overarching “safety” category of investment.<sup>10</sup> Nevertheless, many of the system safety and integrity investments are of the type that were formerly recovered

<sup>9</sup> “PSIA” means the Pipeline System Integrity Adjustment.

<sup>10</sup> To clarify, the prior rate case category of Reliability included both asset health and capacity-related projects. Under the GIP definitions, capacity-related projects are included in the Capacity Expansion investment category, and asset health projects are included in the System Safety and Integrity investment category.

1 through the PSIA Rider or Deferral<sup>11</sup> given the extent to which PHMSA regulations  
2 dictate gas utilities' obligations to implement and carry out Distribution and  
3 Transmission Integrity Management Programs ("DIMP" and "TIMP") and to  
4 undertake other discrete and programmatic work to ensure the safety and reliability  
5 of natural gas systems. In fact, approximately \$152.0 million of the safety capital  
6 additions in this case relate to projects that were undertaken under the  
7 Commission-authorized PSIA Deferral, and are just now being transferred to base  
8 rates.

9 As can be seen on the above Figure, the next largest area of investment  
10 during the last two years is in New Business where, as explained later in my Direct  
11 Testimony, the majority of work consists of smaller, or routine projects, such as  
12 installation of a new service or short new main extension. We expect that the  
13 ongoing level of investment in this category will be impacted in the future as a  
14 result of State and Commission new line-extension policy requirements and other  
15 regulatory requirements.<sup>12</sup> Capacity Expansion follows as the next largest  
16 category, which represents roughly 13 percent of the capital additions for Gas  
17 Operations during the same period, with approximately \$89 million of the \$127.6  
18 million related to individual, discrete capacity expansion projects, and the balance

---

<sup>11</sup> 2022 PSIA costs were included in a PSIA Deferral in accordance with the Comprehensive Settlement Agreement in Proceeding No. 21A-0071G ("2021 PSIA Settlement"), as approved by Decision No. C21-0715 ("PSIA Decision").

<sup>12</sup> For example, in December 2023, the Company, as required by §40-3.2-104.3 C.R.S. made a filing, that among other things, proposed to change its extension policy tariff to reflect that all customers and/or applicants requesting initial service to a premise will be required to pay 100 percent of the meter set (Proceeding No. 23AL-0636G).



1 for smaller, routine work. As expected, the smallest category of investment relates  
2 to non-discretionary Mandatory Relocations.

3 **Q. HAS THE COMPANY MADE COMPARISONS OF THE CAPITAL ADDITIONS**  
4 **BY CATEGORY IN THIS CASE TO THE COMPANY’S PRIOR RATE CASE?**

5 A. No. As discussed above, the Company is providing capital additions in this case  
6 in the same categories required under the GIP, and will continue to report capital  
7 additions in these categories going forward. Because prior rate cases preceded  
8 the GIP, the categorization will not match. Additionally, in the past the Company  
9 has recovered certain approved categories of system safety and integrity  
10 investments through the PSIA, which is no longer in effect. While these changes  
11 do not allow for directed comparison to categories in our prior rate cases, they will  
12 be consistent with gas system plan filings going forward.

13 **Q. CAN THE CAPITAL ADDITIONS FOR SPECIFIC PROJECTS IN THIS CASE BE**  
14 **DIRECTLY COMPARED TO CAPITAL COSTS (EXPENDITURES) FOR**  
15 **SPECIFIC PROJECTS AS PRESENTED IN OTHER TYPES OF NATURAL GAS-**  
16 **RELATED PROCEEDINGS?**

17 A. No. Capital costs in such other proceedings are, for the most part, presented as  
18 capital expenditures (spend over time, rather than in-service amounts) for a given  
19 project.<sup>13</sup> This is because project teams and engineers plan and manage projects  
20 based on spending over time, whereas ratemaking is based on capital asset

---

<sup>13</sup> For example, for projects reported under GIP, total estimated capital expenditures (spend) for a particular period are provided. The same is true for projects reported under the Commission-authorized PSIA Deferral. Likewise, for the West Metro project (which is being undertaken pursuant to a Certificate of Public Convenience and Necessity (“CPCN”), total forecasted capital expenditures over the life of the project were provided.

1 accounting for capital additions when plant is placed in service. While I am not an  
2 expert on capital asset accounting, I understand that in-service amounts may be  
3 different from capital expenditures in that additions reflect all the capital placed in  
4 service at a given time rather than spend over time, and may include an Allowance  
5 for Funds Used During Construction (“AFUDC”). Therefore, capital expenditure  
6 presentations differ from the actual and forecasted capital additions in this case,  
7 which reflect projects in-serviced in 2022 and 2023. As such, direct comparisons  
8 between costs in proceedings based on expenditures and costs based on  
9 additions are not particularly meaningful.

10 **Q. IS COST INFORMATION BASED ON CAPITAL EXPENDITURES**  
11 **NONETHELESS SOMETIMES USEFUL IN A RATEMAKING CONTEXT?**

12 A. Yes. In some instances, we believe it is helpful to provide granular information  
13 based on capital expenditures to supplement details for capital additions. For  
14 example, for each of the capital investment categories, we are providing a visual  
15 depiction of the “routine” capital expenditures by geographical area, based on the  
16 service center locations in our service territory. This information is available in our  
17 systems based on expenditures, but not capital additions. And because routine  
18 categories are often made up of a large number of projects, many of which total  
19 less than \$50,000, showing the proportions of capital expenditures by geographical  
20 area may be helpful to provide the Commission additional insight into the work  
21 being done on our system.

1 **Q. PLEASE COMMENT ON THE LEVEL OF INFORMATION PROVIDED IN YOUR**  
2 **DIRECT TESTIMONY IN SUPPORT OF THE GAS OPERATIONS CAPITAL**  
3 **ADDITIONS OVER THE LAST TWO YEARS.**

4 A. Since the filing of our last base rate case in 2022, the Commission has expressed  
5 interest, through review of the Company's initial GIP and otherwise, in greater  
6 transparency into all levels of capital investment, including at lower levels of  
7 investment for discrete projects. The Commission would also like to better  
8 understand what type of work is being undertaken on a routine or programmatic  
9 basis. We have therefore attempted to make meaningful strides towards meeting  
10 the Commission's expectations through my testimony, expanding upon the level  
11 of detail provided in a manner not previously achieved.

12 **B. Gas Operations Capital Cost Management Processes**

13 **Q. IN GENERAL, HOW DOES THE COMPANY PLAN AND BUDGET FOR GAS**  
14 **OPERATIONS' CAPITAL PROJECTS?**

15 A. The Company's overall budgeting and project planning processes are designed to  
16 ensure that the Company can safely, reliably, and cost-effectively meet its  
17 obligation to serve our customers. These processes are based on a partnership  
18 between the corporate management of overall finances and identified business  
19 needs. Company witness Mr. Adam R. Dietenberger provides a brief overview of  
20 Xcel Energy's enterprise-wide budgeting processes.

21 For Gas Operations capital specifically, each of Gas Operations' planned  
22 project areas of investment has its own unique planning process, each of which is  
23 summarized at a high level below.

- 1 • Mandatory Relocations: Mandatory relocations are requested  
2 by a city, municipality, or government agency. The Company  
3 typically plans these projects in cooperation with the  
4 requesting authority.
  
  - 5 • New Business: With regard to New Business, Public Service  
6 plans for these projects as the requests for service come in  
7 through the Company's Builder's Call Line. The Company  
8 supports new business customers through five key phases of  
9 installing and connecting new service through the Builders  
10 Call line: 1) application; 2) design; 3) payment; 4) scheduling;  
11 and 5) construction and meter set. The Builders Call Line  
12 delineates which tasks within the five phases are the  
13 customer's responsibility, the Company's responsibility, and  
14 joint responsibility between the customer and the Company.
  
  - 15 • Capacity Expansion: As explained in more detail in Section  
16 V.A of my Direct Testimony, the Company's gas system is  
17 modeled and designed to ensure reliable service can be  
18 provided to firm gas customers under Design Day conditions  
19 and, as a result of the Company's modeling, capacity  
20 expansion project needs are identified.
  
  - 21 • System Safety and Integrity: The Company's integrity  
22 management efforts are primarily conducted in light of the  
23 applicable federal rules, focusing on the near term. The  
24 Company considers many challenges when developing its  
25 plan for safety projects, including, but not limited to, relative  
26 risk assessments, known or anticipated federal regulations,  
27 resource availability, and the requirements or preferences of  
28 local communities, and plans are often modified in response  
29 to the presented circumstances. Notably, while there are  
30 some larger, discrete individual planned projects, the  
31 Company's capital investment in this category is driven  
32 primarily by programmatic work.
- 33 Importantly, planning for the majority of projects that are more than 18-months into  
34 the future are now the responsibility of the Integrated Systems Planning  
35 organization ("ISP"), which is described in greater detail by Mr. Martz, rather than  
36 Gas Operations. Gas Operations, however, retains execution responsibility.

1 **Q. DOES THE COMPANY CONSIDER ALTERNATIVES WHEN EVALUATING**  
2 **POTENTIAL GAS INFRASTRUCTURE CAPITAL PROJECTS?**

3 A. Yes. As the Company has discussed in past rate cases, we have included  
4 alternative project considerations as part of our gas infrastructure planning  
5 processes, now managed by ISP. In recognition of Xcel Energy's leadership in the  
6 clean energy transition, the Company several years ago, and prior to the Clean  
7 Heat statute in 2021,<sup>14</sup> developed a process where non-pipe alternatives ("NPA")  
8 were evaluated for a limited subset of capacity and new business projects.<sup>15</sup>  
9 Alternatives considered during that process were project specific, but focused on  
10 load reduction and shifting techniques (e.g., demand-side management ("DSM"),  
11 and customer targeting for firm to interruptible rate conversion) and electrification.

12 One of the capital investments in this case, relating to the West Metro  
13 capacity expansion project, was identified for evaluation through this process, and  
14 ultimately a pipeline solution was determined to be the best path forward. The  
15 Commission granted the Company a Certificate of Public Convenience and  
16 Necessity ("CPCN") for this approach. Our prior NPA process is no longer used,  
17 however, as we are evolving to a more robust and intensive NPA evaluation  
18 process for our larger future projects, consistent with GIP Rule requirements, as  
19 discussed by Mr. Martz. The focus of this evolving NPA process is on projects

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<sup>14</sup> Senate Bill 21-264.

<sup>15</sup> A limited subset of capacity and new business projects were subject to this additional evaluation. More specifically, capacity projects went through this process based on their risk score and if (a) the project was needed in the next five years; or (b) the project was needed after five years and was greater than \$10 million. New business projects went through this process if total project costs were greater than five million dollars and the project was in a capacity constrained area.

1 further into the future (rather than historical investments like those in this case),  
2 where there is an opportunity to cost-effectively pursue an NPA solution to mitigate  
3 the presented system risk.

4 **Q. WHAT ADDITIONAL PERSPECTIVE CAN YOU PROVIDE TO THE**  
5 **RETROSPECTIVE REVIEW OF ALTERNATIVE OPTIONS, AS DISCUSSED IN**  
6 **YOUR DIRECT TESTIMONY?**

7 A. The Company's analysis of each alternative, at the time a project was initiated,  
8 was based on estimates that contained a degree of cost uncertainty, technical risk,  
9 and difficult-to-foresee construction risks associated with significant excavation  
10 and trenching. It is not possible to predict all possible contingencies for either a  
11 given selected project or other alternatives, and we can only know the full scope  
12 of the project that was carried out. As such, the discussion of alternatives in my  
13 Direct Testimony is based on the information available at the time the alternatives  
14 were considered.

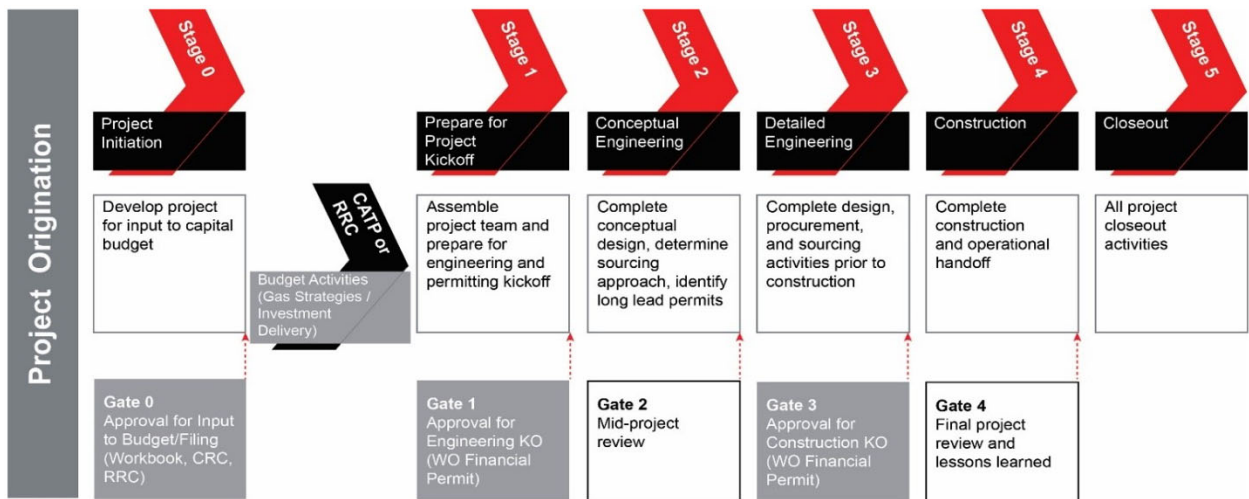
15 **Q. TURNING BACK TO THE PROJECT LIFECYCLE PROCESS, WHAT ARE THE**  
16 **NEXT STEPS ONCE A PROJECT HAS BEEN DEEMED NECESSARY?**

17 A. Once deemed necessary, the project goes through Stage Gate approval for  
18 funding in the current or a following year in the five-year plan. The Stage Gate  
19 process is a guideline for best practices and continues to be refined and  
20 incorporated into the Company's cost estimating processes for all projects. The  
21 Stage Gate methodology is a scalable process intended to apply increasing rigor  
22 and consistent governance throughout the lifecycle of the project. In each Stage,  
23 the Company performs a particular scope of work necessary to bring the project to

1 the next Gate, or milestone, that determines whether and how the project will  
2 proceed. The estimating process increases in rigor as the project matures and  
3 reaches each of the Gates, because the scope of a project matures and becomes  
4 more detailed as the project moves closer to implementation and then completion.

5 At a high level, projects move through various stages of development, the  
6 beginning of which is marked by a governance point known as a “Gate” that would  
7 determine whether the work proceeds to the next Stage. In the project Stages,  
8 projects make their way from initiation to preparation for kick-off, to conceptual  
9 engineering, to detailed engineering, construction, and closeout. The Figure below  
10 depicts each of the Stages and Gates within the process, the cascading  
11 relationship of each stage, a high level description of each Stage, and major project  
12 milestones. Importantly, the impact that cost estimating provides diminishes  
13 through the project lifecycle as estimated values become specific, quotable values  
14 provided by contractors and vendors.

15 **Figure ARG-D-3**  
16 **Stage Gate Process**



1           The Company assigns work of different dollar amounts to one of four  
2           Tiers - Tier 1: Greater than \$5 million; Tier 2: \$1 million - \$5 million; Tier 3:  
3           \$300,000 -\$1 million; and Tier 4: Less than \$300,000. The Tier to which a project  
4           is assigned determines how the project is managed, including the anticipated  
5           range of project cost estimate accuracy (the cost estimate Class per AACE  
6           standards, or “Estimate Class”) at each Gate. The Stage Gate process for Tier 1  
7           and Tier 2 projects requires a material allocation of internal and external resources  
8           that are managed by a dedicated project lead.

9   **Q.   WHAT IS THE RELEVANCE OF THESE PROCESSES TO THE CAPITAL**  
10 **ADDITIONS IN THIS CASE?**

11 A.   Because this case includes capital additions that have previously been placed in  
12   service or were nearing completion to be placed in service by the end of 2023, the  
13   budgeting for many of these projects occurred a year or years in the past. In many  
14   cases, the need for the project was also identified some time ago, before new rules  
15   and regulatory processes such as those related to GIP and CHP were in place.  
16   Additionally, because many of these projects are completed or were near  
17   completion as this testimony was developed, we are able to provide actual cost  
18   data and describe how projects evolved over time through completion.

19           It is also important to be clear that identification of planned projects and  
20   establishment of project budgets is not a static proposition, but rather is part of an  
21   iterative process as priorities for planned projects are subject to change and a  
22   number of factors may impact project costs and implementation. Additionally,  
23   factors outside the Company’s control can result in shifting priorities, timelines, and



1 costs for planned projects including, but not limited to: (a) scheduling work with the  
2 least amount of disruption for our customers and communities depending on  
3 community needs over time, including bundling work with municipal improvement  
4 projects that may emerge; (b) allocating or re-allocating resources where they will  
5 provide the best value to customers in terms of both safety and cost; (c) changing  
6 planning circumstances, such as system conditions, field verification, new  
7 developments, and modeling updates; and (d) construction factors, such as  
8 permitting, weather, unexpected construction conditions, or availability of required  
9 contracted resources. Because the Company is often required to address  
10 changing circumstances outside its control, including those that may affect timing  
11 or cost, the Company has a robust process for monitoring capital projects and  
12 managing costs.

13 **Q. PLEASE DESCRIBE THE COMPANY'S COST CONTROL AND PROJECT**  
14 **MONITORING ACTIVITIES.**

15 A. There are a number of internal cost controls and monitoring activities for Gas  
16 Operations' capital projects. The Company's gas business unit monitors capital  
17 expenditures via supply chain resources, project managers and engineers, and  
18 finance functions to ensure that authorized projects have good reasons for any  
19 changes from prior plans, and ultimately are constructed at reasonable and  
20 prudent costs. Gas Operations, along with Corporate Finance, monitors all  
21 distribution and transmission capital dollars. Further, on a monthly basis, budget  
22 to actual spend is compared and financial forecasts are updated as appropriate  
23 based on the most current information and planning for programs and projects.

1 Project or program proposals modifying original plans are subject to review,  
2 approval, and sign-off based on cost thresholds governed by the Company's  
3 guidelines, as described by Mr. Dietenberger.

4 **Q. HOW DOES GAS OPERATIONS MANAGE ITS CAPITAL PROJECTS DURING**  
5 **THEIR IMPLEMENTATION?**

6 A. Each capital project has a dedicated project manager/engineer that oversees the  
7 implementation of the project from planning through completion of construction and  
8 restoration. Weekly project meetings are typically conducted with the overall  
9 project cross-functional team ("CFT"), including the project manager, project  
10 engineer, right-of-way ("ROW") agent, and representatives from assigned  
11 contractors. The Company also performs monthly reviews of purchase orders for  
12 each vendor and creates monthly forecasting to identify monthly expenditures to  
13 ensure projects are financially on track. Throughout construction of the project,  
14 the project manager closely manages the project plan and associated costs,  
15 including change orders, and visually evaluates the project in the field at least  
16 weekly, or more often as needed, to verify current project status and address any  
17 construction issues.

18 **Q. WHAT ARE THE DIFFERENT CATEGORIES OF CAPITAL COSTS THAT ARE**  
19 **TYPICALLY INCURRED FOR EACH GAS OPERATION CAPITAL PROJECT?**

20 A. In general, each Gas Operation capital project includes the follow types of capital  
21 costs:

- 22 • **Mechanical:** The cost of the prime mechanical and electrical  
23 contractors responsible for construction.

- 1           • **Engineering:** The cost of the prime engineering firm  
2           responsible for infrastructure design.
  
- 3           • **Materials:** The cost for all materials associated with the  
4           project.
  
- 5           • **Permitting & Environmental:** All consultant services and  
6           required state and county permitting applications.
  
- 7           • **Inspection:** The cost of construction management and  
8           pipeline inspection services to ensure construction is  
9           performed in accordance with industry and Company  
10          standards.
  
- 11          • **Overheads:** Allocated costs associated with engineering and  
12          supervision related to project construction, administrative and  
13          general related to administrative support, purchase  
14          overheads related to outside services, and warehouse  
15          overheads for material purchases.
  
- 16          • **Internal Labor, AFUDC, and Other:** The cost of internal  
17          company labor who worked on the project, AFUDC, and other  
18          miscellaneous costs.

19           I provide these categories as general cost categories only, primarily for the  
20          benefit of the reader when more specific cost information is provided in my Direct  
21          Testimony. Because project management and work-order setup of our projects  
22          does not necessarily directly align with these categories, they are not intended to  
23          be precise reflections of the costs incurred, but directionally support the major cost  
24          drivers at issue.

25   **Q.   HOW DOES THIS DISCUSSION RELATE TO THE FINAL COST OF GAS**  
26   **CAPITAL PROJECTS DISCUSSED IN THIS DIRECT TESTIMONY?**

27   A.   For the most part, my Direct Testimony is focused on actual project costs incurred  
28          during 2022 and 2023. Budgets and forecasts are estimates reflecting the  
29          information available at the time they are developed or updated, and provide

1 helpful information as projects are planned and future projects are evaluated. In  
2 contrast, final costs reflect the actual circumstances, market conditions, customer  
3 needs, and other factors in effect at the time of construction, as well as cost  
4 management as the Company addresses changes along the way. Ultimately, the  
5 capital investments that I support in my Direct Testimony reflect careful planning  
6 and management, adaptation to real-time circumstances, and ultimately prudent  
7 overall costs. In the remainder of my Direct Testimony, I walk through the four  
8 primary categories of Gas Operations capital investment (Mandatory Relocations,  
9 New Business, Capacity Expansion, and System Safety and Integrity), providing  
10 detailed support for the work we are doing and the specific projects undertaken in  
11 each category during the Test Year, and for which we seek cost recovery.

1 **III. MANDATORY RELOCATIONS**

2 **A. Overview of Mandatory Location Work**

3 **Q. WHAT ARE MANDATORY RELOCATION PROJECTS?**

4 A. Mandatory relocation projects are capital projects that require Public Service to  
5 move its existing infrastructure as required by a federal, tribal, state, county, or  
6 local government body, as well as by contractual arrangements, such as  
7 easements. For example, Public Service's franchise agreements with the  
8 communities it serves require the Company to move or relocate its infrastructure  
9 when requested by the government body. This includes, but is not limited to,  
10 infrastructure work on water, sewer, transportation, or other major infrastructure.  
11 The costs associated with relocating natural gas infrastructure under these  
12 circumstances are typically born by Public Service and ultimately impact our  
13 customers through cost-of-service ratemaking.

14 **Q. WHAT ARE THE RESULTING PLANT ADDITIONS TO SUPPORT**  
15 **MANDATORY RELOCATIONS FROM THE END OF THE 2021 HTY THROUGH**  
16 **THE 2023 TEST YEAR?**

17 A. Table ARG-D-2 below provides the mandatory relocation plant additions split  
18 between discrete and routine projects for 2022 through 2023.

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**Table ARG-D-2**  
**Gas Operations Mandatory Relocation Plant Additions**  
**Routines vs. Discrete Projects\* (\$ millions)**

| Mandatory Relocations | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|-----------------------|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|                       |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total         |                                      |
| Routines              | \$11.6        | \$9.8               | \$2.4                   | \$12.2        | \$23.8                               |
| Discrete              | \$29.3        | \$11.5              | \$5.0                   | \$16.4        | \$45.8                               |
| <b>Total</b>          | <b>\$40.9</b> | <b>\$21.3</b>       | <b>\$7.3</b>            | <b>\$28.6</b> | <b>\$69.5</b>                        |

\* Any differences in sums due to rounding

**Q. PLEASE DESCRIBE THE PLANT ADDITIONS FOR DISCRETE MANDATORY RELOCATION PROJECTS FOR THE PERIOD 2022 - 2023.**

A. The Company in-serviced \$45.8 million in discrete mandatory relocation plant additions for calendar years 2022 and 2023. Table ARG-D-3 below identifies and provides an overview description of projects totaling \$3 million or more in capital additions in the Test Year, which are then described in more detail in this section of my testimony, below. I am also providing Attachment ARG-2 to my Direct Testimony, which walks through higher-level descriptions of the many smaller discrete projects in the Mandatory Relocations category.

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**Table ARG-D-3**  
**Mandatory Relocation Discrete Plant Additions - \$3 Million or Higher**  
**January 1, 2022 to December 31, 2023\* (\$ millions)**

| Project Name                                   | Description  | 2022<br>(Actual) | 2023                   |                               |       | Total Additions<br>Since 2021 Test<br>Year |
|--|--|------------------|------------------------|-------------------------------|-------|--|
|  |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 -<br>12/31<br>(Forecast) | Total |  |
| CO/NMD/E 58th<br>Avenue Relocation             | Relocated 2,000' of 12" and 1,500' of 16" intermediate pressure ("IP") gas main located on East 58th Avenue between Downing Street and York Street within Adams County due to a roadway grade change, road expansion, and storm water upgrade project. | \$6.9            | \$0.1                  | \$0.0                         | \$0.1 | \$7.0                                      |
| CO/Summit/280<br>Gold Hill Relocation          | Relocated 2,300' of 3" and 2,300' of 6" steel high pressure mains in the Summit County area. Driven by easement requirement.   | \$0.0            | \$3.4                  | \$0.0                         | \$3.5 | \$3.5                                      |
| CO/Grand<br>Junction/US6<br>Clifton Relocation | Relocated 2,300' of 8" high pressure steel pipeline along US Hwy 6 in Clifton, CO. Driven by Colorado Department of Transportation ("CDOT") roadway improvements.  | \$3.1            | \$0.0                  | \$0.0                         | \$0.0 | \$3.1                                      |

\* Any differences in sums due to rounding.

- 4 **Q. DOES THE COMPANY REQUEST PAYMENT OR REIMBURSEMENT FOR**  
 5 **MANDATORY RELOCATIONS FROM PARTIES WHO MAKE THE REQUEST?**  
 6 A. Based on the nature of mandatory relocations and land use agreements, there is  
 7 typically no payment or reimbursement from the mainly governmental entities who  
 8 make the relocation request. In certain circumstances, however, such as where  
 9 the Company holds the land rights for assets, reimbursement may be obtained.  
 10 The capital additions in Table ARG-D-3 above and in Attachment ARG-2 are net

1 of any reimbursements by the requesting entities, reflecting only the Company's  
2 capital investment.

3 **B. Key Mandatory Relocation Discrete Projects**

4 **Q. WHAT INFORMATION DO YOU PROVIDE IN THIS SUBSECTION OF YOUR**  
5 **TESTIMONY?**

6 A. In this subsection, I discuss in detail each of the Mandatory Relocation projects  
7 that have capital additions totaling \$3 million or higher in 2022-2023, which include  
8 the East 58th Avenue Relocation, 280 Gold Hill Relocation, and the US6 Clifton  
9 Relocation. This discussion is in addition to Attachment ARG-3, which contains  
10 additional information on each of these projects.

11 **1. East 58th Avenue Relocation**

12 **Q. WHAT IS THE EAST 58TH AVENUE RELOCATION PROJECT?**

13 A. The East 58th Avenue Main Relocation project is a mandated relocation project  
14 for an existing 16" and 12" Intermediate Pressure ("IP") gas main located on East  
15 58th Avenue between Downing Street and York Street within Adams County,  
16 Colorado. Adams County requested the relocation in approximately the third  
17 quarter of 2020, due to a newly proposed roadway grade change, road expansion,  
18 and storm water upgrade project in which the County will install new storm water  
19 pipe, irrigation drains, and a retention pond. The Company's relocation project  
20 was initiated in the fall of 2021 and was placed in service in the spring of 2022,  
21 with restoration and close-out in the summer of 2022. Additional information about  
22 this project can be found in Attachment ARG-3.



1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE EAST**  
2 **58TH AVENUE RELOCATION PROJECT.**

3 A. For this project, approximately 1,500 feet of 16” IP gas main and 2,000 feet of 12”  
4 IP gas main was relocated within the same road, but in a new alignment to  
5 accommodate the County’s changes to the road. This new alignment also avoided  
6 the existing utilities being exposed with the road grade change, as well as  
7 clearance conflicts with the new storm drains and retention pond.

8 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

9 A. This gas main is critical to the IP system and surrounding distribution systems.  
10 The Company considered alternative routes, but none were viable due to lack of  
11 roadway and therefore higher cost to install new pipeline. The Company also  
12 considered alternatives in the form of different pipeline diameters. However,  
13 capacity projections for this area indicated that while it was not necessary to upsize  
14 the pipe diameter, a smaller diameter pipe would not be sufficient to ensure reliable  
15 service. As such, pipes of the same size were installed in the new location.

16 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

17 A. After working with the County to determine the project need, the Company’s  
18 internal design team prepared an initial project scope plan to about 25 percent  
19 completion and provided it to potential engineering and design vendors with  
20 technical capability and resources available to complete the project. The Company  
21 then selected the engineering design contractor based on contractor quotes,  
22 selecting the lower cost estimate. The Company also selected a mechanical  
23 contractor with specific technical expertise on large steel distribution pipes, which

1 were somewhat unique to this project. Both vendors were also familiar with the  
2 Company and operated under Master Service Agreements (“MSAs”). Having a  
3 MSA is valuable because it means that the contractors had established, previously  
4 negotiated master service terms with the Company, enabling confidence in both  
5 the contractors’ abilities and the cost structures under which the contractor  
6 operated. The project was managed through the Company’s Stage Gate process,  
7 described earlier in my Direct Testimony.

8 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

9 A. The engineering and design contractor started with the Company’s initial scope  
10 plan and completed surveys, soil borings (including groundwater), potholing, and  
11 utility locates. During the design phase of the project, the Company worked with  
12 Adams County to design an acceptable relocation of the gas pipe while considering  
13 other entities’ identifiable utilities in the same areas. This process was complicated.  
14 For example, during the survey portion of the design process it became clear that  
15 the coordinate system used by Adams County in the planning process did not  
16 match the Company’s coordinates, and existing utilities conflicted with the  
17 proposed route; therefore, what was originally designed for construction needed  
18 adjustment to fit actual installation. The design was updated prior to kicking off  
19 construction.

20 The scope of the project remained the same throughout construction.  
21 Construction of the project was nonetheless complex due to groundwater  
22 conditions, tight utility quarters (other entities’ previously unmarked utilities), and  
23 poor soil conditions for trench installation. Specifically, groundwater was present

1 in the construction areas at six feet, requiring extensive dewatering to install new  
2 pipeline under existing utilities. Additionally, there was a large number of utility  
3 facilities, including many that were previously unmarked, which required a high  
4 number of crossings. Each crossing in turn requires additional fittings as  
5 compared to straight pipe segments, as well as more difficult installation than is  
6 typical when other utilities are not present.

7 Finally, unstable soil conditions and sand also contributed to the overall  
8 scope of the project, as they required specific protections in the form of additional  
9 excavation, shoring of trench walls, and support for existing pipes to avoid cave-  
10 ins. The project was, however, completed within the County's timelines, and the  
11 project costs reflect accommodation of the existing utilities and construction of the  
12 new line.

13 **Q. PLEASE DESCRIBE THE COSTS FOR THIS PROJECT.**

14 A. Total capital additions for this project in the Test Year are \$7.0 million. The majority  
15 of the cost associated with this project (approximately 70 percent) was related to  
16 the mechanical construction work completed by our construction vendors. In  
17 addition, project costs included materials as well as overheads consisting of  
18 material and equipment storage, purchase overheads, and Engineering &  
19 Supervision overheads (approximately 25 percent). The remaining costs included  
20 permitting, environmental, internal labor, and miscellaneous costs.

21 **Q. WERE THE TOTAL COSTS OF THIS PROJECT REASONABLE?**

22 A. Yes. The East 58th Avenue Relocation project was required by Adams County  
23 and the Company worked closely with the County to develop and plan the project.

1 The costs of the project reflect the construction challenges specific to this project,  
2 and careful project management and adaptation to new information, as discussed  
3 above. Overall, the cost for the project is reasonable in light of the work performed  
4 and the ultimate solution required by the County.

5 **2. 280 Gold Hill Relocation**

6 **Q. WHAT IS THE 280 GOLD HILL RELOCATION PROJECT?**

7 A. The 280 Gold Hill Relocation is a mandated relocation project in Summit County,  
8 Colorado that moved assets on private property at Company expense, as required  
9 by the landowner and the associated easement that dated back to 1965.<sup>16</sup> To  
10 complete this project, the Company was provided with a new easement from the  
11 current residential landowner to allow relocation of the 6” and 3” transmission  
12 pipelines within the same property, partially co-locating them with an existing 25  
13 kV electric distribution line. The Company began working with this landowner in  
14 the summer of 2021, undertook engineering in 2022, and completed construction  
15 during the fall of 2023. Additional information about this project can be found in  
16 Attachment ARG-3.

17 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

18 A. The Company was required to relocate the facilities per its easement and the  
19 transmission facility in question is critical to supply gas to the Breckenridge area,  
20 as there are no other existing gas transmission facilities to this area; therefore,  
21 alternatives were very limited. Because the landowner was required to provide

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<sup>16</sup> The original easement was held by an industrial customer, who subsequently parceled out its property to individual landowners.

1 space to relocate the facilities within their property, moving outside of said property  
2 would have required acquisition of land for a new easement, potentially involving  
3 multiple additional parties, a longer relocation, and additional permitting and  
4 easement procurements. In contrast, relocating the infrastructure on the  
5 landowner's property did not require additional ROW procurement or permitting.  
6 Service also examined multiple locations on the landowner's property, some of  
7 which would have involved more difficult construction, and worked with the  
8 landowner to identify the mutually acceptable option. In this case, that solution  
9 involved partial co-location with an existing facility.

10 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

11 A. The Company's internal design team prepared an initial project scope plan. The  
12 Company retained MSA engineering and design (including environmental)  
13 vendors that had the expertise and resources available to complete the final design  
14 plan and profile for this geographical area. This vendor provided a cost estimate  
15 for its design and engineering work. The Company selected an MSA mechanical  
16 contractor who had recently completed similar work nearby; that contractor also  
17 provided a cost estimate prior to construction.

18 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

19 A. The construction of this project largely proceeded according to initial design scope  
20 and pre-construction cost estimates. However, completion of the project was  
21 somewhat delayed due to the landowner. The project was initially planned for  
22 completion in 2022; while the Company and the landowner established relocation  
23 terms on schedule, the landowner family had significant internal (family)

1 coordination issues that delayed final execution of the agreements. Accordingly,  
2 the project was completed in 2023. This delay resulted in some inflationary cost  
3 increases, but ultimately this did not have a significant impact on final cost.

4 **Q. PLEASE DESCRIBE THE COSTS FOR THIS PROJECT.**

5 A. Total capital additions for this project are \$3.5 million. The majority of the cost  
6 associated with this project (approximately 55 percent) was related to the  
7 mechanical construction work completed by the construction vendors. In addition,  
8 project costs included materials, as well as overheads consisting of material and  
9 equipment storage and management (approximately 40 percent). The remaining  
10 costs included engineering, permitting, environmental, internal labor, and  
11 miscellaneous costs.

12 **Q. IN SUM, WHY WERE THE COSTS ASSOCIATED WITH THIS PROJECT**  
13 **REASONABLE?**

14 A. The 280 Gold Hill Relocation project was required by an easement that was more  
15 than 50 years old, and the Company worked closely with the landowner to relocate  
16 the facilities to the most cost-effective available location. The Company also  
17 closely managed the landowner relationship and the construction process and  
18 incurred only those costs necessary to complete the project.

19 **3. US6 Clifton Relocation**

20 **Q. WHAT IS THE US6 CLIFTON RELOCATION PROJECT?**

21 A. The US6 Clifton Relocation project relocated approximately 2,300 feet of existing  
22 High Pressure (“HP”) gas transmission pipeline to accommodate CDOT planned  
23 roadway improvements for US Highway 6 through Clifton, Colorado. CDOT sought

1 relocation due to its installation of two new roundabouts and updates to the road  
2 in these locations. CDOT required that all existing utilities (water, sewer, electric,  
3 gas distribution, etc.) in the road ROW be relocated. CDOT reached out to the  
4 Company to initiate the relocation in 2021, and the Company completed  
5 construction in the summer of 2022. Additional information about this project can  
6 be found in Attachment ARG-3.

7 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE US6**  
8 **CLIFTON RELOCATION PROJECT.**

9 A. This project relocated approximately 2,300 feet of existing HP transmission  
10 pipeline to accommodate the road work and relocation of other utility infrastructure.  
11 The new location is approximately 30 feet to the south of the prior alignment within  
12 the same CDOT ROW and underneath the new pavement, and provides clearance  
13 for all other relocated facilities.

14 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

15 A. As this pipeline was within the CDOT ROW, no viable location alternative existed.  
16 The surrounding area is completely developed with no reasonable relocation  
17 routes. Further, the gas transmission pipeline feeds Clifton as well as the  
18 remainder of the Grand Junction Valley to the east, and therefore is critical to the  
19 system in that area.

20 **Q. HOW DID THE COMPANY PLAN FOR THE CONSTRUCTION OF THIS**  
21 **PROJECT?**

22 A. The Company's internal design team prepared an initial project scope to about 25  
23 percent completion and received final design plans from CDOT for the remainder

1 of the existing utility relocations. CDOT designated a specific area for relocation  
2 of Public Service's gas lines. The design team used that design to avoid conflicts  
3 with existing and new utilities in the same ROW. The Company also engaged an  
4 engineering firm under an existing MSA to conduct preliminary geotechnical  
5 surveys (drilling and potholing) to determine the subsurface conditions and soil  
6 components. Based on that information, the engineering firm completed a final  
7 design plan and profile for the relocated transmission pipelines. The Company  
8 also identified in preliminary planning that the project was likely to encounter  
9 challenging soil conditions, and therefore selected an MSA mechanical contractor  
10 with specific technical expertise with respect to gas transmission pipe under these  
11 conditions.

12 During the final design process, constructability studies were conducted in  
13 coordination with the selected MSA construction contractor. Due to the  
14 combination of study results confirming significant issues with subsurface soil  
15 stability (including a mix of sand, clay, silt, and elevated water table), the Company  
16 and its subject matter experts determined that horizontal directional drilling ("HDD")  
17 was more feasible and financially prudent than open trenching. The project was  
18 managed through the Company's Stage Gate process.

19 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

20 A. The work to assess the soil conditions proved valuable, and consistent with  
21 conditions subsequently found during construction. However, CDOT's project plan  
22 changed, delaying the Company's construction initiation from fall of 2021 to the  
23 spring of 2022, while still requiring the Company to meet CDOT's overall timelines.



1 In turn, conducting construction in the spring rather than autumn meant more  
2 groundwater in the construction areas, which required additional shoring of the  
3 interim connections between HDD segments. Additional hydraulic excavation  
4 (vacuum trucks) was also necessary to remove water at the start of each day. The  
5 change in timing of construction also resulted in high traffic volumes, which  
6 required additional traffic control and barricades. These changes contributed to  
7 the final cost of the project, which was successfully completed under CDOT's  
8 required timelines.

9 **Q. PLEASE DESCRIBE THE COSTS FOR THIS PROJECT.**

10 A. Total capital additions for this project are \$3.1 million. Most of the cost associated  
11 with this project (approximately 55 percent) was related to the mechanical  
12 construction work completed by Public Service's construction vendors. In addition,  
13 project costs included materials, as well as overheads consisting of material and  
14 equipment storage and management (approximately 30 percent). The remaining  
15 costs included engineering, permitting, environmental, internal labor, and  
16 miscellaneous costs.

17 **Q. WHY WERE THE TOTAL COSTS OF THIS PROJECT REASONABLE?**

18 A. The US6 Clifton Relocation project was required by CDOT to accommodate  
19 CDOT's roadway improvements and new roundabout. CDOT largely dictated  
20 completion dates for Public Service's work. The Company's initial planning was  
21 aligned with the information available, and the Company was able to adjust its  
22 plans to meet CDOT timelines even after CDOT's project plan changed. The

1 project was carefully managed, constructed, and implemented as cost-effectively  
2 as possible.

3 **C. Routine Mandatory Relocations**

4 **Q. WHAT ARE ROUTINE MANDATORY RELOCATIONS?**

5 A. Routine relocation projects are mandated to meet federal, state, or local  
6 requirements or contractual obligations with landowners, and are typically less  
7 than \$300,000. As with discrete mandatory relocation projects, this includes, but  
8 is not limited to, relocating and renewing pipelines that are in direct conflict with  
9 street expansions, water and sewer infrastructure replacements, or bridge  
10 replacements, within public rights-of-way, and safety-related work required by a  
11 governing authority.

12 **Q. CAN YOU PROVIDE MORE INFORMATION REGARDING THE KINDS OF**  
13 **PROJECTS COVERED BY MANDATORY RELOCATION ROUTINES FROM**  
14 **THE 2021 HTY THROUGH THE 2023 TEST YEAR?**

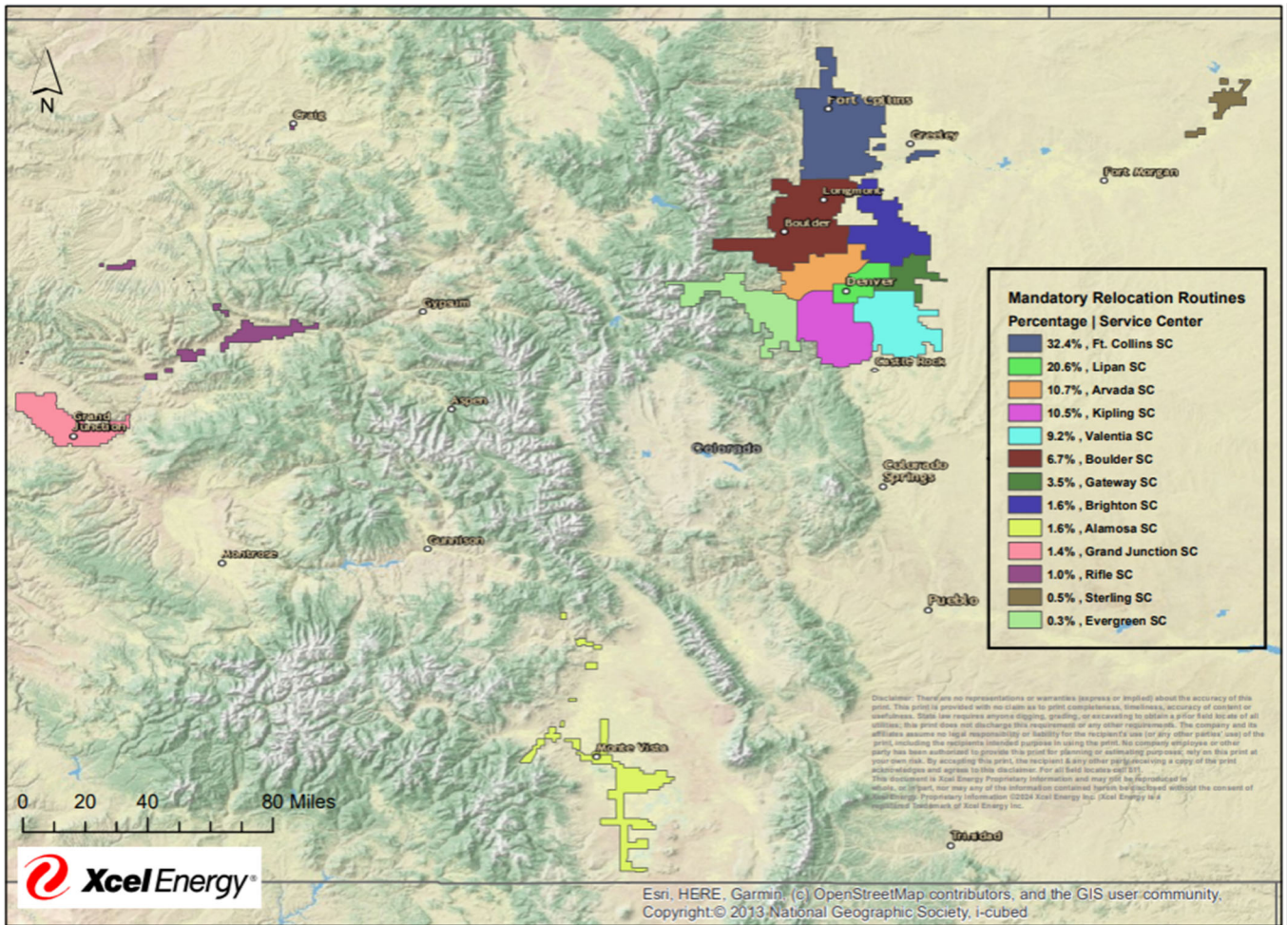
15 A. Yes. Generally, the types of relocation routines that are under \$300,000 are similar  
16 to the discrete projects described in Attachment ARG-2, but typically have smaller  
17 scopes. Since 2021, the Company has executed over 380 such projects under the  
18 Mandatory Relocations routine category, for \$23.8 million in capital additions.

19 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL ABOUT WHERE THIS ROUTINE**  
20 **MANDATORY RELOCATION WORK IS BEING CONDUCTED ON THE**  
21 **COMPANY'S SYSTEM?**

22 A. Yes. Figure ARG-D-4 below shows the actual and forecasted mandatory  
23 relocation routines capital expenditures for the period 2022-2023 by geographical

1 area, broken down by service center. Because the operational planning and  
2 management of capital projects is based on spend, rather than the ratemaking  
3 view of capital additions, this capital expenditure information will not precisely  
4 match in-service amounts. However, it provides additional insight into the location  
5 of the routine capital investments on our system during this timeframe, and  
6 illustrates how they are distributed throughout the Company's service territory.

7 **Figure ARG-D-4**  
8 **Routine Mandatory Relocations 2022-2023**  
9 **Percentage of Capital Expenditures by Service Center**



1 **Q. WHY IS THIS LEVEL OF ROUTINE INVESTMENT IN MANDATORY**  
2 **RELOCATIONS REASONABLE?**

3 A. As discussed earlier in this section of my Direct Testimony, these relocations are  
4 dictated by governmental entities and existing contracts, giving the Company little  
5 or no discretion to complete the underlying work – whether the resulting projects  
6 are large or small. However, Public Service carefully plans and carries out this  
7 work, as illustrated by the discussion above. Further, Figure ARG-D-4 illustrates  
8 that the Company carries out this work across its service territory, with the specific  
9 nature of the work dictated by specific needs of the local entity. Customers  
10 ultimately benefit from having utility infrastructure that is well-coordinated with local  
11 government needs, and from safe relocations that make planning and progress  
12 possible at the state, county, and local levels.

1 **IV. NEW BUSINESS**

2 **A. Overview of New Business Work**

3 **Q. PLEASE DESCRIBE WHAT TYPE OF PROJECTS FALL WITHIN THE NEW**  
4 **BUSINESS CAPITAL CATEGORY.**

5 A. The new business capital category includes utility investment needed to provide  
6 gas service to new customers, or to customers requiring new gas service. As  
7 explained below, the majority of new business work consists of smaller, or routine  
8 projects, such as installation of a new service or short new main extension. New  
9 business projects are driven by customers and outside entities such as developers.

10 **Q. HOW DOES PUBLIC SERVICE RECEIVE REQUESTS FOR NEW BUSINESS?**

11 A. As noted earlier in my Direct Testimony, Public Service receives requests from  
12 individuals and developers for new gas service through the Company's Builder's  
13 Call Line. The Builder's Call Line is the customer's first point of contact when  
14 requesting new gas and electric service from the Company and is intended to be  
15 a single call department to simplify the customer's experience.

16 **Q. WHAT IS PUBLIC SERVICE'S OBLIGATION UPON RECEIPT OF REQUESTS**  
17 **FOR SERVICE FROM NEW CUSTOMERS WITHIN THE COMPANY'S SERVICE**  
18 **TERRITORY?**

19 A. Consistent with its obligation to serve, the Company must serve any new customer  
20 that requests gas service within its service territory. This includes not only laying  
21 the service line and setting the meter to a customer's facility, but also the gas main  
22 to which the service line connects. We note, however, that the Commissions' GIP  
23 Rules contemplate that we consider NPAs in the context of larger New Business

1 projects, which the ISP organization is incorporating into our processes.  
2 Nevertheless, the obligation to serve is triggered when the customer submits the  
3 new business request. The Company has multiple voluntary offerings, as well as  
4 federal, state, or other local incentives, which can be presented to the customer to  
5 reduce or possibly eliminate the request for gas service, but these offerings are  
6 voluntary, and adoption by the customer is outside the control of the Company.

7 **Q. HOW DO CUSTOMERS CONTRIBUTE TO THE COST OF NEW BUSINESS**  
8 **GAS EXTENSIONS?**

9 A. Generally, at the time of the new business projects in this case, the customer funds  
10 the portion of the job, less any applicable credits or construction allowance  
11 provided under the then-effective tariff. Under the policy effective at the time of  
12 the new business requests in this case, the applicable policy typically provided a  
13 construction allowance for new mains and services, and associated infrastructure.  
14 Other infrastructure that serves broader customer areas or overall system needs,  
15 like regulator stations, are the cost responsibility of the Company. Depending on  
16 how customer contributions come into the Company, they may be applied directly  
17 to the project or captured separately. Either way, all customers get the benefit of  
18 customer contributions towards these projects.

19 **Q. IS COLORADO'S LINE EXTENSION POLICY EVOLVING?**

20 A. Yes. As noted earlier in my Direct Testimony, State of Colorado policies and  
21 Commission directives are impacting the availability of construction allowances to  
22 our customers. For example, and while not my area of responsibility, it is my  
23 understanding that Section 40-3.2-104.3 C.R.S. requires the Company to have

1 filed with the Commission, on or before December 31, 2023, an updated tariff to  
 2 reflect the removal of any incentives for an applicant to establish gas service to a  
 3 property, while permitting certain applicants to be exempted from such new tariff  
 4 requirements through December 31, 2024. The Company’s filing in this regard,  
 5 among other things, requires new customers to pay 100 percent of the gas meter,  
 6 meter piping, meter regulator, and materials necessary to facilitate installation of  
 7 the gas meter from the end of a service lateral extension to customer-owned  
 8 equipment.<sup>17</sup> Additionally, Off-Site Distribution Main Extension credits are no  
 9 longer available.<sup>18</sup>

10 **Q. WHAT ARE THE 2022 AND 2023 NEW BUSINESS PLANT ADDITIONS?**

11 A. Table ARG-D-4 below summarizes the discrete and routine new business plant  
 12 additions for 2022 and 2023.

13 **Table ARG-D-4**  
 14 **Gas Operations New Business Capital Additions**  
 15 **Routines vs. Discrete Projects\* (\$ millions)**

| New Business | 2022<br>(Actual) | 2023                   |                            |                | Total<br>Additions<br>Since 2021<br>Test Year |
|--------------|------------------|------------------------|----------------------------|----------------|---|
|              |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total          |   |
| Routines     | \$96.7           | \$78.0                 | \$28.9                     | \$106.9        | \$203.6                                       |
| Discrete     | \$15.7           | \$11.2                 | \$7.7                      | \$18.9         | \$34.5  |
| <b>Total</b> | <b>\$112.3</b>   | <b>\$89.2</b>          | <b>\$36.6</b>              | <b>\$125.8</b> | <b>\$238.1</b>                                |

*\*Any differences in sums due to rounding*

<sup>17</sup> It is my understand that as of the date of my Direct Testimony, this filing is pending before the Commission in Proceeding No.

<sup>18</sup> COLO PUC. No. 6 Gas Tariff at Sheet No. R86.

1 **Q. PLEASE DESCRIBE THE PLANT ADDITIONS FOR DISCRETE NEW**  
 2 **BUSINESS PROJECTS FOR THE PERIOD 2022 - 2023.**

3 A. The Company implemented \$34.5 million for discrete New Business plant  
 4 additions for the period 2022-2023. Total New Business costs reflect both costs  
 5 and application of customer contributions. Table ARG-D-5 below identifies and  
 6 provides an overview description of projects totaling \$3 million or more in capital  
 7 additions in the Test Year, which are then described in more detail in this section  
 8 of my testimony. I am also providing Attachment ARG-4 to my Direct Testimony,  
 9 which walks through high-level descriptions of the many smaller discrete projects  
 10 in the New Business category.

11 **Table ARG-D-5**  
 12 **New Business Discrete Plant Additions - \$3 Million or Higher\***  
 13 **January 1, 2022 to December 31, 2023\*\* (\$ millions)**

| Project Name               | Description   | 2022<br>(Actual) | 2023                   |                            |       | Total<br>Additions<br>Since 2021<br>Test Year |
|----------------------------|---|------------------|------------------------|----------------------------|-------|---|
|                            |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total |   |
| Canyons<br>Development     | Install 1.1 miles of 6" high pressure pipeline and new high pressure to pounds medium regulator station in Castle Pines, CO. Driven by customer request to serve new Canyons development. | \$5.1            | \$0.0                  | \$0.0                      | \$0.0 | \$5.1   |
| Coal Creek Canyon<br>Pines | Install new regulator station, reinforce 3,000' of 3" IP main with 6" IP main, and install 23,465 feet of medium PE main. Driven by customer request to serve new subdivision.            | \$1.3            | \$3.0                  | \$0.0                      | \$3.0 | \$4.3   |

\* I discuss the application of customer contributions to these projects below.

\*\* Any differences in sums due to rounding.



1           **B.     Key New Business Discrete Projects**

2           **Q.     WHAT INFORMATION DO YOU PROVIDE IN THIS SUBSECTION OF YOUR**  
3           **TESTIMONY?**

4           A.     In this subsection, I discuss in detail each of the New Business projects that have  
5           capital additions totaling \$3 million or higher in 2022-2023, which include the  
6           Canyons Development project and the Coal Creek Canyon Pines project.  
7           Attachment ARG-5 contains additional information on each of these projects.

8                       **1.     Canyons Development**

9           **Q.     WHAT IS THE CANYONS DEVELOPMENT PROJECT?**

10          A.     The Canyons Development is a new development east of Castle Pines, Colorado,  
11          which will contain approximately 1,500 multi-family homes, 2.1 million sq. ft. of  
12          commercial space, 250 townhome units, and a fitness center within Public  
13          Service’s service territory.<sup>19</sup> The Company’s Canyons Development project was  
14          designed to bring sufficient gas into the subdivision to provide service to these  
15          customers. The initial build out of the development included 325 apartment units  
16          and a fitness center expected to be connected to the system by the 2023 – 2024  
17          heating season. Additional information about this project can be found in  
18          Attachment ARG-5.

19          **Q.     PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE**  
20          **CANYONS DEVELOPMENT PROJECT.**

21          A.     The Canyons Development project included installation of approximately 1.1 miles  
22          of 6” HP pipeline, to which the customer contribution would apply, and installation

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<sup>19</sup> A portion of the Canyons Development is in Black Hills’ service territory as well. The information provided here is for the portion within the Public Service gas service territory.

1 of a new high pressure-to-pounds medium regulator station F-976. A regulator  
2 station is a facility that works to ensure proper gas flow and pressure for end-use  
3 customers – increasing gas flow when demand is high in order to maintain  
4 adequate pressures and decreasing the flow when demand is low. Prior to this  
5 project, there was not a regulator station within four square miles. Project design  
6 occurred in 2020, and construction has been completed, with the project placed in  
7 service in the summer of 2022.

8 **Q. PLEASE DESCRIBE HOW THE PLANNING FOR THIS PROJECT**  
9 **PROCEEDED.**

10 A. In 2017, the Company received the request for this project from an applicant  
11 through its Builders Call Line. The Company then involved designers, who worked  
12 with the customer, gas capacity planning team and area gas engineering to  
13 determine what new infrastructure or reinforcements were needed to support the  
14 development. Due to the Company having no existing IP and distribution  
15 infrastructure in the project area, it was determined that a new gas main extension  
16 and regulator station was required. The new infrastructure was thus sized in order  
17 to serve the Design Day peak hour gas demand that was requested by the  
18 Customer at full build out and planned to be placed in service by the 2022 – 2023  
19 heating season to accommodate the initial build out. Based on a study funded by  
20 the customer, the Company prepared cost estimates. The project plan was  
21 approved in 2020, and then proceeded to construction.

1 **Q. WHAT ALTERNATIVES TO THE CANYONS DEVELOPMENT PROJECT DID**  
2 **THE COMPANY CONSIDER?**

3 A. Alternatives to the project were evaluated including engineering, route surveys,  
4 and geotechnical aspects for numerous pipeline routes before selecting the final  
5 route. The final route selected was economical, would meet the customers'  
6 timeline, and minimized the impact to existing and future developments.

7 **Q. HOW did construction of this project proceed?**

8 A. The construction of this project largely proceeded according to initial scope.  
9 However, completion of the project was somewhat delayed due to the developer  
10 not being ready for gas service. Therefore, the project was initially planned for  
11 completion in 2021 but was completed in 2022. This delay resulted in some  
12 inflationary cost increases, but ultimately this did not have a significant impact on  
13 final cost.

14 **Q. WHAT WERE THE FINAL COSTS OF THIS PROJECT?**

15 A. The Company incurred approximately \$5.1 million in capital additions. Of this  
16 amount, the customer contributed approximately \$2.3 million to the HP portion, or  
17 just over 50 percent of the total cost of the HP portion, which was approximately  
18 \$4.5 million in capital additions. The remaining capital additions were primarily  
19 associated with the regulator station. The majority of the cost associated with all  
20 of the components of this project (approximately 50 percent) was related to the  
21 mechanical construction work completed by our construction vendors. In addition,  
22 project costs included materials, as well as overheads consisting of material and  
23 equipment storage and management (approximately 30 percent). The remaining

1 costs included engineering, permitting, environmental, internal labor, and  
2 miscellaneous costs. The project is now in-service and feeding gas to the new  
3 development.

4 **Q. WERE THE TOTAL COSTS OF THIS PROJECT REASONABLE?**

5 A. Yes. The customer paid for a significant portion of the HP line, and the project was  
6 cost-effectively planned. The Company completed the necessary infrastructure to  
7 serve the new development and surrounding areas, while navigating the  
8 developer's timing to receive gas service and the impacts of an inflationary  
9 environment.

10 **2. Coal Creek Canyon Pines**

11 **Q. WHAT IS THE COAL CREEK CANYON PINES PROJECT?**

12 A. The Coal Creek Canyon Pines development is a large new residential  
13 development located at the edge of Boulder and Arvada, Colorado. Construction  
14 of the development itself began late in 2022 and is currently ongoing, with 90 lots  
15 expected to be developed at full build-out. The developer's initial timeline indicated  
16 full build-out would be completed in the summer of 2023. The Company's Coal  
17 Creek Canyon Pines new business project was designed to bring sufficient gas  
18 into this development to serve these new customers. Additional information about  
19 this project can be found in Attachment ARG-5.

20 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE COAL**  
21 **CREEK CANYON PINES PROJECT.**

22 A. A main reinforcement of approximately 3,000 feet (off-site portion) was required to  
23 reinforce the existing upstream 3" IP steel main with new 6" steel main.

1        Additionally, 23,465 feet of medium density polyethylene (“PE”) main was installed  
2        to provide service to the future residential lots. The customer’s contributions were  
3        attributed to the foregoing work. A new regulator station was connected to the  
4        existing 3” IP steel main to reduce pressure. Project construction has been  
5        completed.

6        **Q. PLEASE DESCRIBE HOW THE PLANNING, CONSTRUCTION, AND**  
7        **MANAGEMENT FOR THIS PROJECT PROCEEDED.**

8        A. In 2021, the Company received the request for this project from an applicant  
9        through its Builders Call Line. As noted above, the development included the build  
10       out of 90 new custom single-family homes. The developer also identified a  
11       relatively quick timeline, particularly for a project involving a new regulator station,  
12       of roughly one year from the start of construction. The Company then involved  
13       designers, who work with the gas capacity planning team and gas area  
14       engineering to determine what new infrastructure or reinforcements are needed to  
15       support the development. Through the hydraulic gas model, the Company  
16       determined that with the Design Day peak hour gas load requested by the  
17       Customer, the existing IP and distribution system would fall below minimum  
18       system pressures in order to reliably serve the existing and new customers.  
19       Specifically, the existing 3” IP piping was not adequately sized to serve additional  
20       load and therefore the tail-end pressure to regulator station F-506 would drop  
21       below the minimum required inlet pressure, placing existing customers at risk of  
22       outage. Therefore, a pipeline reinforcement would be required to support the  
23       development.

1 **Q. WHAT ALTERNATIVES DID THE COMPANY CONSIDER?**

2 A. Public Service explored several different alternative designs to meet the needs of  
3 the new development, including a 4" pipe reinforcement with greater footage, or  
4 rebuilding an existing regulator station and extending lower pressure main to the  
5 site of the new development with a reinforcement on the existing pounds medium  
6 system. Public Service selected this project as the least cost and least footage  
7 option to serve customers in the area.

8 **Q. HOW DID THE COMPANY PROCEED WITH CONSTRUCTION PLANNING**  
9 **AFTER INITIAL CAPACITY PLANNING AND SCOPING?**

10 A. The Company then prepared cost estimates for the reinforcement based on  
11 mechanical vendor units from our MSAs, and the estimate for the PE main was  
12 based on historical costs of similar projects and expected cost per foot, including  
13 contingencies and subject to degrees of accuracy tied to the Stage Gate process.  
14 Customer contributions in aid of construction were also factored into the project  
15 estimate, based on construction allowances under the existing tariffs. The project  
16 plan was approved for construction in the summer of 2021. The off-site portion  
17 was completed in 2022, and the regulator station and on-site portion were  
18 completed in 2023.

19 **Q. PLEASE DISCUSS ANY UNIQUE ATTRIBUTES OF THE CONSTRUCTION OF**  
20 **THIS PROJECT.**

21 A. The Company proceeded with construction under the same scope of work and  
22 timeline originally planned, as described above, to meet the developers'  
23 requirements. We nonetheless encountered challenging construction conditions.

1 The Company used trenching as the main reinforcement installation method,  
2 based on rocky soil (due to the location of the development in the foothills) that  
3 would have made drilling difficult. HDD was necessary in portions, due to the  
4 existence of the creek in the area where trenching was not possible. However, the  
5 floodplain evaluation from FEMA<sup>20</sup> had not fully disclosed the extent of the  
6 floodplain (and therefore the extent of drilling). After field work began, HDD drilling  
7 under a creek at the edge of the scope on the west side of the project area revealed  
8 further rocky conditions that also required drilling. Ultimately floodplain permitting  
9 was extensive, encountered long lead times, and overlapped with construction.

10 The Company also could not store equipment on the ROW after hours due  
11 to CDOT requirements, and found it difficult to get permission to store equipment  
12 nearby due to the amount of protected land designated by the county. Public  
13 Service therefore had to store equipment offsite and bring it back and forth to the  
14 site each day, contributing to project costs.

15 Further, the developer implemented design changes for the road inlet into  
16 the foothills in early 2023, affecting the roadway location and grade. As a result,  
17 the inlet design for the new regulator station from the existing main also had to be  
18 fully redesigned and drilled to accommodate the road location and in light of  
19 applicable permitting restrictions.

20 Finally, although the Company met its obligations to complete the new main  
21 and regulator station development, the developer did not meet its communicated

---

<sup>20</sup> "FEMA" refers to the Federal Emergency Management Agency.

1 timelines for developing the associated lots. As a result, there was insufficient load  
2 on the newly installed piping to maintain odorization of the gas. The Company is  
3 required by PHMSA code to odorize natural gas delivered to customers and had  
4 to re-odorize regularly (typically every three months). This re-odorization also  
5 contributed to project costs.

6 **Q. WHAT WAS THE FINAL CAPITAL COST OF THIS PROJECT?**

7 A. The Company incurred approximately \$4.3 million in capital additions. This  
8 amount is net of the approximately \$1 million of customer contribution for the  
9 pipeline portions mentioned above, and the regulator station capital additions were  
10 approximately \$1.2 million. The majority of the net cost associated with this project  
11 was related to the mechanical construction work completed by our construction  
12 vendors (two under a distribution gas MSA, one under the Company's high  
13 pressure MSA, and an approved vendor for the odorization). In addition, project  
14 costs included materials, as well as overheads consisting of material and  
15 equipment storage and management. The remaining costs included engineering,  
16 permitting, environmental, internal labor, and miscellaneous costs.

17 **Q. WERE THE TOTAL COSTS OF THIS PROJECT REASONABLE?**

18 A. Yes, the Company met the customer's needs on the project, and carefully  
19 managed the work and emerging conditions as they became known. The final  
20 costs of the project were consistent with the ultimate scope of necessary work and  
21 timelines affecting customer planning.

22 **C. Routine New Business Investments**



1 **Q. WHAT ARE NEW BUSINESS ROUTINES?**

2 A. Routine New Business projects are generally those implemented to connect new  
3 customers, and are simpler in nature than large discrete projects. They tend to  
4 reflect individually small capital investments, like a new service or short new main  
5 extension, and are typically less than \$300,000.

6 **Q. CAN YOU PROVIDE MORE DETAIL REGARDING THE KINDS OF PROJECTS  
7 COVERED BY NEW BUSINESS ROUTINES SINCE THE 2021 HTY?**

8 A. Yes. New business routines involve the purchase of new meters and service  
9 regulators and the installation of new distribution mains and services. Generally,  
10 the types of new business routines that are under \$300,000 are similar to the  
11 discrete projects described in Attachment ARG-4, but typically have smaller  
12 scopes. Since 2021, and through September 30, 2023, the New Business routines  
13 include over 29,000 new service installations and approximately 1,600 new main  
14 installation projects. Table ARG-D-6 below shows the plant additions by type to  
15 support new customer additions, net of customer contributions.

1 **Table ARG-D-6**  
 2 **New Business Routines Plant Additions**  
 3 **January 1, 2022 to December 31, 2023\*** (\$ millions)

| Routine Description                             | 2022<br>(Actual) | 2023                   |                            |                | Total<br>Additions<br>Since 2021<br>Test Year |
|---|------------------|------------------------|----------------------------|----------------|---|
|   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total          |   |
| New Meter and Regulator Purchases               | \$31.4           | \$27.9                 | \$15.4                     | \$43.4         | \$74.8  |
| New Service Additions                           | \$36.2           | \$31.5                 | \$8.1                      | \$39.6         | \$75.8  |
| New Main Additions                              | \$30.1           | \$24.6                 | \$6.2                      | \$30.8         | \$60.9  |
| Additional Customer Contributions <sup>21</sup> | (\$2.5)          | (\$7.7)                | (\$1.1)                    | (\$8.8)        | (\$11.3)                                      |
| ROW and Other <sup>22</sup>                     | \$1.4            | \$1.6                  | \$0.2                      | \$1.8          | \$3.3   |
| <b>Routines Total</b>                           | <b>\$96.7</b>    | <b>\$78.0</b>          | <b>\$28.9</b>              | <b>\$106.9</b> | <b>\$203.6</b>                                |

\* Any differences in sums due to rounding.

4 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL ABOUT WHERE THIS ROUTINE**  
 5 **NEW BUSINESS WORK IS BEING CONDUCTED ON THE COMPANY'S**  
 6 **SYSTEM?**

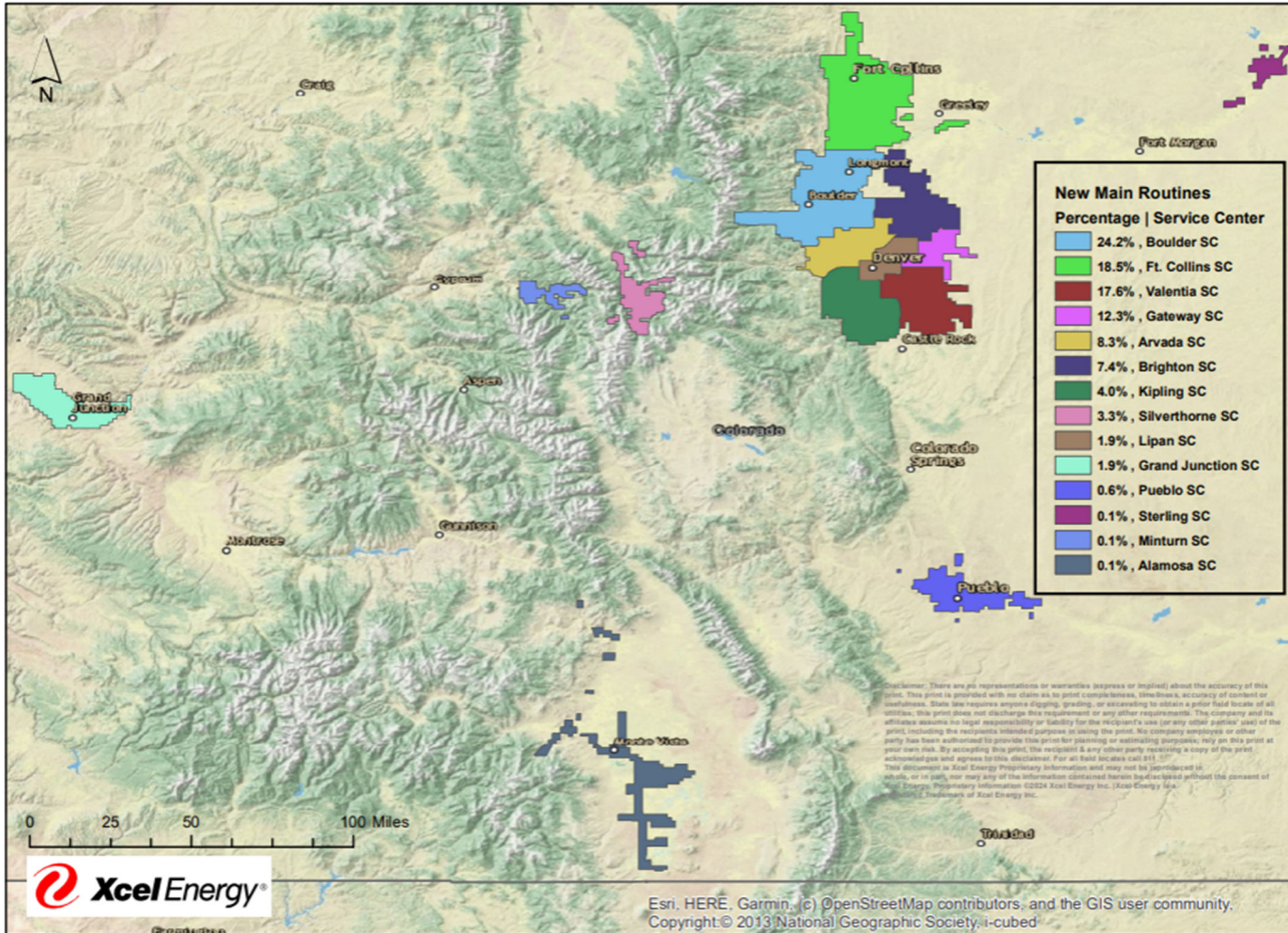
7 A. Yes. Figures ARG-D-5 and ARG-D-6 illustrate the actual and forecasted new  
 8 business routines capital expenditures for the period 2022-2023 by geographical  
 9 area, broken down by service center. Work related to new mains routines and new  
 10 services routines are illustrated separately. As discussed earlier in my testimony,  
 11 the capital expenditures for this type of work are not exactly the same as the capital  
 12 addition amounts, because expenditures are incurred before plant is placed in  
 13 service, but the capital expenditure data provides additional insight into the location  
 14 of the routine capital investment work on our system.

<sup>21</sup> Reflects customer contributions not accounted for within individual projects.

<sup>22</sup> This includes acquisition of ROW and other miscellaneous costs.

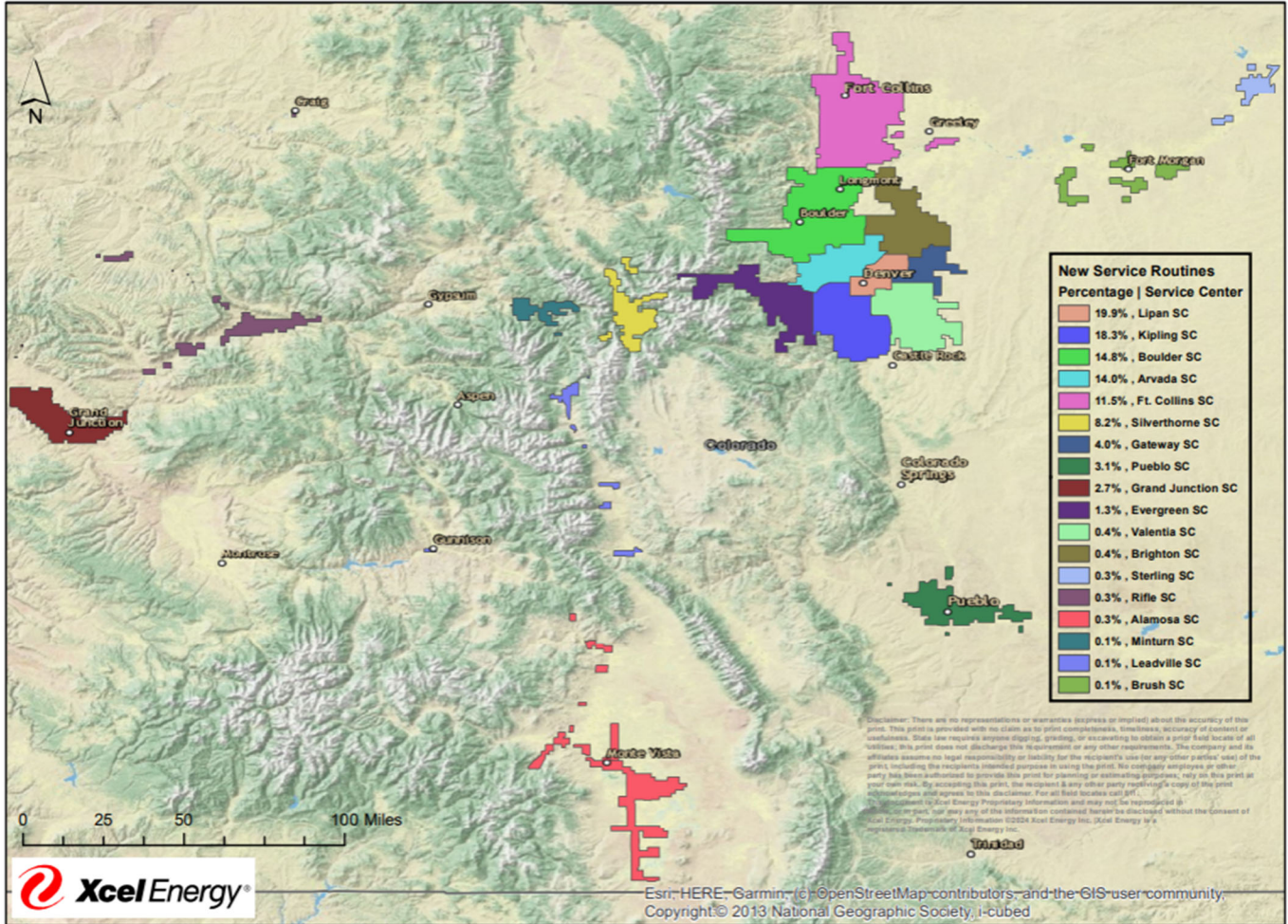
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**Figure ARG-D-5**  
**Routine New Business Mains 2022-2023**  
**Percentage of Capital Expenditures by Service Center**



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**Figure ARG-D-6**  
**Routine New Business Services 2022-2023**  
**Percentage of Capital Expenditures by Service Center**



4 **Q. WHAT DO YOU CONCLUDE REGARDING THE COMPANY'S NEW BUSINESS**  
 5 **INVESTMENTS DURING THIS TIME?**

6 **A.** As discussed earlier in this section of my Direct Testimony, New Business work is  
 7 driven by customer growth and customers' requests for new service. The discrete  
 8 projects in the 2023 Test Year are largely the result of past planning, and costs  
 9 reflect both the work necessary to complete these customer connections as offset  
 10 by the applicable CIAC requirements at the time. Public Service carefully plans

1 and carries out this work, as illustrated by the discussion above. Further, Figures  
2 ARG-D-5 and ARG-D-6 illustrate that the Company carries out this work across its  
3 service territory, with the specific locations driven by customers themselves and  
4 the Company's obligation to serve customers who seek natural gas service.

1 **V. CAPACITY EXPANSION**

2 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT TESTIMONY?**

3 A. In this section of my Direct Testimony, I provide information on the Company's  
4 capacity expansion projects since the 2021 HTY. As noted earlier in my Direct  
5 Testimony, capacity expansion projects include both individual projects and sets  
6 of inter-related facilities needed to maintain system reliability and meet a specified  
7 capacity expansion need, including for new customers or facilities that are not  
8 otherwise new business projects, or for reliability and growth related to existing  
9 customers.

10 To provide some framework for this project type, which represents roughly  
11 13 percent of the capital additions for Gas Operations in this case, I begin by  
12 providing a summary of our approach to capacity and reliability planning, which is  
13 now conducted by ISP rather than Gas Operations. I then support the capital  
14 associated with capacity expansion projects since the 2021 HTY, including a  
15 discussion of several larger discrete projects in the 2023 Test Year. I also provide  
16 support for the routine work Public Service undertakes in this category in order to  
17 manage the smaller, localized capacity constraints and outage risks.

18 **A. Public Service's Capacity Planning**

19 **Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR DIRECT TESTIMONY?**

20 A. In this section of my Direct Testimony, I provide a high-level overview of the  
21 Company's planning process for capacity expansion projects as conducted by the  
22 separate ISP organization. While considering NPAs to the larger investments in  
23 this category is the focus of ISP, as discussed by Mr. Martz, the majority of the

1 capacity expansion projects in the Test Year were not subjected to this evolving  
2 process, as noted earlier.

3 **Q. PLEASE SUMMARIZE HOW THE COMPANY DETERMINES THE NEED FOR A**  
4 **SPECIFIC GAS CAPACITY EXPANSION PROJECT.**

5 A. Our customers need reliable service. Customers depend upon natural gas to heat  
6 their homes and water, cook their meals, dry their clothes, and support commercial  
7 and industrial activities within the state. Consistent with our obligation to serve,  
8 Public Service must stand ready to provide our customers with safe and reliable  
9 natural gas service. In order to do so, Public Service must adequately maintain,  
10 renew, and operate its pipelines, compressor stations, regulator stations, meters,  
11 and every other aspect of the system. When our assets are no longer adequate to  
12 reliably and safely serve existing and/or new customers, the Company may  
13 replace, reinforce, rebuild, or expand the affected portions of our system to ensure  
14 our customers have the service they need.

15 The Company's gas system is therefore modeled and designed to ensure  
16 reliable service can be provided to firm gas customers under "Design Day"  
17 conditions, when demands on our system are the greatest.<sup>23</sup> At a high level,  
18 identification of a "capacity expansion" project, regardless of whether it is for the

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<sup>23</sup> Design Day is determined based on the concept of a peak-day, which refers to a probabilistic occurrence of a temperature occurring over a given heating season. While I understand that the concept of Design Day is being discussed in the context of the GIP and follow-on proceedings, for current purposes the Company has established its Design Day temperature based on a 1-in-30 year cold weather event occurring within an associated weather zone. That is to say, Design Day is based on the coldest temperature we would expect to see once every 30 years. That does not mean that we *will* see that temperature exactly once every 30 years; rather, it means that based on historical weather temperature data, there is a 1-in-30 probability of experiencing a Design Day temperature in any given heating season.

1 Company's high pressure/intermediate systems<sup>24</sup> or the Company's distribution  
2 systems,<sup>25</sup> results from a review of any changes to the gas systems' infrastructure,  
3 changes in customer consumption patterns, forecasted growth on the system, and  
4 other factors. Specifically, Public Service uses an industry standard hydraulic  
5 modelling software called Synergi® Gas (from DNV GL) to model its gas systems.  
6 Each year, ISP calibrates the hydraulic models with system operating data from  
7 the previous heating season to confirm whether the gas system is continuing to  
8 meet our system-specific Design Day specifications.

9 Through these annual efforts, the Company can identify, and scope  
10 proposed system reinforcements and capacity needs to maintain system reliability  
11 for firm service customers under Design Day conditions. For firm gas service  
12 customers, if system modeling determines that there will be insufficient pressures  
13 on any portion of the Company's gas system under Design Day conditions, then  
14 the Company will evaluate feasible and economical mitigative solutions to  
15 remediate the capacity constraint for that specific area. The results of this  
16 modeling process also help the Company operate the entire system during the  
17 upcoming heating season.

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<sup>24</sup> Generally, intermediate and high-pressure systems are greater than 60 pounds per square inch gauge ("PSIG") MAOP.

<sup>25</sup> Generally, distribution systems are 60 PSIG or less.



1 **B. Overview of Capacity Expansion Work**

2 **Q. PLEASE PROVIDE AN OVERVIEW OF PUBLIC SERVICE’S CAPACITY**  
 3 **EXPANSION CAPITAL ADDITIONS SINCE THE 2021 HTY.**

4 A. Table ARG-D-7 below identifies the capacity expansion plant additions for 2022  
 5 and 2023 broken down between discrete and routine projects.

6 **Table ARG-D-7**  
 7 **Gas Operations Capacity Expansion Capital Additions**  
 8 **Routines vs. Discrete Projects\*** (\$ millions)

| Capacity Expansion | 2022<br>(Actual) | 2023                   |                            |               | Total<br>Additions<br>Since 2021<br>Test Year |
|--------------------|------------------|------------------------|----------------------------|---------------|---|
|                    |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total         |   |
| Routines           | \$11.8           | \$20.9                 | \$5.8                      | \$26.7        | \$38.5  |
| Discrete           | \$22.5           | \$32.0                 | \$34.5                     | \$66.5        | \$89.1  |
| <b>Total</b>       | <b>\$34.3</b>    | <b>\$52.9</b>          | <b>\$40.3</b>              | <b>\$93.2</b> | <b>\$127.6</b>                                |

\* Any differences in sums due to rounding.

9 **Q. PLEASE DESCRIBE THE PLANT ADDITIONS FOR DISCRETE CAPACITY**  
 10 **EXPANSION PROJECTS FOR THE PERIOD 2022-2023.**

11 A. The Company implemented \$89.1 million in discrete capacity expansion plant  
 12 additions for the period 2022-2023. Table ARG-D-8 below identifies and provides  
 13 an overview description of projects totaling \$3 million or more in capital additions  
 14 in the Test Year, which are then described in more detail in this section of my  
 15 testimony. I also provide Attachment ARG-6 to my Direct Testimony, which walks  
 16 through high-level descriptions of the many smaller discrete projects in the  
 17 Capacity Expansion category.

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**Table ARG-D-8**  
**Discrete Capacity Plant Additions - \$3 Million and Higher**  
**January 1, 2022 to December 31, 2023\* (\$ millions)**

| Project Name                      | Description  | 2022<br>(Actual) | 2023                   |                            |        | Total<br>Additions<br>Since<br>2021 Test<br>Year |
|-----------------------------------|--|------------------|------------------------|----------------------------|--------|--|
|                                   |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total  |  |
| Questar<br>Supply                 | Install new source of supply for Rifle-Avon Pipeline (serving De Beque, Battlement Mesa, Parachute, Rifle, Silt, New Castle, Edwards, Avon, Vail, and Minturn) including a new gas compressor facility, gas quality monitoring, and upstream facilities near Rifle, CO. Driven by need for additional upstream supply for Rifle-Avon pipeline and to replace existing obsolete gas compression facilities. | \$0.0            | \$19.1                 | \$0.8                      | \$19.9 | \$19.9   |
| West Metro<br>Reinforcement       | Install new regulator station, 8,500' of 12" IP steel main and 9,550' of 6" and 8" PE in Denver, CO. Driven by need reinforce Highlands and Boosting distribution systems near Sheridan and Colfax due to load growth. Conducted pursuant to a CPCN.   | \$0.0            | \$0.0                  | \$16.5                     | \$16.5 | \$16.5   |
| Rampart<br>Range<br>Reinforcement | Reinforce 16,307' of 6" Steel IP main with 8" steel IP and high pressure steel main in Littleton, CO. Driven by need to add additional capacity due to load growth.  | \$10.5           | \$3.8                  | \$0.1                      | \$3.9  | \$14.4   |

| Project Name                  | Description   | 2022<br>(Actual) | 2023                   |                            |        | Total<br>Additions<br>Since<br>2021 Test<br>Year |
|-------------------------------|---|------------------|------------------------|----------------------------|--------|--|
|                               |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total  |  |
| Winter Park Tie               | Install 6,864' of 6" steel high pressure pipeline and 1,400 4" steel and rebuild and relocate other facilities in Winter Park, CO. Driven by need to reinforce the existing 2" steel high pressure pipeline serving Winter Park and Fraser. | \$5.1            | \$2.5                  | \$0.4                      | \$2.9  | \$8.0  |
| Del Norte Compressor Stations | Install second gas compressor driver, cooler, and controls at the Del Norte Compressor Station near Del Norte, CO. Driven by need to provide additional reliability to supplement existing, obsolete compressor unit.                       | \$0.0            | \$0.0                  | \$11.7                     | \$11.7 | \$11.7   |
| CO/DMR/F-972/GD               | Reinforce F-755 and F-675 systems with installation of new regulating station F-972 and installation of 3,500' of 6" PE main in Parker, CO. Driven by need to reduce outage risk due to existing stations not having sufficient capacity.   | \$3.4            | \$0.0                  | \$0.0                      | \$0.0  | \$3.4  |

\* Any differences in sums due to rounding.

1           **C.     Key Discrete Capacity Projects**

2           **Q.     WHAT INFORMATION DO YOU PROVIDE IN THIS SUBSECTION OF YOUR**  
 3           **TESTIMONY?**

4           A.     In this subsection, I provide high-level information on each of the Capacity  
 5           Expansion projects that have capital additions totaling \$3 million or higher in 2022-  
 6           2023, which include the Questar Supply, West Metro Reinforcement, Rampart  
 7           Range Reinforcement, Winter Park Tie, Del Norte Compressor Station, and F-972

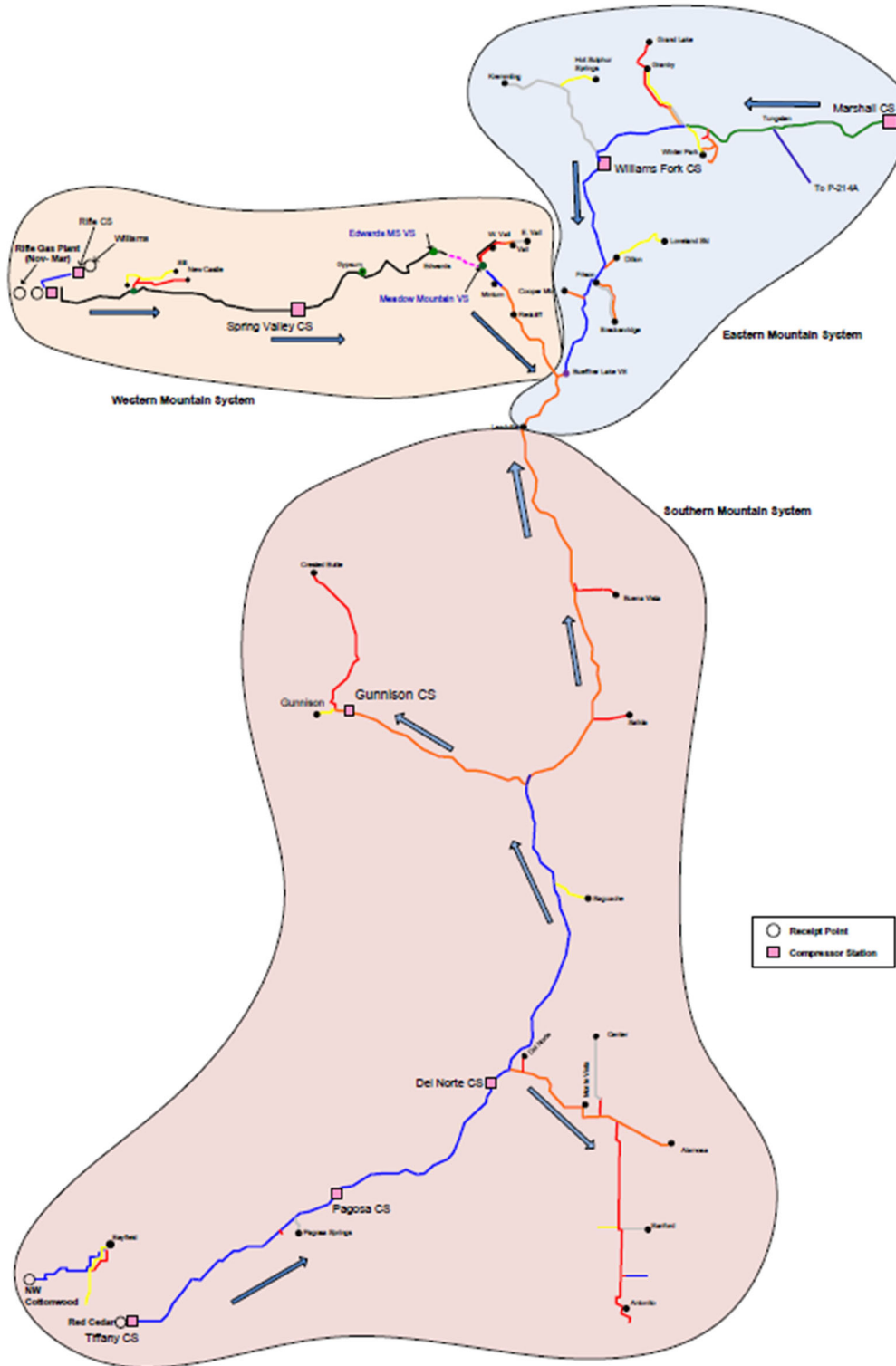
1 Regulator Station projects. Attachment ARG-7 contains additional information on  
2 each of these projects.

3 **1. Questar Supply**  
4 **Q. FOR CONTEXT, PLEASE BEGIN BY DESCRIBING THE BROADER**  
5 **MOUNTAIN SYSTEM.**

6 A. The Company's Mountain System, which is composed, generally, of the Western,  
7 Eastern, and Southern Mountain Systems, provides natural gas service to  
8 approximately 65,000 customers. The available system capacity of the Mountain  
9 System is limited due to the size of the available transmission pipelines as well as  
10 available supply from the three supply points, Rifle, Tiffany, and Marshall. On  
11 Design Day, each one of the three supply points serves as the primary supply for  
12 a different portion of the Mountain System: Tiffany is the primary supply point for  
13 the Southern Mountain System spanning from Durango to Leadville. Marshall is  
14 the primary supply point for the Eastern Mountain System, spanning from Boulder  
15 to Leadville. Lastly, Rifle is the primary supply point for the Western Mountain  
16 System spanning from De Beque, Colorado through the Vail Valley via the Rifle-  
17 to-Avon pipeline. A limited amount of the Rifle supply is provided through an  
18 interconnection to the eastern portion of the Mountain System. Figure ARG-D-7  
19 below provides a visual overview of the Mountain System.

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**Figure ARG-D-7  
Overview of Mountain System**



1           Within the Rifle supply point, gas supply is received from Colorado  
2 Interstate Gas at Rifle, Colorado Interstate Gas at Corral Gulch located north of  
3 Rifle, and from the Rifle Gas Plant. The Rifle Gas Plant ensures that any gas  
4 supply not meeting gas quality standards is treated prior to introduction into the  
5 Rifle-to-Avon pipeline.

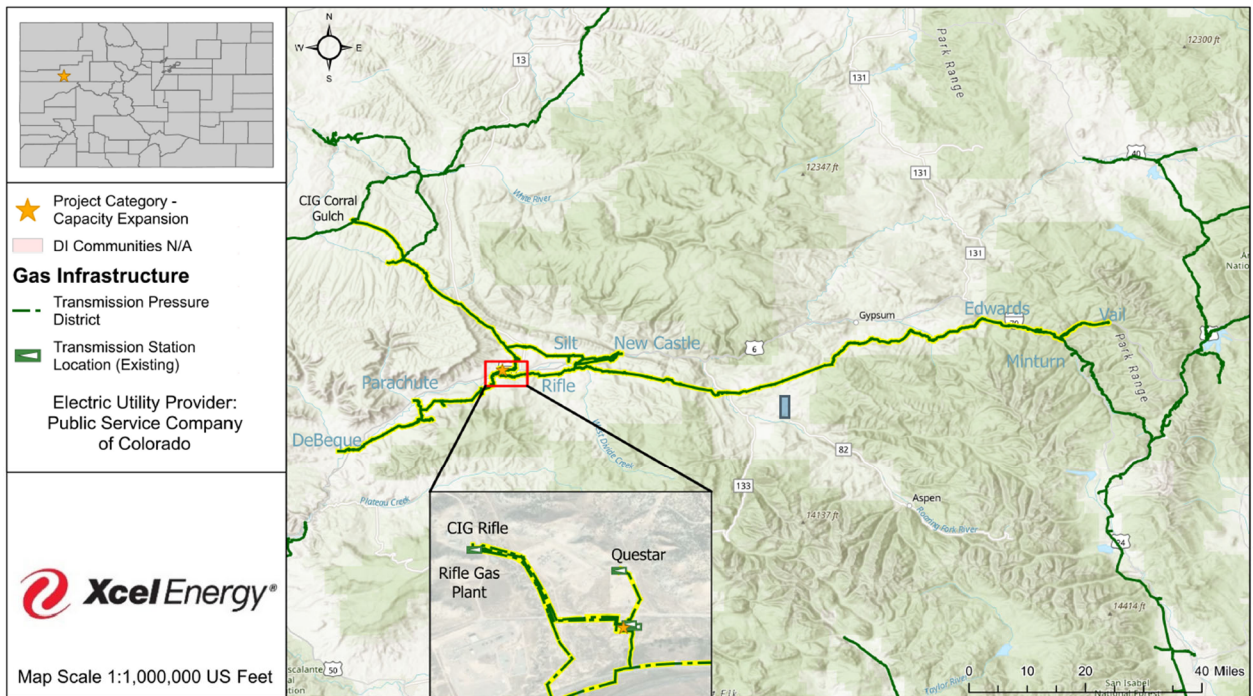
6           These facilities are an essential backbone of our system, needed to provide  
7 natural gas service to approximately 19,000 firm customers along the Rifle-to-Avon  
8 pipeline in De Beque, Battlement Mesa, Parachute, Rifle, Silt, New Castle,  
9 Edwards, Avon, Vail, and Minturn. Loss of pressure at any point on this system  
10 can impact service to these customers and those beyond these communities, due  
11 to reduced supply through the interconnection to the Eastern Mountain System.

12 **Q. WHAT IS THE QUESTAR SUPPLY PROJECT?**

13 A. The Questar Supply project is a capacity expansion project that enables delivery  
14 of new gas supply from the Dominion Energy Questar (“Questar”) pipeline to the  
15 Company’s facilities in Rifle, Colorado and replaces a compressor at the end of its  
16 life to increase reliability of the compressor station upstream of the Rifle-to-Avon  
17 pipeline. Additional supply was needed in order to meet the Company’s Design  
18 Day peak hour gas demand for the Rifle-to-Avon pipeline. At a high level, the  
19 project includes interconnection with the Questar pipeline, replacement and  
20 modernization of the existing compressor facility installed in the 1970s (e.g.,  
21 compressor unit, piping, building, control system, and other components), and  
22 modifications to allow for pipeline quality gas to bypass the Rifle Gas Plant.

1 Attachment ARG-7 to my Direct Testimony provides additional project information,  
2 and Figure ARG-D-8 below shows a map of the project location.

3 **Figure ARG-D-8**  
4 **Questar Supply Project Location**



5 **Q. HOW DID THE COMPANY IDENTIFY THE NEED FOR THIS PROJECT?**

6 A. In 2018, the Company first identified the need for this project through its annual  
7 long-term gas modeling and planning process described above. The project was  
8 driven by forecasted peak demand growth that would otherwise exceed the  
9 available Western Mountain system supply by the 2022-2023 heating season,  
10 causing the project area to drop below minimum system design criteria required to  
11 maintain reliable service to firm service customers. Specifically, hydraulic system  
12 modeling was performed utilizing a 1-in-30 year Design Day probability occurrence  
13 with a Design Day temperature of -33 degrees Fahrenheit, as well as a 1.2 percent

1 average annual peak hour demand growth increase that was forecasted at the time  
2 in the project area.

3 **Q. WHAT IS THE RISK OF NOT MEETING THE IDENTIFIED CAPACITY NEED?**

4 A. The hydraulic model showed insufficient inlet pressures in the Vail Valley that  
5 would impact service reliability to firm service customers by the 2022-2023 heating  
6 season, beginning at -16 degrees Fahrenheit as compared to a Design Day  
7 temperature of -33 degrees Fahrenheit. Insufficient inlet pressures at critical  
8 facilities, such as regulator stations, can impact the station's ability to hold its  
9 setpoint, which will impact the normal operation of the facility and reduce delivery  
10 pressures to customer meters that can result in customer loss. In short, without  
11 additional supply into the Western Mountain System, the Rifle-to-Avon pipeline  
12 serving the Western Mountain System was at risk of not being able to provide  
13 reliable gas supply.

14 **Q. HAS CUSTOMER GROWTH SINCE 2018 VALIDATED THE NEED FOR THE**  
15 **QUESTAR SUPPLY PROJECT?**

16 A. Yes. Since 2018, the Mountain System has experienced higher growth rates  
17 compared to the overall Public Service gas territory, specifically in Summit, Grand,  
18 Eagle, and Lake counties, served in part by the Rifle-to-Avon pipeline. Thus, the  
19 Company revalidated the project need in the spring of 2023 for the current heating  
20 season model (2023-2024 Design Day model). This model indicated that without  
21 the Questar Supply project, the system would only be able to serve a low  
22 temperature of -15 degrees Fahrenheit (once per year probabilistic occurrence)  
23 and have an approximate supply shortfall of 14,000 Dth/day on Design Day, thus



1 putting approximately 4,200 equivalent firm customers (of the total 19,000 firm  
2 customers) at risk of outage.

3 **Q. WHAT GAS SUPPLY ALTERNATIVES TO THE QUESTAR PROJECT DID THE**  
4 **COMPANY CONSIDER?**

5 A. The Company evaluated various options for providing the necessary supply for this  
6 area. The Company evaluated the installation of 15 miles of new pipeline from  
7 Battlement Mesa to Rifle and 30 miles of new pipeline from De Beque to Rifle.

8 **Q. WHY DID THE COMPANY NOT SELECT ANY OF THE OTHER ALTERNATIVE**  
9 **PIPELINE OPTIONS?**

10 A. Installing the 15 miles of pipeline from Battlement Mesa to Rifle or the 30 miles of  
11 pipeline from De Beque to Rifle were estimated to be significantly more expensive  
12 than the 1,000 feet of interconnection pipeline length needed to connect to the  
13 Questar pipeline. Additionally, installing pipeline of that length would have required  
14 years of additional time and new ROW to complete, as well as additional  
15 construction complexity related to the varied terrain, which would result in more  
16 construction and cost risk.

17 **Q. WHAT ALTERNATIVES DID THE COMPANY CONSIDER TO REPLACE THE**  
18 **AGING COMPRESSOR AT THE RIFLE COMPRESSOR STATION?**

19 A. The Company evaluated various options to address the aging compressor at the  
20 Rifle Compressor Station. Alternatives considered included overhaul (versus  
21 replacement) of the existing compressor unit within the existing compressor facility,  
22 or the replacement of the existing compressor with a new unit combined with the  
23 replacement of the surrounding compressor facility.

1 **Q. CAN YOU PROVIDE ADDITIONAL INFORMATION ON WHY AN OVERHAUL**  
2 **OF THE EXISTING COMPRESSOR WAS NOT A VIABLE OPTION?**

3 A. The existing compressor was installed in the 1970s, was not built to current  
4 environmental standards, and faced unknown continued availability of parts. In  
5 addition, significant modifications to the existing compressor would have been  
6 necessary to adapt it to align with compression needs for the Questar Interconnect.  
7 Finally, the Company found a new unit provided increased reliability and a longer  
8 usable life. As a result, the Company determined that installation of a new unit  
9 was the preferred option.

10 **Q. WHY DID THE COMPANY DETERMINE THAT THE SURROUNDING**  
11 **COMPRESSOR FACILITY NEEDED TO BE REPLACED?**

12 A. Like the compressor itself, the existing compressor station was built in the 1970s  
13 and required change to align with current operating standards and practices. The  
14 reconstruction of the surrounding compressor station building, yard piping,  
15 regulators, and measurement equipment brought the compressor station up to  
16 current operating standards, positioned the station to reliably function many years  
17 into the future, and provides the option for further reliability and resiliency  
18 enhancements through the space for a future additional compressor installation.

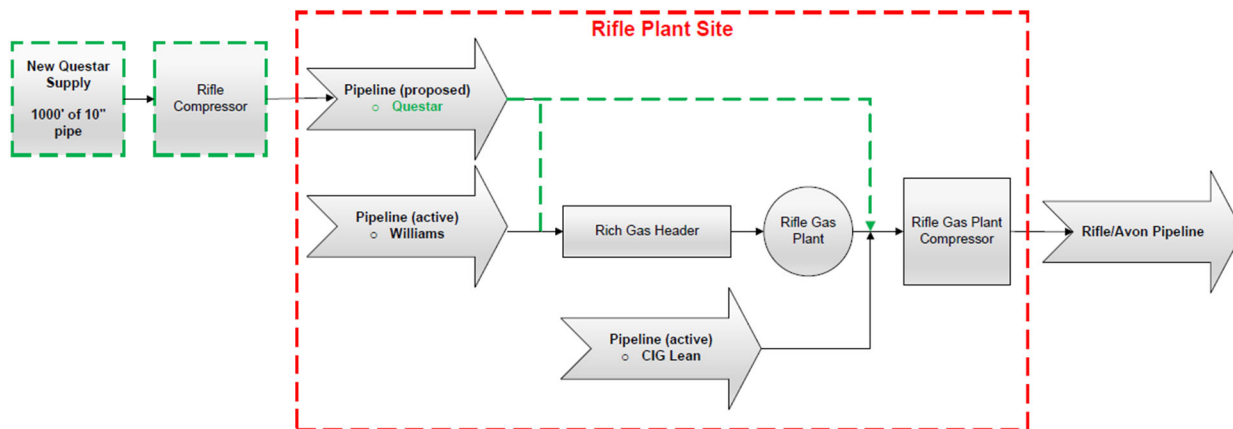
19 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL REGARDING THE WORK**  
20 **ULTIMATELY INVOLVED IN THE QUESTAR SUPPLY PROJECT?**

21 A. Yes. This project included replacement and enhancement of the existing  
22 compressor facility installed in the 1970s (e.g., compressor unit, piping, building,  
23 control system, and other components). This project also included modifications

1 to the gas quality and control skid at the Rifle Gas Plant to allow for automated  
2 monitoring and direction of the gas received. This modification allows the gas  
3 received to be directed to the gas plant if needed or to bypass the plant to direct  
4 gas to the Rifle-to-Avon pipeline, depending on the content and quality of the gas  
5 received and requirements for the Company's supply. The Company also installed  
6 metering equipment on the Company's side to monitor the gas supply volume  
7 delivered. The Questar Supply project included reimbursement to Questar for  
8 construction of approximately 1,000 feet of new pipeline and metering skid for  
9 interconnection from the Questar pipeline to the Rifle compressor facility. Figure  
10 ARG-D-9 shows a one-line diagram of the various gas supply sources at the Rifle  
11 Compressor Station and Rifle Gas Plant. The lines in green show the new Questar  
12 supply and connection points to the existing system.

13  
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**Figure ARG-D-9**  
**One-Line Diagram – Rifle Gas Supply Sources**



1 **Q. HOW DID THE COMPANY GO ABOUT PLANNING FOR THE DESIGN AND**  
2 **CONSTRUCTION OF THIS PROJECT?**

3 A. This project went through the Company's Stage Gate process. The project was  
4 kicked off in the first quarter of 2020 and proceeded through the Company's  
5 internal stakeholder alignment process. The Company approved funding for the  
6 project in the first quarter of 2021. A feasibility study was then completed in the  
7 second quarter of 2021, with the scope of the project including refurbishment of  
8 the existing compressor facility. However, during the fourth quarter of 2021, the  
9 Company evaluated a new scope and design that included installation of a new  
10 compressor facility. The Company determined that installation of a new  
11 compressor facility was the preferred option based on reliability considerations as  
12 described above. The new compressor facility project scope was approved in  
13 February 2022.

14 Based on the project scope including the new compressor facility, the  
15 Company issued a Request for Proposal ("RFP") for the mechanical contractor.  
16 Bids were received in June/July 2022 from two vendors, each of which was an  
17 MSA-approved vendor. The Company selected the least-cost vendor. The  
18 Company also engaged an electrical contractor and a permitting contractor, both  
19 working under pre-established MSAs. Project construction was initially planned to  
20 begin in the summer of 2022, with in-servicing expected to be completed by  
21 December 2022.

22 In June 2022, Xcel Energy implemented new security requirements for the  
23 Company to help ensure the safety and security of its assets following a period of

1 increased threats to utility gas and electric infrastructure. These additional  
2 protections of facilities, which in turn protect the safety of customers and the public  
3 and the reliability of service, were added to the project scope and planning process  
4 at that time. The fencing and security additions added to the project scope, which  
5 were added to the contract work of the selected mechanical contractor.

6 **Q. WHAT WERE THE STAGES OF THE CONSTRUCTION OF THIS PROJECT?**

7 A. The Questar Supply project construction stages are described below.

- 8 • **Site Demolition** (July 2022-September 2022). The Company completed  
9 demolition of the entire compressor facility site. During demolition, asbestos  
10 was found. Due to the special licensing requirements for asbestos  
11 abatement, this required additional contractor services to remove the  
12 asbestos, which added time and cost to the project.
- 13 • **Permitting** (March 2022-December 2022). The project required demolition,  
14 special use, grading, and building permits, with building permits having to  
15 go through both the state and county approval processes. Some delays in  
16 permitting delayed construction commencement to the fall of 2022, which  
17 pushed the construction timeframe into a difficult weather season.
- 18 • **Construction of Compressor Station** (October 2022-August 2023). The  
19 Company completed primary construction of the compressor station  
20 between October 2022 and March 2023. This work encompassed project  
21 scope changes identified during both the planning and construction phases,  
22 including enterprise security fencing requirements, supply line cleanout to  
23 the Rifle Gas Plant, additional foundation work, and re-design of the

1 compressor station yard piping. Each of the scope changes identified  
2 during project construction is discussed further below. The Company then  
3 paused construction from April 2023 to June 2023, allowing the soil to dry,  
4 during which surveys were conducted to ensure no settling had occurred.  
5 During this period, the Company also conducted compaction testing of the  
6 soil. The Company then moved to the commissioning process in July 2023  
7 to be ready for the 2023-2024 heating season. The Company also had to  
8 work through gas supply delays (described below) with Questar, putting the  
9 facility in-service as of August 2023, with some programming and  
10 restoration work to follow.

- 11 • **Interconnection Pipeline** (October 2022-February 2023). Questar built a  
12 1,000-foot line and new meter station to supply Public Service. The initial  
13 completion date was planned for December of 2022, but completion was  
14 delayed due to the same circumstances the Company was experiencing  
15 (permitting delays and weather delays during the winter construction  
16 period). The Questar interconnection pipeline was completed in February  
17 2023.
- 18 • **Modifications to Controls to the Rifle Gas Plant** (December 2022-July  
19 2023). The Company modified controls to the Rifle Gas Plant to allow for  
20 automated monitoring and direction of the gas received, allowing for  
21 pipeline quality gas to bypass the Rifle Gas Plant. The Company modified  
22 the controls in December 2022, and completed this work in summer of 2023  
23 along with completion of the compressor station.

1 **Q. PLEASE ELABORATE ON CIRCUMSTANCES THAT AFFECTED THE**  
2 **CONSTRUCTION TIMELINE FOR THIS PROJECT.**

3 A. Project construction was completed later than initially planned for several reasons,  
4 including permitting delays, weather delays, global supply chain issues (impacting,  
5 among other things, the delivery of materials), and scope changes identified during  
6 project construction. Permitting delays were the result of the state and county  
7 building permit approval processes, under which the county does not issue a  
8 building permit until the state issues its permit. As a result of staff shortages on  
9 the state side, building permits were delayed, which delayed construction to begin  
10 in the fall rather than in the summer as originally planned. Weather then played a  
11 role as construction moved to the more difficult winter construction season. In  
12 addition, worldwide supply chain limitations during the timeframe of this project  
13 further delayed access to key materials.

14 **Q. WERE THERE CHANGES TO THE ASSESSED PROJECT NEED DURING**  
15 **DEVELOPMENT OF THE PROJECT?**

16 A. Yes, during development of the project and prior to the start of construction the  
17 Company determined, based on the annual calibration of the hydraulic model, that  
18 the Rifle-to-Avon pipeline had an immediate supply constraint rather than a  
19 constraint that was forecasted to begin in the 2022-2023 heating season. As a  
20 result, there was added urgency to put the new Questar supply in service in  
21 advance of the 2022-2023 heating season.

1 **Q. DID QUESTAR (THE ENTITY) ALSO FACE CONSTRUCTION DELAYS?**

2 A. Yes, Questar also faced delays in permitting and construction that resulted in a  
3 two-month delay and increased costs in completing their 1,000-foot line and new  
4 meter station.

5 **Q. PLEASE DESCRIBE THE WORK INVOLVED IN THE SUPPLY LINE  
6 CLEANOUT TO THE RIFLE GAS PLANT.**

7 A. The existing supply line from the Rifle compressor station to the Rifle Gas Plant  
8 was cleaned out during the compressor station construction phase in late 2022.  
9 This work involved the use of mechanical devices such as scrapers or pigs to  
10 remove debris from the pipeline walls. While the focus of the Questar Supply  
11 project was on the compressor station itself, not the supply line, the Company  
12 ultimately determined it was prudent to add the supply line cleaning to the overall  
13 project scope to ensure reliable and safe delivery of gas to the Rifle Gas Plant.

14 **Q. PLEASE DESCRIBE THE ADDITIONAL FOUNDATION WORK.**

15 A. Since the original infrastructure compressor station was built in the 1970s, the  
16 foundations were likewise based on 1970s era standards for foundation stability.  
17 When excavating for construction after demolition of the site, the Company  
18 identified previously unknown wet spots, which required additional geotechnical  
19 solutions to ensure safe foundations for the compressor station facilities.  
20 Specifically, the Company added further stability to the block for the compressor,  
21 in the form of constructing 11 helical piers set 50 feet into the ground, to ensure  
22 the foundation would not settle following construction. Other alternatives  
23 evaluated included pouring concrete foundations, but the cost was anticipated to



1 be roughly three to four times the cost of installing the helical piers, while providing  
2 the same level of stability.

3 **Q. PLEASE DESCRIBE THE ADDITIONAL YARD PIPING WORK.**

4 A. During construction of the compressor facility, as portions of the yard piping were  
5 completed, the operational team evaluated the progress in the field. Upon  
6 reviewing the construction progress in the field, the team determined that certain  
7 pipe run elevations and configurations did not provide adequate access and exits  
8 for personnel who would be working in the area once the compressor station was  
9 operational. To further ensure the safety of the field team, the Company revised  
10 design plans and implemented change orders to implement the revised design.

11 **Q. WERE THERE ALSO TIME CONSTRAINTS ON THE COMPLETION OF THIS**  
12 **PROJECT?**

13 A. Yes. The permitting issues discussed above delayed the start of construction on  
14 the compressor station and therefore compressed the construction timeframe to  
15 resolve the anticipated supply shortfalls. It was necessary to complete this project  
16 prior to the 2022-2023 heating season to avoid the risk of potential customer  
17 outages during a peak day. Given the delay in construction and the critical need  
18 to ensure the additional supply would be available for the 2022-2023 heating  
19 season, it was necessary to complete the project under an accelerated timeline  
20 beginning in the fall of 2022. This acceleration resulted in additional construction  
21 costs, as construction activities included night shifts and a seven-day work week  
22 that required over-time pay.

1 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

2 A. Total capital additions for this project for 2022 and 2023 are \$19.9 million as shown  
3 in Table ARG-D-8 above. These costs (on a capital expenditure basis) are  
4 directionally set forth by category in Table ARG-D-9 below.

5 **Table ARG-D-9**  
6 **Questar Supply Project Costs\***

| Cost Category                      | Expenditures  |
|------------------------------------|---------------|
| Mechanical                         | \$7.4         |
| Engineering                        | \$2.6         |
| Materials                          | \$3.2         |
| Permitting & Environmental         | \$0.0         |
| Inspection                         | \$0.7         |
| Overheads                          | \$2.4         |
| Work From Others (Paid to Questar) | \$2.4         |
| Internal Labor, AFUDC, Other       | \$1.2         |
| <b>Total</b>                       | <b>\$19.9</b> |

\* Any differences in sums due to rounding

7 **Q. PLEASE DESCRIBE THESE COSTS.**

8 A. A high-level overview of what is included in the project cost components is  
9 provided below.

- 10
- 11 • **Mechanical:** The cost of the prime mechanical and electrical  
12 contractors responsible for compressor station construction  
and the electrical contractor responsible for facility operations.
  - 13 • **Engineering:** The cost of the prime engineering firm  
14 responsible for compressor station design.
  - 15 • **Materials:** The cost for the pipeline, fittings, compressor,  
16 buildings, remote telemetry control, and security fencing.
  - 17 • **Permitting & Environmental:** All consultant services and  
18 required State and County permitting applications.

- 1           • **Inspection:** The cost of construction management and  
2           pipeline inspection services to ensure construction is  
3           performed in accordance with industry and Company  
4           standards.
  
- 5           • **Overheads:** Allocated costs associated with engineering and  
6           supervision related to project construction, administrative and  
7           general related to administrative support, purchase  
8           overheads related to outside services, and warehouse  
9           overheads for material purchases.
  
- 10          • **Work from Others:** The cost for the work Questar performed  
11          to extend their pipeline 1,000 feet and interconnect with the  
12          Company's system.
  
- 13          • **Internal Labor:** The cost of internal company labor who  
14          worked on the project.

15 **Q. ARE THE COSTS FOR THE QUESTAR SUPPLY PROJECT REASONABLE?**

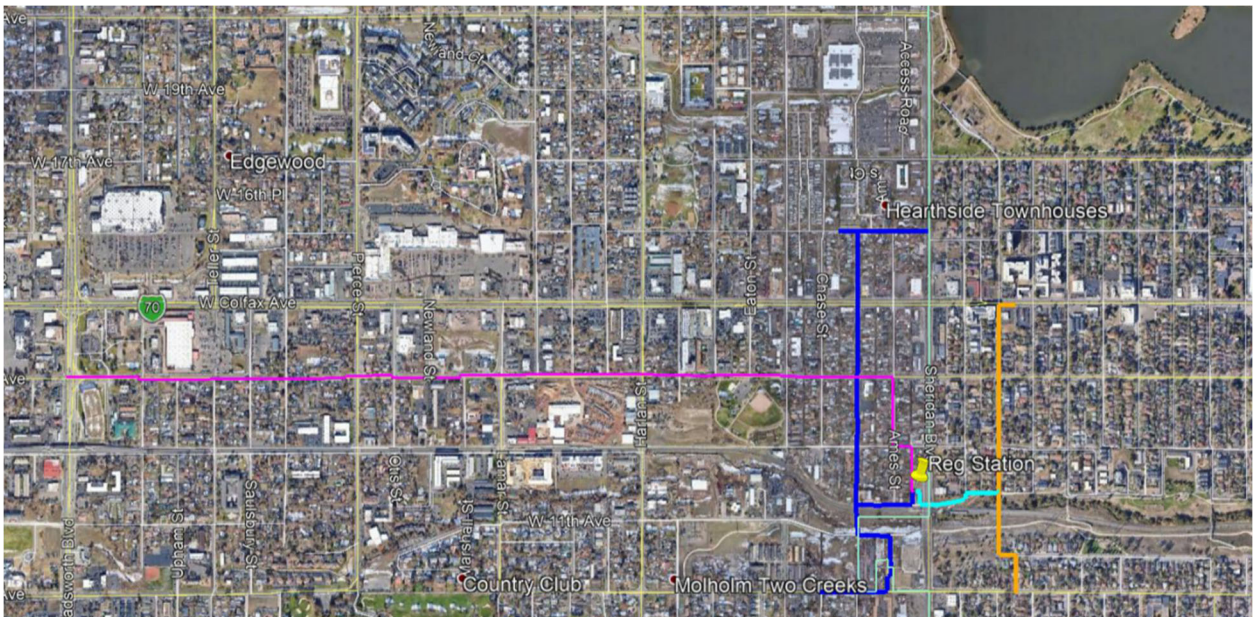
16 A. Yes. The Company completed a significant and critically-needed supply upgrade  
17 to the Western Mountain System under challenging construction conditions, while  
18 navigating an inflationary environment with supply chain constraints, and while  
19 under significant time constraints to complete the project. As demonstrated by  
20 recent hydraulic modeling, the added supply from the Questar project has allowed  
21 the Company to be able to serve firm gas customers within the Western Mountain  
22 System on Design Day.

23           **2. West Metro Reinforcement (IP Pipe and Regulator Station)**  
24 **Q. WHAT IS THE WEST METRO REINFORCEMENT PROJECT?**

25 A. The West Metro Reinforcement project is a gas capacity reinforcement project  
26 located to the west and south of Sloan's Lake in the cities of Lakewood, Edgewater,  
27 and Denver. This project was needed to provide additional capacity to address a  
28 capacity shortfall in a targeted geographic portion of the Highlands and Pounds

1 Low distribution systems (the Project Area). Specifically, the project increases the  
2 capacity for both systems by installing approximately 8,500 feet of new 12" IP pipe,  
3 a new regulator station, and distribution pipelines capable of carrying higher  
4 volumes of gas from the new regulator station into the systems to serve customers.  
5 Figure ARG-D-10 below illustrates the overall project location, as originally  
6 proposed. For the IP Pipeline and Regulator Station capital additions included in  
7 this case, the routing has not changed, with the exception of a minor adjustment  
8 to the IP Pipeline routing on the west end, which I explain later.<sup>26</sup>

9 **Figure ARG-D-10**  
10 **West Metro Reinforcement Project Map**



11 Attachment ARG-7 to my Direct Testimony provides additional project information.

<sup>26</sup> See Attachment ARG-7 for the minor re-route of the IP pipeline. While not at issue in this case, the routing for the in-progress distribution portion was required to be adjusted, as mentioned later in this section.

1 **Q. DID THE COMPANY OBTAIN A CPCN FOR THIS PROJECT?**

2 A. Yes, the Company did. The Commission granted a CPCN for this project on  
3 August 4, 2022.<sup>27</sup> The ALJ's recommended decision concluded that: "the public  
4 convenience and necessity requires the Project, as it will ensure reliable and  
5 adequate gas service so that Coloradans impacted by the Project may heat their  
6 homes and businesses when conditions approach or are at Design Day  
7 temperatures. In short, Coloradans must be able to heat their homes and  
8 businesses during the transition to a clean heat future."<sup>28</sup> By Decision No. C22-  
9 0780, the Commission denied all exceptions to the ALJ's recommended  
10 decision.<sup>29</sup> Thus, the need determination for this project has already been made.

11 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE**  
12 **APPROVED WEST METRO REINFORCEMENT PROJECT.**

13 A. At a very high level, the project is increasing the capacity for both of the Highlands  
14 and Pounds Low Systems by introducing a new gas source central to both  
15 distribution systems. The new supply source consists of a new 12" IP line, which  
16 connects into the Pounds Low and Highlands Systems through a new regulator  
17 station. The project also requires installation of larger distribution mains to move  
18 the gas from the regulator station into the systems. This consists of approximately  
19 5,600 feet of 8" PE pipe in the Pounds Low System as well as approximately 3,000  
20 feet of 6" and 950 feet of 8" PE pipe in the Highlands System. Additionally, service  
21 renewals (where needed due to the condition of the service) or tie-overs are

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<sup>27</sup> Proceeding No. 21A-0472G, Decision No. R22-0457, 72 (mailed August 4, 2022).

<sup>28</sup> Decision No. R22-0457 at ¶ 1.

<sup>29</sup> Proceeding No. 21A-0472G, Decision No. C22-0780, 34 (mailed December 6, 2022).

1 completed for customers along the extent of the new distribution mains since the  
2 old mains will be abandoned in place. Finally, customer service laterals along the  
3 new distribution mains are renewed or air tested and tied over depending on their  
4 material and vintage.

5 **Q. WHAT PORTION OF THE WEST METRO PROJECT IS COMPLETED AND**  
6 **PLACED IN SERVICE AS PART OF THE CAPITAL ADDITIONS IN THIS CASE?**

7 A. In 2023, the Company placed in service all of the 12" IP main (the purple line on  
8 Figure ARG-D-10 above), plus the regulator station. The scope of work outlined  
9 in the CPCN for these portions of the overall project did not materially change. The  
10 distribution portion of the project remains to be completed and placed in service,  
11 although work has been underway in 2023 and has encountered some permitting  
12 challenges. The Company anticipates the distribution work will ultimately be  
13 completed in time for the 2024-2025 heating season.

14 **Q. WHAT WAS THE COST ESTIMATE FOR THE PROJECT?**

15 A. The Company developed a project cost estimate of \$27.15 million in the CPCN,  
16 which was based on capital expenditures with risk mitigation contingency and  
17 therefore excluded items like escalation to account for likely inflation by the time  
18 the project was constructed, and AFUDC, with estimate accuracy of +/- 20 percent  
19 consistent with the Company's American Association of Cost Engineers Stage  
20 Gate process.

1 **Q. WHAT WERE THE FINAL COSTS FOR THE COMPLETED PORTIONS OF THE**  
 2 **WEST METRO PROJECT?**

3 A. A breakdown of the costs for the completed portions of the project is contained in  
 4 Table ARG-D-10 below, comparing the CPCN estimates for the IP Pipeline and  
 5 Regulator Station to final costs. The capital additions in this case are \$16.5 million  
 6 for this work, while the CPCN Estimate dollar amounts presented below are on a  
 7 capital expenditure basis.

8 **Table ARG-D-10**  
 9 **West Metro Project Costs – Completed Portion\***

| <b>Cost Category</b>                     | <b>CPCN Estimate<sup>30</sup></b> | <b>Expenditures<sup>31</sup></b> |
|--|-----------------------------------|----------------------------------|
| Engineering & Design                     | \$1.5                             | \$4.4                            |
| ROW Acquisition & Permitting Consultants | \$0.9                             | \$0.1                            |
| Materials                                | \$1.3                             | \$1.9                            |
| Mechanical Construction                  | \$9.2                             | \$6.8                            |
| Ancillary Construction                   | \$4.0                             | \$0.5                            |
| Internal & Overheads                     | \$2.4                             | \$2.9                            |
| <b>Total</b>                             | <b>\$19.4</b>                     | <b>\$16.5</b>                    |

\* Any differences in sums due to rounding.

<sup>30</sup> Reflective of the 12" IP Pipeline Estimate of \$16,767,867 and Regulator Station Estimate of \$2,619,691, and associated cost categories, contained in Table SGM-D-4 of Mr. Martz's Direct Testimony, Hearing Exhibit 102, in Proceeding No. 21A-0472G, (excluding AFUDC) with estimate accuracy of +/- 20 percent. Individual line items other than Internal & Overheads include risk margin. This Table will, for simplicity, hereinafter be referred to as the "WM Cost Table".

<sup>31</sup> As noted earlier, because project management and work-order setup of our projects does not necessarily directly align with these categories, the cost divisions between categories are not intended to be perfectly precise.

1 **Q. HOW DID FINAL COSTS FOR THE 12" IP PIPELINE AND REGULATOR**  
2 **STATION COMPARE OVERALL TO THE ORIGINAL ESTIMATES?**

3 A. As reflected on Table ARG-D-10 above, total costs for the IP Pipeline and  
4 Regulator Station projects came in under the corresponding CPCN estimates. The  
5 Company deployed resources as needed to complete the project, which required  
6 somewhat more cost for engineering and design and included some savings on  
7 mechanical construction and risk margins. I describe the reasons for these  
8 changes below.

9 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS WERE CONTAINED IN THE**  
10 **ENGINEERING AND DESIGN CONSULTANTS CATEGORY?**

11 A. Yes. In developing the CPCN estimate for this cost category, which was  
12 approximately \$1.5 million for the completed IP Pipeline and the Regulator Station,  
13 the Company contracted with an MSA engineering firm to design and engineer the  
14 scope of the project. The estimate for this line item represents the engineering  
15 firm's project bid and is inclusive of a complete design from project initiation to as-  
16 built documentation close-out. Ancillary design services, such as survey, sub-  
17 surface utility locating, geotechnical analysis, and as-built documentation were  
18 expected to be needed to produce a complete and construction ready design  
19 package and therefore are also included in the engineering consultant's costs.

20 Costs of engineering and design are approximately \$4.4 million for the  
21 completed IP Pipeline and Regulator Station, or approximately \$2.9 million higher  
22 than estimated. The increased cost was driven by several factors, including  
23 permitting changes and requests by Lakewood and the Regional Transportation



1 District (“RTD”) to meet new requirements for the permitting applications and  
2 documentation that was different than the requirements in place at the time of the  
3 estimate. In addition, Lakewood and RTD required re-routing to meet their  
4 requirements, so additional re-design was required on a large portion of the in-  
5 progress Distribution Pipeline project, which caused a minor adjustment to the IP  
6 Pipeline on the west end for the needed tie-in. Finally, RTD and CDOT required  
7 as-built documentation during construction that had to be included in the scope of  
8 work for the engineering firm.

9 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS ARE CONTAINED IN THE**  
10 **ROW ACQUISITION AND PERMITTING CONSULTANTS’ CATEGORY?**

11 A. The CPCN estimate for this cost category, which was approximately \$0.9 million  
12 for the completed IP Pipeline and the Regulator Station, consisted of consultant  
13 expenses, direct costs for internal ROW labor, and land acquisition costs. The  
14 Company planned to contract multiple vendors to provide public outreach, land  
15 rights consultation, services related to land acquisition including legal, title, and  
16 appraisal services. Direct costs in the estimate included permit fees, jurisdictional  
17 review, and tap fees. Finally, the Company planned to acquire land needed to site  
18 the regulator station which comprised the entirety of land acquisition costs.

19 Final costs of right of way acquisition and permitting consultant costs are  
20 expected to be \$0.1 million, significantly lower than those estimated, for the IP  
21 Pipeline and Regulator Station. The decrease in cost was driven by the final route  
22 being constructed in a public ROW, which eliminated the need to purchase  
23 additional easements. Additionally, the Company was able to reduce costs by

1 minimizing the temporary land use sites for staging areas and spending less on  
2 public outreach due to the overlapping timing of the project.

3 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS ARE CONTAINED IN THE**  
4 **MATERIALS CATEGORY?**

5 A. The Company planned to procure material to build the IP pipeline, regulator  
6 station, and distribution mains in accordance with the completed project design,  
7 estimated at approximately \$1.3 for the completed IP Pipeline and the Regulator  
8 station. Long-lead materials were identified and quoted, including, pipe, valves  
9 and regulators, and distribution main. In addition to long-lead material, the  
10 Company also planned to purchase all required stocked material and consumables  
11 needed to complete the project construction.

12 Final costs for materials are forecasted to be approximately \$1.9 million, or  
13 approximately \$0.6 million higher than the original estimate for the IP Pipeline and  
14 Regulator Station. The majority of this cost increase was driven by the City of  
15 Lakewood, which requested changes to the regulator station fencing and building  
16 to make the site fit into the surrounding residential area.

17 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS ARE CONTAINED IN THE**  
18 **MECHANICAL CONSTRUCTION CATEGORY?**

19 A. The mechanical construction category was estimated at approximately \$9.2 million  
20 for the completed IP Pipeline and the Regulator Station. This estimate consisted  
21 of the direct construction costs for these components. The Company worked in  
22 collaboration with approved construction vendors to develop the mechanical  
23 construction cost estimate, which at that time was based on the Gate 2 conceptual

1 engineering design level of detail. A construction contract consists of hiring firms  
2 that staff resources and equipment to perform the physical installation of the  
3 pipeline, which includes workers to perform the excavation, equipment operators,  
4 welders, foreman and oversight, site safety inspectors, and other job functions.

5 Final costs for mechanical construction are forecasted to be approximately  
6 \$6.8 million for the IP Pipeline and Regulator Station, approximately \$2.4 million  
7 lower than originally estimated, because construction was completed four months  
8 ahead of schedule.

9 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS ARE CONTAINED IN THE**  
10 **ANCILLARY CONSTRUCTION CATEGORY?**

11 A. The ancillary construction cost category is estimated at approximately \$4.0 million  
12 for the completed IP Pipeline and the Regulator Station. This estimate included  
13 third-party inspection, construction management, environmental management and  
14 inspection, traffic control design and implementation, one-time odorization, and  
15 restoration and revegetation costs. As the third-party inspection and construction  
16 management were based on day-rates, these costs were estimated based on  
17 conceptual schedules from the high-pressure and distribution construction  
18 vendors. The environmental management, traffic control, odorization, and  
19 restoration costs were estimated based on past projects of similar magnitude.

20 Final costs for ancillary construction for the IP Pipeline and Regulator  
21 Station are forecasted at \$0.5 million, significantly less than the initial estimate.  
22 This is due to the IP Pipeline being completed three months in advance, and the  
23 inspection team was able to work between different parts of the project at the same

1 time. This reflects that the Company performed construction support services  
2 much more efficiently than originally anticipated.

3 **Q. CAN YOU PROVIDE DETAIL ON WHAT COSTS ARE CONTAINED IN THE**  
4 **INTERNAL AND OVERHEADS CATEGORY?**

5 A. The internal and overheads category, estimated at \$2.4 million for the completed  
6 IP Pipeline and the Regulator Station, consists of direct labor, internal engineering  
7 and supervision costs, payroll and purchase loadings, and sales tax. These costs  
8 are applied to the project on a monthly basis in accordance with Company  
9 accounting practices. Final costs for internal and overheads for the IP Pipeline  
10 and Regulator Station are expected to be slightly higher than the estimated budget,  
11 as reflected in Table ARG-D-10 above.

12 **Q. HOW DO THE TOTAL PROJECT COSTS FOR THE IP PIPELINE AND**  
13 **REGULATOR STATION, INCLUDING RISK MITIGATION, FARE UNDER THE**  
14 **AACE +/- 20 PERCENT ACCURACY?**

15 A. The Company's in-service amounts for the completed IP Pipeline and Regulator  
16 Station combined are approximately 15 percent below the estimated amounts.  
17 However the +/- 20 percent accuracy estimate is for the project as a whole, and it  
18 is likely some portion of the savings for the IP Pipeline and Regulator Station will  
19 be needed for the distribution pipeline project. The Company will be better able to  
20 address this question when the distribution project is complete. Overall, however,  
21 Public Service is well positioned to come in at or under its overall CPCN estimate  
22 for the West Metro project.

1 **Q. WERE THE TOTAL COSTS OF THE WEST METRO IP PIPELINE AND**  
2 **REGULATOR STATION PROJECTS REASONABLE?**

3 A. Yes, the Company was able to successfully complete the new 12" IP pipeline,  
4 which connects into the Pounds Low and Highlands Systems through a new  
5 regulator station and is working on completing the distribution pipeline portion of  
6 the project in order to increase the capacity in the area. As noted earlier, the IP  
7 Pipeline and the Regulator Station have been completed and are in-serviced,  
8 providing increased reliability to the affected customers and the project area. The  
9 overall scope and costs of the West Metro project are consistent with the CPCN  
10 that was approved by the Commission.

11 **3. Rampart Range Reinforcement**  
12 **Q. WHAT IS THE RAMPART RANGE REINFORCEMENT PROJECT?**

13 A. The Rampart Range Reinforcement project serves customer growth and increased  
14 demand in the project area, including the Sterling Ranch and Solstice  
15 developments in Littleton, Colorado. The project was designed to increase  
16 available gas capacity to existing customers, as well as areas where developers  
17 were building out additional plats. The project addressed over 16,000 feet of  
18 existing and new pipe and added regulator stations to the Roxborough area for the  
19 2022-2023 heating season. Attachment ARG-7 to my Direct Testimony provides  
20 additional project information, including a map of the project location.

1 **Q. PLEASE PROVIDE ADDITIONAL INFORMATION REGARDING THE WORK**  
2 **INVOLVED IN THE RAMPART RANGE REINFORCEMENT PROJECT.**

3 A. The Rampart Range Reinforcement project included installation of approximately  
4 3.1 miles of 8" IP pipeline, installation of two new IP regulator stations (F-999 and  
5 F-1000), rebuilding an existing regulator station (F-635), moving a distribution main  
6 for proper connection, and upgrading two distribution services to address the  
7 additional load. The 8" IP pipeline reinforced approximately 11,500 feet of existing  
8 6" IP pipe, and added approximately 4,800 feet of new 8" IP pipe. Project planning  
9 began in late 2019 and early 2020. Construction has been completed, and the  
10 project was in-service in December 2022, with restoration and closeout completed  
11 in 2023.

12 **Q. HOW DID THE COMPANY IDENTIFY THE NEED FOR THIS PROJECT?**

13 A. The Company first identified the need for this project in 2020 through its annual  
14 long-term annual gas modeling and planning process. This project was driven by  
15 forecasted peak demand growth that would otherwise exceed the available system  
16 capacity by the 2022-2023 heating season causing the project area to drop below  
17 minimum system design criteria required to maintain reliable service to firm service  
18 customers. Specifically hydraulic system modeling was performed utilizing a 1- in-  
19 30 year Design Day probability occurrence, with a Design Day temperature of -25  
20 degrees Fahrenheit as well as the 0.9 percent average 5-year annual peak hour  
21 demand growth increase that was forecasted at the time in the project area. Also  
22 included in the hydraulic model were known developments in the project area,  
23 which included the Sterling Ranch and Solstice developments. The Company then

1 involved designers, who worked with the gas capacity planning team and gas area  
2 engineering to determine what new infrastructure or reinforcements were needed.

3 **Q. WHAT WAS THE RISK OF NOT MEETING THE IDENTIFIED CAPACITY NEED?**

4 A. The hydraulic model showed insufficient inlet pressures at the HP-PM regulator  
5 stations F-971 and F-740 by the 2022-2023 heating season, which would in turn  
6 impact service reliability to firm service customers beginning at -1 degrees  
7 Fahrenheit as compared to a Design Day temperature of -25 degrees Fahrenheit,  
8 which has a probabilistic occurrence of seven times per year. Insufficient inlet  
9 pressures at critical facilities, such as regulator stations, can impact the station's  
10 ability to hold its setpoint which will impact the normal operation of the facility and  
11 reduce delivery pressures to customer meters that can result in customer loss of  
12 service. In short, without capacity expansion, approximately 3,900 equivalent  
13 customers in the project area were at risk of experiencing outages, including  
14 customers within the new developments.

15 **Q. PLEASE DESCRIBE HOW THE PLANNING FOR THIS PROJECT**  
16 **PROCEEDED.**

17 A. Once the need was identified, the Company prepared cost estimates based on  
18 historical costs of similar projects and expected cost per foot, including  
19 contingencies and subject to degrees of accuracy tied to the particular stage gate  
20 process. The project plan was approved in 2020, and then proceeded to  
21 construction.

1 **Q. PLEASE DESCRIBE HOW THE COMPANY APPROACHED PLANNING FOR**  
2 **THIS PROJECT.**

3 A. Due to the size of this project and its location in Douglas County, Public Service  
4 brought in a permitting and environmental contractor to support planning for the  
5 project. The contractor selected was uniquely experienced with the processes and  
6 environmental matters in Douglas County, which are themselves unique. The  
7 Company also engaged a storm water specialist to support planning for the flood  
8 plain and high water table specific to the project area. Additionally, the Company  
9 engaged an engineering and design firm with geotechnical expertise due to the  
10 age of the existing road and biological factors affecting the ground in the project  
11 area. The mechanical contractor was selected based on cost, project needs, and  
12 resource availability. All contractors were known to Public Service, had specific  
13 expertise for the area, and were operating under MSAs with the Company.

14 The cost planning process was based on the engineering designs in  
15 conjunction with mechanical contractors and internal construction management  
16 team. Initially, the project scope was limited to one new regulator station and  
17 adaption (modification) of a second regulator station. As the project design and  
18 planning evolved, further capacity evaluation and area engineers determined that  
19 two new regulator stations and one station adaption would be needed. It also  
20 became necessary to add distribution main and increase the capacity of two local  
21 services. The Company worked with its subject matter experts to adapt project  
22 and cost planning accordingly.



1 **Q. WHAT ALTERNATIVES TO THE RAMPART RANGE REINFORCEMENT**  
2 **PROJECT DID THE COMPANY CONSIDER?**

3 A. As this reinforcement project was needed to bring sufficient gas into the project  
4 area, the Company investigated other siting locations for the regulator stations and  
5 pipeline runs. However, alternative locations would have been in the same vicinity  
6 and likely more expensive because they would have crossed land the Company  
7 did not already own (thereby increasing costs associated with acquiring land,  
8 permitting, and environmental work). Based on these considerations, the project  
9 team selected the most efficient locations for the regulator stations, pipeline  
10 installations, and associated infrastructure.

11 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

12 A. Capital additions for this project for 2022 and 2023 are \$14.4 million as shown in  
13 Table ARG-D-8 above. Table ARG-D-11 below provides a directional project cost  
14 breakdown by category, on a capital expenditure basis.

15 **Table ARG-D-11**  
16 **Rampart Project Costs\***

| <b>Cost Category</b>         | <b>Expenditures</b> |
|------------------------------|---------------------|
| Mechanical                   | \$6.8               |
| Engineering                  | \$1.7               |
| Materials                    | \$1.7               |
| Permitting & Environmental   | \$1.3               |
| Inspection                   | \$0.2               |
| Overheads                    | \$1.8               |
| Internal Labor, AFUDC, Other | \$1.0               |
| <b>Total</b>                 | <b>\$14.4</b>       |

\* Any differences in sums due to rounding.

1 **Q. PLEASE DISCUSS ANY COSTS SPECIFIC TO THIS PROJECT THAT DIFFER**  
2 **FROM THE GENERAL COST CATEGORY DESCRIPTIONS DISCUSSED**  
3 **ABOVE.**

4 A. Aside from those general descriptions, the Rampart Range Reinforcement project  
5 incurred additional costs in the Mechanical, Engineering and Permitting &  
6 Environmental categories. The following discussion provides details of the unique  
7 aspects and challenges of this project including the boring process, permitting  
8 process and county regulations and requirements. Specifically, the challenges  
9 around replacing and moving the boring rig increased costs in the Mechanical  
10 category, but also the Engineering and Permitting & Environmental categories.  
11 Each time the boring rig had to be moved, engineering had to be consulted to  
12 approve the new plan and new permits had to be obtained.

13 **Q. PLEASE DISCUSS ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION**  
14 **OF THIS PROJECT.**

15 A. The Company proceeded with construction under the same scope of work and  
16 timeline originally planned, as described above. However, several unforeseeable  
17 factors, some of which are noted above, were encountered during construction,  
18 and additional permitting was required during the construction phase. Issues  
19 during construction primarily related to the boring process. Roughly 4,800 feet of  
20 IP pipeline was installed in the Rampart Range Road ROW. This road was  
21 constructed over a fill material that included large boulders and other soil/material.  
22 While open trenching would be preferable given this material, the County would  
23 not allow the project to open trench in the road ROW; thus, boring was required.

1           However, boring was also exceedingly difficult due to an intermittent mixture  
2 of bentonite clay and large boulders situated in soil with a high water table, as well  
3 as high voltage transmission lines in the area. Geotechnical surveys could not find  
4 an easy path through the road ROW, so boring had to proceed through this  
5 material. Given the boulder placement and material between, it was difficult to  
6 predict how the boulders would react once boring began. Boring through this  
7 material resulted in damage to the roadway itself as the surface heaved or sank  
8 due to unpredictable movement of the boulders and surrounding material, and  
9 significant road restoration was required throughout the project.

10           Additionally, boring through these boulders damaged the contractor's  
11 equipment such that the boring rig for this project needed to be replaced once, and  
12 the boring rig also needed to be changed three different times (e.g., the location  
13 was moved, and/or the rig was sized up or down due to the location change), and  
14 in one case, the Company had to bring in a boring rig from another state to continue  
15 the project. Bringing even one new boring rig onto a project is usually not  
16 necessary, and changing the rig four times on one project is extremely rare.  
17 Overall, boring issues caused by the County's refusal to allow us to proceed in  
18 another manner led to a 10-week project delay compared to the planned project  
19 timeline, and increased costs.

20 **Q. WERE THERE OTHER FACTORS THAT IMPACTED THE BORING PROCESS?**

21 A. Yes. As the County's constraints required the additional run of pipe to the F965  
22 regulator to be located in the road ROW, it ran beneath high voltage electric  
23 transmission lines. This conflicted with boring mechanisms, causing the bore to

1 “wander” rather than stay true to course. This required stopping, adjusting, and  
2 restarting every 40-80 feet for the entire length of boring in the Rampart Range  
3 Road ROW.

4 **Q. PLEASE DESCRIBE THE PERMITTING PROCESS FOR THIS PROJECT.**

5 A. The permitting for this project was atypical. While the Company worked closely  
6 with County planning, County expectations and permitting requirements changed  
7 during the course of construction. As described above, during the construction  
8 phase the Company continued to use geotechnical surveys to locate preferred  
9 paths through the ROW. Each time the Company tried to find a different path, the  
10 County required redesign and additional permitting. This resulted in the need for  
11 submission of four Grading, Erosion, and Sediment Control (GESCC) permits, 14  
12 re-designs, and 12 field adaptations during the actual construction process. Each  
13 additional permit and the associated approval process added further time to  
14 complete the project.

15 **Q. WERE THERE OTHER IMPACTS OF THE COUNTY PERMITTING**  
16 **REQUIREMENTS THAT AFFECTED THE PROJECT?**

17 A. Yes. To minimize construction disruption, the County required that when two or  
18 more projects are to be completed in the same area, the project that initially  
19 received a permit dictates the timing of the work. Any company subsequently  
20 receiving a permit is required to coordinate timing with the prior company(ies). In  
21 this case, Public Service’s project was required to coordinate with 17 other active  
22 projects in the area, which ultimately affected the timing of our project. For  
23 example, a water main project was also being completed in the same location as

1 Public Service's gas line project. Because the water project obtained a permit prior  
2 to Public Service's permit approval, Public Service's work had to follow the water  
3 project's work. The water project was completed approximately seven months  
4 behind schedule, thus delaying Public Service's work.

5 **Q. WERE THERE OTHER COUNTY REGULATIONS THAT IMPACTED THE**  
6 **CONSTRUCTION PROCESS?**

7 A. Yes. The County's construction prohibition on all holidays impacted the boring  
8 process. While the County posts its celebrated holiday list on its website, it does  
9 not communicate when these holidays will entail a construction moratorium or  
10 whether the County will decide to implement one for any given project. In this  
11 instance, the County limited construction more often than is typical in the  
12 Company's experience. These requirements resulted in the Company needing to  
13 remove boring equipment from the bore path at the start of any holiday period (for  
14 example, on the Friday before a long holiday weekend where Monday was a  
15 federal holiday). At the end of the holiday period, the project would then have to  
16 re-commence the bore. In essence, every holiday meant restarting the bore from  
17 the beginning location. This County requirement added 21 work days to the  
18 schedule. The County also opted to ban work on this project in the road ROW  
19 during inclement weather (based on the County's real-time determinations of  
20 inclement weather), which led to multiple additional construction delays.

1 **Q. WERE THERE TIME CONSTRAINTS ON THE COMPLETION OF THIS**  
2 **PROJECT?**

3 A. Yes. As discussed above, the Company needed to complete this project prior to  
4 the 2022-2023 heating season to increase available gas capacity to existing  
5 residential developments in the project area, as well as areas where developers  
6 were completing additional plats at the end of 2022 and early 2023. Due to these  
7 same issues, the Company did not have a feasible option to cancel or avoid the  
8 project altogether.

9 **Q. WHY DID THESE TIME CONSTRAINTS MATTER FROM A PROJECT COST**  
10 **AND TIMING PERSPECTIVE?**

11 A. Given the project delays described above and the need to ensure the additional  
12 capacity would be available for the 2022-2023 heating season, there were  
13 additional construction costs incurred. During September 2022 through January  
14 2023, the Company accelerated construction activities to include night shifts and  
15 a seven-day work week, resulting in additional over-time pay.

16 **Q. HOW DID THE COMPANY MANAGE COSTS FOR THIS PROJECT?**

17 A. In addition to the CFT process explained above, specific to this project, Public  
18 Service's project manager was onsite approximately four days per week, including  
19 weekends when necessary, to problem solve and oversee project progress.  
20 During typical projects, it is generally not necessary for the project manager to be  
21 onsite so frequently. Due to the unique nature of the challenges with this project  
22 as discussed above, it was necessary to have someone onsite to evaluate,  
23 troubleshoot, and provide guidance to contractors. Costs associated with having

1 the project manager onsite reduced contractor costs because the project manager  
2 was able to mitigate the need for additional contractor time.

3 **Q. WHY ARE THE COSTS FOR THE RAMPART RANGE REINFORCEMENT**  
4 **PROJECT REASONABLE?**

5 A. Despite construction challenges, the Rampart Range Reinforcement project was  
6 necessary to avoid exceeding the available system capacity thus causing the  
7 project area to drop below minimum system design criteria required to maintain  
8 reliable service to firm service customers. Had the Company not completed this  
9 project, beginning with the 2022-2023 heating season approximately 3,900  
10 customers would have been at risk of outages when the temperature dropped  
11 below -1 degrees Fahrenheit. Further, the Company faced atypical challenges  
12 related to the geological and environmental conditions in the project area, County  
13 restrictions and requirements, and other projects in the area, but managed costs  
14 as proactively and to the extent possible, ultimately completing the project for a  
15 reasonable total cost given the size, conditions, and total scope of work of the final  
16 project.

17 **4. Winter Park Tie**  
18 **Q. WHAT IS THE WINTER PARK TIE PROJECT?**

19 A. The Winter Park Tie project installed approximately 1.3 miles of 6" HP pipe to  
20 connect the 6" and 2" HP pipelines that serve the Company's Winter Park system.  
21 The project allows for reliable service to firm customers at Design Day  
22 temperatures of -39 degrees Fahrenheit, resolving outage risks in the Fraser and  
23 Winter Park areas. The key component of the plan was to connect the existing 6"

1 pipeline to the existing 2” pipeline. In order to work with property landowners and  
2 permits for parts of the ROW, the overall project was phased in over multiple years,  
3 with Phase 1 completed in 2021 and Phase 2 following in 2022.

4 Phase 1 included a 6” reinforcement line, connecting the eastern 6” line to  
5 the 2” pipeline near Hideaway Park which resolved the capacity constraints on the  
6 HP 2” pipeline. This line was installed with temporary tie-ins in order to serve  
7 customers in 2021. In addition to the pipeline tie, relocating a northern portion of  
8 the existing 2” HP line was necessary to allow for approved, planned developments  
9 in the area. Because Phase 1 of the project was physically complete, in service,  
10 and providing service to customers in 2021, a portion of capital additions for that  
11 phase were included in the 2021 HTY in the Company’s last gas rate case.  
12 However, a portion of the capital additions for Phase 1 appears in the 2022 capital  
13 additions in this case.<sup>32</sup> Phase 1 helped the Company meet firm customer needs  
14 during the 2021-2022 and 2022-2023 heating seasons.

15 Phase 2, largely completed in 2022, included completing the 6”  
16 reinforcement, rebuilding/relocating a regulator station, relocating a southern  
17 portion of the existing 2” HP pipeline, and finalizing distribution ties/cutoffs. The  
18 relocation of the northern and southern portions of the existing 2” line, using 4”  
19 pipe, totaled approximately 1,500 feet. The RH-1 Hideaway Park regulator station  
20 was rebuilt and relocated to accommodate the pipeline upgrades and avoid  
21 interference with new developments in the area. The station rebuild included the

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<sup>32</sup> This timing was due to an accounting reclassification to ensure proper booking of project costs.



1 installation of a new in-line assessment tool receiver for integrity management and  
2 maintenance purposes. Phase 2 of the project was physically commissioned at  
3 the end of 2022, but capital additions were reflected in 2023.<sup>33</sup> There were also  
4 minimal close-out costs for the project in 2023 after the asset was physically  
5 commissioned, such as installing the remote terminal units that were delayed from  
6 the supplier, site restoration, and site inspection.

7 Attachment ARG-7 to my Direct Testimony provides additional project  
8 information, including a map of the project location.

9 **Q. HOW WAS THE WINTER PARK TIE PROJECT ADDRESSED IN THE**  
10 **COMPANY'S LAST GAS RATE CASE?**

11 A. The Company included a thorough discussion of the Winter Park Tie in the  
12 Company's last gas rate case, which included a similar timeline and budget as to  
13 what is discussed here. In that proceeding, Commission Staff recommended a  
14 disallowance based on conflating the Winter Park Tie project with the Granby  
15 Take-Off to YMCA Valve Set project, which are actually two separate projects  
16 occurring in a similar geographic area. In conjunction, Staff also recommended  
17 that the Company file a retroactive CPCN that includes a "Fraser Valley Master  
18 Improvement Plan" after claiming the Company separated these projects to avoid  
19 a CPCN. In its Rebuttal Testimony, the Company clarified the distinction between  
20 the projects and why the CPCN was not necessary. Ultimately, the Commission

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<sup>33</sup> This timing was similarly due to accounting reclassification to ensure proper booking of project costs.

1 denied Staff's recommendation for a disallowance and concluded that a CPCN or  
2 other application filing was not warranted.<sup>34</sup>

3 **Q. IF THE PROJECT WAS PREVIOUSLY APPROVED, WHY IS IT INCLUDED IN**  
4 **CAPITAL ADDITIONS FOR THIS CASE?**

5 A. As described above, the Company's last gas rate case test year approved by the  
6 Commission reflected capital additions through the end of 2021 only. A portion of  
7 the capital additions, totaling approximately \$6.2 million and relating to Phase 1,  
8 were included in that case, but the remaining capital additions relating to both  
9 Phases of the project are currently not being recovered in rates. The entire Winter  
10 Park Tie project is now in service and included in the Company's cost of service in  
11 this case.

12 **Q. AS A REMINDER, WHAT WERE THE CAPACITY CONSTRAINTS DRIVING**  
13 **THE NEED FOR WINTER PARK?**

14 A. The Town of Winter Park was previously served by two pipelines coming from the  
15 north, a 2" pipeline primarily serving the town, and a 6" pipeline that ran a parallel  
16 route to the east but connected south of the town, primarily serving the ski resort.  
17 As part of the Company's annual planning process in 2018, the Company identified  
18 a capacity shortfall in Winter Park and Fraser area for the winter of 2021-2022 to  
19 serve firm customers at a Design Day temperature of -39 degrees Fahrenheit. As  
20 part of the 2019 annual planning process, the 2" pipeline was forecasted to be at  
21 capacity for the winter of 2020-2021, and would be unable to reliably serve firm

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<sup>34</sup> Proceeding No. 22A-0046G, Decision No. C22-0642, 102 (mailed October 25, 2022).

1 customers below -32 degrees Fahrenheit, which had a potential of occurring once  
2 every seven years.

3 **Q. CAN YOU PROVIDE MORE INFORMATION REGARDING THE GAS**  
4 **CUSTOMER GROWTH IN GRAND COUNTY, DRIVING THE WINTER PARK**  
5 **CAPACITY CONSTRAINT?**

6 A. Yes. Going back to 2015, Grand County Colorado experienced about a 1.5  
7 percent annual customer count growth rate. This annual growth rate remained  
8 stable until 2019, when the growth rate increased by over 70 percent to 2.6 percent  
9 and 2.7 percent in 2020. The growth rate in 2021 was 1.9 percent and 1.2 percent  
10 in 2022. Between 2018 and 2022, the gas customer count in Grand County  
11 increased by over 8 percent from approximately 9,990 customers to over 10,800  
12 customers. The rapid growth led to the Company implementing a moratorium on  
13 new natural gas connections as the growth in the area exceeding the capacity of  
14 the system. The Company ended the moratorium in October 2021.

15 **Q. WHAT ALTERNATIVES DID THE COMPANY INVESTIGATE INSTEAD OF**  
16 **CONSTRUCTING THE WINTER PARK TIE REINFORCEMENT PROJECT?**

17 A. The Company evaluated the opportunity to avoid the pipeline investment in this  
18 area by converting firm customers to interruptible services, as well as supporting  
19 the system with compressed natural gas (“CNG”).<sup>35</sup> However, converting firm  
20 customers to interruptible service would have required customers to install backup  
21 systems to allow curtailment. Additionally, the Company considered

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<sup>35</sup> This same acronym is sometimes used for the term certified natural gas. Unless otherwise noted in my Direct Testimony, I am only referring to compressed natural gas when I use “CNG.”

1 supplementing the system with CNG; however, supplemental CNG supply would  
2 have been needed to be injected at an increasingly frequent number of times  
3 throughout the year, in perpetuity. As the injection frequency increases, so does  
4 the number of times the CNG semi-tankers would require refueling by transporting  
5 large CNG trailers into and out of the location. For this project, CNG was not an  
6 effective long-term solution due to the cost and logistics; therefore, the Company  
7 focused on a more permanent Winter Park reinforcement project.

8 **Q. HOW DO THE SCOPE AND COSTS OF THIS PROJECT COMPARE TO WHAT**  
9 **WAS DISCUSSED IN THE COMPANY'S LAST GAS RATE CASE?**

10 A. The overall scope and costs of the project are consistent with what was described  
11 in the last gas rate case. While there were some accounting reclassifications that  
12 shifted the capital additions into later years as described above, the Company  
13 completed the necessary capacity upgrades to bring reliable service and resolve  
14 the outage risks in the Fraser and Winter Park areas. The project was completed  
15 and is serving customers, and the final costs of the project were slightly below the  
16 \$15 million estimate accepted in the last gas rate case.

17 **5. Del Norte Compressor Station**  
18 **Q. FOR CONTEXT, PLEASE DESCRIBE THE COMPANY'S SOUTHERN**  
19 **MOUNTAIN SYSTEM AND THE COMPRESSOR STATIONS SERVING THAT**  
20 **PORTION OF THE SYSTEM.**

21 A. Earlier, I provided an overview of the various aspects of the overall Mountain  
22 System. The southern portion of the Company's Mountain System (i.e., Southern  
23 Mountain System) comprises the portion of the Company's Mountain System

1 spanning from Durango to Leadville which relies on five compressor stations to  
2 sufficiently maintain system pressures in order to provide safe and reliable service  
3 to 17,000 firm service customers. Tiffany is the sole supply point into the Southern  
4 Mountain System and the pressures are maintained through the Pagosa and Del  
5 Norte compressor stations. During the heating season, the Mountain System is  
6 operated hydraulically in a transient methodology, which involves packing the  
7 system with natural gas close to maximum allowable operating pressure (“MAOP”)  
8 during the day and then using that line pack to serve the peak gas demand during  
9 the coldest hours of the night or morning. This is then repeated as necessary. The  
10 Southern Mountain System is particularly reliant on line pack. This reliance has  
11 increased substantially from 2017 to now due to load growth in the mountains.

12 Over time, the reliance on line pack has become a less sustainable long-  
13 term solution. At temperatures approaching -7 degrees Fahrenheit, recovery of  
14 line pack during the day can only be achieved through operating five compressors  
15 (three at Tiffany, one at Pagosa, and one at Del Norte) in the Southern Mountain  
16 system. Compressor stations work to maintain adequate inlet system pressures  
17 to support the flow of gas to end-use customers. Without the additional Del Norte  
18 unit project I describe below, there were only a total of five compressors and there  
19 would be no redundancy or unused compressor horsepower during the heating  
20 season.

21 The increased reliance on the five existing compressors was evidenced by  
22 the annual run hours for the Del Norte compressor increasing from approximately  
23 1,200 to 4,100 annual hours from 2017 to 2023. Similarly, the compressor station

1 at Pagosa Springs has been operating at higher levels in recent years. Thus, there  
2 was a need for additional compression to ensure adequate support for customers  
3 in the winter months if one of the compressors should become unavailable (for  
4 maintenance, repair, operational difficulty or any other reason).

5 **Q. WHAT IS THE DEL NORTE COMPRESSOR STATION PROJECT?**

6 A. The Del Norte Compressor Station project adds a second compressor at the  
7 existing Del Norte Compressor Station to increase reliability and mitigate the  
8 potential for customer outages. Attachment ARG-7 to my Direct Testimony  
9 provides additional project information, including a map of the project location.

10 **Q. WHY IS THE COMPANY UNDERTAKING THIS PARTICULAR SOLUTION?**

11 A. The Del Norte compressor was manufactured in 1979 and was repurposed in 2003  
12 to its current location. Replacement parts are hard to obtain or not available from  
13 equipment suppliers as they were discontinued as they moved on to more recent  
14 models. As reflected by the increased annual run hours for this compressor, the  
15 system is reliant on this unit to meet customer demand and maintain safe and  
16 reliable service throughout the entire heating season. This was not a Design Day  
17 issue, but rather indicated a separate reason to focus on the Del Norte  
18 compressor.

19 In addition, during a cold weather event in the 2020-2021 heating season,  
20 the Pagosa and Del Norte compressors could not be started due to discrete  
21 component failures in the heating systems for the lube oil and glycol pre-heat and  
22 the building heating systems. The Southern Mountain System pressure nearly  
23 decreased to a point that large scale customer outages could have occurred. This

1 event highlighted the dependency on the reliability of these compressors and the  
2 associated risks. Throughout the summer and early fall of 2021, the Company  
3 performed assessments of the Del Norte and Pagosa compressor stations. The  
4 Del Norte Compressor Station was selected as the location to add a second  
5 compressor to increase reliability.

6 **Q. PLEASE PROVIDE MORE DETAIL REGARDING THE WORK INVOLVED IN**  
7 **THE DEL NORTE COMPRESSOR STATION PROJECT.**

8 A. The Company upgraded the existing compressor (Unit 1), added a second  
9 compressor (Unit 2), and extended the compressor building in order to  
10 accommodate two compressors on site. Project planning began in the spring of  
11 2021 and construction was completed in the fall of 2023. This work included Unit  
12 1 items such as the compressor starter, cooler platform addition, fuel gas meter,  
13 suction and discharge valves, and control panel. The project scope also included  
14 integration of the new compressor (Unit 2) into existing or upgrading/relocating  
15 common systems to meet current codes and standards, such as heating and  
16 ventilation, emergency shut-down devices, fire eyes, LEL (gas) detection, lube oil  
17 and glycol systems, blow down stack, high and low pressure drain tank  
18 connections, stairs to facilitate access and decrease slip/trip/fall potential,  
19 upgraded building lightning protection, updated cathodic protection system, extend  
20 bridge crane rail, and other miscellaneous items.

21 Additionally, significant storm water mitigation work was required to prevent  
22 erosion of the compressor site. From the south fence line to north fence line of the  
23 site, there is a 40-foot elevation difference. To address this, a storm water

1 diversion trench around the south and east side site just outside of the fence line  
2 was created, as well as a plunge pool. An additional storm water diversion trench  
3 was installed inside the fence line to direct water around the primary equipment  
4 areas. A storm water intake was added on the east side of the property and culvert  
5 replaced. To mitigate erosion on water flow pathways, slopes were cut to a  
6 consistent grade then covered in geotextile fabric and graveled. To facilitate  
7 general site access and snow removal, main site roads were asphalt paved.

8 **Q. WHAT ALTERNATIVES TO THE DEL NORTE COMPRESSOR STATION**  
9 **PROJECT DID THE COMPANY CONSIDER?**

10 A. Given that an additional compressor was necessary backup to ensure reliability of  
11 the Southern Mountain System, the alternatives Public Service investigated were  
12 limited to other possible locations and project scopes for adding a new  
13 compressor. The Company investigated adding a new compressor to the existing  
14 Del Norte station, to the Pagosa Springs station, to the Tiffany site, or to a new  
15 location with no existing compressor. The Company selected the Del Norte station  
16 as most efficient given the age of the existing compressor and that the Company  
17 already owned sufficient land around the site, which would provide the necessary  
18 space for a new compressor. In contrast, the Pagosa Springs property is more  
19 constrained, and the Tiffany site was not an option given the need to increase  
20 system pressures further down the line rather than at the gas delivery point at  
21 Tiffany. Furthermore, development of a new site would have entailed additional  
22 infrastructure costs as compared to expanding an existing site.



1           The Company also considered a simpler project focused on only installing  
2 a second compressor and extending the existing building. However, due to the  
3 site assessment, we determined that work on Unit 1 was necessary to help ensure  
4 reliability. Thus, we amended the project scope to increase the reliability of the  
5 existing 1979 vintage unit. Additionally, during development of project plans it  
6 became clear that additional upgrades to the building and auxiliary systems would  
7 be necessary to accommodate higher capacities from two compressors in  
8 operation at the site. We therefore incorporated the other improvements and  
9 upgrades to auxiliary systems discussed herein.

10           The Company also considered increasing the size of a segment of the  
11 transmission pipeline from Tiffany (about 35 miles southeast of Durango) to  
12 Leadville to decrease reliance on the compressors in the Southern Mountain  
13 System. While increasing the size and MAOP of the transmission pipeline would  
14 decrease the reliance on the compressors, such a project would require  
15 approximately 195 miles of 6" and 8" pipe and such replacements would be cost  
16 prohibitive. Additionally, uprating the MAOP would require re-hydrotesting all of  
17 the pipeline along the 195 miles from Tiffany to Leadville, which would not have  
18 been feasible from a technical, timing, or cost perspective.

19           Last, the Company also considered simply increasing the MAOP of the  
20 Southern Mountain System. However, the Company has already been operating  
21 the system close to its MAOP and there was insufficient capacity available with the  
22 existing compressor stations to further increase line pack and system pressures  
23 during cold weather events.

1 **Q. PLEASE DESCRIBE HOW THE COMPANY APPROACHED PLANNING FOR**  
2 **THIS PROJECT.**

3 A. The project planning started with the Stage Gate process and capital funding  
4 approvals. The engineering vendor was selected from existing MSA holders based  
5 on recent design experience at similar facilities in Company's gas system. The  
6 engineering vendor then created procurement specifications for the long lead  
7 equipment (compressor, driver, cooler, and building extension) and requests for  
8 competitive bid proposals were issued. The mechanical and electrical contractors  
9 were selected from previously-approved vendors by the Company based on cost,  
10 project needs, and resource availability. All contractors were known to the  
11 Company, had unique expertise for the scope of work, and were operating under  
12 MSAs with the Company. The cost planning process was based on the  
13 engineering designs in conjunction with mechanical contractors and internal  
14 construction management team.

15 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

16 A. Construction began in the summer of 2022, paused during the 2022-2023 heating  
17 season, and ramped back up in early spring 2023. More specifically, the activities  
18 in the summer and fall of 2022 focused on the reliability of the existing gas  
19 compressor and its auxiliary equipment. Due to the criticality of the gas  
20 compressor during the winter heating season, construction was paused during the  
21 winter, per the project plan. In late March 2023, construction picked back up to  
22 prepare the foundation for the new gas compressor delivery in May. Building  
23 extension work followed the setting of the compressor. During the summer of

1 2023, when compression is less critical, a planned outage was taken to perform  
2 tie ins and integrate Unit 2 auxiliary systems with Unit 1. Unit 2 gas compression  
3 construction was complete in September 2023 and turned over to Start Up and  
4 Commissioning for testing. Once planned testing was complete in mid-October,  
5 both Unit 1 and 2 were turned over to Gas Control and Operations for use.

6 **Q. WERE THERE ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION OF**  
7 **THIS PROJECT?**

8 A. Yes. The remote location of the Del Norte Compressor Station made project  
9 planning particularly important. All major equipment, suppliers, vendors, etc. were  
10 located in Denver, Farmington, New Mexico, or further away from the site. Project  
11 plans needed to be consistently and thoroughly coordinated to facilitate project  
12 execution.

13 **Q. WHAT ARE THE COSTS FOR THIS PROJECT INCLUDED IN THIS CASE?**

14 A. Capital additions for this project in 2022 and 2023 are \$11.7 million as shown in  
15 Table ARG-D-8 above. These costs, which reflect capital expenditures, are  
16 directionally summarized, by category, in Table ARG-D-12 below.

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**Table ARG-D-12**  
**Del Norte Compressor Station Project Costs**  
**(\$ in millions)\***

| <b>Cost Category</b>         | <b>Expenditures</b> |
|------------------------------|---------------------|
| Mechanical                   | \$4.5               |
| Engineering                  | \$1.7               |
| Materials                    | \$3.0               |
| Permitting & Environmental   | \$0.0               |
| Inspection                   | \$0.3               |
| Overheads                    | \$1.5               |
| Internal Labor, AFUDC, Other | \$1.0               |
| <b>Total</b>                 | <b>\$12.1</b>       |

*\* Any differences in sums due to rounding.*

4 **Q. PLEASE ADDRESS THE PROJECT COSTS SET FORTH IN TABLE ARG-D-12**  
5 **ABOVE.**

6 A. As is typical, the primary costs reflect the work of the mechanical and electrical  
7 contractors responsible for station construction and facility operations (the  
8 “Mechanical” category). At a high level, this project required specific electrical  
9 work on the station controls, wiring, and other electrical components for Unit 2, in  
10 addition to the mechanical construction work. The engineering costs reflect the  
11 cost of compressor station design, and materials reflect the costs of the pipeline,  
12 fittings, compressor, building, and remote telemetry control. Other costs included  
13 overheads, inspections to ensure construction is performed in accordance with  
14 industry and Company standard, internal labor, and AFUDC.

15 **Q. HOW WAS THIS PROJECT MANAGED DURING ITS IMPLEMENTATION?**

16 A. Due to the scale and nature of this project, the Company dedicated a full-time  
17 onsite Construction Manager to the project, along with a third-party inspector. The

1 Company conducted weekly CFT calls to manage and identify work to be  
2 performed on each side of the project. In addition to the weekly CFTs, the leads  
3 from each of the vendors, suppliers, contractors and Company met at the project  
4 site for monthly meetings. In order to create the project schedule, the team held a  
5 working session in Del Norte and baselined the project on that effort. Weekly  
6 schedule updates were provided to the Company scheduler to track progress.  
7 Daily reports were submitted by Construction Management and Inspection to keep  
8 the Company abreast of progress on site. In addition, the Company hired a third  
9 party start up and commissioning vendor to ensure project turnover to Operations  
10 Staff was thoroughly vetted.

11 **Q. WHY ARE THE COSTS OF THE DEL NORTE COMPRESSOR STATION**  
12 **PROJECT REASONABLE?**

13 A. The project costs are appropriate in light of the scope, scale, and duration of the  
14 project. The Company thoroughly evaluated the available options for maintaining  
15 adequate pressure in its Southern Mountain System, given continued demand  
16 growth, and ultimately selected the Del Norte station site for an additional  
17 compressor based on costs and project feasibility and the inability of other  
18 alternatives to adequately address the challenge.

19 To ensure reasonable costs, the Company thoughtfully selected companies  
20 and individuals skilled at completing the scope of this project, which facilitated  
21 project execution and in turn helped contain costs. Scopes of work were created  
22 for each supplier, vendor, and contractor, and proposals received were awarded

1 based on best value to the Company. Change order requests were thoroughly  
2 vetted for necessity of the change, appropriate scope, and reasonableness of cost.

3 **6. F-972 Regulator Station Rebuild**

4 **Q. WHAT IS THE F-972 REGULATOR STATION REBUILD PROJECT?**

5 A. This project integrates the distribution systems in Parker, Colorado by installing “F-  
6 972” (a new regulator station), approximately 2,300 feet of 6" PE distribution piping  
7 along Parker Rd to replace the previous 2" line, approximately 1,200 feet of 6" PE  
8 distribution piping along Stroh Ranch Rd to integrate the systems, and removing  
9 F-675 and F-755 (the previous regulator stations). Attachment ARG-7 to my Direct  
10 Testimony provides additional project information, including a map of the project  
11 location.

12 **Q. WHAT DROVE THE NEED FOR THIS PROJECT?**

13 A. This project was completed to integrate the distribution systems in Parker and  
14 increase the load capacity to the area. Through annual regulator station reviews,  
15 the Company determined that the prior two stations, F-675 and F-755, were on  
16 average approaching or exceeding their equipment capacity during cold weather,  
17 and maintaining adequate pressure for end-use customers was already becoming  
18 more difficult in the area. During cold weather days, the Company was already  
19 bypassing station F-755, and projected growth in customer demand in the area  
20 would further exacerbate the capacity constraints.

21 During annual reviews and modeling processes, it was identified that the  
22 existing regulator stations serving the distribution systems in the project area were  
23 not sufficient to serve the existing and forecasted Design Day peak hour gas load

1 needed through the stations and required replacement. Based on the Company's  
2 capacity modeling conducted in 2020, without the F-972 rebuild and distribution  
3 reinforcement project, service to approximately 1,400 existing customers would be  
4 at risk starting in 2022. By removing these prior stations, installing F-972, and  
5 installing PE distribution piping to integrate the two stations, the project area can  
6 be safely and reliably served throughout the heating season. Additionally, the  
7 regulator station was installed with redundant runs of pipe to support system  
8 reliability to the area if one pipe run were to fail or require maintenance and to  
9 support continued and projected load growth to the distribution system in the area.

10 **Q. PLEASE DESCRIBE HOW THE PLANNING FOR THIS PROJECT**  
11 **PROCEEDED.**

12 A. Through the Company's annual regulator station review, as required per code (49  
13 CFR §192.739), the Company reviewed the existing F-755 and F-675 regulator  
14 stations to evaluate if the capacity of either station exceeded the current Design  
15 Day peak hour gas load needed through the stations. It was determined that the  
16 Design Day peak hour gas load needed through F-755 exceeded the equipment  
17 capacity and was approaching the equipment capacity of F-675. Thus, Process  
18 and Controls engineering, along with distribution engineering, evaluated  
19 remediation options and determined that a new integrated regulator station was  
20 the recommended project to continue to serve existing and forecasted growth in  
21 the project area. The Company then prepared cost estimates based on historical  
22 costs of similar projects including contingencies and subject to degrees of

1 accuracy tied to the particular stage gate process. The project plan was approved  
2 by the Stage Gate committee in 2021 and then proceeded to construction.

3 **Q. WHAT ALTERNATIVES TO THE F-972 REGULATOR STATION REBUILD**  
4 **PROJECT DID THE COMPANY CONSIDER?**

5 A. As this project was necessary to increase reliability of the system, upgrading  
6 regulator stations in the area could not be avoided. Identified alternatives to the  
7 project were rebuilding both stations (F-675 and F-755) or installing the new station  
8 at a different location. The location at the other existing station (F-675) was too  
9 close to the public road ROW, and additional land to develop the site was  
10 unavailable, making a project at that site infeasible. A completely different location  
11 was also not viable due to the lack of available and suitable properties in the  
12 surrounding area due to recent development but a need to enhance regulator  
13 station capacity in that same area.

14 **Q. WERE THERE ANY UNIQUE ASPECTS OF CONSTRUCTION OF THIS**  
15 **PROJECT?**

16 A. Yes. The most unique part of this project was the number of stakeholders  
17 impacted by this work. The Town of Parker, current land owner, prospective buyer,  
18 CDOT, neighboring homeowners association, and neighboring businesses were  
19 all contacted to discuss the new design and the needs of the station for the area.  
20 Having permits and requirements from both Parker and CDOT (due to Parker Road  
21 also being a State Highway) introduced additional constraints on daily work hours.



1 **Q. HOW WAS THE F-972 REGULATOR STATION REBUILD PROJECT**  
2 **MANAGED DURING ITS IMPLEMENTATION?**

3 A. This project was managed in two parts. The first was the distribution reinforcement,  
4 and the second was the station rebuild. The respective area engineers managed  
5 this project. This project was actually comprised of two component projects, for  
6 adding capacity to the regulator station(s) and connecting the systems in the area,  
7 which were combined to be more efficient with time, money, and schedule.

8 **Q. PLEASE DESCRIBE THE COSTS FOR THIS PROJECT.**

9 A. Capital additions for this project in 2022 and 2023 are \$3.4 million. Project costs  
10 included materials and overheads (approximately 45 percent), with mechanical  
11 construction work constituting the other primary category of costs (approximately  
12 25 percent). The remaining costs included engineering, permitting, environmental,  
13 internal labor and miscellaneous costs.

14 **D. Routine Capacity Investments**

15 **Q. PLEASE GENERALLY DESCRIBE THE ROUTINE CAPACITY EXPANSION**  
16 **INVESTMENTS.**

17 A. Projects included in the capacity expansion routines are small infrastructure  
18 projects to increase gas main capacity to mitigate low-pressure, customer outage-  
19 related risks. This gas main reinforcement work is driven by increased load, either  
20 from existing customers or new customers, or a combination of the two. Generally,  
21 the types of capacity expansion routine projects that are under \$300,000 are  
22 similar to the discrete projects described in Attachment ARG-6, but typically have  
23 smaller scopes. The Company has not significantly increased volume of capacity

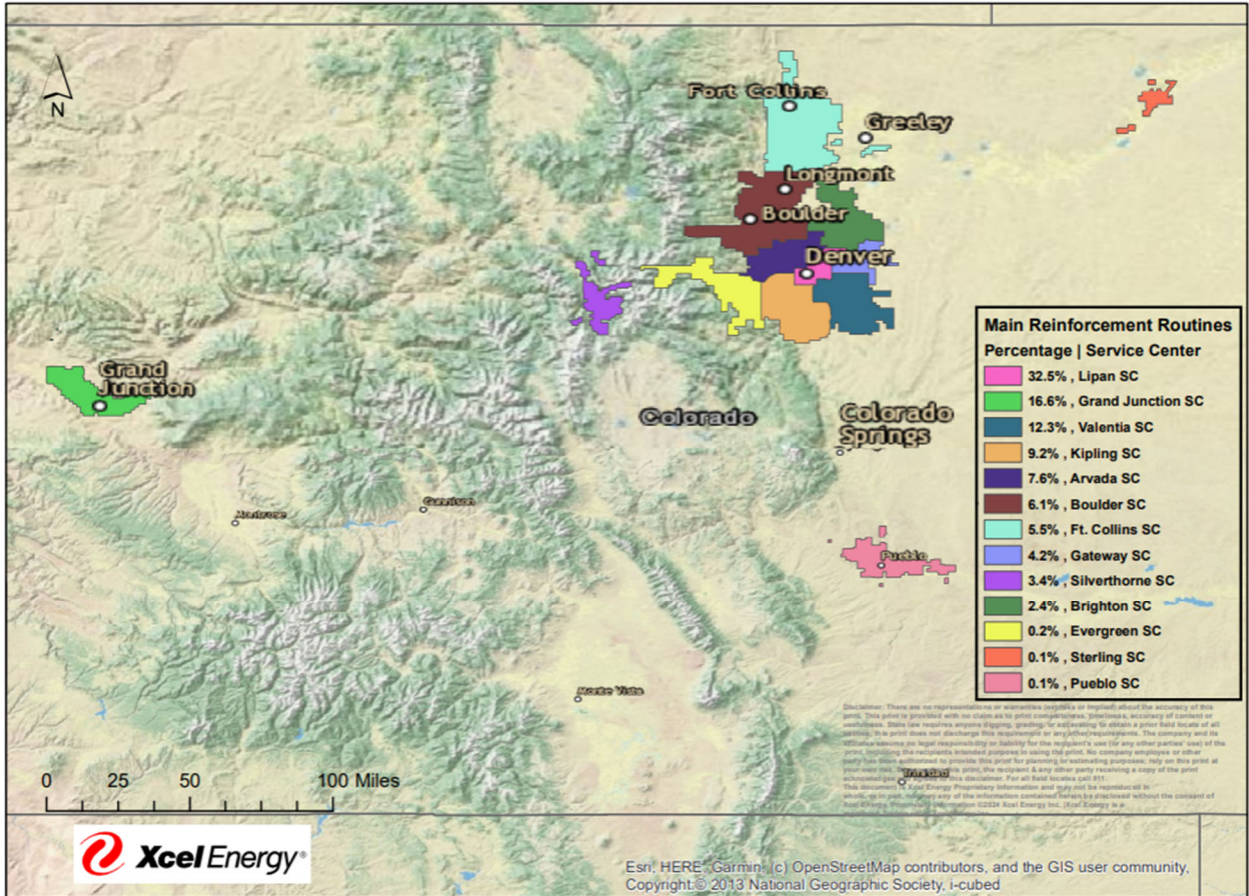
1 routine work between 2022 and 2023, but it has experienced significant inflationary  
2 impacts and increases in contractor costs, traffic control, and permitting  
3 requirements (especially related to downtown Denver). Further, as of September  
4 30, 2023, the Company had executed over 400 distribution reinforcement projects  
5 under the capacity routine since the 2021 HTY, such as installing larger diameter  
6 pipe or reinforcing systems through integration of distribution systems.

7 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL ABOUT WHERE THIS ROUTINE**  
8 **CAPACITY WORK IS BEING CONDUCTED ON THE COMPANY'S SYSTEM?**

9 A. Yes. Figure ARG-D-11 below demonstrates the actual and forecasted capacity  
10 main reinforcement capital expenditures for the period 2022-2023 by geographical  
11 area, broken down by service center. As discussed earlier in my testimony, the  
12 capital expenditures for this type of work during the same period are not precisely  
13 equivalent to capital addition amounts, but they provide insight into the location of  
14 the routine capital investments on our system. Overall, this work is necessary to  
15 ensure reliable service to customers by remedying areas of constraint on the  
16 system.

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**Figure ARG-D-11**  
**Routine Capacity Expansion (Main Reinforcement) Routines 2022-2023**  
**Percentage of Capital Expenditures by Service Center**



1                                   **VI. SYSTEM SAFETY AND INTEGRITY**

2           **A.     System Safety and Integrity Overview**

3   **Q.     WHAT ARE THE KEY COMPONENTS OF MAINTAINING THE SAFETY OF THE**  
4   **PUBLIC SERVICE GAS SYSTEM?**

5   A.     Customer, system, and public safety are at the core of the mission of Public  
6         Service's Gas business. Maintaining safety requires a multi-faceted approach that  
7         considers the complex nature of the system and the multiple risks that face any  
8         natural gas system. Much of the safety work is focused on maintaining the integrity  
9         of the Public Service gas system assets so they can function as intended and  
10        provide safe and reliable service to customers.

11 **Q.     WHAT RULES AND STATUTES GOVERN INVESTMENTS IN SYSTEM**  
12 **SAFETY AND INTEGRITY?**

13 A.     Company witness Ms. Gilliland provides a more detailed discussion of this  
14         framework, so I only provide a summary here. As she explains, a complex set of  
15         rules and regulations govern our work at the federal, state, and local level. At a  
16         federal level, PHMSA is the primary federal administration for ensuring that  
17         pipelines are safe, reliable, and environmentally sound. PHMSA oversees the  
18         development and implementation of regulations concerning pipeline construction  
19         and maintenance and operations. These responsibilities are shared with the State  
20         of Colorado. The Company is dedicated to operating a safe and reliable gas  
21         system for our customers, and we are required to comply with all applicable safety  
22         requirements and regulations for active pipeline segments.

1 **Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN THE SYSTEM SAFETY AND**  
2 **INTEGRITY CATEGORY?**

3 A. System safety and integrity projects are projects related to maintaining the safety  
4 and integrity of the gas system, including, but not limited to, pipeline and storage  
5 integrity management programs, exposed pipe inspection and remediation, pipe  
6 or compressor station upgrades, projects undertaken to meet PHMSA  
7 requirements, and SCADA upgrades. Major categories of safety work for which  
8 there are capital additions in the Test Year include: DIMP Programmatic, MAOP  
9 Reconfirmation, Coupled IP, TIMP Assessments and Repairs, ASV/RCV,<sup>36</sup>  
10 Shorted Casings, Inoperable Valve Replacements, Obsolete and Inoperable  
11 Equipment, Compressor Station Backup Generators, Tools and Equipment, and  
12 other categories of safety work.

13 **Q. PLEASE PROVIDE AN OVERVIEW OF PUBLIC SERVICE'S SYSTEM SAFETY**  
14 **AND INTEGRITY CAPACITY EXPANSION CAPITAL ADDITIONS SINCE THE**  
15 **2021 HTY.**

16 A. Table ARG-D-13 below identifies the system safety and integrity plant additions  
17 for 2022 and 2023 reflecting, at a high level, the breakdown between discrete and  
18 routine project categories.

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<sup>36</sup> "ASVs" are automatic shut-off valves. "RCVs" are remote-controlled valves.

**Table ARG-D-13**  
**Gas Operations System Safety and Integrity Capital Additions**  
**Routines vs. Discrete Projects\* (\$ millions)**

| System Safety and Integrity | 2022<br>(Actual) | 2023                   |                            |                | Total Additions Since 2021 Test Year |
|-----------------------------|------------------|------------------------|----------------------------|----------------|--------------------------------------|
|                             |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total          |                                      |
| Routines                    | \$72.5           | \$61.3                 | \$17.4                     | \$78.7         | \$151.2                              |
| Discrete                    | \$205.3          | \$109.0                | \$101.5                    | \$210.6        | \$415.9                              |
| <b>Total</b>                | <b>\$277.9</b>   | <b>\$170.3</b>         | <b>\$118.9</b>             | <b>\$289.2</b> | <b>\$567.1</b>                       |

\* Any differences in sums due to rounding.

4 **Q. PLEASE GENERALLY DESCRIBE THE TYPES OF CAPITAL ADDITIONS**  
 5 **INCLUDED IN THE SYSTEM SAFETY AND INTEGRITY DISCRETE**  
 6 **CATEGORY.**

7 A. Capital additions in the discrete category of system safety and integrity projects  
 8 include both more programmatic work and individually identified discrete projects.  
 9 As noted earlier in my Direct Testimony, given the GIP definitions, the System  
 10 Safety and Integrity category includes safety investment presented in prior cases  
 11 as PSIA safety and non-PSIA safety, as well as asset health investment, as asset  
 12 health has always been the broader, overarching “safety” category of investment.

13 **Q. PLEASE IDENTIFY THE DISCRETE SYSTEM SAFETY AND INTEGRITY**  
 14 **CAPITAL ADDITIONS IN 2022 AND 2023.**

15 A. Table ARG-D-14 below provides a summary of the discrete system safety and  
 16 integrity capital additions for 2022 and 2023. The Company’s system safety and  
 17 integrity category is by far the largest category of investments on our system, and  
 18 includes numerous programs and individually identified projects, many of them  
 19 under \$100,000. As such, we first provide a table summarizing the discrete

1 System Safety and Integrity investment categories for 2022 and 2023, showing  
2 capital additions for each major category of safety investment. High-level  
3 descriptions of the many smaller discrete system safety and integrity projects are  
4 provided as Attachment ARG-8 to my Direct Testimony.

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**Table ARG-D-14**  
**Summary of Discrete System Safety and Integrity Plant Additions**  
**January 1, 2022 to December 31, 2023\* (\$ millions)**

| System Safety and Integrity               | 2022<br>(Actual) | 2023                   |                            |                | Total Additions<br>Since 2021 Test<br>Year |
|---|------------------|------------------------|----------------------------|----------------|--|
|   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total          |  |
| DIMP Programmatic                         | \$58.7           | \$26.2                 | \$34.8                     | \$61.1         | \$119.8                                    |
| MAOP Reconfirmation                       | \$32.8           | \$14.6                 | \$8.5                      | \$23.0         | \$55.9                                     |
| Coupled IP                                | \$26.0           | \$15.1                 | \$1.7                      | \$16.8         | \$42.8                                     |
| TIMP Assessments (and Repairs)            | \$15.4           | \$9.8                  | \$9.5                      | \$19.4         | \$34.8                                     |
| ASV/RCV                                   | \$21.4           | \$4.4                  | \$5.4                      | \$9.8          | \$31.2                                     |
| Shorted Casings                           | \$12.3           | \$0.9                  | \$1.4                      | \$2.3          | \$14.6                                     |
| Inoperable Valves                         | \$0.0            | \$2.8                  | \$6.1                      | \$8.8          | \$8.8                                      |
| Obsolete Odorizers                        | (\$0.1)          | \$1.2                  | \$3.0                      | \$4.2          | \$4.2                                      |
| Obsolete Regulators                       | \$2.3            | \$0.4                  | \$0.5                      | \$1.0          | \$3.2                                      |
| Boosting Regs                             | \$0.0            | \$0.0                  | \$3.0                      | \$3.0          | \$3.0                                      |
| Compressor Station Backup Generators      | \$0.0            | \$2.5                  | \$3.2                      | \$5.8          | \$5.8                                      |
| Tools                                     | \$2.4            | \$3.1                  | \$1.2                      | \$4.3          | \$6.8                                      |
| Redundant Regulators                      | \$2.4            | (\$0.0)                | \$1.4                      | \$1.4          | \$3.9                                      |
| Exposed Pipe Replacement                  | \$0.9            | \$1.4                  | \$0.0                      | \$1.4          | \$2.4                                      |
| Cathodic Protection                       | \$0.5            | \$0.8                  | \$0.8                      | \$1.6          | \$2.2                                      |
| Remote Terminal Unit (“RTU”) Replacements | \$0.6            | \$0.4                  | \$0.8                      | \$1.2          | \$1.8                                      |
| Vault Program                             | \$0.0            | \$0.0                  | \$1.8                      | \$1.8          | \$1.8                                      |
| Above Ground Facility Protection          | \$1.4            | \$0.4                  | \$0.0                      | \$0.4          | \$1.8                                      |
| Hardscaping                               | \$0.0            | \$0.4                  | \$1.1                      | \$1.5          | \$1.5                                      |
| ERX Installation                          | \$0.5            | \$0.4                  | \$0.4                      | \$0.8          | \$1.3                                      |
| Capitalized Locates                       | \$0.4            | \$0.3                  | \$0.4                      | \$0.7          | \$1.1                                      |
| Pipeline Marker Project                   | \$1.5            | \$1.3                  | \$1.2                      | \$2.5          | \$4.0                                      |
| F-808 Rebuild**                           | \$0.0            | \$4.1                  | \$0.5                      | \$4.6          | \$4.6                                      |
| F-340 Rebuild**                           | \$0.0            | \$2.7                  | \$2.4                      | \$5.1          | \$5.1                                      |
| CO/Tiffany Upgrades/Pockets, Dehy**       | \$0.0            | \$4.9                  | \$1.2                      | \$6.1          | \$6.1                                      |
| System Safety and Integrity – Other       | \$25.7           | \$10.8                 | \$10.6                     | \$21.9         | \$47.6                                     |
| <b>Total</b>                              | <b>\$205.3</b>   | <b>\$109.0</b>         | <b>\$101.5</b>             | <b>\$210.6</b> | <b>\$415.9</b>                             |

\*Any differences in sums due to rounding.

\*\* Included in Obsolete and Inoperable Equipment section of testimony below.



1 **Q. CAN YOU PROVIDE MORE INFORMATION ABOUT THE COMPANY'S**  
2 **SYSTEM SAFETY AND INTEGRITY DISCRETE CAPITAL ADDITIONS?**

3 A. Yes. In the next segment of my Direct Testimony, I provide information on each  
4 of the major categories of work shown in Table ARG-D-14 above. Each section  
5 includes a table identifying the projects or programs of work with over \$1 million in  
6 capital additions for 2022-2023. I also provide additional discussion in testimony  
7 for System Safety and Integrity projects that are \$5 million or higher in total project  
8 costs for 2022-2023 included in this case, and I describe projects included in the  
9 "Other" System Safety and Integrity category. Additionally, Attachment ARG-9  
10 contains project-specific information for each of the System Safety and Integrity  
11 projects that are \$3 million or higher (also denoted with a \*\* in the tables in each  
12 of the following sections).

13 **Q. IS THE COMPANY SEEKING TO TRANSFER TO BASE RATES ANY**  
14 **INVESTMENTS THAT WERE MADE UNDER THE PSIA DEFERRAL IN 2022?**

15 A. Yes. Under the 2021 PSIA Settlement, the Company was authorized to implement  
16 a one-year PSIA deferral mechanism (previously referred to as the "PSIA  
17 Deferral") effective January 1, 2022, allowing for \$143.1 million of "PSIA"  
18 investment in 2022 for the following DIMP Projects: PPRP – Coupled IP, and  
19 Vintage Steel and Accelerated Main Replacement Program; and the following  
20 TIMP Projects: ASV/RCV, MAOP, and Pipeline Assessments and Repairs  
21 (collectively, "2022 PSIA Projects"). Detail on the 2022 PSIA Projects, including  
22 the risk ranking criteria used for PSIA eligibility and budget determinations, was  
23 filed with the Commission in Proceeding No. 21A-0071G on November 15, 2021,

1 as required by the 2021 PSIA Settlement, and a report on the actual investment  
2 was filed in that same proceeding on April 3, 2023. Approximately \$152.0 million  
3 of the Test Year base rate revenue requirement is for PSIA projects moving into  
4 base rates from the PSIA Deferral as part of this proceeding.

5 **B. System Safety and Integrity Discrete Projects**

6 **1. DIMP Programmatic**

7 **Q. PLEASE DESCRIBE DIMP PROGRAMMATIC WORK.**

8 A. The federal DIMP rules were promulgated by PHMSA in 2009. The basic elements  
9 of integrity management apply to DIMP: know your system (assets), identify the  
10 threats and risks to those assets, and proactively mitigate those threats. The  
11 Company's DIMP activities are thus focused on obtaining and evaluating  
12 information related to the distribution system that is critical for a risk-based,  
13 proactive, integrity management program that involves programmatically  
14 remediating risks, such as renewing early polymers and vintage steel pipelines.

15 DIMP Programmatic refers to the DIMP Programmatic Replacement  
16 Program, including gas distribution renewal activities that were previously included  
17 in the Accelerated Main Replacement Program ("AMRP") and Programmatic Pipe  
18 Replacement Program ("PPRP") formerly within the PSIA. With discontinuation of  
19 the PSIA, both AMRP and PPRP activities are now included in and referred to as  
20 DIMP Programmatic. AMRP focuses on replacement of certain inherently higher-  
21 risk materials, including cast iron, bare steel, and PVC distribution mains and the  
22 associated services. PPRP focuses on specific types of distribution infrastructure  
23 risks that evolve over time and includes replacement of coated steel distribution

1 mains and the associated services. This coated steel replacement work is known  
2 as Coated Steel Main Replacement (“CSMR”). DIMP Programmatic does not  
3 include the DIMP program for the replacement of Coupled IP pipelines, which is  
4 its own category discussed later in my testimony. DIMP Programmatic work may  
5 be conducted under a program of work or may be related to individual discrete  
6 projects identified.

7 **Q. WHAT ARE THE TOTAL COSTS FOR DIMP PROGRAMMATIC WORK**  
8 **INCLUDED IN THIS CASE?**

9 A. Table ARG-D-15 below provides the total costs related to DIMP Programmatic  
10 work included in this rate case, identifies the individual projects in this category  
11 with costs over \$1 million in total for 2022 and 2023, and provides a brief  
12 description of each of these projects. High-level descriptions of the many smaller  
13 discrete system safety and integrity projects are provided as Attachment ARG-8 to  
14 my Direct Testimony. Additionally, I provide more information regarding the  
15 AMRP, PPRP/CSMR, and other DIMP Programmatic work, as well as the Clarkson  
16 Street Main Renewal, Fort Collins 8” IP replacement, and Leadville projects in the  
17 subsections below.

**Table ARG-D-15**

**DIMP Programmatic – Discrete System Safety and Integrity Plant Additions – Greater than \$1 Million**

**January 1, 2022 to December 31, 2023\* (\$ millions)**

| DIMP Programmatic                      | Description  | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|--|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|  |  |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| AMRP-Colorado main replace             | Multiple projects throughout the state to renew existing PVC mains. PVC is considered a high risk material due to properties.  | \$23.2        | \$2.7               | \$5.2                   | \$8.0 | \$31.2                               |
| CSMRP - Coated Steel Main Replacement  | Multiple projects throughout the state to renew vintage steel mains. Projects replace risk ranked vintage steel mains.   | \$15.3        | \$2.6               | \$5.9                   | \$8.5 | \$23.8                               |
| AMRP Services                          | Multiple projects throughout the state to renew existing PVC services or services associated with PVC mains. PVC is considered a high risk material due to properties. | \$9.0         | \$2.6               | \$0.9                   | \$3.5 | \$12.5                               |
| CO - DIMP Programmatic Service Replace | Multiple projects throughout the state to renew either high risk material or vintage steel services.   | \$0.0         | \$3.7               | \$3.7                   | \$7.4 | \$7.4                                |
| CSMRP - Gas Mains Discrete             | Multiple projects throughout the state to renew vintage steel mains. Projects replace risk   | \$5.4         | \$0.6               | \$0.1                   | \$0.7 | \$6.1                                |

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| DIMP Programmatic                       | Description  | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|---|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|   |  |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
|   | ranked vintage steel mains.  |               |                     |                         |       |                                      |
| CO/DMO/DNV/Clarkson St. Main Renew **   | Renew 2,000' of 20" steel inches low distribution system in Denver, CO. Project replaces high risk mill wrap gas main. | \$0.0         | \$5.0               | \$0.9                   | \$5.8 | \$5.8                                |
| CO - DIMP Programmatic Main Replace     | Multiple projects throughout the state to renew either high risk material or vintage steel mains.                      | \$0.0         | \$3.5               | \$2.3                   | \$5.8 | \$5.8                                |
| CSMRP - Gas Services Discrete           | Multiple projects throughout the state to renew vintage steel services or services attached to vintage steel mains.    | \$4.2         | \$0.8               | \$0.3                   | \$1.0 | \$5.2                                |
| CO/Fort Collins 8" IP 2023/MR Renew**   | Renew 5,400' of 8" steel main in Fort Collins. Mitigated high risk for leak/failure due to age install.                | \$0.0         | \$0.0               | \$4.5                   | \$4.5 | \$4.5                                |
| CO/LEAD//REN W//Leadville 2023 6- IN/** | Renew 6,200' of 6", 4", and 2" main in Leadville. Mitigated high risk weld quality.                                    | \$0.0         | \$3.2               | \$0.2                   | \$3.4 | \$3.4                                |
| CO/LEAD/REN W/Leadville 2023 6-IN/MR**  | Renew 15,000' of 2" main in Leadville. Mitigated high risk weld quality  | \$0.0         | \$0.0               | \$2.6                   | \$2.6 | \$2.6                                |
| AMRP Main                               | Multiple projects throughout the state to renew existing PVC mains. PVC considered a high                              | \$1.7         | \$0.0               | \$0.0                   | \$0.0 | \$1.7                                |

| DIMP Programmatic                    | Description   | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|--------------------------------------|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|                                      |   |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total         |                                      |
|                                      | risk material due to properties.                                  |               |                     |                         |               |                                      |
| CO/DNV/AMRP /13101-13671 RANDOLPH PL | Renew 15,000' of 2" main in Denver. Mitigated high risk PVC pipe. | \$0.0         | \$0.0               | \$1.4                   | \$1.4         | \$1.4                                |
| Other DIMP Programmatic              | Various other smaller main replacement projects.                  | \$0.0         | \$1.6               | \$6.9                   | \$8.4         | \$8.4                                |
| <b>DIMP Programmatic Subtotal</b>    |   | <b>\$58.7</b> | <b>\$26.2</b>       | <b>\$34.8</b>           | <b>\$61.1</b> | <b>\$119.8</b>                       |

\*Any differences in sums due to rounding.

\*\*Additional information provided in Attachment ARG-9.

1 a. AMRP, PPRP/CSMR, and Other DIMP Programmatic

2 **Q. PLEASE DESCRIBE THE AMRP WORK.**

3 A. The Company's AMRP initiative began in 2008. AMRP specifically focuses on the  
 4 renewal of all cast iron, bare steel, and PVC distribution mains and the associated  
 5 services, as these materials are considered inherently higher-risk. All known cast  
 6 iron main in the Company's distribution system was replaced by the end of 2014.  
 7 However, additional cast iron main is occasionally identified during the normal  
 8 course of work on our system and scheduled for renewal. Renewal of known bare  
 9 steel and PVC main is ongoing, and additional bare steel and PVC main is also  
 10 occasionally identified during the normal course of work on our system and  
 11 scheduled for renewal. AMRP sub-projects are identified through our mapping  
 12 system. This work is conducted to address the risks associated with these vintage  
 13 materials.

1 **Q. WHAT ARE THE RISKS ASSOCIATED WITH CAST IRON, BARE STEEL, AND**  
2 **PVC MAINS AND ASSOCIATED SERVICES?**

3 A. Cast iron, bare steel, and PVC pipe types are exclusively within the Company's  
4 distribution pipeline system (and operate at less than 1 pound per square inch  
5 ("psi"), up to 66 psi). Cast iron and bare steel mains were some of the first pipe  
6 types installed in gas distribution systems in the early part of the 20th century and  
7 continued to be installed through the mid-1950s. PVC was primarily installed in the  
8 1960s and 1970s. As previously mentioned, these materials are inherently higher-  
9 risk. Cast iron and PVC are brittle and break easily, and bare steel is susceptible  
10 to corrosion. Due to pipe age and quality, these mains are at risk of leaks and  
11 blowing gas.

12 **Q. WHAT ARE THE TOTAL COSTS FOR AMRP WORK INCLUDED IN THIS**  
13 **CASE?**

14 A. Table ARG-D-15 above provides the total costs related to AMRP work included in  
15 this rate case, identifies the individual projects in this category with costs over \$1  
16 million in total for 2022 and 2023, and provides a brief description of each of these  
17 projects. High-level descriptions of the many smaller discrete system safety and  
18 integrity projects are provided as Attachment ARG-8 to my Direct Testimony. The  
19 total costs for AMRP work included in this case are \$46.8 million, consisting of:

- 20 • AMRP-Colorado main replace: \$31.2 million
- 21 • AMRP Services: \$12.5 million
- 22 • AMRP Main: \$1.7 million
- 23 • CO/DNV/AMRP/13101-13671 RANDOLPH PL: \$1.4 million

1 **Q. PLEASE DESCRIBE THE PPRP/CSMR WORK.**

2 A. Along with the AMRP program, Public Service began its CSMR program (originally  
3 under PPRP) in 2008. CSMR specifically focuses on replacement of pre-1970  
4 coated steel distribution mains and the associated services, which have been  
5 classified as high-risk based on the Company's risk evaluation. This work is  
6 conducted to address the risks associated with coated steel pipes.

7 **Q. WHAT ARE THE RISKS ASSOCIATED WITH COATED STEEL PIPELINE?**

8 A. Coated steel mains were primarily installed in gas distribution systems pre-1970.  
9 Due to pipe age and material type, coated steel pipeline is subject to increased  
10 risk of threats to system safety and integrity, including, but not limited to, corrosion;  
11 pipe, weld, and joint failure; and excavation damage, which can lead to leaks and  
12 blowing gas.

13 **Q. WHAT ARE THE TOTAL COSTS FOR PPRP/CSMR WORK INCLUDED IN THIS**  
14 **CASE?**

15 A. Table ARG-D-15 above provides the total costs related to coated steel work  
16 included in this rate case, identifies the individual projects in this category with  
17 costs over \$1 million in total for 2022 and 2023, and provides a brief description of  
18 each of these projects. High-level descriptions of the many smaller discrete  
19 system safety and integrity projects are provided as Attachment ARG-8 to my  
20 Direct Testimony. The total costs for PPRP/CSMR work included in this case are  
21 \$51.4 million, consisting of:

- 22 • CSMRP - Coated Steel Main Replacement (including 2022  
23 capital additions for Clarkson, Fort Collins, and Leadville):  
24 \$23.8 million



- 1 • CSMRP - Gas Mains Discrete: \$6.1 million
- 2 • CO/DMO/DNV/Clarkson St. Main Renew : \$5.8 million
- 3 • CSMRP - Gas Services Discrete: \$5.2 million
- 4 • CO/Fort Collins 8" IP 2023/MR Renew (2023): \$4.5 million
- 5 • CO/LEAD//RENEW//Leadville 2023 6-IN/: \$3.4 million
- 6 • CO/LEAD/RENEW/Leadville 2023 6-IN/MR: \$2.6 million

7 **Q. WHAT IS MEANT BY “OTHER DIMP PROGRAMMATIC” IN TABLE ARG-D-15**  
8 **ABOVE?**

9 A. “Other DIMP Programmatic” refers to a grouping of other AMRP and PPRP/CSMR  
10 projects that individually did not cost over \$1 million in 2022 and 2023, and  
11 therefore are not individually set forth in Table ARG-D-15. “Other DIMP  
12 Programmatic” is comprised of only AMRP and PPRP/CSMR projects, so “Other  
13 DIMP Programmatic” does not refer to a separate type of work, but rather a  
14 combination of AMRP and PPRP/CSMR work. As described above, the AMRP  
15 work under Other DIMP Programmatic focuses on the renewal of inherently high-  
16 risk cast iron, bare steel, and PVC distribution mains and the associated services.  
17 Also, the PPRP/CSMR work under Other DIMP Programmatic focuses on  
18 replacement of pre-1970 coated steel distribution mains and the associated  
19 services, which the Company has evaluated to be high-risk.

20 **Q. WHAT ARE THE TOTAL COSTS FOR OTHER DIMP PROGRAMMATIC WORK**  
21 **INCLUDED IN THIS CASE?**

22 A. Table ARG-D-15 above provides the total costs related to Other DIMP  
23 Programmatic work included in this rate case, identifies the individual projects in

1 this category with costs over \$1 million in total for 2022 and 2023, and provides a  
2 brief description of each of these projects. High-level descriptions of the many  
3 smaller discrete system safety and integrity investments are provided as  
4 Attachment ARG-8 to my Direct Testimony. The total cost for Other DIMP  
5 Programmatic work included in this case is \$21.6 million, consisting of:

- 6 • CO - DIMP Programmatic Service Replacement: \$7.4 million
- 7 • CO - DIMP Programmatic Main Replacement: \$5.8 million
- 8 • Other DIMP Programmatic: \$8.4 million

9 **Q. HOW DID THE COMPANY PLAN ITS AMRP, PPRP/CSMR, AND OTHER DIMP**  
10 **PROGRAMMATIC WORK FOR 2022 AND 2023?**

11 A. DIMP requires the Company to proactively identify and mitigate threats to the gas  
12 system. Each year Public Service evaluates potential projects to be completed the  
13 following year, so the Company's DIMP Programmatic work (including AMRP,  
14 PPRP/CSMR, and Other DIMP Programmatic) for 2022 and 2023 was generally  
15 planned in 2021 and 2022, respectively.

16 For AMRP work, including any AMRP work under Other DIMP  
17 Programmatic, this evaluation process involves Public Service first using its  
18 mapping system to identify project areas. Projects are then prioritized for  
19 scheduling by size of the project area balanced against costs of the project.  
20 Specifically, the Company gives higher priority to projects that allow the largest  
21 area(s) of the system to be mitigated within the available budget for DIMP work,  
22 thereby allowing for the greatest reduction of risk.

1            PPRP/CSMR's planning process (including for any PPRP/CSMR work  
2            under Other DIMP Programmatic) is also similar to AMRP's except that it includes  
3            a risk analysis. As with AMRP, the evaluation process involves Public Service first  
4            using its mapping system to identify projects. However, then the Company uses  
5            asset operating history, subject matter expert experience and insight, and industry  
6            experience, as well as risk modeling, in assessing risk on these assets. The  
7            Company's risk modeling approach for gas distribution assets is described in  
8            Section 7 of the Gas Infrastructure Report "DIMP PPRP – Vintage and/or  
9            Problematic Pipe Risk." Based on this risk analysis, projects are risk scored, and  
10           projects classified as high-risk are prioritized according to the highest risk score  
11           and scheduled based on DIMP budget availability.

12           Notwithstanding the above planning processes, if an active risk (e.g., leak)  
13           is identified by gas field crews working on the system, a project necessary to  
14           mitigate the risk is immediately escalated and given higher priority than originally  
15           planned projects. Projects are designed internally within Public Service, and the  
16           work is provided to an MSA-approved vendor for construction. Public Service's  
17           DIMP Programmatic work (including AMRP, PPRP/CSMR, and Other DIMP  
18           Programmatic) for 2022 and 2023 was planned according to the above process.

19           In the next section of my Direct Testimony, I discuss several larger discrete  
20           projects within the DIMP Programmatic classification.

*b. Clarkson Street Projects*

**Q. WHAT ARE THE CLARKSON STREET MAIN RENEWAL PROJECTS?**

A. The Clarkson Street main renewal projects are part of an overall multi-year, multi-phase effort to renew a coated steel gas main on the Denver Inches Low distribution system along Clarkson Street. The project was initiated in 2021 under the Company's PPRP/CSMR program, which is now part of DIMP Programmatic. The 2022 work renewed approximately 3,000 feet of coupled 10" and 12" high-risk mill wrap ("MW") gas main with 3,000 feet of 12" high-density PE gas main. The new main followed the existing alignment in the public right of way ("ROW") on Clarkson Street between 9th Avenue and 14th Avenue. Approximately 68 services were renewed or tied over to the new gas main. The existing main was abandoned in place.

The 2023 project is a coated steel system safety and integrity project that removed 2,000 feet of 20" high risk mill wrap (MW) gas main and replaced it with 2,000 feet of 20" Fusion Bond (FB) gas main. The new gas main was installed in parallel to the existing line via trenching. The new line runs on 20th Avenue from Downing Street to Ogden Street, and along Ogden Street from 20th Avenue to 19th Avenue, along 19th Avenue from Ogden Street to Clarkson Street, and then along Clarkson Street from 19th Avenue to 18th Avenue. Approximately 20 residential customer service lines were renewed and tied over to the new gas main. The existing main was abandoned in place.

Attachment ARG-9 to my Direct Testimony provides additional project information, including maps of the project locations.

1 **Q. WHY ARE THESE PROJECTS NEEDED?**

2 A. Based on the Company's risk analysis, the existing MW gas main was classified  
3 as high-risk under the PPRP/CSMR program. The 2022 project was previously  
4 under the PSIA. The existing pipeline was installed in the late 1940s and was past  
5 its useful life, and also used compression couplings, which are prone to leaks. Due  
6 to pipe age and material type, as well as use of compression couplings, the existing  
7 pipeline was susceptible to a risk of leaks at the fittings and a risk of blowing gas  
8 if the fittings failed. Thus, based on the Company's DIMP assessment, this existing  
9 gas main is susceptible to potential leaks and is deemed high risk to the gas  
10 system. PHMSA regulation 49 CFR §192.1007(d) requires operators to identify  
11 and implement measures to address risks, which is why this project was identified  
12 for inclusion into the Company's DIMP PPRP/CSMR program. Moreover, due to  
13 the large diameter of certain portions and densely populated urban area of the  
14 pipeline, there would be a large impact to customers should failure occur. The  
15 projects were necessary to address these risks.

16 **Q. WERE THERE ANY UNIQUE CONSIDERATIONS WHEN DETERMINING THE**  
17 **SCOPE OF THE PROJECTS?**

18 A. Yes. The Company considered that the project area was congested with existing  
19 utilities. During planning for the 2022 project, the Company was able to identify a  
20 running line that met required clearances. However, during planning for the 2023  
21 project, given the large diameter of the pipeline, the Company decided to evaluate  
22 the feasibility of alternative routes for the project so that the project could be  
23 located in a less congested area. As described next, the Company ultimately

1 determined that re-routing was not a viable option because it would increase  
2 project costs and that the current scope of the project was the most reasonable.

3 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

4 A. As previously mentioned, during planning for the 2023 project, the Company  
5 considered whether a re-route was feasible. However, a re-route was not a viable  
6 option because it would require installing 20" pipe on the new route and also 8-12"  
7 pipe on the existing route to continue to feed the existing services, which would  
8 result in a higher overall project cost. No non-pipeline alternatives were  
9 considered because only a small portion of customers were directly fed off the  
10 existing main, such that electrification of these customers would not solve the  
11 broader issue. Derating was also not a viable option due to the existing main being  
12 located on Public Service's lowest pressure system.

13 **Q. HOW DID CONSTRUCTION OF THE PROJECT PROCEED?**

14 A. Construction for the 2022 project began in April 2022 and ran into several issues.  
15 During construction of the main, the Company discovered abandoned railroad lines  
16 and unclaimed utilities, which then needed to be removed or worked around. Soil  
17 conditions in the project area also created issues such as cave-ins, which required  
18 the Company to re-excavate those areas to continue construction. Due to the  
19 additional work needed to address these issues, project costs increased, and  
20 timing was delayed. Additionally, after the main was installed, the Company also  
21 experienced delays with the customer service tie-overs taking place during fall and  
22 winter 2022.

1 Construction for the 2023 project began in June 2023 and largely proceeded  
2 as planned. However, the Company needed to implement odorization for a longer  
3 timeframe than planned, and also implemented additional traffic management and  
4 safety devices on site. As a result, project completion was slightly delayed.

5 **Q. IS THERE ANYTHING ELSE NOTABLE WITH RESPECT TO HOW THE**  
6 **PROJECT'S IMPLEMENTATION WAS MANAGED?**

7 A. Yes. The project area was near both a hospital and a high school, so the Company  
8 engaged a public outreach vendor to assist with stakeholder engagement. The  
9 Company held additional public outreach meetings and provided more frequent  
10 project status and construction updates to mitigate any potential impacts to the  
11 hospital and high school's operations. The Company also adjusted its working  
12 hours to accommodate these nearby operations. The Company was able to  
13 manage any issues that arose in relation to the project through its typical process  
14 for managing projects, as described earlier in my Direct Testimony.

15 **Q. WHAT WERE THE TOTAL COSTS FOR THIS PROJECT?**

16 A. Total costs were approximately \$4.1 million for 2022 (included in CSMR) and \$5.8  
17 million for 2023 (discrete line item). The majority of the cost associated with these  
18 projects (approximately 60 percent) was related to the mechanical construction  
19 work completed by our construction vendors. In addition, project costs included  
20 materials and overheads (approximately 30 percent). The remaining costs  
21 included engineering, permitting, environmental, internal labor, and miscellaneous  
22 costs.

1 **Q. IS THIS BREAKDOWN OF PROJECT COSTS REASONABLE?**

2 A. Yes. The breakdown of these project costs is typical of these types of DIMP  
3 replacement projects. While Mechanical encompasses a majority of the costs, this  
4 is expected, as the costs associated with the previously described 2022 project  
5 construction, 2023 project odorization, and stakeholder outreach issues are  
6 included in Mechanical costs.

7 **Q. OVERALL, ARE THE COSTS OF THESE PROJECTS REASONABLE?**

8 A. Yes. This project was necessitated by DIMP requirements. The Company also  
9 selected this project after an in-depth analysis of need and selected a viable and  
10 cost-effective option for the work. The Company also increased stakeholder  
11 engagement due to the project location, and worked through several unexpected  
12 issues. The Company rigorously managed the project through these issues to  
13 contain impacts to costs or timing.

14 *c. Fort Collins 8" IP Projects*

15 **Q. WHAT ARE THE FORT COLLINS 8" IP PROJECTS?**

16 A. The Fort Collins 8" IP projects are part of a multi-year replacement of portions of  
17 high-risk 8" steel IP main in Fort Collins, Colorado. The Fort Collins 8" IP  
18 replacement was a coated steel project initiated in 2021 under the Company's  
19 PPRP as part of the PSIA. It is now part of DIMP Programmatic. The segments  
20 of the projects placed in service in 2022 and 2023 are part of this rate case.  
21 Attachment ARG-9 to my Direct Testimony provides additional project information,  
22 including maps of the project locations.



1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THESE**  
2 **PROJECTS.**

3 A. In 2022, the Company completed the 2022 segment as part of the PSIA Deferral,  
4 which addressed 5,500 feet of existing 8" steel IP main in Wood Street and  
5 Washington Avenue from Cherry Street down to Mulberry Street, and then west to  
6 Shields Street with new 8" main in Grant Avenue. This project also renewed 500  
7 feet of existing 6" steel IP main along Bungalow Court between Grant Avenue and  
8 Washington Avenue. The 2022 scope required crossing a ditch and includes  
9 seven customer service tie overs in Fort Collins, Colorado. The 2023 project  
10 renewed approximately 5,400 feet of existing 8" steel IP main in Shields Street  
11 between Prospect Road and Drake Street as well as renewing or tying over four  
12 customer services in Fort Collins, Colorado. The existing main was abandoned in  
13 place.

14 **Q. PLEASE EXPLAIN WHY THESE PROJECTS WERE NECESSARY.**

15 A. These projects are within DIMP, and were previously part of the PSIA. The need  
16 for these projects was identified based on their high risk ranking as well as field  
17 evaluation of the infrastructure, the age of the pipe, and original construction  
18 materials and methods. Due to pipe age and quality, these mains were susceptible  
19 to leaks, blowing gas, and customer outages (as a result of leaks and blowing gas)  
20 under existing operating pressure. Further, leaks could also require emergency  
21 repairs and possibly emergency renewals without proper construction planning.  
22 Additionally, any needed emergency work could create challenges for the  
23 Company, the City of Fort Collins, and local residents due to the potential impact

1 on traffic and other factors. These mains are also a major feed to all the lower  
2 pressure systems in Fort Collins. The projects were necessary to address these  
3 risks.

4 **Q. WERE THERE ANY UNIQUE CONSIDERATIONS WHEN DETERMINING THE**  
5 **SCOPE OF THE PROJECT?**

6 A. No. The Company did not encounter any special considerations during the  
7 planning phase and planned this project consistent with its typical process, as  
8 discussed earlier in my Direct Testimony.

9 **Q. WHAT ALTERNATIVES TO THESE PROJECTS DID THE COMPANY**  
10 **CONSIDER?**

11 A. These projects are necessary to preserve system safety and integrity, and Re-  
12 routing as a whole is not feasible because a new route would increase the length  
13 of pipeline used and increase costs.<sup>37</sup> Derating also is not feasible due to the  
14 criticality of the existing main to provide gas service to the majority of the City of  
15 Fort Collins.

16 **Q. HOW DID CONSTRUCTION OF THESE PROJECTS PROCEED?**

17 A. The 2022 project largely proceeded as planned. However, the City of Fort Collins  
18 unexpectedly required additional traffic controls that were not foreseeable during  
19 project planning. As a result, project completion was slightly delayed due to the

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<sup>37</sup> The 2022 project did contain a re-route to avoid conflict with an ongoing City project; however, this re-route did not change the length of the pipeline due to it shifting from Washington Street to Grant Avenue. This change was possible because it ran through a residential corridor with existing lower pressure mains in both streets, which fed existing customers.

1 Company needing to deploy more resources on-site for the duration of the work,  
2 with the project being completed in December 2022 instead of November 2022.

3 Construction for the 2023 project encountered some permitting delays due  
4 to working through traffic control approvals with the City of Fort Collins, which  
5 delayed completion. Throughout the project, the Company has coordinated  
6 closely with the City to resolve these challenges and maintain good relationships.  
7 The Company ultimately was able to obtain the necessary approvals, and overall  
8 project construction has been able to proceed consistent with the design plan and  
9 profiles and initial cost estimates.

10 **Q. IS THERE ANYTHING ELSE NOTABLE WITH RESPECT TO HOW THE**  
11 **PROJECT'S IMPLEMENTATION WAS MANAGED?**

12 A. Yes. In addition to the traffic control issues discussed above, the project area was  
13 near Colorado State University. Similar to the Clarkson Street Main Renewal  
14 project, the Company engaged public outreach vendors to assist with stakeholder  
15 engagement, and had additional communications and meetings to discuss the  
16 project with the University.

17 **Q. PLEASE DESCRIBE THE COSTS OF THE 2022 AND 2023 PROJECTS.**

18 A. Total capital additions were \$5.0 million for 2022 (included in CSMR) and \$4.5  
19 million for 2023 (discrete line item). The majority of the cost associated with these  
20 projects (approximately 60 percent) were related to the mechanical construction  
21 work completed by our construction vendors. Other primary project costs included  
22 materials and overheads (approximately 30 percent). The remaining costs

1 included engineering, permitting, environmental, internal labor and miscellaneous  
2 costs.

3 **Q. ARE THESE PROJECT COSTS REASONABLE?**

4 A. Yes. Similar to Clarkson Main Street Renewal project, the breakdown of these  
5 project costs is also consistent with these types of PPRP/CSMR replacement  
6 projects. Again, Mechanical encompasses a majority of the costs, but this is  
7 expected for construction projects, and the costs associated with the earlier-  
8 described traffic control and stakeholder outreach issues are included in  
9 Mechanical costs.

10 Similar to the Clarkson Street Main Renewal project, DIMP requirements  
11 drove the need for this project. The Company undertook this project after a  
12 detailed risk-analysis and thoughtfully planned the project, selecting the most  
13 viable and cost-efficient option for the work, and increasing stakeholder  
14 engagement due to the project location. While Public Service experienced some  
15 delays due to issues with traffic control approval from the City, the Company's  
16 rigorous management of the project and close coordination with the City to resolve  
17 these issues, allowed the project to largely proceed as planned without significant  
18 impacts to timing or costs.

19 *d. Leadville Projects*

20 **Q. WHAT ARE THE LEADVILLE PROJECTS?**

21 A. The Company has been engaged for several years in ongoing DIMP work in the  
22 City of Leadville, Colorado. The discussion in this case pertains to the individual  
23 segments placed in service in 2022 and then in 2023.

1           In 2022, the Company renewed approximately 12,500 feet of existing 2”  
2 steel gas main, and renewed/tied over 227 services, in a residential area on the  
3 east side of Leadville. Construction on this work was completed in the third quarter  
4 of 2022. This work was described in the 2022 PSIA Deferral filing under the name  
5 “Leadville 2022 Plan.”

6           In 2023, the Company installed more than 18,000 feet of new 2” and 6” steel  
7 gas main, and approximately 267 services, in an area on the west side of Leadville,  
8 along Leiter Street and between West 3rd Street and West 9th Street.  
9 Construction on this work was completed in the third quarter of 2023. The 2023  
10 work was classified as two separate projects, as shown in Table ARG-D-15, above.

11           Collectively, these projects are referred to herein as the “Leadville Projects.”  
12 Attachment ARG-9 to my Direct Testimony provides additional project information,  
13 including maps of the project locations.

14 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THESE**  
15 **PROJECTS.**

16 A. A few years ago, as part of its DIMP analyses, the Company identified that the  
17 then-existing gas infrastructure in Leadville had been constructed in the 1960s and  
18 1970s using non-standardized welding techniques. The welds have the potential  
19 to leak or even fail—this is a serious risk. The Company undertook a multi-year  
20 process of renewing the gas infrastructure throughout Leadville. The main renewal  
21 effort is being undertaken in phases that started in 2019 and are anticipated to  
22 continue beyond 2024. These phases were developed in consultation with the City

1 of Leadville to coordinate yearly construction impact in light of the limited  
2 construction season (May 1 to October 1).

3 **Q. PLEASE EXPLAIN IN MORE DETAIL WHY THIS WORK WAS NECESSARY.**

4 A. This work is necessary to comply with PHMSA's DIMP requirements to remediate  
5 operator concerns with known safety risks on the gas distribution pipelines—the  
6 non-standardized welding means there is a risk of leaks at fittings, as well as the  
7 potential for blowing gas if welds fail. Renewing the main enhances the safety,  
8 integrity, and reliability of the distribution gas infrastructure within Leadville.

9 **Q. WERE THERE ANY UNIQUE CONSIDERATIONS WHEN DETERMINING THE**  
10 **SCOPE OF THE PROJECTS?**

11 A. Yes. The Leadville Historic District has historic preservation rules specifying that  
12 gas meters and related infrastructure cannot be visible from city sidewalks. These  
13 rules require additional construction efforts. For example, in most cases, the gas  
14 meters often need to be installed on the back of buildings. This in turn requires  
15 the gas mains to be built in alleys or other areas outside the main road ROW, and  
16 can also require special installation techniques (including hand-digging).

17 In addition, as noted above it is necessary to plan the work to comply with  
18 the City's May 1 to October 1 construction work season. Because of these  
19 considerations, the Leadville Projects required detailed planning.

20 **Q. WHAT ALTERNATIVES DID THE COMPANY CONSIDER?**

21 A. The Company considered several construction alternatives. Because of thin-  
22 walled pipe and poor welding practices associated with the existing gas main, there  
23 is no effective way to replace or otherwise remediate the joints or fittings needing

1 attention. The only practical and cost-effective alternative was complete  
2 replacement of the gas infrastructure.

3 **Q. PLEASE DESCRIBE ANY UNIQUE ATTRIBUTES OF CONSTRUCTION OF**  
4 **THESE PROJECTS.**

5 A. Construction of these projects in Leadville has many unique and difficult attributes.  
6 In the 2022 and 2023 scopes of work, most of the main was installed using HDD  
7 or directional bore. There were segments where that work was difficult because  
8 in Leadville's mountainous location, it is common to encounter boulders that  
9 impede drilling/trenching and require extra attention and time. These difficulties  
10 extend into the service installation, where the proximity to structures sometimes  
11 required hand-dug trenching. Further, many of the affected locations in Leadville  
12 are second homes that are only inhabited part of the year. The City's public  
13 outreach vendor has to do extra work to coordinate service at these homes so that  
14 the work can be done when someone is at home.

15 **Q. IS THERE ANYTHING ELSE NOTABLE WITH RESPECT TO HOW THESE**  
16 **PROJECTS' IMPLEMENTATION WAS MANAGED?**

17 A. The Company retained a public outreach vendor to keep local officials and  
18 customers informed about construction timeframes. The Company used various  
19 media to ensure that the public had access to accurate and up-to-date information  
20 about the work. The Company also conducted an open house at which Leadville  
21 residents could learn about the 2023 scope. The Company conducted bi-weekly  
22 meetings with City officials to keep everyone updated on the progress, as well as

1 weekly coordination meetings with the project's stakeholders to discuss  
2 construction updates and refresh weekly construction targets.

3 **Q. WHAT WERE THE OVERALL COSTS?**

4 A. The cost of the 2022 work was approximately \$5.1 million. The cumulative cost of  
5 the two 2023 projects was approximately \$6 million. Both the 2022 work and the  
6 2023 work was completed very near budget, with the large majority of costs (more  
7 than 75 percent) attributed to mechanical construction. Design and engineering  
8 work was performed internally by Company personnel. Additional costs were  
9 incurred for materials, permitting, and overheads.

10 **Q. OVERALL, ARE THE COSTS OF THESE LEADVILLE PROJECTS**  
11 **REASONABLE?**

12 A. Yes. These projects are necessary to respond to a significant safety concern and  
13 comply with the PHMSA-mandated DIMP program. The projects were completed  
14 on time and consistent with the budget, in spite of many planning and construction  
15 challenges.

16 **2. MAOP Reconfirmation**

17 **Q. PLEASE DESCRIBE MAOP RECONFIRMATION WORK.**

18 A. MAOP reconfirmation is conducted under the Company's Transmission Integrity  
19 Management Program (previously defined as "TIMP"). Construction practices,  
20 pipeline material, and manufacturing methods have changed over the course of  
21 decades as the Company's transmission pipelines were installed. The codes and  
22 rules around material testing, welding standards, and pipeline record keeping have  
23 also evolved. Consequently, the Company's legacy assets have varying degrees



1 of record gaps. Some record gaps are more critical than others. For instance,  
2 records supporting the construction and maintenance of gas transmission  
3 pipelines and operating pressures are critical to the safe operation of these assets.

4 Beginning in 2012 and 2013, PHMSA Advisory Bulletin ADB-2012-06  
5 required operators to take action to ensure that the MAOP of gas transmission  
6 pipelines were supported by records that are traceable, verifiable, and complete.  
7 Additionally, as discussed by Ms. Gilliland in her Direct Testimony, RIN 1 of the  
8 PHMSA Transmission Mega-Rule significantly impacted MAOP reconfirmation  
9 programs. The first major milestone is the completion of 50 percent remediation  
10 of insufficient traceable, verifiable, and complete records by July 2028, with the  
11 remaining to be completed by July 2035.

12 **Q. HOW DOES THE COMPANY CONDUCT MAOP ASSESSMENTS?**

13 A. There are six MAOP reconfirmation methods for gas transmission pipe segments  
14 in High Consequence Areas (HCAs) and other covered segments allowed by 49  
15 C.F.R. §192.624. They are replacement, de-rating, pressure test, Engineering  
16 Critical Assessment, pressure reduction for pipeline segments with small potential  
17 impact radius, and the use of alternative technology. Method selection is  
18 dependent on capacity constraints, threats to the pipeline, and operational  
19 feasibility.

20 **Q. WHAT DOES THE COMPANY DO WHEN ACTION IS REQUIRED AS A RESULT**  
21 **OF MAOP ASSESSMENTS?**

22 A. If a gas transmission pipe segment does not have traceable, verifiable, and  
23 complete documentation, the Company evaluates each of the PHMSA approved

1 options based on the threats to the pipeline, capacity constraints, and operational  
2 feasibility to select the remediation method or methods. Public Service's ISP and  
3 Integrity Management teams collaborate to evaluate the need for the pipe segment  
4 to operate at the specified MAOP from a long-term planning perspective, the  
5 threats to the pipeline and the feasibility of pressure testing. The Company utilizes  
6 its Synergi Gas hydraulic software to assess mitigative opportunities, if warranted,  
7 related to derating MAOP without impacting system minimum design pressures  
8 and available pipeline capacity to serve firm service customers under Design Day  
9 conditions.

10 Pipeline records, including pressure test documents, are required to be  
11 reanalyzed programmatically based on changes to class location (location unit  
12 based on number of buildings, size of buildings, and human occupancy), HCAs,  
13 and PHMSA regulatory requirements. As such, new projects will continue to be  
14 identified outside of the aforementioned PHMSA deadlines.

15 **Q. HOW DOES THE COMPANY ESTABLISH THE SCHEDULE OF MAOP WORK**  
16 **OVER TIME?**

17 A. MAOP Reconfirmation projects are scheduled and prioritized based on multiple  
18 factors including, but not limited to, permitting duration, size/complexity of project,  
19 timing of planned integrity assessments, operational feasibility, and other work  
20 being performed on the pipeline system. Additionally, a comprehensive review of  
21 existing gas transmission pipeline records is performed to ensure the records  
22 necessary to establish the MAOP are in compliance with 49 CFR §192.619.  
23 Coordination with other planned project work on the natural gas system is taken

1 into consideration in order to perform work as efficiently as possible. The schedule  
2 of MAOP reconfirmation work is planned so that the Company meets required  
3 timelines of 50 percent remediation complete by 2028 and 100 percent remediation  
4 complete by 2035.

5 **Q. DESCRIBE THE TYPES OF MAOP WORK.**

6 A. The Company's MAOP Reconfirmation work primarily includes pressure testing,  
7 pipe replacement, and derating activities. Pressure testing involves verifying the  
8 maximum operating pressure of a pipeline or above ground facility via hydrostatic  
9 testing. Derating involves reducing the MAOP of the pipeline, and in many cases  
10 requires installation of new regulator station facilities to enable the reduced  
11 pressure. Where necessary, the Company will replace the pipeline or  
12 aboveground facility with new facilities to allow the Company to have traceable,  
13 verifiable, and complete records.

14 **Q. WHAT ARE THE TOTAL COSTS FOR MAOP RECONFIRMATION WORK**  
15 **INCLUDED IN THIS CASE?**

16 A. Table ARG-D-16 below provides the total costs related to MAOP Reconfirmation  
17 work included in this rate case and identifies the individual projects in this category  
18 with costs over \$1 million in total for 2022 and 2023. High-level descriptions of the  
19 many smaller discrete system safety and integrity investments are provided as  
20 Attachment ARG-8 to my Direct Testimony. I provide additional information on the  
21 discrete 6" Estes Park projects and the 10" Mesa to Boulder projects in the  
22 subsections below.

1 **Table ARG-D-16**  
 2 **MAOP Reconfirmation – Discrete System Safety and Integrity Plant Additions –**  
 3 **Greater than \$1 Million**  
 4 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| MAOP Reconfirmation                 | Description  | 2022<br>(Actual) | 2023                   |                            |       | Total<br>Additions<br>Since 2021<br>Test Year |
|-------------------------------------|--|------------------|------------------------|----------------------------|-------|---|
|                                     |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total |   |
| 6" Estes Park Projects**            | MAOP reconfirmation projects on the 6" Estes Park line near Estes Park, CO. Projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$17.5           | \$1.1                  | \$0.0                      | \$1.2 | \$18.7  |
| 10" Mesa to Boulder Projects**      | Pressure testing, derating, and installation of regulator stations in the Broomfield, Westminster/Lafayette, CO areas. Projects needed to ensure traceable, verifiable, and complete MAOP records. | \$12.0           | \$1.8                  | \$0.0                      | \$1.8 | \$13.8  |
| Facilities to Allow MAOP Validation | Various MAOP reconfirmation projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$4.4            | \$3.6                  | \$0.0                      | \$3.6 | \$8.0   |
| 20" Southeast Metro**               | Renew 5 miles of 20" pipeline in Denver, CO. Driven by insufficient records to support pipeline MAOP.  | \$3.3            | \$0.0                  | \$0.0                      | \$0.0 | \$3.3   |
| 12" Fossil Creek**                  | Renew 2,952' of 12" pipeline in Windsor, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.  | \$0.0            | \$3.6                  | \$0.2                      | \$3.8 | \$3.8   |
| 8" Mesa to Chalk Bluffs**           | Pressure test 3.1 miles of 8" pipeline and replace 1,000' of 8" pipeline near Brighton and Lochbuie, CO. Driven by insufficient  | \$0.0            | \$3.2                  | \$0.1                      | \$3.3 | \$3.3   |

| MAOP Reconfirmation                  | Description   | 2022<br>(Actual) | 2023                   |                            |               | Total<br>Additions<br>Since 2021<br>Test Year |
|--------------------------------------|---|------------------|------------------------|----------------------------|---------------|---|
|                                      |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total         |   |
|                                      | records to support pipeline MAOP.   |                  |                        |                            |               |   |
| CO/PSCO/Crested Butte SC-7           | Prepare and pressure test SC-7 regulator station in Crested Butte, CO. Driven by insufficient records to support station MAOP.  | \$0.0            | \$0.0                  | \$2.0                      | \$2.0         | \$2.0   |
| CO/East/Greeley/Greeley Headers MAOP | Replace Greeley Headers station piping in Greeley, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.   | \$0.0            | \$0.0                  | \$1.7                      | \$1.7         | \$1.7   |
| CO/East/Greeley/G-3B Replace Pipe    | Replace 8" CIG to Greeley Headers pipeline with 12" pipeline. Driven by need to ensure traceable, verifiable, and complete MAOP records.                                    | \$0.0            | \$0.0                  | \$1.7                      | \$1.7         | \$1.7   |
| CO – TIMP Transmission Rule          | Engineering and permitting activities for emerging MAOP projects.   | \$0.0            | \$0.0                  | \$1.4                      | \$1.4         | \$1.4   |
| CO/PSCo/6" Santa Fe Mtn to Idaho     | Replace 550' of 6" high pressure pipeline and pressure test 1,500' of 6" high pressure pipeline. Driven by need to ensure traceable, verifiable, and complete MAOP records. | \$0.0            | \$1.2                  | \$0.0                      | \$1.2         | \$1.2   |
| Other MAOP Reconfirmation            | Various smaller projects, initial engineering, permitting, and close-out activities.  | (\$4.4)          | \$0.0                  | \$1.3                      | \$1.3         | (\$3.1)                                       |
| <b>MAOP Reconfirmation Subtotal</b>  |   | <b>\$32.8</b>    | <b>\$14.6</b>          | <b>\$8.5</b>               | <b>\$23.0</b> | <b>\$55.9</b>                                 |

\* Any differences in sums due to rounding.

\*\*Additional information provided in Attachment ARG-9.

1                   a. *6" Estes Park Projects*

2   **Q.   WHAT ARE THE 6" ESTES PARK PROJECTS?**

3   A.   The 6" Estes Park projects are part of the MAOP Reconfirmation program  
4       conducted under TIMP. They include three projects, identified separately in the  
5       2022 PSIA Deferral as the 6" Estes Park – A project, the Estes Park RS (HE-1)  
6       project, and the Estes Park – Z project (collectively referred to herein as the  
7       projects or 6" Estes Park projects). These projects were necessary to ensure that  
8       traceable, verifiable, and complete records exist for the 6" Estes Park – A and  
9       Estes Park – Z pipelines in compliance with the PHMSA regulations described  
10      above. The 6" Estes Park – A pipeline brings gas west from the Estes Park  
11      Mainline Take-off Valve Set in Loveland, Colorado to Estes Park, Colorado. The  
12      6" Estes Park – Z pipeline supplies gas to the Loveland distribution system east of  
13      the Estes Park Mainline Take-off Valve Set. The 6" Estes Park – A pipeline is  
14      critical because it is the only feed to the Estes Park area, serving approximately  
15      4,400 customers.

16           Project scoping for this work began in 2019, and the projects were  
17      completed in 2022, with a portion of the equipment commissioned in 2023. The  
18      projects involved work along four geographically separate pipeline segments,  
19      referred to herein as Loveland East, Loveland West, Flatiron Reservoir, and Estes  
20      Park. Attachment ARG-9 to my Direct Testimony provides additional project  
21      information, including maps of the project locations.

1 **Q. PLEASE EXPLAIN WHY THE 6” ESTES PARK PROJECTS WERE**  
2 **NECESSARY.**

3 A. These projects were identified as part of the MAOP assessment process described  
4 earlier in my Direct Testimony. That process revealed that certain Class 3<sup>38</sup> and  
5 high consequence areas along the 6” Estes Park – A and Estes Park – Z pipelines  
6 did not have sufficient pressure test records to support the MAOP. These projects  
7 are part of the total population of MAOP remediation that must occur over time  
8 under PHMSA requirements.

9 **Q. PLEASE PROVIDE A HIGH-LEVEL OVERVIEW OF THE WORK INVOLVED IN**  
10 **THE 6” ESTES PARK PROJECTS.**

11 A. As noted above, the 6” Estes Park projects included work on four segments:  
12 Loveland East, Loveland West, Flatiron Reservoir, and Estes Park. The work on  
13 the Loveland East segment consisted primarily of a reconfiguration of Station  
14 HL-95 (at the Estes Park Mainline Take-off Valve Set in Loveland) and a derating  
15 of the Estes Park – Z pipeline that feeds into the Loveland distribution system.

16 The work on the Loveland West segment consisted of replacement of  
17 approximately 2.75 miles of pipeline along the 6” Estes Park – A pipeline.

18 On the Flatiron Reservoir segment, the Company pressure tested an  
19 approximate one-mile section of the 6” Estes Park – A pipeline. Due to the Class  
20 3 location and presence of HCAs, a new valve set with a Remotely Actuated Valve

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<sup>38</sup> A Class 3 location is: (i) Any class location unit that has 46 or more buildings intended for human occupancy; or (ii) An area where the pipeline lies within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive.

1 (RAV) also needed to be installed near the Flatiron Reservoir to provide an  
2 emergency isolation point and meet code requirements.

3 On the Estes Park section, the Company replaced approximately one-  
4 quarter mile of pipe along the 6" Estes Park – A pipeline and rebuilt the Estes Park  
5 HE-1 regulator station. The HE-1 station needed to be rebuilt to bring the facility  
6 up to code and MAOP reconfirmation requirements. This also required a new  
7 regulator station easement, because the then-existing easement was very  
8 congested and not sufficient. An RAV was also installed at the HE-1 facility to  
9 provide emergency isolation ability and monitoring by supervisory control and data  
10 acquisition ("SCADA"). A line heater was also installed to ensure peak operation  
11 of the regulator station during the winter months.

12 **Q. WHAT ALTERNATIVES DID THE COMPANY CONSIDER?**

13 A. For each segment, the Company considered the available alternatives—pipeline  
14 replacement, pressure testing re-confirmation, and derating. In general, the  
15 Company started by considering the least expensive method of meeting the MAOP  
16 requirement. The alternative chosen by the Company varied depending on the  
17 circumstances of each of the four segments.

18 For the Loveland East segment, the Company determined that derating was  
19 the best alternative. The ROW in this segment was congested with other utilities  
20 and numerous crossings, so replacement construction would have been  
21 expensive. Derating was considerably less expensive, and derating was viable for  
22 this section because lowering the pressure would not significantly impact capacity  
23 to Loveland.



1           For the Loveland West segment, derating was not an option, because this  
2 segment is the main line to the Estes Park area. And pressure test reconfirmation  
3 was not a viable option, because that requires taking the line out of service, and  
4 that was not possible here because it would have interrupted service to customers.  
5 Narrow roadway access, terrain, and several waterway crossings made traditional  
6 trenching practices impractical. However, the topography and access to the  
7 pipeline route allowed the Company to use HDD to cost-effectively replace long  
8 sections of pipeline. Although the HDD work on this segment was somewhat  
9 complex and challenging, HDD was comparatively economical and efficient  
10 because less restoration work is needed and because the alternatives would have  
11 been even more difficult. The work in the Loveland West segment included four  
12 separate HDD sections, one of which was just over a mile in length.

13           For the Flatiron Reservoir segment, the Company chose pressure testing.  
14 This segment is in a mountainous area, along a winding road. Construction would  
15 be difficult and expensive because of the extremely hard rock conditions and  
16 pipeline geometry. HDD was not possible because the pipeline in this area is not  
17 very straight. In addition, the area of this segment is inhabited by the Preble  
18 Jumping Mouse, an endangered species. The resulting environmental  
19 requirements would have caused construction to be more expensive. Due to the  
20 relatively short section of pipe in this section, pressure testing was most feasible  
21 and less costly option.

22           For the Estes Park segment, rebuilding was the best option, because the  
23 segment was accessible and fairly short.

1 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION?**

2 A. The Company's internal design team prepared an initial project scope plan and  
3 identified the four distinct geographic segments. The Company then worked with  
4 two separate MSA engineering and design vendors: one was assigned to the  
5 Loveland East and Loveland West segments, and the other was assigned to the  
6 Flatiron Reservoir and Estes Park segments. Both vendors had the expertise and  
7 resources necessary to complete the final design plans and profiles for the  
8 segments they were assigned. Each provided a cost estimate for its engineering  
9 and design work. The use of two separate engineering and design vendors  
10 allowed the work to proceed in multiple locations at once, so it went more quickly  
11 and more cost-effectively.

12 The Company selected one MSA mechanical contractor to do the work on  
13 all four segments. This contractor had recently completed similar MAOP  
14 remediation work in this area, so the Company knew it was qualified. The  
15 mechanical contractor provided a cost estimate for its work. The contractor was  
16 retained before the design and planning was complete, so that it could provide  
17 constructability review of the plans.

18 **Q. WERE THERE ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION OF**  
19 **THE 6" ESTES PARK PROJECTS?**

20 A. Yes. First, the permitting work was somewhat complicated because each segment  
21 required stakeholder approval from multiple municipalities and agencies, including  
22 the City of Loveland, Larimer County, Western Area Power Administration  
23 (WAPA), and the Bureau of Reclamation. Some of the longest permitting approval

1 periods were due to reviews by the Bureau of Reclamation. The length of time  
2 necessary to get the required permits caused delays in the schedule.

3 In addition, there were some aspects of the construction that were more  
4 costly than budgeted. The Loveland West segment exceeded budget because of  
5 the difficulty of the HDD work. The HE-1 station replacement exceeded budget  
6 because the design, engineering, and construction work was more extensive due  
7 to needing to stay within the Bureau of Reclamation permitted location. Broadly  
8 speaking, though, once the permits were obtained, the scope of the construction  
9 proceeded as planned, and the cost was only a relatively small amount over  
10 budget.

11 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

12 A. Total capital additions for this project were approximately \$18.7 million as shown  
13 in Table ARG-D-16 above. Table ARG-D-17 below provides a project cost  
14 breakdown by category, based on capital expenditures.

15 **Table ARG-D-17**  
16 **6" Estes Park Project Costs**  
17 **January 1, 2022 to December 31, 2023\*** (\$ millions)

| <b>Cost Category</b>         | <b>Expenditures</b> |
|------------------------------|---------------------|
| Mechanical                   | \$11.6              |
| Engineering                  | \$2.2               |
| Materials                    | \$2.0               |
| Permitting & Environmental   | \$0.0               |
| Inspection                   | \$0.0               |
| Overheads                    | \$2.2               |
| Internal Labor, AFUDC, Other | \$0.6               |
| <b>Total</b>                 | <b>\$18.7</b>       |

\* Any differences in sums due to rounding

1 **Q. IS THE BREAKDOWN OF PROJECT COSTS, SHOWN IN THE PRECEDING**  
2 **TABLE, REASONABLE?**

3 A. Yes. For a project such as this, which included the replacement of several miles  
4 of pipeline, it is to be expected that Mechanical, Engineering, and Materials are the  
5 categories with the highest expenditures. The actual expenditures for inspection  
6 and permitting were less than \$50,000 so they round down to zero.

7 **Q. ARE THE COSTS OF THESE 6" ESTES PARK PROJECTS REASONABLE?**

8 A. Yes. Again, the Company was required to undertake this work to comply with  
9 PHMSA regulations. The Company used a thoughtful process to plan the projects.  
10 By choosing different solutions for each segment of the project, the Company  
11 prudently ensured that the project was undertaken in an efficient and cost-effective  
12 manner. The Company's management of the project was rigorous, and except for  
13 delays related to permitting, the construction proceeded without major cost  
14 overruns or changes in scope.

15 *b. 10" Mesa to Boulder Projects*

16 **Q. WHAT ARE THE 10" MESA TO BOULDER PROJECTS?**

17 A. The 10" Mesa to Boulder projects are several MAOP projects on a transmission  
18 pipeline segment from Huron Street in Westminster, Colorado to the Boulder  
19 Junction valve-set in Lafayette, Colorado, including the Broadlands Station  
20 regulator stations in Broomfield, Colorado, and the Blue Parrot regulator station in  
21 Lafayette, Colorado. The projects were identified separately in the 2022 PSIA  
22 Deferral as the 10" Mesa-Boulder Westlake to Boulder Junction (2022),  
23 Broadlands Station Replacement (2022), and Blue Parrot Station Replacement

1 (2022) (collectively referred to herein as the projects or 10" Mesa to Boulder  
2 projects). This pipeline provides a critical path for gas service to Boulder County,  
3 and in some instances is the only high pressure pipeline connected to the single  
4 available delivery point for this area. This pipeline is also a critical feed to the  
5 Marshall compressor station, located in unincorporated Boulder County, to serve  
6 areas in Grand, Summit, and Lake Counties.

7 Planning for the projects was initiated in 2020, and the work was in-serviced  
8 in 2022, with restoration completed in 2023. Attachment ARG-9 to my Direct  
9 Testimony provides additional project information, including maps of the project  
10 locations.

11 **Q. PLEASE EXPLAIN WHY THESE 10" MESA TO BOULDER PROJECTS WERE**  
12 **NECESSARY.**

13 A. These projects were identified as part of the MAOP assessment process described  
14 earlier in my Direct Testimony. That process revealed that certain Class 3 and  
15 high- and medium-consequence areas along this pipeline segment did not have  
16 sufficient traceable, verifiable, and complete pressure test records to support the  
17 MAOP. This work is part of the total population of MAOP remediation that must  
18 occur over time under the PHMSA requirements referred to above.

19 **Q. PLEASE PROVIDE A HIGH-LEVEL OVERVIEW OF THE WORK INVOLVED IN**  
20 **THE 10" MESA TO BOULDER PROJECTS.**

21 A. The 10" Mesa to Boulder projects encompass approximately nine miles of 10" steel  
22 high pressure gas main, with associated regulator stations. There are two  
23 segments: an eastern segment and a western segment. In the eastern segment,

1 the work focused on pressure testing approximately two miles of 10" steel high  
2 pressure gas main between Huron Street and 144th Street in Westminster. In the  
3 western segment, the work focused on derating seven miles of 10" steel high  
4 pressure gas main between 144th Street and the Boulder Junction valve-set just  
5 north of Highway 7/Baseline Road in Lafayette. In addition, a segment of 10" steel  
6 pipe was replaced in this area.

7 The Company's work on these projects also included the rebuilding of two  
8 regulator stations, one on the eastern segment and one on the western segment,  
9 due to the lack of other available delivery points in the area. In addition, in order  
10 to derate the western segment, it was necessary to build two new regulator stations  
11 to bring regulated pressure to that segment. Finally, a new regulator station was  
12 added near 96th Avenue and State Highway 2 in Commerce City to replace  
13 capacity to the Marshall compressor station that was lost as part of the derating.

14 **Q. WHAT ALTERNATIVES DID THE COMPANY CONSIDER?**

15 A. The Company considered the available alternatives—pipeline replacement,  
16 pressure testing re-confirmation, and derating. The Company initially considered  
17 replacing all nine miles of 10" high pressure steel main. However, areas near this  
18 segment of pipeline have numerous structures near the ROW, making construction  
19 complex and expensive. Instead, the combination of pressure testing the eastern  
20 segment and derating the western segment was determined to be considerably  
21 more cost-effective while balancing capacity needs, integrity management, and  
22 operational considerations. The Company's process for identifying the best  
23 alternative was a collaborative effort between the Company's engineering,

1 operations, capacity planning, and integrity management groups, which  
2 collectively developed this less costly approach.

3 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THESE 10” MESA**  
4 **TO BOULDER PROJECTS?**

5 A. The Company’s internal design team prepared an initial project scope plan. The  
6 Company retained an MSA engineering and design vendor that had the expertise  
7 and resources available to complete the final design plan, as well as an  
8 environmental vendor. These vendors provided cost estimates for their work. The  
9 Company selected an MSA mechanical contractor who had recently completed  
10 similar MAOP remediation work on this pipeline; that contractor also provided a  
11 cost estimate prior to construction.

12 **Q. HOW DID CONSTRUCTION PROCEED?**

13 A. There were some challenges with permitting. The Company’s primary lay down  
14 yard, and the site location for one of the new regulator stations, were on the same  
15 parcel, owned by the City and County of Broomfield. These uses required the  
16 Company to obtain permits and an exclusive easement, which took significant  
17 time. The time needed for these negotiations affected the construction start date.  
18 In addition, the area of the Blue Parrot regulator station, in Lafayette, was inhabited  
19 by prairie dogs. The City of Lafayette has strict regulations for prairie dog-  
20 inhabited areas, requiring the Company to get a permit and monitor and safely  
21 relocate the prairie dogs. This resulted in several months of delay. While the  
22 Company adapted its construction plan and use of resources to reduce crew

1 downtime, the permitting delays resulted in a shift in overall project completion  
2 from the fourth quarter of 2022 to early 2023, as noted earlier.

3 The permitting delays relating to the prairie dog-inhabited area and the lay  
4 down yard in Broomfield both resulted in increased costs. On the other hand, the  
5 original budget for the work on the eastern and western segments assumed that  
6 those segments would be replaced. The use of pressure testing instead of  
7 replacement meant that the cost decreased by several million dollars as compared  
8 to the original budget.

9 **Q. WERE THERE ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION OF**  
10 **THIS PROJECT?**

11 A. Yes. Initially, the Company anticipated performing the work with two crews  
12 operating in tandem, one focusing on the pipeline work and one focused on  
13 regulator station work. However, the Company revised its approach in response  
14 to the permitting challenges and resulting modifications to the construction  
15 schedule described above.

16 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

17 A. Total capital additions were approximately \$13.8 million as shown in Table ARG-  
18 D-17 above. Table ARG-D-18 below provides a project cost breakdown by  
19 category on a capital expenditure basis.



1 **Table ARG-D-18**  
2 **10" Mesa to Boulder Project Costs**  
3 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| <b>Cost Category</b>         | <b>Expenditures</b> |
|------------------------------|---------------------|
| Mechanical                   | \$5.2               |
| Engineering                  | \$2.8               |
| Materials                    | \$2.3               |
| Permitting & Environmental   | \$0.4               |
| Inspection                   | \$0.1               |
| Overheads                    | \$1.8               |
| Internal Labor, AFUDC, Other | \$1.1               |
| <b>Total</b>                 | <b>\$13.8</b>       |

\* Any differences in sums due to rounding

4 **Q. IS THE BREAKDOWN OF PROJECT COSTS, SHOWN IN THE PRECEDING**  
5 **TABLE, REASONABLE?**

6 A. Yes. The rebuilding of two regulator stations, and the addition of three new ones,  
7 require significant work and materials, so it is reasonable that Mechanical,  
8 Engineering, and Materials are the categories with the highest expenditures.  
9 Because this project included the design of five regulator stations, engineering  
10 costs are a significant portion of the total costs.

11 **Q. IS THE COST OF THESE 10" MESA TO BOULDER PROJECTS**  
12 **REASONABLE?**

13 A. Yes. This work was necessitated by PHMSA regulations. The Company  
14 undertook a rigorous process, using internal and external resources, to thoughtfully  
15 plan the projects. Although the initial budget for the nine-mile section was  
16 considerably higher than the actual expense, the Company continued to refine its

1 planning to find the most cost-efficient solutions for each part of the projects.  
2 Because of the Company's active management, construction proceeded cost-  
3 effectively in spite of the permitting delays.

4 **3. Coupled IP Program**

5 **Q. PLEASE DESCRIBE THE COUPLED IP PROGRAM.**

6 A. Public Service's Coupled IP program began in 2008. The program was previously  
7 part of the Company's PPRP within the PSIA. The Coupled IP program includes  
8 work to replace all high-risk pipelines that were constructed using mechanical  
9 couplings, as well as oxyacetylene welds on IP lines. As a result of these practices,  
10 the mechanical fittings and pipe welds on Coupled IP pipeline tend to be weak.  
11 The program is intended to address the risks associated with these materials.  
12 Coupled IP work may be conducted under a program of work or may be related to  
13 individual discrete projects identified.

14 **Q. WHAT ARE THE RISKS ASSOCIATED WITH COUPLED IP PIPELINE?**

15 A. Because the mechanical fittings and pipe welds on Coupled IP pipeline tend to be  
16 weak, Coupled IP pipelines are subject to increased risk of threats to system safety  
17 and integrity from external factors, such as ground movements and excavations.  
18 This can lead to weld and joint failure, and cause leaks and blowing gas. Indeed,  
19 Coupled IP pipeline historically has a high probability of leaks.

20 **Q. HOW DID THE COMPANY PLAN ITS COUPLED IP WORK FOR 2022 AND**  
21 **2023?**

22 A. Each year Public Service evaluates potential projects to be completed the following  
23 year, so the Company's Coupled IP work for 2022 and 2023 was originally planned

1 in 2021 and 2022, respectively. This evaluation process involves Public Service  
2 first identifying potential projects based on information from its gas field crews.  
3 The Company then uses asset operating history, subject matter expert experience  
4 and insight, and industry experience, as well as risk scoring, in assessing risk on  
5 these assets. Based on this risk analysis, projects classified as high-risk are  
6 prioritized according to the highest risk score and scheduled based on budget  
7 availability. However, if an active risk (e.g., leak) is identified by gas field crews  
8 working on the system, a project necessary to mitigate the risk is immediately  
9 escalated and given higher priority than originally planned projects. Projects are  
10 designed internally within the Company, and the work is provided to an MSA-  
11 approved vendor for construction. Public Service's Coupled IP work for 2022 and  
12 2023 was planned according to the above process.

13 **Q. WHAT ARE THE TOTAL COSTS FOR COUPLED IP WORK INCLUDED IN THIS**  
14 **CASE?**

15 A. Table ARG-D-19 below provides the total costs related to Coupled IP work  
16 included in this rate case, identifies the individual projects in this category with  
17 costs over \$1 million in total for 2022 and 2023, and provides a brief description of  
18 each of these projects. High-level descriptions of the many smaller discrete  
19 system safety and integrity projects are provided as Attachment ARG-8 to my  
20 Direct Testimony. Additionally, I provide more information on the Washington  
21 Coupled IP Phase 1 and Phase 2 projects, the Vasquez Boulevard and E. 48th  
22 Phase 1 and Phase 2 projects, and the Brighton to York project in the subsections  
23 below.

1 **Table ARG-D-19**  
 2 **Coupled IP – Discrete System Safety and Integrity Plant Additions – Greater than \$1**  
 3 **Million**  
 4 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| Coupled IP  | Description   | 2022<br>(Actual) | 2023                   |                            |       | Total<br>Additions<br>Since 2021<br>Test Year |
|---|---|------------------|------------------------|----------------------------|-------|---|
|   |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total |   |
| CO/Coupled IP/Vasquez Blvd & E 48th – Phase 1**   | Renew 3,400' of 20" IP main in Vasquez Blvd. between 48th Ave. and E 52nd Ave. in Denver, CO. Driven by removal of mechanically coupled main  | \$7.3            | \$0.0                  | \$0.0                      | \$0.0 | \$7.3   |
| CO/Coupled IP/Vasquez Blvd & E 48th – Phase 2/3** | Renew 4,600 ft. of 12" and 20" IP main in Vasquez Blvd, including 2000 ft of new 20" IP main from 52nd Ave. to E 56th Ave. and 2,600 ft. of new 12" IP main in E 56 <sup>th</sup> Ave west toward Brighton Blvd, as well as 1,665 ft of 4" IP main along E 56th Ave. and Brighton Blvd. Driven by removal of mechanically coupled main. | \$4.3            | \$7.2                  | \$0.0                      | \$7.3 | \$11.5  |
| CO/Coupled IP – 20" Coupled IP Brighton**         | Replace various coupled IP projects across Colorado.  | \$9.8            | \$0.0                  | \$0.0                      | \$0.0 | \$9.8   |
| 8" Coupled IP, Washington – Phase 2**             | 5,000 ft. of existing 8" IP steel main with new 8" IP steel main, which was installed under Washington Street via open trench with one HDD crossing underneath 84th Ave. in Adams County. Driven due to removal of mechanically coupled main.   | \$0.0            | \$7.1                  | \$0.5                      | \$7.5 | \$7.5   |

| Coupled IP                                  | Description   | 2022<br>(Actual) | 2023                   |                            |               | Total<br>Additions<br>Since 2021<br>Test Year |
|---|---|------------------|------------------------|----------------------------|---------------|---|
|   |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total         |   |
| 8" Coupled IP,<br>Washington -<br>Phase 1** | Renew 4,500 ft. of<br>existing 8" steel IP main<br>in Washington St<br>between E. 76th Ave<br>and E. 83rd Dr and<br>renewed or tied over 10<br>customer services in<br>unincorporated Adams<br>County. Driven due to<br>removal of<br>mechanically coupled<br>main. | \$2.9            | \$0.8                  | \$0.0                      | \$0.8         | \$3.7   |
| Coupled Pipe IP<br>Pipe Replacement         | Various projects<br>including close-out of<br>projects.   | \$1.2            | \$0.0                  | \$1.2                      | \$1.2         | \$2.4   |
| Other Coupled IP                            | Various projects<br>including close-out of<br>projects.   | \$0.6            | \$0.0                  | \$0.0                      | \$0.0         | \$0.6   |
| <b>Coupled IP<br/>Subtotal</b>              |   | <b>\$26.0</b>    | <b>\$15.1</b>          | <b>\$1.7</b>               | <b>\$16.8</b> | <b>\$42.8</b>                                 |

\* Any differences in sums due to rounding.

\*\*Additional information provided in Attachment ARG-9

1 *a. Washington Coupled IP – Phase 1 and Phase 2*

2 **Q. WHAT ARE THE WASHINGTON PHASE 1 AND WASHINGTON & 76TH**  
 3 **AVENUE PHASE 2 PROJECTS?**

4 A. The Washington & 76th Avenue Phase 1 project is located in unincorporated  
 5 Adams County, Colorado, and was included in the 2022 PSIA Deferral. The  
 6 Washington & 76th Avenue Phase 2 project is located in Thornton, Colorado. The  
 7 projects renew thousands of feet of high-risk 8" IP main in these areas. The  
 8 projects are part of DIMP and are further subcategorized within the Coupled IP  
 9 program. The project need was identified based on risk ranking of the mains that  
 10 are a part of the Coupled IP pressure system, which were installed with mechanical

1 couplings in the 1950s. Phase 1 and Phase 2 were risk-ranked together, and  
2 determined to be necessary due to the rate of historical leaks on the main, as well  
3 as being the next highest consequence area (i.e., area not previously addressed)  
4 under the Coupled IP category. Attachment ARG-9 to my Direct Testimony  
5 provides additional project information, including maps of the project locations.

6 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THE PHASE**  
7 **I AND PHASE 2 PROJECTS.**

8 A. Phase I renewed approximately 4,500 feet of existing 8" steel IP main in  
9 Washington Street between E. 76th Avenue and E. 83rd Drive and renewed or tied  
10 over 10 customer services in unincorporated Adams County. Phase I was installed  
11 using the open trenching method and HDD to cross a canal at 76th Avenue. The  
12 footage split between open trench and HDD was approximately 4,000 feet and 500  
13 feet, respectively. The existing pipeline has been abandoned in place.

14 Phase 2 renewed 5,000 feet of existing 8" IP steel main with new 8" IP steel  
15 main, which was installed under Washington Street via open trench with one HDD  
16 crossing underneath 84th Avenue. The footage split between open trench and  
17 HDD was 4,000 feet and 1,000 feet, respectively. This project included renewing  
18 or tying over 17 customer services to the new 8" IP steel main. The existing  
19 pipeline has been abandoned in place.<sup>39</sup>

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<sup>39</sup> The next project related to Phases I and 2 is expected to follow in 2024, to address Coupled IP from Russell Boulevard to E. 105th Place in Northglenn, CO.

1 **Q. PLEASE EXPLAIN IN MORE DETAIL WHY THESE PHASE 1 AND PHASE 2**  
2 **PROJECTS WERE NECESSARY.**

3 A. As noted earlier, the mechanical couplings that were used for installation of these  
4 pipes in the 1950s pose a significant risk of leaks at these fittings, as well as a  
5 blowing gas situation should the coupling fail completely. Specific to this area, the  
6 Company has had to mobilize to repair Grade 1 and Grade 2 leak/blowing gas  
7 situations on this line multiple times in the past, such that another repair was no  
8 longer likely to be an effective solution. The project will further decrease the  
9 possibility of any type of customer outage should a leak or blowing gas situation  
10 occur.

11 **Q. WERE THERE ANY UNIQUE CONSIDERATIONS WHEN DETERMINING THE**  
12 **SCOPE OF THESE PROJECTS?**

13 A. No. The Company did not encounter any special considerations during the  
14 planning phase. Accordingly, the Company planned these projects consistent with  
15 its typical process, as discussed earlier in my Direct Testimony.

16 **Q. WHAT ALTERNATIVES TO THESE PROJECTS DID THE COMPANY**  
17 **CONSIDER?**

18 A. Feasible alternatives are not available given the nature of Coupled IP fittings and  
19 the associated risks. There was no alternative for a shorter route, and derate was  
20 not an option due to the criticality of the existing mains to serving the project areas.

1 **Q. PLEASE DESCRIBE ANY UNIQUE ATTRIBUTES OF CONSTRUCTION OF**  
2 **THESE PROJECTS.**

3 A. Initially, the Company anticipated serial work with Phase 1 completed in 2022 and  
4 Phase 2 completed in 2023. However, due to the availability of the vendor crew,  
5 Phase I did not begin as early as planned. As a result, Phase I was completed  
6 (including restoration and close-out) in 2023, whereas some restoration and close-  
7 out for Phase 2 will occur in 2024.

8 At the same time, the Company anticipated placing Phase I in service in  
9 2022, with restoration carrying into the spring of 2023. Prior to restoration taking  
10 place, Adams County required additional restoration in the form of milling and  
11 overlaying of two lanes of the existing roadway, as opposed to the typical hot patch  
12 for affected areas. Both the County and City also limited the number of hours the  
13 Company could work at the site each day, thereby requiring a longer restoration  
14 period and additional equipment movement each day. These factors contributed  
15 to the total project costs.

16 Additionally, when implementing Phase 1, the Company determined that it  
17 needed to implement odorization for a longer timeframe than would be typical.  
18 This required the vendor to deploy resources for a longer period of time, as well as  
19 additional traffic management and safety devices on site. This issue carried over  
20 to the Phase 2 project.

21 With respect to Phase 2, the Company also encountered a conflict with  
22 other entities' utility infrastructure that was not located by the other utility's 811  
23 locate requested by Public Service during the design phase. The facility was



1 identified during the 811 locate immediately prior to construction, and required re-  
2 design to find another opening in Washington Avenue to avoid the conflict, which  
3 also contributed to final costs.

4 Throughout the project, the Company coordinated closely with the City and  
5 County, maintaining good relationships that helped us work through challenges  
6 and ultimately enabled the Company to obtain approval for extended project  
7 working hours during Phase 2.

8 **Q. IS THERE ANYTHING ELSE NOTABLE WITH RESPECT TO HOW THE**  
9 **PROJECT'S IMPLEMENTATION WAS MANAGED?**

10 A. Not particularly. The Company largely worked through the above issues through  
11 its typical project management process, as discussed earlier in my Direct  
12 Testimony. The project team discussed and identified solutions to the above  
13 issues during weekly project meetings, and the project was closely overseen by a  
14 dedicated project manager.

15 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

16 A. Total capital additions for Phase 1 were \$3.7 million and Phase 2 were \$7.5 million.  
17 The majority of the costs associated with this project (approximately 70 percent)  
18 were related to the mechanical construction work completed by our construction  
19 vendors. In addition, project costs included materials, as well as overheads  
20 consisting of material and equipment storage and management (approximately 25  
21 percent). The remaining costs included engineering, permitting, environmental,  
22 internal labor and miscellaneous costs.

1 **Q. OVERALL, ARE THE COSTS OF THESE PROJECTS REASONABLE?**

2 A. Yes. The risks associated with Coupled IP pipeline drove the need for these  
3 projects. After an in-depth risk-ranking of the projects, the Company selected them  
4 to mitigate the significant risk of customer impacts due to leaks and blowing gas.  
5 The Company then carefully planned the projects, determining that the projects  
6 represented the most viable and cost-efficient option. The Company encountered  
7 several unforeseeable issues during construction (i.e., vendor crew availability,  
8 additional County requirements and restrictions, and unexpected non-Public  
9 Service infrastructure), which impacted costs and timing. Nonetheless, rigorous  
10 management of the projects enabled the Company to effectively and efficiently  
11 resolve these issues.

12 *b. Vasquez Blvd & E. 48th – Phase 1 and Phase 2/3*

13 **Q. WHAT ARE THE VASQUEZ BLVD & E 48TH PROJECTS?**

14 A. The Vasquez Blvd and E. 48th Avenue projects are located in Denver and  
15 Commerce City, Colorado and included two phases of work to address risks  
16 related to Coupled IP facilities. The projects renew several thousand feet of high-  
17 risk Coupled IP pipeline of varying sizes in these areas. The projects are part of  
18 DIMP and are further subcategorized within the Coupled IP program. They were  
19 included in the PSIA forecasts with actuals in service through 2022 included in the  
20 PSIA Deferral. Attachment ARG-9 to my Direct Testimony provides additional  
21 project information, including maps of the project locations.

1 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN THESE**  
2 **PROJECTS.**

3 A. The Vasquez Boulevard projects were conducted in phases, with Phase 1 placed  
4 in service in 2022 and Phase 2/3<sup>40</sup> placed in service primarily in 2023. Phase 1  
5 renewed approximately 3,400 feet of 20" intermediate pressure main in Vasquez  
6 Blvd from 48th Avenue to E. 52nd Avenue by installing new 20" IP main. Phases  
7 2/3 renewed approximately 4,600 feet of 20" IP main by installing 2,000 feet of new  
8 20" IP main in Vasquez Blvd from 52nd Avenue to E. 56th Ave. and 2,600 feet of  
9 new 12" IP main in E. 56th Avenue west toward Brighton Blvd, as well as  
10 approximately 1,665 feet of 4" IP main with equidistant new 4" intermediate  
11 pressure main along E. 56th Avenue and Brighton Blvd.<sup>41</sup> Specific to the costs of  
12 Phase 2/3 the segments crossed six railroads. Between the overall Vasquez  
13 projects to date, 21 customer services were renewed or tied over. Most of the  
14 expenditures on the overall projects were incurred in 2021 and 2022.

15 **Q. HOW WAS THE NEED FOR THE PROJECTS WAS DETERMINED?**

16 A. The project need was identified based on risk ranking of the mains that are a part  
17 of the Coupled IP pressure system. Phase 1 and Phase 2/3 were risk-ranked  
18 together as part of the PSIA process, and determined to be high priority due to the  
19 size of the pipeline and the number of residents/buildings potentially affected.

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<sup>40</sup> Phase 2 of the project as originally planned was divided into two phases (Phase 2 and Phase 3) that were ultimately tracked together. Accordingly, I refer to Phases 2 and 3 as "Phase 2/3."

<sup>41</sup> There may also be an additional phase in the future for the 6" replacement, depending on ability to address land rights issues; however, that phase is not in the scope of this case.

1           These mains provide service to downstream regulators serving the northern  
2           Denver area.

3   **Q.   PLEASE DESCRIBE HOW THE SCOPES OF THESE PROJECTS WERE**  
4   **DETERMINED.**

5   A.   As with other Coupled IP projects, after risk ranking the area, the engineering team  
6       identified individual projects that were individually manageable. The engineering  
7       team then developed project designs to approximately a 25 percent complete level,  
8       and provided the designs to the mechanical vendor working under a pre-  
9       established MSA. Due to the size, scope, and complexity of the project, Public  
10      Service engaged external engineering to develop a detailed bid package. In  
11      particular, the area consists of heavy industrial businesses, including several  
12      crossings, making it increasingly likely the construction team would encounter  
13      other infrastructure that would not be discernible via typical planning. The  
14      engineering team undertook a full topographic survey with GPS locates, involved  
15      a potholing subcontractor to help identify existing utilities, and completed soil bores  
16      for geotechnical analysis to determine ground conditions for the project.  
17      Additionally, through coordination with our gas capacity planning team, we  
18      identified the opportunity to install 12" IP main instead of 20" IP main along E. 56th  
19      Avenue without posing greater system risk, which helped contain costs for the  
20      project. This project was then submitted for construction contractor bidding for  
21      Phase 1, which was awarded to the least cost vendor that also met technical  
22      specifications.

1 **Q. WHAT ALTERNATIVES TO THESE PROJECTS DID THE COMPANY**  
2 **CONSIDER?**

3 A. As with the Washington Coupled IP projects, there were no feasible alternatives  
4 because re-routing would increase the length of pipe, the pipeline is needed to  
5 serve the area, and the existing pipe needed replacement as part of a rigorous  
6 DIMP program.

7 **Q. HOW DID CONSTRUCTION PROCEED FOR PHASE 1?**

8 A. For this project, despite the bid process, working with the initial construction  
9 contractor proved difficult. The contractor had the personnel and equipment to  
10 undertake the work, but ran into complications in interactions with City of Denver  
11 and CDOT, and communication and planning with the Company. Additionally,  
12 customers in the vicinity raised concerns about traffic control and site access while  
13 the work was underway. As these issues with the contractor impacted project  
14 timing and costs, toward the end of Phase 1 the Company determined it would be  
15 most prudent to move toward a new contractor, which completed the remaining  
16 work on Phase 1 and performed the work for Phase 2/3.

17 **Q. HOW DID THE COMPANY GO ABOUT CHANGING CONTRACTORS?**

18 A. Following a CFT meeting near the end of 2021, the Company held internal  
19 discussions about the most prudent path forward and decided to move to a new  
20 contractor for the remainder of Phase 1 and likely subsequent phases. The  
21 Company notified the existing contractor of the change, and paid only for the work  
22 completed to that point.

1           The Company awarded the remaining work on Phase 1 and the work for  
2 Phase 2/3 to a contractor that had previously submitted a bid and was also under  
3 the Company's MSA, as that contractor had some familiarity with the project, which  
4 minimized the transition costs and time. The Company also had additional  
5 experience with the contractor's quality of work to continue with the overall work in  
6 a timely and efficient manner. The transition was relatively straightforward due to  
7 the contractor's familiarity with the project design as a result of participating in the  
8 bid process. The internal project manager also provided insight into the work  
9 remaining and progress to date, and the contractor was able to begin work with  
10 minimal delay in the transition process. Thus, while permitting and contractor  
11 issues caused Phase 1 to be completed in 2022 rather than 2021, the issues the  
12 Company experienced with the initial contractor during Phase 1 were resolved.

13 **Q. DID ANY OTHER FACTORS AFFECT THE TIMING OF THE PROJECTS?**

14 A. Yes. The new contractor was able to work effectively on completing permitting for  
15 Phase 1, and coordinating with CDOT to facilitate the Phase 2/3 permitting process  
16 with efficiency, on CDOT's schedule. For example, the new contractor enabled  
17 the Company to meet complicated permitting requirements in relation to an  
18 intersection and bridge reconstruction near I-70. However, the permitting was  
19 challenging for other reasons. The Commerce City permitting process was unique,  
20 with the City applying its own calculation of permitting costs as the projects were  
21 underway. In other words, the cost of the permitting would be adjusted as the  
22 construction proceeded, requiring ongoing work with Commerce City to help  
23 ensure reasonable costs. While the permitting requirements increased costs,

1 construction of the projects proceeded according to anticipated timelines and  
2 expectations after adjustment due to the experiences in Phase 1. Additionally, the  
3 railroad and the industrial owners in the vicinity imposed additional third-party  
4 inspections in relation to railroad crossings, which played a role in the final cost  
5 and milestones of the project.

6 **Q. IS THERE ANYTHING ELSE NOTABLE WITH RESPECT TO HOW THE**  
7 **PROJECT'S IMPLEMENTATION WAS MANAGED?**

8 A. No. Aside from the above contractor issue and issues related to permitting and  
9 third-party inspections, the Company did not encounter any additional issues  
10 requiring special management. Even for the above issues, the Company was  
11 largely able to work through them using its typical project management process,  
12 as discussed earlier in my Direct Testimony.

13 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

14 A. Total capital additions for this project were \$7.3 million for Phase 1 and \$11.5  
15 million for Phase 2/3, as shown in Table ARG-D-19 above. The majority of the  
16 cost associated with these projects (approximately 65 percent) were related to the  
17 mechanical construction work completed by our construction vendors, which also  
18 included permitting and inspections. As is typical for these projects, the other  
19 primary project categories included materials and overheads (combined  
20 approximately 25 percent of project costs). The remaining costs included  
21 engineering, internal labor and miscellaneous costs.

1 **Q. OVERALL, ARE THE COSTS OF THESE PROJECTS REASONABLE?**

2 A. Yes. This project was necessary to address risks associated with Coupled IP  
3 pipeline. Again, the Company undertook a detailed risk analysis prior to selecting  
4 the projects, which concluded that the projects were high priority due to the size of  
5 the pipelines and the pipelines being located in a high consequence area. The  
6 Company also engaged in a thoughtful planning process, which allowed it to  
7 selected the most viable and cost-efficient options for the projects. While the  
8 Company encountered unexpected issues with the Phase 1 construction  
9 contractor, the Company managed through this issue in a manner that minimized  
10 transition costs and time and resulted in effective management of challenging  
11 permitting and construction conditions for Phase 2/3. This project demonstrates  
12 the Company's adaptability and prudent management of unforeseeable  
13 circumstances.

14 c. 20" Coupled IP Replacement – Brighton to York (Central 70)

15 **Q. WHAT IS THE BRIGHTON TO YORK PROJECT?**

16 A. The Brighton to York project is a Coupled IP project that involved replacing 20"  
17 and 3" steel pipe on the Denver IP system, as well as installing new 4" steel pipe  
18 to maintain a regulator station feed. The project was identified due to high risk  
19 from age of the infrastructure and the construction practices at the time the pipeline  
20 was originally installed in the 1940s. While the project was originally planned for  
21 2024, it was accelerated due to a conflict with CDOT's Central 70 reconstruction  
22 project in the same area. The project was included in the 2022 PSIA Deferral. The  
23 work placed in service in 2022 is part of this rate case. Attachment ARG-9 to my



1 Direct Testimony provides additional project information, including a map of the  
2 project location.

3 **Q. PLEASE PROVIDE MORE INFORMATION REGARDING THE WORK**  
4 **INVOLVED IN THE PROJECT.**

5 A. The project renewed approximately 2,600 feet of 20” and 650 feet of 3” steel pipe,  
6 which ran along 47th Avenue, by installing 4,480 feet of 20” re-routed steel pipe in  
7 Brighton Boulevard from E. 46th Avenue to E. 48th Avenue, in E. 48th Avenue  
8 from Brighton Boulevard to York Street, and in York Street from E. 48th Avenue to  
9 E. 47th Avenue. The project also installed 670 feet of 4” steel IP main down to  
10 Gaylord Street to connect to an existing regulator station. No customer services  
11 were renewed or tied over as part of the project. The new pipeline is entirely in the  
12 public ROW. Construction began in the fall of 2020 and was completed in the  
13 summer of 2022.

14 **Q. PLEASE EXPLAIN IN MORE DETAIL WHY THE PROJECT WAS NECESSARY.**

15 A. The project was needed for several reasons. First, the existing pipeline, which  
16 was installed in the late 1940s, was determined to be high-risk due to its age, the  
17 weak nature of mechanical couplings, and concerns that the original structure did  
18 not meet current construction standards due to construction practices in place at  
19 the time of installation. Additionally, CDOT’s Central 70 reconstruction project,  
20 which was installing storm mains in the area, conflicted with the existing pipeline  
21 at Brighton Boulevard and York Street and required relocation of the existing  
22 pipeline. Further, when the existing pipeline was relocated from E. 47th Avenue  
23 to E. 48th Avenue, additional pipeline needed to be installed to re-connect to the

1 existing regulator station, to continue feeding the station and providing service to  
2 the surrounding area.

3 **Q. WERE THERE ANY UNIQUE CONSIDERATIONS WHEN DETERMINING THE**  
4 **SCOPE OF THIS PROJECT?**

5 A. Yes. The need to re-route the existing pipeline was a top consideration. In addition  
6 to the conflict with CDOT's Central 70 reconstruction project, a re-route was also  
7 necessary because the corridor along the existing pipeline route was too  
8 congested with existing utilities to install the 20" steel pipe.

9 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

10 A. The Company considered alternative routing; however, the planned re-route was  
11 the shortest available route and least cost option in light of the specific  
12 circumstances of this project. Non-pipeline alternatives, such as derating or  
13 abandonment, were not viable options, as the conflict with CDOT's Central 70  
14 reconstruction project required relocation of the existing pipeline and the pipeline  
15 provides service to downstream regulator stations serving the northern Denver  
16 area. The nature of the pipeline required renewal.

17 **Q. PLEASE DESCRIBE ANY UNIQUE ATTRIBUTES OF CONSTRUCTION OF**  
18 **THIS PROJECT.**

19 A. There were several factors affecting the overall work on this project. The extent of  
20 HDD in the project was more extensive than originally anticipated, particularly for  
21 the segment in York Street from E. 48th Avenue to E. 47th Avenue. Additionally,  
22 for the segment in E. 48th Avenue from Brighton Boulevard to York Street, the  
23 project ran into conflicts with CDOT's Central 70 reconstruction project at E. 48th

1 Avenue and York Street due to CDOT changing its construction schedule. This  
2 required the Company to expedite the work in that area, assess the most prudent  
3 path forward, and bring in a new construction vendor to complete the remaining  
4 work on the project. The Company assigned the remaining work to a contractor  
5 that was under the Company's MSA and had already been contracted to complete  
6 design work for the remaining phase of the project. The Company also had  
7 previous experience with the contractor's quality of work to timely and efficiently  
8 continue with the project.

9 **Q. HOW DID CONSTRUCTION PROCEED AFTER THE COMPANY ENGAGED**  
10 **THE NEW CONTRACTOR TO COMPLETE THE REMAINING WORK?**

11 A. The new crew worked to verify the safety and integrity of the work done thus far  
12 and identify additional work that needed to be completed, including additional  
13 resources to meet CDOT timelines. The remaining work on the project largely  
14 proceeded as planned. However, there were additional cost drivers.

15 First, CDOT also requested that the Company remove some pipeline that  
16 was originally planned to be abandoned in place, which required additional  
17 resources.

18 Second, a decision was made to delay partial construction of the project  
19 due to property rights issues involving the western portion of the project.  
20 Specifically, the Company was anticipating CDOT would grant an easement  
21 outside of the public ROW on the western portion of the project, pending  
22 successful land acquisition negotiations between CDOT and landowners. This  
23 easement would have allowed the Company to lower its costs by avoiding the tight

1 clearances in the congested ROW. However, negotiations fell through, meaning  
2 the Company had to construct in the public ROW.

3 Finally, a prominent event venue is located near the project, so the  
4 Company implemented robust stakeholder engagement, including conducting  
5 more frequent public outreach meetings and increasing communications regarding  
6 the project, to mitigate impacts to operations. The Company also undertook  
7 stakeholder engagement due to the conflict with CDOT's Central 70 reconstruction  
8 project necessitating close coordination with CDOT. The Company was able to  
9 have its construction contractor perform this stakeholder engagement work as part  
10 of the scope of work, which allowed the Company to minimize costs.

11 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

12 A. Total capital additions were approximately \$10.4 million for 2022 (\$9.8 million  
13 discrete, \$0.6 million included in Coupled IP). The majority of the costs associated  
14 with this project (approximately 52 percent) were related to mechanical  
15 construction work completed by our construction vendors. Other primary project  
16 costs included overheads and internal labor (approximately 36 percent). While  
17 overheads and internal labor appear higher than is typical for other Coupled IP  
18 projects, this is because the initial work on the project (before the Company  
19 engaged a new contractor) was conducted by an internal construction crew. The  
20 remaining costs included engineering, permitting, environmental, and inspection.

21 **Q. ARE THE COSTS OF THIS PROJECT REASONABLE?**

22 A. Yes. The project was necessary to comply with PHMSA regulations and avoid  
23 conflict with CDOT's Central 70 reconstruction project. The Company was able to

1 mitigate the cost and timing challenges through an adaptive process and rigorous  
2 management, resulting in an overall reasonable project cost.

3 **4. TIMP Assessments (and Repairs)**

4 **Q. PLEASE DESCRIBE TIMP ASSESSMENT AND REPAIR WORK.**

5 A. Through TIMP Assessments, the Company performs health and condition  
6 assessments of its transmission pipelines as required by 49 C.F.R. Part 192  
7 Subpart O and 49 C.F.R §192.710. The federal code requires assessment of  
8 transmission pipelines using limited approved methods including In Line Inspection  
9 (“ILI”), pressure testing, or External Corrosion Direct Assessment (“ECDA”). The  
10 federal regulation requires operators to ensure the safe operation of pipelines by  
11 completing assessments on a repetitive interval of no more than seven years for  
12 pipelines within HCAs and no more than 10 years for those outside of HCAs.

13 The Company uses ILI as its primary assessment method, as this method  
14 yields the most comprehensive information to address transmission system  
15 threats. However, depending on the identified threats, alternative and/or additional  
16 complimentary methods such as pressure testing or ECDA may also be utilized.  
17 Once an assessment is completed, the Company evaluates any anomalous  
18 conditions found during the assessment, including the location, severity, nature  
19 (threat cause), and type of feature (e.g., dent or metal loss) and prioritizes  
20 remediation. Typical remediation measures include excavation, inspection, and  
21 repair or complete removal of the anomaly on that segment of pipe.

1 **Q. DESCRIBE THE COMPANY’S TIMP ASSESSMENT AND REPAIR WORK FOR**  
2 **2022 AND 2023.**

3 A. In 2022 and 2023, the Company prepared pipelines for ILI, also referred to as  
4 “make piggable”, performed integrity assessments using ILI, completed pipeline  
5 de-rate projects, and made repairs to pipelines based on assessment findings.

6 **Q. DESCRIBE THE WORK THAT IS REQUIRED TO MAKE A PIPELINE**  
7 **PIGGABLE AND WHY THIS WORK IS NECESSARY.**

8 A. In order to assess pipelines using ILI, the pipeline must be prepared to successfully  
9 allow the passage of in-line inspection tools or “made piggable.” This work typically  
10 includes the installation of a launcher and receiver which serve as the entry and  
11 exit points for the ILI tool. Further, in order for an ILI tool to smoothly traverse the  
12 entire length of a pipeline being assessed, the Company must remove, modify, or  
13 otherwise reconfigure bends, heavier wall fittings and valves that may restrict  
14 passage of the tool. Not doing so adds risk of getting an ILI tool stuck within the  
15 pipeline, the retrieval of which can be a costly and time-consuming endeavor,  
16 depending on the location.

17 **Q. HOW DID THE COMPANY PLAN ITS TIMP ASSESSMENT AND REPAIR**  
18 **WORK FOR 2022 AND 2023?**

19 A. Planning TIMP Assessment and repair work for 2022 and 2023 included a review  
20 of the Company’s Baseline Assessment Plan (“BAP”), a review of potential threats  
21 to covered segments, a review of changes to class location, and a review of the  
22 risks associated with each segment of our gas transmission pipeline system. The  
23 Company prioritized its work in 2022 and 2023 based on a number of factors

1 including, ensuring compliance with the required federal code timelines, the  
2 location of the pipeline, and system operational considerations. For instance,  
3 pipelines that are located in mountain regions cannot be safely accessed during  
4 the winter months and work on these pipelines must be performed during other  
5 months.

6 **Q. WHAT ARE THE TOTAL COSTS FOR TIMP ASSESSMENT WORK INCLUDED**  
7 **IN THIS CASE?**

8 A. Table ARG-D-20 below provides the total costs related to TIMP Assessment work  
9 included in this rate case and identifies the individual categories of TIMP  
10 assessment projects.

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**Table ARG-D-20**  
**TIMP Assessment – Discrete System Safety and Integrity Plant Additions**  
**January 1, 2022 to December 31, 2023\*** (\$ millions)

| TIMP Assessment                       | Description  | 2022<br>(Actual) | 2023                   |                            |               | Total<br>Additions<br>Since 2021<br>Test Year |
|---------------------------------------|--|------------------|------------------------|----------------------------|---------------|---|
|                                       |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total         |   |
| IMP Capital Related Work              | Make piggable/ILI and repairs                                    | \$8.0            | \$2.6                  | \$0.0                      | \$2.6         | \$10.6  |
| IMP Gas Trans Pipe Capital EAST       | Mix of make piggable/ILI, repairs, AC mitigation, and assessment | \$3.5            | \$2.6                  | \$0.0                      | \$2.6         | \$6.1   |
| CO/TIMP Assessment Sleeve Repair West | Repairs  | \$0.2            | \$0.0                  | \$3.4                      | \$3.4         | \$3.6   |
| IMP Trans Reg Station - East Div      | Make piggable/ILI, derate  | \$2.6            | \$0.4                  | \$0.0                      | \$0.4         | \$2.9   |
| CO/TIMP/10" Asbury-Garmesa to 25 Rd   | Make piggable/ILI  | \$0.0            | \$0.0                  | \$2.4                      | \$2.4         | \$2.4   |
| CO/TIMP Assessment Sleeve RepairSou   | Repairs  | \$0.6            | \$0.2                  | \$1.0                      | \$1.3         | \$1.8   |
| CO/TIMP/10" Coal Creek MP & ILI       | Repairs  | \$0.0            | \$1.3                  | \$0.1                      | \$1.4         | \$1.4   |
| Other TIMP Assessment                 | Mix of make piggable/ILI, repairs, and derate                    | \$0.7            | \$2.7                  | \$2.6                      | \$5.2         | \$5.9   |
| <b>TIMP Assessment Subtotal</b>       |  | <b>\$15.4</b>    | <b>\$9.8</b>           | <b>\$9.5</b>               | <b>\$19.4</b> | <b>\$34.8</b>                                 |

\* Any differences in sums due to rounding.

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Attachment ARG-10 to my Direct Testimony breaks down these categories in more detail, including the type and location of each individual TIMP Assessment project, and the code requirement that required completion of the projects in 2022 and 2023.



1                   **5. ASV/RCV**

2   **Q. PLEASE DESCRIBE THE ASV/RCV WORK.**

3   A. The Company's ASV/RSV work involves installation of rupture-mitigation valves  
4       (RMVs), automatic shut-off valves (ASVs), remote-controlled valves (RCVs), or  
5       alternative equivalent technologies on transmission pipelines. The installation of  
6       these specialized valves can automatically or remotely shut down a pipeline,  
7       limiting or reducing the consequence in the event of a pipeline failure or rupture.  
8       In 2022, PHMSA amended the Federal Pipeline Safety Regulations (49 CFR parts  
9       190 through 199) to require the installation of rupture-mitigation valves or  
10      alternative equivalent technologies and establish minimum performance standards  
11     for the operation of those valves. These regulations require the installation of  
12     ASV/RCV on all newly constructed or entirely replaced pipelines that are greater  
13     than or equal to six inches in nominal diameter in HCAs and other specified areas.

14 **Q. HOW DOES THE COMPANY DETERMINE WHERE TO INSTALL ASV/RCVS**  
15 **ON ITS SYSTEM?**

16 A. The Company is required to comply with the requirements established in the  
17 PHMSA rulemaking titled "Requirement of Valve Installation and Minimum Rupture  
18 Detection Standards", effective October 22, 2022. This required operators to  
19 install RMVs pursuant to 49 CFR §192.179, §192.610, §192.634, and §192.935.  
20 Generally, 49 CFR §192.179 and §192.634, require RMVs to be installed for new  
21 or entirely replaced transmission lines greater than or equal to six inches in  
22 diameter installed after March 31, 2023 affecting valve spacing requirements, or  
23 high-consequence areas (HCA) or Class 3 or 4 locations. 49 CFR §192.610

1 requires the installation of RMVs on existing pipelines where class location  
2 changes result in the replacement of segments of the pipeline. Companies are  
3 required by 49 CFR §192.935 to perform an annual risk analysis to determine  
4 whether adding an RMV would be an efficient means of protecting an HCA against  
5 or mitigating for an unplanned gas release. Based on the results of this annual  
6 risk analysis, the Company identifies sites for installation of RMVs and then  
7 prioritizes these identified sites for installation.

8 **Q. DESCRIBE THE TYPE OF WORK THAT IS PERFORMED UNDER THE**  
9 **ASV/RCV PROGRAM.**

10 A. The work in this program involves installing the actual ASV/RSVs on the  
11 Company's system. This work includes commissioning remote control valves to  
12 verify that they are operating properly, verifying the overall functionality of the  
13 valve, and installing additional equipment to ensure that these ASC/RCVs have  
14 the necessary power and communication capabilities to allow them to operate  
15 properly.

16 **Q. WHAT ARE THE TOTAL COSTS FOR ASV/RCV WORK INCLUDED IN THIS**  
17 **CASE?**

18 A. Table ARG-D-21 below provides the total costs related to ASC/RCV work included  
19 in this rate case.

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**Table ARG-D-21**  
**ASV/RCV – Discrete System Safety and Integrity Plant Additions**  
**January 1, 2022 to December 31, 2023\*** (\$ millions)

| ASV/RCV   | 2022<br>(Actual) | 2023                      |                               |              | Total<br>Additions<br>Since<br>2021 Test<br>Year |
|---|------------------|---------------------------|-------------------------------|--------------|--|
|   |                  | 1/1 –<br>9/30<br>(Actual) | 10/1 –<br>12/31<br>(Forecast) | Total        |  |
| Install shut off valves on pipelines                    | \$9.9            | \$0.2                     | \$3.6                         | \$3.8        | \$13.7   |
| Install Automation to Shut Valves West Division         | \$6.3            | \$3.2                     | \$0.0                         | \$3.2        | \$9.5  |
| Install ASV/RCV East Division                           | \$3.4            | \$0.3                     | \$1.2                         | \$1.5        | \$4.9  |
| Install Automation to Shut off Valves in South Division | \$3.9            | \$0.1                     | \$0.0                         | \$0.1        | \$4.0  |
| Install ASV / RCV on Pipelines in South Division        | \$0.8            | \$0.4                     | \$0.0                         | \$0.4        | \$1.2  |
| Other ASV/RCV   | (\$3.0)          | \$0.3                     | \$0.6                         | \$0.9        | (\$2.1)  |
| <b>ASV/RCV Subtotal</b>                                 | <b>\$21.4</b>    | <b>\$4.4</b>              | <b>\$5.4</b>                  | <b>\$9.8</b> | <b>\$31.2</b>                                    |

\* Any differences in sums due to rounding.

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A complete list of the discrete ASV/RCV projects for 2022 and 2023 is provided as Attachment ARG-11 to my Direct Testimony.

**6. Shorted Casings**  
**Q. PLEASE DESCRIBE THE SHORTED CASINGS WORK.**

A. Shorted Casing projects focus on replacement of cased pipelines throughout Colorado for corrosion prevention. In accordance with 49 CFR §192.467(c), pipelines must be electrically isolated from metallic casings or other measures need to be taken to reduce corrosion. Many years ago, some pipeline crossings, such as rail crossings, were “cased” in a larger pipe to reduce the potential for damage to the carrier pipe. Over time the spacers between the casing and carrier

1 pipe fail to keep the pipes electrically isolated from each other. This electrical short  
2 between the pipes results in weakened cathodic protection and accelerated  
3 corrosion at the short location. Accordingly, the Company must renew these pipes  
4 as part of its integrity management work.

5 **Q. WHAT ARE THE TOTAL COSTS FOR SHORTED CASINGS WORK INCLUDED**  
6 **IN THIS CASE?**

7 A. Table ARG-D-22 below provides the total costs related to Shorted Casings work  
8 included in this rate case, identifies the individual projects in this category with  
9 costs over \$1 million in total for 2022 and 2023, and provides a brief description of  
10 each of these projects. High-level descriptions of the many smaller discrete system  
11 safety and integrity projects are provided as Attachment ARG-8 to my Direct  
12 Testimony. Additionally, I provide more information on the Aurora 20" Shorted  
13 Casings and 10" Shorted Casings ("Aurora 26") projects in the subsections below.

1 **Table ARG-D-22**  
 2 **Shorted Casings – Discrete System Safety and Integrity Plant Additions – Greater than**  
 3 **\$1 Million**  
 4 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| Shorted Casings                              | Description   | 2022<br>(Actual) | 2023                   |                            |              | Total<br>Additions<br>Since 2021<br>Test Year |
|--|---|------------------|------------------------|----------------------------|--------------|---|
|  |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total        |   |
| CO/Aurora 20" EDC Shorted Casing             | Replace 1,500' of 20" pipe due to a shorted casing in Aurora, CO. Driven by need to replace shorted casing to properly maintain pipe integrity. | \$6.5            | \$0.9                  | \$0.0                      | \$0.9        | \$7.3   |
| CO/Replace 10" Shorted Casings ("Aurora 26") | Replace 1,700' of 26" pipe due to a shorted casing in Aurora, CO. Driven by need to replace shorted casing to properly maintain pipe integrity. | \$5.5            | \$0.0                  | \$0.0                      | \$0.0        | \$5.5   |
| CO/Shorted Casings 2022-2024                 | Replace various shorted casings on the distribution system across Colorado.   | \$0.3            | \$0.0                  | \$1.4                      | \$1.4        | \$1.6   |
| Other Shorted Casings                        | Various small shorted casings projects  | \$0.0            | \$0.1                  | \$0.0                      | \$0.1        | \$0.1   |
| <b>Shorted Casings Subtotal</b>              |   | <b>\$12.3</b>    | <b>\$0.9</b>           | <b>\$1.4</b>               | <b>\$2.3</b> | <b>\$14.6</b>                                 |

\* Any differences in sums due to rounding  
 \*\*Additional information provided in Attachment ARG-9.

5 a. *Replace 10" Shorted Casings (Aurora 26")*

6 **Q. WHAT IS THE 10" SHORTED CASINGS REPLACEMENT PROJECT?**

7 A. The 10" Shorted Casing (Aurora 26") project involved the replacement of a

8 segment of 26" pipeline in Aurora, Colorado, between Smith Road and North

1 Chambers Road and East Hampden Avenue and Yosemite Street (“Aurora 26”).  
2 The casing was first installed before 1970 along Chambers Road, as a crossing  
3 for what is now 6th Avenue in Aurora. The uncased pipelines were designed to  
4 withstand highway loadings. Planning for renewal of this segment began in 2019  
5 and was completed in early 2022. Attachment ARG-9 to my Direct Testimony  
6 provides additional project information, including a map of the project location.

7 **Q. PLEASE PROVIDE A HIGH-LEVEL OVERVIEW OF THE WORK INVOLVED IN**  
8 **THE AURORA 26” REPLACEMENT PROJECT.**

9 A. The Company replaced the 26" cased HP main, which was about 1,700 feet long,  
10 via HDD. The project also included preplanning for a future cross-tie with the  
11 parallel 20" HP main, as described below and which was scheduled to be installed  
12 in 2022 after completing the 26" line. The existing 26" fusion-bonded epoxy (“FBE”)  
13 coated steel gas main was replaced with a new 26" abrasion-resistant overly  
14 (“ARO”) coated steel gas main, about 1,700 feet long. The new gas main was  
15 installed parallel to the existing line via boring, with the new line running parallel to  
16 Chambers Road. The existing main was abandoned in place.

17 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

18 A. When a shorted casing is discovered, the Company first inspects the pipeline in  
19 the field to confirm that the carrier pipe is indeed shorted to the casing. Once this  
20 is established, the Company takes the appropriate action depending on the  
21 location of the casing. One of the approaches used is to remove any fluids inside  
22 the pipe and then apply a special material that helps prevent corrosion between  
23 the casing and the carrier pipe. Inline tools are used to monitor corrosion growth

1 inside the pipeline so that potential issues are located and addressed before they  
2 become more serious. By following these steps, several shorted casings have  
3 been mitigated. Due to the location, pipeline age, casing age, and material  
4 records, fluid removal and corrosion inhibitor was at best a temporary mitigation  
5 for this area and therefore pipeline replacement was needed.

6 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

7 A. The construction of this project was carried out according to the initial scope and  
8 pre-construction cost estimates. The project was planned in 2019 and planned to  
9 be completed in 2021, but there were some delays due to a change of contractors  
10 to complete the construction. Additionally, we faced challenges with permitting,  
11 and had to conduct some public outreach, which further restricted the construction  
12 timeline. Before starting construction, Pubic Service had to obtain various state  
13 and city permits, which required close collaboration with the City of Aurora  
14 engineers to secure approval for temporary traffic patterns during construction.  
15 Furthermore, since the Company does not own the land surrounding the project,  
16 the project team had to negotiate multiple landowner agreements for construction  
17 and temporary use areas. These challenges lead to the project being completed  
18 and placed in service in 2022.

19 **Q. WERE THERE ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION OF**  
20 **THIS PROJECT?**

21 A. This project had several unique aspects. One of the biggest challenges was  
22 obtaining the necessary permits and holding public meetings during the COVID-  
23 19 pandemic in a safe and compliant manner. As a result, Public Service also had

1 to conduct virtual meetings and hire a company for public outreach. Additionally,  
2 due to the busy nature of the 6th and Chambers intersection, the Company had to  
3 implement significant traffic control measures to ensure the safety of the  
4 construction crew and pedestrians. Despite these challenges, we successfully  
5 completed the project while prioritizing the safety and well-being of the surrounding  
6 community.

7 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

8 A. Total capital additions for this project were \$5.5 million. The majority of the cost  
9 associated with this project (approximately 65 percent) was related to the  
10 mechanical construction pipeline work. In addition, project costs included  
11 materials, as well as overheads consisting of material and equipment storage and  
12 management (approximately 10 percent). The remaining costs included  
13 engineering, permitting, environmental, internal labor and, miscellaneous costs.

14 **Q. ARE THE COSTS OF THESE PROJECTS REASONABLE?**

15 A. Yes. Despite the permitting challenges, need for multiple landowner agreements,  
16 and a heavily congested work area, the Company mitigated the shorted casing to  
17 ensure safe and reliable service to east Denver customers.

18 *b. Aurora 20" Shorted Casing*

19 **Q. WHAT IS THE AURORA 20" SHORTED CASING PROJECT?**

20 A. The Aurora 20" Shorted Casing project replaced a segment of 20" pipeline in  
21 Aurora, Colorado, between Smith Road and North Chambers Road and East  
22 Hampden Avenue and Yosemite Street. This pipeline is critical because it, along  
23 with the Aurora 26" pipeline described above, are the primary pipelines that serve



1 east Denver, which includes approximately 280,000 customers. The Aurora 26"  
2 Shorted Casing project discussed above was completed prior to this project  
3 because both pipelines could not be taken out of service at the same time while  
4 maintaining reliable service to east Denver customers. The Aurora 20" Shorted  
5 Casing project involved replacement of the existing pipeline originally installed pre-  
6 1970 along Chambers Road as a casing crossing of what is now 6th Avenue in  
7 Aurora. Planning for this project began in 2019, and the project was completed in  
8 2022, with a small portion of close-out costs in 2023. Attachment ARG-9 to my  
9 Direct Testimony provides additional project information, including a map of the  
10 project location.

11 **Q. PLEASE PROVIDE A HIGH-LEVEL OVERVIEW OF THE WORK INVOLVED IN**  
12 **THE AURORA 20" SHORTED CASING PROJECT.**

13 A. This project replaced approximately 1,500 feet of 20" cased HP main via HDD.  
14 The project included a cross tie into the parallel 26" HP main installed in early  
15 2022. The existing 20" FBE coated steel gas main was replaced with 1,500 feet of  
16 20" ARO coated steel gas main. The new gas main was installed in parallel to the  
17 existing line via boring, with the new line running on parallel to Chambers Road.  
18 The existing main was abandoned in place. The new 20" gas main was then cross  
19 tied to the parallel 26" gas main that was installed in early 2022 to maintain the  
20 operational flexibility of the system.

1 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

2 A. For this project, no other permanent solution exists to satisfy the 49 CFR §192.467  
3 requirements, as described above with respect to the Aurora 26” Shorted Casings  
4 project.

5 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

6 A. The construction of this project largely proceeded according to initial scope and  
7 pre-construction cost estimates. The project was initially planned for completion  
8 in 2021; however, due to the Aurora 26” Shorted Casings project not being  
9 completed until early 2022 and the need to construct the projects sequentially, the  
10 construction work on the 20” segment did not start until spring 2022 and was in  
11 service in Fall 2022. Similar to but not to the extent of the Aurora 26” Shorted  
12 Casings project discussed above, various city and state permits were required  
13 prior to the start of construction for this project. The project team likewise worked  
14 with City of Aurora engineers to get approval for temporary traffic patterns during  
15 construction. State storm water permits were also required. Multiple landowner  
16 agreements also had to be put in place for construction and temporary use areas.

17 **Q. WERE THERE ANY OTHER UNIQUE ASPECTS RELATED TO**  
18 **CONSTRUCTION OF THIS PROJECT?**

19 A. Yes. Consistent with the discussion related to the Aurora 26” Shorted Casings  
20 project, significant traffic control was required at the 6th Avenue and Chambers  
21 intersection to protect public safety. Multiple landowner agreements were also  
22 required due to the congested nature of the work area. In addition, since the 20”  
23 Aurora Shorted Casings project completed the shorted casings work in this area,

1 the costs of final road restoration are reflected in the Aurora 20" Shorted Casings  
2 project rather than in the 26" Aurora Shorted Casings project.

3 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

4 A. Total capital additions for this project were \$7.3 million. Similar to the Aurora 26"  
5 Shorted Casings project, the majority of the costs associated with this project relate  
6 to the construction work (here, including additional road restoration), as well as  
7 materials, permitting, and overheads.

8 **Q. ARE THE COSTS OF THIS PROJECT REASONABLE?**

9 A. Yes. Despite the permitting challenges, need for multiple landowner agreements  
10 and a heavily congested work area, the Company mitigated the shorted casing to  
11 ensure safe and reliable service to east Denver customers. The Company  
12 carefully managed the project, including as challenges emerged, to bring the  
13 project in at a reasonable overall cost for the scope of the project and the nature  
14 of the work required.

15 **7. Inoperable Valve Replacement**

16 **Q. PLEASE DESCRIBE THE INOPERABLE VALVE REPLACEMENT WORK.**

17 A. Through the Inoperable Valve Replacement program the Company identifies and  
18 replaces existing distribution valves that are no longer able to be operated. The  
19 distribution valves are needed for emergency situations, when it is necessary to  
20 shut off gas to maintain safety and to prevent both outages and overpressure  
21 events to the downstream system. The cost of the valve replacement typically  
22 ranges from \$100,000 to \$1 million, based on the complexity of the valve and  
23 location.

1 **Q. HOW DOES THE COMPANY IDENTIFY NECESSARY INOPERABLE VALVE**  
2 **REPLACEMENTS?**

3 A. Replacement of inoperable valves is based on assessment of existing equipment  
4 and includes valves identified by Company personnel as a safety concern for  
5 various reasons including inoperability, inaccessibility, significant leaking and  
6 deteriorated condition.

7 **Q. HOW DOES THE COMPANY PRIORITIZE AND PLAN FOR INOPERABLE**  
8 **VALVE REPLACEMENT WORK IN A GIVEN YEAR?**

9 A. After the inoperable valves have been identified, they are risk-ranked based on  
10 potential system impact, pressure category, valve classification, and timeline of  
11 code compliance issues. In accordance with 49 CFR §192.745(b) and  
12 §192.747(b), prompt remedial action to correct the inoperable valve must be taken  
13 unless an alternative valve can be designated to serve the inoperable valve's  
14 function. In all cases the Company seeks to take remedial action within one year  
15 of discovery that the valve was inoperable. Based on the varied valve complexities,  
16 the valves that pose the greatest safety concern and/or immediate code  
17 compliance issues will be selected first for replacement in our risk-ranking. We  
18 expect to see approximately five inoperable valve projects to be planned for a  
19 typical year.

20 **Q. WHAT ARE THE TOTAL COSTS FOR THE INOPERABLE VALVE**  
21 **REPLACEMENT WORK DESCRIBED ABOVE?**

22 A. Table ARG-D-23 below provides the total costs for the inoperable valve  
23 replacements described above, identifies the individual projects with costs over \$1

1 million in total for 2022 and 2023, and provides a brief description of each project.  
 2 High-level descriptions of the many smaller discrete system safety and integrity  
 3 projects are provided as Attachment ARG-8 to my Direct Testimony.

4 **Table ARG-D-23**  
 5 **Inoperable Valve Replacements – Discrete System Safety and Integrity Plant**  
 6 **Additions – Greater than \$1 Million**  
 7 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| Inoperable Valves                   | Description   | 2022<br>(Actual) | 2023                   |                            |       | Total<br>Additions<br>Since 2021<br>Test Year |
|-------------------------------------|---|------------------|------------------------|----------------------------|-------|---|
|                                     |   |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total |   |
| CO/Inoperable Valve Replacement     | Replace various inoperable valves on the distribution system throughout Colorado. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.    | \$0.0            | \$0.0                  | \$2.9                      | \$2.9 | \$2.9   |
| CO/INOPV/BLDR/28th St & Colorado Av | Renew 750' of 12" steel main and replace three inoperable 12" valves in Boulder, CO. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance. | \$0.0            | \$0.0                  | \$1.9                      | \$1.9 | \$1.9   |
| CO/SWMR/INOPV/S Holly & E County Li | Replace three inoperable 10" valves with new 12" valves in Centennial, CO. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.           | \$0.0            | \$1.0                  | \$0.0                      | \$1.0 | \$1.0   |

| Inoperable Valves              | Description  | 2022<br>(Actual) | 2023                   |                            |              | Total<br>Additions<br>Since 2021<br>Test Year |
|--------------------------------|--|------------------|------------------------|----------------------------|--------------|---|
|                                |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total        |   |
| Distribution Inoperable Valves | Replace various inoperable valves on the distribution system throughout Colorado. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance. | \$0.0            | \$1.0                  | \$0.0                      | \$1.0        | \$1.0   |
| Inoperable Valves - Other      | Various smaller inoperable valve projects including projects in Boulder and Denver, CO.  | \$0.0            | \$0.8                  | \$1.2                      | \$2.0        | \$2.0   |
| <b>Inoperable Valves Total</b> |  | <b>\$0.0</b>     | <b>\$2.8</b>           | <b>\$6.1</b>               | <b>\$8.8</b> | <b>\$8.8</b>                                  |

\* ANY DIFFERENCES IN SUMS DUE TO ROUNDING

**8. Obsolete and Inoperable Equipment**

**Q. PLEASE GENERALLY DESCRIBE SYSTEM SAFETY AND INTEGRITY WORK ASSOCIATED WITH REPLACEMENT OF OBSOLETE OR INOPERABLE EQUIPMENT.**

A. Work related to replacement of obsolete/inoperable equipment may be conducted under a program of work, or may be related to individual discrete projects identified. Replacement of obsolete/inoperable equipment is based on assessment of existing equipment and input by Company personnel, and does not rely upon a risk-ranking methodology. Consideration is given to consequences of not addressing the issue, such as gas volume needed, number of customers impacted in an outage scenario, and estimated frequency of outages per year. Smaller projects are generally completed under separate categories of work, including but not limited to categories such as Obsolete Odorizers, Obsolete

1 Regulators, and Boosting Regulators as shown in Table ARG-13 above. Below, I  
2 provide additional information on work in these categories.

3 Individually planned safety projects required to ensure safe and reliable  
4 operation of the pipeline system, including those associated with  
5 obsolete/inoperable equipment, are often identified as a result of integrity  
6 management programs, or engineering and operations concerns. For individual  
7 planned projects, once risk has been identified and the project has been deemed  
8 necessary, the project goes through Stage Gate approval for funding. Below, I first  
9 address several categories of obsolete equipment work. I also address three  
10 discrete projects related to replacement of obsolete/inoperable equipment that are  
11 not included in a particular category of work. These include the F-340 Regulator  
12 Station Rebuild, F-808 Regulator Station Rebuild, and Tiffany Compressor Station  
13 Upgrades.

14 **Q. PLEASE DESCRIBE OBSOLETE ODORIZER REPLACEMENTS.**

15 A. Work in this category is related to replacement of existing odorizers and  
16 odorization equipment (tanks, injection lines, injection probes, and enclosures) that  
17 failed or are approaching failure. Odorized gas is required per 49 CFR §192.625  
18 for natural gas that is transported in a transmission line in a Class 3 or Class 4  
19 location and gas that will be distributed in a distribution line. Typical odorizer  
20 projects range from approximately \$150,000 to \$1.5 million.

21 **Q. PLEASE DESCRIBE OBSOLETE REGULATOR REPLACEMENTS.**

22 A. Regulator stations control the flow of gas from higher pressure gas systems to  
23 lower pressure systems through a series of regulators. As gas flows into a

1 regulator station, a regulator senses when gas pressure drops below a pre-  
2 determined set point and then opens to allow more gas to move downstream to  
3 the lower pressure system. When the downstream system pressure rises above  
4 a pre-determined set point, the regulator will then close. In summary, regulator  
5 stations serve a critical function on the gas system as they protect the gas system  
6 from over-pressurization and maintain appropriate delivery pressures to  
7 customers. The work in the Obsolete Regulator Replacement program replaces  
8 pressure regulators where there are limited or no replacement parts available.  
9 Individual projects within the program range from less than \$100,000 for less  
10 complex replacements to station rebuilds in excess of \$1 million.

11 **Q. PLEASE DESCRIBE THE BOOSTING REGULATOR WORK.**

12 A. Over the life of this program (currently expected to run through 2045), 130 boosting  
13 regulator stations in the Denver metro area will be modified due to aging  
14 infrastructure, operability, and reliability concerns, need for more capacity due to  
15 population growth in certain areas. These regulator stations include outdated  
16 regulators, pilots, and valves that are no longer supported by vendors for  
17 replacements or spare parts, as well as other concerns such as minor leaks and  
18 corrosion due to time in-service. They have been risk-ranked by a cross-functional  
19 team of engineering and operations personnel. This program is necessary to  
20 support continuing trusted service to approximately 281,000 customers (and  
21 growing) downstream of these boosting regulator stations (which equates to an  
22 average of 2,160 customers per station – of course some serve more customers



1 and some serve fewer). Individual projects within the program range from less than  
2 \$100,000 for simpler spool replacements to station rebuilds in excess of \$2 million.

3 **Q. WHAT ARE THE TOTAL COSTS FOR THE OBSOLETE AND INOPERABLE**  
4 **EQUIPMENT WORK YOU DESCRIBED ABOVE?**

5 A. Table ARG-D-24 below provides the total costs in the categories described above,  
6 identifies the individual projects with costs over \$1 million in total for 2022 and  
7 2023, as well as the costs related to the F-340 Regulator Station Rebuild, F-808  
8 Regulator Station Rebuild, and Tiffany Compressor Station Upgrades, and  
9 provides a brief description of each project. High-level descriptions of the many  
10 smaller discrete system safety and integrity projects are provided as Attachment  
11 ARG-8 to my Direct Testimony, and I provide high-level information on the F-340  
12 Regulator Station Rebuild, F-808 Regulator Station Rebuild, and Tiffany  
13 Compressor Station Upgrade projects in the following subsections.

1  
2  
3  
4

**Table ARG-D-24**  
**Obsolete and Inoperable Equipment – Discrete System Safety and Integrity Plant**  
**Additions**  
**January 1, 2022 to December 31, 2023\* (\$ millions)**

| Obsolete and Inoperable Equipment             | Description   | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|---|---|---------------|---------------------|-------------------------|-------|--------------------------------------|
|   |   |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| CO/MD/OBSODR/WR-1-A Odorizer                  | Replaced temporary odorizer with permanent odorizer at regulator station WR-1-A in Grand Junction, CO. Driven by need to odorize line per 49 CFR §192.625.  | \$0.0         | \$0.0               | \$1.2                   | \$1.2 | \$1.2                                |
| CO/PSCo/Orchard Mesa Odorant Tank Replacement | Replace odorant tank and structure at Orchard Mesa Compressor Station near Orchard Mesa, CO. Driven unstable soil conditions around tank structure and avoid failure of odorizer and ability to properly odorize gas per 49 CFR §192.625. | \$0.0         | \$0.0               | \$0.9                   | \$0.9 | \$0.9                                |
| CO/Rifle Gas Plant/Obsolete Odorizer          | Replace obsolete odorizer at the Rifle Gas Plant in Rifle, CO. Driven by need to replace odorizer that could no longer be repaired.   | \$0.0         | \$0.8               | \$0.0                   | \$0.8 | \$0.8                                |
| CO/MD/OBSODR/WR-20-A Odorizer                 | Replaced temporary odorizer with permanent odorizer at regulator station WR-20-A in the Grand Junction, CO area. Driven by need to odorize line per 49 CFR §192.625.  | \$0.0         | \$0.0               | \$0.7                   | \$0.7 | \$0.7                                |

| Obsolete and Inoperable Equipment      | Description   | 2022 (Actual)  | 2023                |                         |              | Total Additions Since 2021 Test Year |
|--|---|----------------|---------------------|-------------------------|--------------|--------------------------------------|
|  |   |                | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total        |                                      |
| Obsolete Odorizers - Other             | Various activities around eleven odorizer projects.   | (\$0.1)        | \$0.4               | \$0.3                   | \$0.7        | \$0.6                                |
| <b>Total Obsolete Odorizers</b>        |   | <b>(\$0.1)</b> | <b>\$1.2</b>        | <b>\$3.0</b>            | <b>\$4.2</b> | <b>\$4.2</b>                         |
| CO/DNV Metro/F-553 Reg Station Rebuild | Replace obsolete regulators and rebuild station at F-553 in Denver, CO. Driven by need to replace regulators that are no longer able to be repaired.  | \$1.0          | \$0.5               | \$0.0                   | \$0.5        | \$1.4                                |
| Replace Obsolete Distribution          | Replace various distribution system obsolete regulators. Driven by need to replace regulators that are no longer able to be repaired.   | \$1.3          | \$0.0               | \$0.3                   | \$0.3        | \$1.6                                |
| Obsolete Regulators - Other            | Various smaller replacement of obsolete regulators.   | \$0.0          | \$0.0               | \$0.2                   | \$0.2        | \$0.2                                |
| <b>Total Obsolete Regulators</b>       |   | <b>\$2.3</b>   | <b>\$0.4</b>        | <b>\$0.5</b>            | <b>\$1.0</b> | <b>\$3.2</b>                         |
| CO/SWMR//BRP 2023_F-34_Rebuild         | Replace obsolete boosting regulator station F-34 in the Southwest Metro Denver, CO area. Driven by need to replace leaking valves and obsolete station equipment that is no longer able to be repaired. | \$0.0          | \$0.0               | \$1.6                   | \$1.6        | \$1.6                                |

| Obsolete and Inoperable Equipment | Description  | 2022 (Actual) | 2023                |                         |              | Total Additions Since 2021 Test Year |
|-----------------------------------|--|---------------|---------------------|-------------------------|--------------|--------------------------------------|
|                                   |  |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total        |                                      |
| CO/SWMR/BRP_F-13_Rebuild          | Replace obsolete boosting regulator station F-13 in the Southwest Metro Denver, CO area. Driven by need to replace leaking valves and obsolete station equipment that is no longer able to be repaired.    | \$0.0         | \$0.0               | \$1.4                   | \$1.4        | \$1.4                                |
| <b>Total Boosting Regulators</b>  |  | <b>\$0.0</b>  | <b>\$0.0</b>        | <b>\$3.0</b>            | <b>\$3.0</b> | <b>\$3.0</b>                         |
| <b>F-340 Rebuild**</b>            | Rebuild regulator station F-340 in the Denver, CO area. Driven by need to replace multiple obsolete control valve regulators and inoperable valves, while adding redundancy.                               | \$0.0         | \$2.7               | \$2.4                   | \$5.1        | \$5.1                                |
| <b>F-808 Rebuild**</b>            | Rebuild regulator station F-808 in the Denver, CO area. Driven by the need to replace obsolete control valves, actuators, generator and RTU, while also increasing capacity and addressing station safety. | \$0.0         | \$4.1               | \$0.5                   | \$4.6        | \$4.6                                |

| Obsolete and Inoperable Equipment   | Description   | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|-------------------------------------|---|---------------|---------------------|-------------------------|-------|--------------------------------------|
|                                     |   |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| CO/Tiffany Upgrades/Pockets, Dehy** | Replace obsolete compressor and auxiliary equipment at the Tiffany Compressor Station near the Durango, CO area. Driven by need to replace various equipment to maintain compressor units and maintain gas quality for customers. | \$0.0         | \$4.9               | \$1.2                   | \$6.1 | \$6.1                                |

\* Any differences in sums due to rounding

\*\*Additional information provided in Attachment ARG-9.

1 a. F-340 Regulator Station Rebuild

2 Q. WHAT IS THE F-340 REGULATOR STATION REBUILD PROJECT?

3 A. The F-340 regulator station is critical to bringing feed from Station F-808 into two  
 4 IP systems (Arvada and Thornton) in the Denver metro area. The station feeds  
 5 approximately 3,300 MCFH, equivalent to around 41,000 customers. Due to its  
 6 age, the station contained several obsolete control valve regulators and inoperable  
 7 valves on each run. Each station run (i.e., the feeds into Arvada and Thornton),  
 8 had no redundancy so were critical to the system. The F-340 rebuild project  
 9 replaced the existing F-340-A (Arvada) run and the F-340-T (Thornton) run from  
 10 the inlet fire valves to the outlet fire valves to restore reliability at the site and  
 11 provide redundancy to each separate IP system by adding a bypass from one run

1 to the other. Attachment ARG-9 to my Direct Testimony provides additional project  
2 information, including a map of the project location.

3 **Q. HOW DID PUBLIC SERVICE DETERMINE THE NEED FOR THIS PROJECT?**

4 A. The Company's HP operational engineer identified that due to its advanced age,  
5 the regulator station was obsolete with respect to the control equipment, which  
6 precluded gas control operations from reliably connecting to the station to remotely  
7 adjust delivery set points, as well as the block valves and fire valves that are  
8 necessary to isolate the station run in the event of an emergency. There was also  
9 no redundancy at either run at this site, so if a run became unavailable, the  
10 Company could not bypass the inoperable run. The Company identified the need  
11 for the project in late 2021 when the gas controllers started to have issues  
12 controlling the pressure control valves. Temporary repairs to the controls were  
13 attempted, but due to the age of the equipment, the repairs were not successful,  
14 and the station was put on bypass, meaning local control of the station was  
15 required. As such, completing the F-340 rebuild became a priority.

16 **Q. PLEASE PROVIDE MORE DETAIL REGARDING THE WORK INVOLVED IN**  
17 **THE F-340 REG STATION REBUILD PROJECT.**

18 A. The existing obsolete station F-340 was removed from service and put in manual  
19 bypass. The existing station was then removed and the site was regraded. New  
20 piping was installed to connect both inlets to a common station header which then  
21 split the feeds into two different runs: F-340-A and F-340-T. The stations then tied  
22 into their respective separate IP systems at the outlet. Redundancy was added to  
23 the station in the form of a bypass header, and construction included the RTU

1 replacement and installation of the new generator. Additionally, two actuators (one  
2 on each run) were replaced with new actuators and gear boxes of suitable  
3 specifications to properly operate worker control valves to design temperature  
4 specifications.

5 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

6 A. F-340 is critical for operation of the Arvada and Thornton systems, such that there  
7 was no opportunity to avoid this project or replace it with an alternative project.  
8 The need for the F-340 station rebuild was not able to be mitigated by upstream  
9 or downstream main work because this station is critical to serving customers on  
10 two separate systems, and the load supported by this station could not be  
11 reallocated to any adjacent stations while maintaining required system load,  
12 pressure differential, and operability. The Company evaluated including a station  
13 F-490 rebuild in this project because the station shares a yard with F-340, and was  
14 of similar vintage. However, the F-490 station was assessed and its condition  
15 deemed sufficient to remain in service with minimal piping upgrades. The  
16 Company also considered demolishing and replacing the existing RTU building,  
17 but was able to use it, which reduced overall project costs.

18 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

19 A. This project went through the Company's Stage Gate process. The Company's  
20 internal engineering team provided engaged an engineering firm (under an MSA)  
21 for project design. Internal engineering and operations were engaged throughout  
22 the design process and provided input at each design completion stage. The  
23 engineering firm was responsible for assessing the existing station prior to rebuild

1 to ensure the F-340 rebuild design was feasible and constructible within design  
2 parameters. The design team included environmental, permitting, engineering,  
3 construction, and operations stakeholders to ensure final product met current  
4 design standards.

5 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

6 A. The construction of this project generally proceeded according to initial scope and  
7 pre-construction cost estimates. Project construction began in June 2022 and was  
8 largely completed by the end of 2022. However, ongoing global supply chain  
9 issues impacted materials delivery, which delayed construction in some instances.  
10 Additionally, after in-servicing, the Company also found that some materials  
11 incorrectly specified by a sub-vendor had to be replaced to ensure reliable gas  
12 supply. As such, the project was in-serviced in 2023.

13 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

14 A. Total capital additions for this project were \$5.1 million. Approximately 30 percent  
15 of the costs was related to the mechanical construction work completed by our  
16 construction vendors. Other costs were related to materials (approximately 25  
17 percent) and engineering (approximately 16 percent). The remaining costs  
18 included overheads consisting of material and equipment storage and  
19 management as well as inspection, internal labor, and miscellaneous costs.

20 **Q. ARE THE COSTS OF THE F-340 REGULATOR STATION PROJECT**  
21 **REASONABLE?**

22 A. Yes. The F-340 regulator station is a critical component of the Company's system,  
23 serving the equivalent of approximately 41,000 customers. The Company



1 appropriately managed the project, identifying options for reducing overall project  
2 costs while delivering the completed project that allows the Company to continue  
3 to provide safe, reliable service to customers in the Arvada and Thornton system  
4 in the Denver metro area.

5 *b. F-808 Regulator Station Rebuild*

6 **Q. WHAT IS THE F-808 REGULATOR STATION REBUILD PROJECT?**

7 A. This project rebuilt the existing F-808 regulator station on the existing site located  
8 near West 82nd Avenue and Orion Way in Arvada, Colorado. The F-808 regulator  
9 station is critical for operating the West Fringe IP system and all distribution  
10 systems downstream, including customers in the cities of Arvada, Wheat Ridge,  
11 Lakewood, and Englewood. Due to its age, the station contained obsolete  
12 equipment, which needed to be replaced. The F-808 site was also over capacity  
13 for peak days. The rebuild design also reduced the industrial noise created by the  
14 station, and addressed safety concerns related to the restrictive size of the building  
15 and the height of the actuators within the building. The station was rebuilt including  
16 a new building, control valves, actuators, generator, and RTUs, and is feeding  
17 approximately 8,050 one thousand cubic feet per hour ("MCFH"), equivalent to  
18 over 100,000 customers, in the 2023-2024 heating season. Attachment ARG-9 to  
19 my Direct Testimony provides additional project information, including a map of the  
20 project location.

21 **Q. HOW DID PUBLIC SERVICE DETERMINE THE NEED FOR THIS PROJECT?**

22 A. The Company identified the need for the project in mid-2021. The HP operational  
23 engineer identified that due to its advanced age, the regulator station was obsolete

1 with respect to the existing control valves, actuators, generator, and RTU. The  
2 Company then initiated scoping and design activities in 2022, with construction  
3 completed in the autumn of 2023. As with Station F-340, deficiencies with the  
4 control equipment precluded gas control operations from reliably connecting to the  
5 station to remotely adjust delivery set points, and the operability constraints of the  
6 block valves and fire valves that are necessary to isolate the station run in the  
7 event of an emergency. There had also been complaints about the noise level of  
8 the station (during peak day operation) due to its location within a rapidly growing  
9 residential area. This growth also contributed to the station being over its capacity  
10 for peak days. Finally, the new station design addressed safety concerns related  
11 to the restrictive size of the existing building and the height of the actuators  
12 contained inside, which created difficulty for the maintenance personnel to access  
13 the equipment in a safe manner. During construction, the Company lost remote  
14 control access altogether due to RTU failure, which further confirmed the critical  
15 need for the upgrade.

16 **Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN F-808**  
17 **REGULATOR STATION REBUILD PROJECT.**

18 A. The F-808 Regulator Station Rebuild project was a complete rebuild including new  
19 valves, actuators, generator, RTU, piping, electrical and building. The HP regulator  
20 was sized to meet a capacity of approximately 8,300 MSCFH on Design Day into  
21 the Company's West Fringe IP system. During this rebuild, the 4" inlet gas main to  
22 Station F-924, located adjacent to F-808, was relocated to the west side of the site.  
23 The new building and foundation were constructed to house the control valve and

1 bypass runs. The building updates also incorporated new security standards to  
2 ensure restricted access and protect public safety. The Company also added pipe  
3 insulation for noise abatement. The majority of the construction work was  
4 performed inside the Company's existing property, with the exception of the inlet  
5 tie-in, which is located within the existing 50-foot pipeline easement to the west of  
6 the property site.

7 **Q. WHAT ALTERNATIVES TO THIS PROJECT DID THE COMPANY CONSIDER?**

8 A. F-808 is critical for the operation of the West Fringe IP system, such that there was  
9 no opportunity to avoid this project or replace it with an alternative project. As noted  
10 above, the station was over capacity for peak days and the existing control valves,  
11 actuators, and generator needed replacement for safety and reliability. The failure  
12 of the RTU required immediate attention. This rebuild also addressed community  
13 complaints regarding the noise level of the station, as well as the safety hazards  
14 posed to the maintenance personnel by the current building's small size.

15 **Q. HOW DID THE COMPANY PLAN FOR CONSTRUCTION OF THIS PROJECT?**

16 A. The Company's internal design team prepared an initial project scope plan to near  
17 25 percent completion, and provided it to MSA engineering and design vendors,  
18 including environmental design, with the expertise and resources available to  
19 complete the final design plan and profile for this geographical area. The Company  
20 selected an MSA mechanical contractor who had recently completed similar  
21 MAOP remediation work on this pipeline. The vendors provided cost estimates  
22 prior to construction, and the project was managed through the Company's Stage  
23 Gate process.

1 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

2 A. The construction of this project largely proceeded according to initial scope and  
3 pre-construction cost estimates. The project was initially planned for completion  
4 in 2022; however, due to permitting challenges, construction was unable to move  
5 forward until May of 2023, with work substantially completed by September of  
6 2023. These delays did not have a significant impact on final cost.

7 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

8 A. Total capital additions for this project were \$4.6 million. Approximately 40 percent  
9 of the costs was related to the mechanical construction work completed by our  
10 construction vendors. Other costs were related to materials (approximately 20  
11 percent) and engineering (approximately 15 percent). The remaining costs  
12 included overheads consisting of material and equipment storage and  
13 management as well as internal labor and miscellaneous costs.

14 **Q. ARE THE COSTS OF THE F-808 REGULATOR STATION PROJECT**  
15 **REASONABLE?**

16 A. Yes. The F-808 regulator station is a critical component of the Company's system,  
17 serving the equivalent of over 100,000 customers in the West Fringe IP system in  
18 the Denver metro area. The Company appropriately managed the project, and  
19 completion of this project allows the Company to continue to provide safe, reliable  
20 service to affected customers.

1                                   c.     *Tiffany Compressor Station Upgrades*

2     **Q.     WHAT IS THE TIFFANY COMPRESSOR STATION UPGRADE PROJECT?**

3     A.     This project upgraded and replaced obsolete compressor and auxiliary equipment  
4            within the Tiffany compressor facility. The facility includes three existing  
5            compressor units. The project replaced the dehydrator for the facility, removed the  
6            obsolete automated volume pocket controller to all three compressor units and  
7            replaced that with a manual variable volume pocket and recycle valve<sup>42</sup>, updated  
8            discharge flow measurement and odorizer equipment for gas discharged from the  
9            facility, upgraded gas quality measurement equipment including hydrogen sulfide  
10           detectors, gas chromatographs, water analyzers, replaced fuel gas regulators, and  
11           included vibration remediation and building upgrades. This project was needed  
12           because equipment at the station is aging and its continued operation without  
13           modification poses reliability risks, and gas quality and measurement equipment  
14           required modernization to ensure the gas quality provided to the Company's  
15           system remained in compliance with quality standards. Attachment ARG-9 to my  
16           Direct Testimony provides additional project information, including a map of the  
17           project location.

---

<sup>42</sup> The compressors at Tiffany station operate at a constant revolutions per minute and modulated their flow-rates based on pressure set-points by modifying the compressor piston volume (or "pocket") through the automated volume pocket controller. The manual variable volume pocket and recycle value control modulates flow rates by recycling a variable amount of gas output from the compressor back to the inlet.

1 **Q. PLEASE FURTHER DESCRIBE THE TIFFANY COMPRESSOR STATION AND**  
2 **ITS IMPORTANCE TO THE SYSTEM.**

3 A. The Southern Mountain System comprises the portion of the Company's Mountain  
4 System spanning from Durango to Leadville which relies on five compressor  
5 stations to sufficiently maintain system pressures in order to provide safe and  
6 reliable service to 17,000 firm service customers. Tiffany is the sole supply point  
7 into the Southern Mountain System and contains three of the five compressors  
8 that maintain pressure on the Southern Mountain System. Its reliable operation is  
9 critical to maintain pressures and therefore service to the Southern Mountain  
10 System during the heating season. The Tiffany compressor facility is located in  
11 the Durango, Colorado area and located at this facility are the following primary  
12 components: three compressor units, discharge dehydration equipment, auxiliary  
13 fuel gas components, and measurement and gas quality equipment. The station  
14 runs a parallel setup with two compressor units setup for facility demand and one  
15 compressor unit on standby mode. The dehydration units are normally operated in  
16 bypass mode and are utilized when inlet gas stream dew point begins to exceed a  
17 certain level of lbs/MMSCF to maintain gas quality at the required specifications  
18 for Public Service's system.

19 **Q. WHAT DROVE THE NEED FOR THIS PROJECT?**

20 A. The primary driver of this project was the age of the three compressor units, as  
21 well the associated equipment including the dehydrators and gas monitoring  
22 equipment. The Tiffany compressor Unit 1 was manufactured in 1974, and Units  
23 2 and 3 were manufactured in 1976. The compressors at the station have

1 experienced operational issues including persistent vibration of the compressors  
2 and outlet piping, as well as operation control issues at certain setpoints. The age  
3 and condition of the dehydrator units risks gas stream contamination by introducing  
4 a significant quantity of triethylene glycol into the outbound gas stream if the station  
5 experiences an emergency shutdown. Glycol contamination can increase  
6 corrosion in the pipeline system resulting in possible customer outages due to loss  
7 of pipeline integrity. As mentioned above, this facility is needed year-round, and  
8 during the heating season, all three units must run to provide the necessary gas  
9 supply to the Southern Mountain System to provide safe and reliable service to our  
10 customers, making this compressor facility a critical component to the reliability of  
11 the gas system.

12 **Q. WHAT IS THE RISK OF NOT DOING THIS PROJECT?**

13 A. Without operational improvements to the compressors or replacement of the  
14 existing dehydration units, the Tiffany station was at risk of not having the required  
15 compression to meet peak Design Day capacity needs during the heating season  
16 or maintain the required gas quality into the Southern Mountain System. In the  
17 event of the loss of a compressor during a peak Design Day, or at temperatures  
18 approaching the peak Design Day, the Company would risk customer outages. In  
19 the event that gas quality was not able to be maintained to the Company's  
20 standards, the Company faced the risk of damage to the downstream pipeline and  
21 the associated reliability risks.

1 **Q. PLEASE DESCRIBE HOW THE COMPANY APPROACHED PLANNING FOR**  
2 **THIS PROJECT.**

3 A. The project proceeded through the Company's Stage Gate process. The planning  
4 process was based on the engineering designs in conjunction with mechanical  
5 contractors and internal construction management team. The project planning  
6 began with upgrades to the dehydration system, and additional equipment and  
7 needs were assessed as engineering progressed and the operational performance  
8 of the facility was evaluated. Throughout the engineering design process, the  
9 Company identified necessary work to ensure compliance and reliability of the  
10 upgraded compressor facility once completed. The Company worked with its  
11 subject matter experts, engineering design team, and construction managers to  
12 adapt project, schedule, and cost planning accordingly.

13 **Q. PLEASE PROVIDE MORE DETAIL REGARDING THE WORK INVOLVED IN**  
14 **THE TIFFANY COMPRESSOR STATION PROJECT, AND EXPLAIN WHY THE**  
15 **SCOPE OF WORK WAS APPROPRIATE.**

16 A. The components of this project included:

17 • **Dehydrator** – The existing dehydrator units at the Tiffany  
18 compressor station were found to be obsolete and deemed a  
19 safety concern due to inoperable ignition systems and  
20 advanced corrosion on the piping and vessels. The original  
21 dehydrator units at Tiffany compressor station were installed  
22 at a time when the inlet gas stream was saturated with liquids.  
23 While this is no longer the case, it is still essential that the  
24 Tiffany compressor station maintain dehydration capabilities  
25 to mitigate the risk associated with receipt of gas supply with  
26 high liquid content, which is not pipeline quality. As such, the  
27 original setup that included a separate dehydration unit for  
28 each of the three Tiffany compressor units will be replaced  
29 with a single skid mounted dehydration unit that can serve all



1 three compressor units. Use of the existing dehydration units  
2 will be phased out as the single unit is tested and  
3 commissioned for use with all three compressor units. The  
4 dehydrator unit was forecasted to be installed in October  
5 2023.

- 6
- 7 • **Vibration Remediation** – Compressor vibration and  
8 discharge piping vibration has been a persistent issue  
9 throughout the facility. Peerless Dynamics assessed the site  
10 in 2018 and recommended adding supports near the  
11 cylinders. Vibration is still prevalent likely due to deteriorating  
12 pipe supports and acoustical noise associated with the units.  
13 A pulsation study was completed with a recommendation that  
14 new pulsation bottles be installed on each unit. The pulsation  
bottles were forecasted to be installed in October 2023.

- 15
- 16 • **Fuel Gas Building and Regulator Runs** – The Tiffany  
17 compressor station valve actuation and compressor system  
18 is fed from a tap at the high pressure gas inlet to the station.  
19 The existing fuel gas regulators are obsolete and the existing  
20 building is settling and sinking such that the foundation cannot  
21 be rectified to support replacing the regulators and associated  
22 regulator runs. The existing regulator runs will be replaced in  
23 a worker/monitor approach to eliminate relief valves and other  
24 emissions with new pressure instrumentation that will be  
25 installed to monitor the regulator setpoints. We will also  
26 modify the tie-in to for the fuel gas runs to the station  
27 discharge. These changes are required to meet  
28 environmental mandates. The fuel gas building and regulator  
runs are forecasted to be installed in October 2023.

- 29
- 30 • **Compressor Upgrades** – The station has experienced  
31 nuisance unit shutdowns when trying to onboard multiple  
32 units. To smooth out operational control of the units, the  
33 automated variable volume pocket controllers were replaced  
34 with variable, manual screw pockets on all units, which  
35 requires a recirculation line on each unit with a pressure  
36 control valve controlled by percentage with load shown on unit  
37 control. These upgrades reduced the number of shutdowns  
38 and allowed for optimal operation of the facility. This  
equipment was in-serviced in July 2023.

- 39
- 40 • **Gas Quality Building and Equipment** – To maintain gas  
41 quality, a new analyzer building was installed with a gas  
chromatograph, hydrogen sulfide analyzer, and a water

1 content analyzer to ensure reliability. This equipment was in-  
2 serviced in late 2022.

- 3 • **Station Metering** – An ultrasonic meter was installed  
4 replacing the existing orifice meter that did not maintain  
5 measurement tolerances. This equipment was in-serviced in  
6 late 2022.

7 **Q. HOW DID CONSTRUCTION OF THIS PROJECT PROCEED?**

8 A. Because this compressor facility is a critical component of the Southern Mountain  
9 System and must run throughout the year, there are very narrow windows of time  
10 during which work can be conducted on these units. The construction window is  
11 between May and October in each year since the facility must remain in operation  
12 for the entirety of the winter heating season. Even during the summer construction  
13 window, construction operation must coordinate with other gas compressor  
14 stations on the system and the needs of electric generation plants the Tiffany  
15 station supplies. For example, construction on the Tiffany compressor station was  
16 coordinated with construction outages at the Del Norte station and the operational  
17 needs of the Alamosa electric generating station, further shortening the  
18 construction season. The construction of this project was impacted by the limited  
19 time windows available to work on the facility, and due to global supply chain  
20 issues impacting materials delivery, and as a result work did not occur in a linear  
21 fashion. This led to re-mobilization of construction crews and moving available site  
22 shutdowns for tie-in across multiple years. As a result, some work of the work was  
23 completed in 2022 while the remainder was forecasted to be complete in 2023.

1 **Q. WERE THERE ANY UNIQUE ASPECTS RELATED TO CONSTRUCTION OF**  
2 **THIS PROJECT?**

3 A. Yes. As described above, construction could not proceed in a linear fashion due  
4 to limited available time to work on the facility because this facility needs to run  
5 throughout the year (not only during the heating season). This project was also  
6 impacted by global supply chain issues and long lead times for certain equipment,  
7 such as large compressor parts, control valves, analytic equipment and  
8 instrumentation. The project location also impacted construction because  
9 mobilizing to this remote area is difficult, but in this case even more so because  
10 construction had to start and stop based on availability of materials and when  
11 construction on the facility was allowed.

12 **Q. WHAT WERE THE OVERALL PROJECT COSTS?**

13 A. Total capital additions for this project were \$6.1 million. The majority of the cost  
14 associated with this project (approximately 40 percent) was related to the  
15 mechanical construction work completed by our construction vendors. In addition,  
16 project costs included materials, as well as overheads consisting of material and  
17 equipment storage and management (approximately 30 percent). The remaining  
18 costs included engineering, permitting, environmental, internal labor, and  
19 miscellaneous costs.

20 **Q. ARE THE COSTS OF THE TIFFANY COMPRESSOR STATION PROJECT**  
21 **REASONABLE?**

22 A. Yes. The project at the Tiffany Compressor Station provided critical reliability  
23 improvements that reduced the risk of customer outages from potential

1 compressor failure during the winter heating season, during which time all three  
2 compressors are needed to maintain pressures in the southern Mountain System.  
3 The project also provided upgrades that ensured gas quality was maintained which  
4 improves the safety and reliability of the gas system downstream from the  
5 compressor station.

6 **9. Compressor Station Backup Generators**

7 **Q. PLEASE DESCRIBE THE WORK RELATED TO COMPRESSOR STATION**  
8 **BACKUP GENERATORS.**

9 A. The Public Service compression station backup power systems provide the  
10 stations with temporary power in case of loss of permanent power to safely place  
11 the stations in a safe state. Many of these stations have equipment that are  
12 reaching the end of their useful life and are a single point of failure in a loss of  
13 permanent power scenario. Due to some recent failures of the backup power  
14 system, the addition of an auxiliary connection was identified as a need when the  
15 site generator failed to start. Installation of backup power equipment includes the  
16 addition of an auxiliary docking station to provide the means to safely and quickly  
17 hook up and disconnect a portable emergency generator unit, evaluate and update  
18 the site UPS (“Uninterruptible Power Supply”) and battery back-up system, and  
19 install a new automatic transfer switch (“ATS”) for the site Emergency Backup  
20 Generator.

1 **Q. WHAT ARE THE TOTAL COSTS FOR COMPRESSOR STATION BACKUP**  
 2 **GENERATOR WORK INCLUDED IN THIS CASE?**

3 A. Table ARG-D-25 below provides the total costs related to Compressor Station  
 4 Backup Generator work included in this rate case, identifies the individual projects  
 5 in this category with costs over \$1 million in total for 2022 and 2023, and provides  
 6 a brief description of each of these projects. High-level descriptions of the many  
 7 smaller discrete system safety and integrity projects are provided as Attachment  
 8 ARG-8 to my Direct Testimony.

9 **Table ARG-D-25**  
 10 **Compressor Station Backup Generators – Greater than \$1 Million**  
 11 **Discrete System Safety and Integrity Plant Additions**  
 12 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| Compressor Station Backup Generators | Description   | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|--------------------------------------|---|---------------|---------------------|-------------------------|-------|--------------------------------------|
|                                      |   |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| CO/MNWEST/RIFLE BACKUP GENERATOR     | Installation of back-up generator at Rifle Gas Plant in Rifle, CO. Needed to support critical activities in electrical power loss event.                  | \$0.0         | \$1.4               | \$0.0                   | \$1.4 | \$1.4                                |
| CO/Del Norte Comp E-Gen              | Installation of back-up generator at Del Norte Compressor Station in Del Norte, CO. Needed to support critical activities in electrical power loss event. | \$0.0         | \$0.0               | \$1.3                   | \$1.3 | \$1.3                                |

| Compressor Station Backup Generators                 | Description  | 2022<br>(Actual) | 2023                   |                            |              | Total Additions Since 2021 Test Year |
|--|--|------------------|------------------------|----------------------------|--------------|--------------------------------------|
|  |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total        |                                      |
| CO/EAST/Backup Generator Tiffany                     | Installation of back-up generator at Tiffany Compressor Station near the Durango, CO area. Needed to support critical activities in electrical power loss event. | \$0.0            | \$1.2                  | \$0.0                      | \$1.2        | \$1.2                                |
| Other Compressor Station Backup Generators           | Various activities around the installation of generators at three facilities.  | \$0.0            | (\$0.1)                | \$1.8                      | \$1.8        | \$1.8                                |
| <b>Compressor Station Backup Generators Subtotal</b> |  | <b>\$0.0</b>     | <b>\$2.5</b>           | <b>\$3.2</b>               | <b>\$5.8</b> | <b>\$5.8</b>                         |

*\* Any differences in sums due to rounding*

**10. Transmission Pipeline Marker Project**

**Q. PLEASE DESCRIBE THE TRANSMISSION PIPELINE MARKER PROJECT.**

A. The transmission pipeline marker project is a multi-year effort, begun in 2020, to install Light Detection and Ranging (“LIDAR”) caps on existing pipeline markers across all 2,200 miles of the Company’s gas transmission assets in Colorado. The project also replaced any missing, worn, or damaged markers that are discovered through the course of the project. This project ensures the Company is in compliance with transmission line marker code requirements, and also better positions the Company for successful and safe operation of its pipeline and gas system, improves data accuracy and efficiency, assists with risk management and damage prevention work, and enhances public and employee safety. There was

1 a total of \$2.0 million of capital additions approved for this project in the 2022  
2 Combined Gas Rate Case. Additional information on this project is provided in  
3 Attachment ARG-9.

4 **Q. WHAT IS THE EXPECTED TOTAL COST FOR THIS PROJECT AND THE**  
5 **LEVEL OF CAPITAL ADDITIONS THAT ARE INCLUDED IN THIS CASE?**

6 A. The total estimated cost of the project is expected to be approximately \$9.4 million,  
7 including costs from our prior case and work that we expect for 2024. There are a  
8 total of \$4.0 million of capital additions for work completed in 2022 and 2023 in this  
9 case. The total cost of the project reflects increases in the number of damaged  
10 sign markers, as well as the fact that the varied terrain has taken longer than  
11 anticipated for crews to navigate. The pipeline marker project traverses the entire  
12 State of Colorado and as a result has to navigate terrain that can be mountainous  
13 or remote, or both. This has resulted in the project requiring more resources than  
14 originally anticipated. The Company anticipates concluding the project by the end  
15 of 2024.

16 **11. Tools and Equipment**

17 **Q. PLEASE DESCRIBE THE COSTS INCLUDED IN THE TOOLS AND**  
18 **EQUIPMENT CATEGORY.**

19 A. Tools and Equipment are acquired in support of various operations per 49 CFR  
20 Part 192. The Company cannot perform its gas system safety obligations without  
21 appropriate gas system tools, such as gas detection equipment, squeeze-off tools,  
22 air compressors, and air hammer drills, which are necessary to safely support  
23 general operations.

1 **Q. WHAT ARE THE TOTAL COSTS FOR TOOLS INCLUDED IN THIS CASE?**

2 A. Table ARG-D-26 below provides the total costs related to Tools included in this  
 3 rate case. The Gas Tools Discrete includes costs for tools related to replacement  
 4 of gas stopple equipment for gas distribution and high pressure operations areas,  
 5 gas leak detection and sensing equipment, calibration equipment, and pipe fusion  
 6 equipment, among other items. Other Tools includes smaller tool purchases  
 7 needed to undertake gas system work.

8 **Table ARG-D-26**  
 9 **Tools – Discrete System Safety and Integrity Plant Additions**  
 10 **January 1, 2022 to December 31, 2023\* (\$ millions)**

| Tools                 | Description  | 2022<br>(Actual) | 2023                   |                            |              | Total<br>Additions<br>Since 2021<br>Test Year |
|-----------------------|--|------------------|------------------------|----------------------------|--------------|---|
|                       |  |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total        |   |
| Gas Tools Discrete    | Various tool purchases as needed to support gas operations | \$2.2            | \$2.0                  | \$0.5                      | \$2.5        | \$4.7   |
| Other Tools           | Various tool purchases as needed to support gas operations | \$0.3            | \$1.1                  | \$0.8                      | \$1.8        | \$2.1   |
| <b>Tools Subtotal</b> |  | <b>\$2.4</b>     | <b>\$3.1</b>           | <b>\$1.2</b>               | <b>\$4.3</b> | <b>\$6.8</b>                                  |

\* Any differences in sums due to rounding

11 **12. Other Categories of Work**  
 12 **Q. PLEASE DISCUSS THE SYSTEM SAFETY AND INTEGRITY – OTHER**  
 13 **CATEGORIES OF WORK PLANT ADDITIONS SINCE THE 2021 HTY.**

14 A. While the above discussion addresses the larger categories of system safety and  
 15 integrity capital investments, the Company has also in-serviced other categories  
 16 of system safety and integrity projects ranging between \$1.0 million and \$3.0  
 17 million in capital additions. These projects include the following:



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- **Redundant Regulators** – The focus of redundant regulator work is to replace or rebuild high risk regulator stations. These stations feed non-integrated/sparsely integrated systems where failure of equipment has the risk of an over or under pressure event. An over-pressure event may lead to a pipeline failure or leak that may result in risks to the public as well as property damage. An under-pressure event may lead to loss of gas service to a large number of customers on the downstream pipeline. Redundant runs/regulators are designed at these sites to mitigate potential single point failures. Total capital additions for this category of work were \$3.9 million as shown in Table ARG-D-14 above.
- **Exposed Pipe Replacement** – In support of TIMP, the Company proactively documents, assess, and mitigates various exposed, above ground, or shallow depth of cover HP gas transmission pipelines to protect pipelines from hazards, external forces, and/or 3rd party inflicted damages. Total capital additions for this category of work were \$2.4 million as shown in Table ARG-D-14 above.
- **Cathodic Protection** – In support of TIMP, the Company proactively documents, assesses, and is responsible for overseeing the execution of specific corrosion control activities, including cathodic protection systems design, projects, and complex troubleshooting in accordance with CFR 49.192 Appendix D. Total capital additions for this category of work were \$2.2 million as shown in Table ARG-D-14 above.
- **RTU Replacements** –The RTU replacement category of work aims to replace existing RTU equipment that is either currently obsolete or becoming obsolete in 2030. Replacement of these obsolete or near obsolete RTUs will decrease downtime due to unavailable spare parts and support and allow a SCADA transition to DNP3 communications protocols which is not supported by any existing devices in 2024/2025. Additionally, as part of these replacements we are developing standards to address 49 CFR § 192.631(c)(1) that define hardware design, programming, controls narrative, naming conventions, and alarm tag descriptions. Total capital additions for this category of work were \$1.8 million as shown in Table ARG-D-14 above.

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- **Vaults** – The vault category of work looks to remove high risk vault structures from the natural gas system. Vaults are typically located in road ROW and contain but are not limited to system emergency isolation valves. These below ground structures pose significant corrosion risks due to the construction practices at the time of installation. As part of this work, the Company renews the valves within the vault and demolishes the vault structure to reduce corrosion/leak risk in the system. Total capital additions for this category of work were \$1.8 million as shown in Table ARG-D-14 above.
- **Above Ground Facility Protection** – Above Ground Facility Protection projects reduce the risk of damage on above ground facilities including, but not limited to, meters and regulator stations on above ground pipeline systems. The installed protection will help protect against potential outside force damage, primarily due to vehicular traffic. 49 CFR § 192.353(a) states that outdoor facilities must be protected from vehicular damage. Total capital additions for this category of work were \$1.8 million as shown in Table ARG-D-14 above.
- **Hardscaping** – The hardscaping category of work is designed to accomplish a number of objectives to ensure resilience of above ground natural gas assets through preparation of site to mineral earth, clearing of weeds or trees, application of weed erosion control fabric, and completion with compacted recycled asphalt or gravel and edging. This process was developed to help ensure resilience of above ground natural gas assets and that Xcel Energy’s easement or other land rights are protected through delineation of property lines that have eroded over time. It provides perimeter protection along fenced areas through remedy of overgrown vegetation and addresses potential damage to facilities from trees during storm events or other natural disasters. Oftentimes longstanding erosion issues are addressed to properly stabilize and protect facilities. Cathodic protection is also enhanced via proper surface to air transitions at ground level. Total capital additions for this category of work were \$1.5 million as shown in Table ARG-D-14 above.
- **ERX Installation** – Supports the SCADA system. The SCADA system collects data and sends information from remote metering and monitoring points to our Gas Control

1 computer systems. Company personnel monitor the incoming  
2 data and information about the system including system  
3 pressures, flow rates, and valve positions. The purpose of the  
4 SCADA system is to remotely monitor and control the flow of  
5 natural gas into and throughout our transmission and  
6 distribution systems. Based on information received through  
7 SCADA, Gas Controllers, monitoring gas operations 24 hours  
8 a day, seven days a week can identify problems (e.g.,  
9 pressure drops/surges and gas flow rates) as they arise and  
10 can dispatch field personnel proactively to prevent potentially  
11 catastrophic events. Total capital additions for this category  
12 of work were \$1.3 million as shown in Table ARG-D-14 above.

- 13 • **Capitalized Locates** – These costs reflect the capitalized  
14 component of damage prevention locates, which are  
15 discussed in the Direct Testimony of Company witness Ms.  
16 Gilliland. Damage prevention locates are capitalized based  
17 on the extent of the Company’s locates completed as part of  
18 its capital projects. Total capital additions for this work were  
19 \$1.1 million as shown in Table ARG-D-14 above.

20 **13. System Safety and Integrity – Other**

21 **Q. PLEASE DISCUSS THE SYSTEM SAFETY AND INTEGRITY – OTHER PLANT**  
22 **ADDITIONS SINCE THE 2021 HTY.**

23 A. While the above discussion addresses the vast majority of discrete system safety  
24 and integrity capital investments since the 2021 HTY, the Company has also in-  
25 serviced other safety and integrity projects totaling approximately \$25.7 million in  
26 2022, and for 2023, projects totaling approximately \$21.9 million are expected to  
27 be in-serviced by December 31, 2023. Projects with total capital additions greater  
28 than \$1 million are shown in Table ARG-D-27 below. Details regarding the  
29 individual components of the System Safety and Integrity – Other category are  
30 provided in Attachment ARG-12 to my Direct Testimony. That attachment  
31 identifies the individual “Other” investments by time period since the 2021 HTY,  
32 and further describes each individual investment.

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**Table ARG-D-27**  
**Discrete Other System Safety and Integrity Plant Additions**  
**January 1, 2022 to December 31, 2023\* (\$ MILLIONS)**

| System Safety and Integrity         | Description  | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|-------------------------------------|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|                                     |  |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| CO/MNSOUTHERN/Del Norte Instrument  | Install instrument air system at the Del Norte Compressor Station in Del Norte, CO. Driven by reduction in methane emissions from unit start and reduce operating risk.  | \$0.0         | \$0.0               | \$2.8                   | \$2.8 | \$2.8                                |
| LB-34 Regulator Station Rebuild     | Rebuild existing LB-5 and LB-2 regulator stations with new LB-34 regulator station in Brush, CO. Driven by obsolete equipment and capacity restrictions.   | \$0.0         | \$0.0               | \$2.2                   | \$2.2 | \$2.2                                |
| CO/Rifle Gas Plant/Glycol System Co | Rebuild ethylene glycol loop at Rifle Gas Plant in Rifle, CO. Driven by need to resolve corrosion issues in the glycol loop and reduce operational risk.   | \$1.6         | (\$0.2)             | \$0.5                   | \$0.4 | \$2.0                                |
| CO/Urbint Software/GER Tix Fcst-202 | Software used to forecast Gas Emergency Response ticket volumes.   | \$1.4         | \$0.0               | \$0.0                   | \$0.0 | \$1.4                                |
| CO/Chalk Bluffs Control sys upgrade | Replace obsolete HMI, RTU, and corroded and leaking conduit at Chalk Bluffs Compressor Station in Weld County, CO. Driven by reduction in operational flexibility including loss of communication and system visibility. | \$1.3         | \$0.0               | \$0.1                   | \$0.1 | \$1.4                                |

| System Safety and Integrity                    | Description  | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|--|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|  |  |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total |                                      |
| Replace Greasewood Compressor Station Controls | Replace obsolete station RTU and unit PLCs at Greasewood Compressor Station in the Meeker, CO area. Driven by repair parts no longer being available and reduce operational risk from failure. | \$1.3         | \$0.1               | \$0.0                   | \$0.1 | \$1.4                                |
| CO/Additional Filtration at Roundup            | Install filtration at the Roundup Storage Facility near Roundup, CO.   | \$1.0         | \$0.2               | \$0.0                   | \$0.2 | \$1.2                                |
| CO/CO MTN/Southern (HP)/SC-4 Climax            | Rebuild the SC-4 meter station near Climax, CO. Driven by obsolete station design including the reduction in methane emissions by eliminating regulator/relief design.                         | \$0.0         | \$0.9               | \$0.3                   | \$1.2 | \$1.2                                |
| CO/Yosemite/Unit 6 Overhaul                    | Overhaul the Unit 6 compressor at Yosemite Compressor Station. Driven by unit usage determining need to overhaul to reduce failure risk.   | \$1.2         | \$0.0               | \$0.0                   | \$0.0 | \$1.2                                |
| CO/AH/Del Norte Compressor Controls            | Replace obsolete compressor controls at the Del Norte Compressor Station in Del Norte, CO. Driven by repair parts no longer being available and standardize with other facilities.             | \$0.0         | \$0.0               | \$1.1                   | \$1.1 | \$1.1                                |

| System Safety and Integrity                        | Description   | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|--|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|  |   |               | 1/1 – 9/30 (Actual) | 10/1 – 12/31 (Forecast) | Total         |                                      |
| CO/Pagosa Spring/CS Controls Upgrade               | Replace obsolete station controls at the Pagosa Springs Compressor Station near Pagosa Springs, CO. Driven by no repair parts available and reduce operational risk due to loss of communication and system visibility. | \$0.0         | \$0.0               | \$1.0                   | \$1.0         | \$1.0                                |
| Other System Safety and Integrity – Other Projects | Various other projects including compressor unit overhauls, line heater installations, regulator pilot heater replacements, regulator station rebuilds.   | \$18.0        | \$9.6               | \$3.2                   | \$12.9        | \$30.9                               |
| <b>Total Other System Safety and Integrity</b>     |   | <b>\$25.7</b> | <b>\$10.8</b>       | <b>\$11.1</b>           | <b>\$21.9</b> | <b>\$47.6</b>                        |

\* Any differences in sums due to rounding

- 1           **C. Routine System Safety and Integrity Investments**
- 2   **Q. PLEASE DESCRIBE THE ROUTINE SYSTEM SAFETY AND INTEGRITY**
- 3   **ROUTINE WORK.**
- 4   A. Routine system safety and integrity work includes gas main renewal work, gas
- 5   service renewal/cutoff work, and cathodic protection work. The Gas Main Renewal
- 6   Routine includes the replacement of smaller condition-based main replacements
- 7   and leak repairs. Projects within the Gas Main Renewal Routine typically range
- 8   up to \$300,000 each. As an example, the Company executed approximately 1,150
- 9   projects in this category for since 2021. The Gas Service Renewal/Cutoff Routine
- 10 includes the replacement of smaller condition-based service replacements, leak
- 11 repairs, removal of services due to structure removal, replacement/removal of

1 services in support of main reinforcements or main relocations, and customer-  
 2 requested relocation of service due to building modifications. Projects within the  
 3 Gas Service Renewal Routine typically range up to \$300,000 each. As an  
 4 example, the Company executed approximately 8,400 projects in this category  
 5 since 2021. The Cathodic Protection Routine includes anode and test station  
 6 installations. Projects within the Cathodic Protection Routine typically range up to  
 7 \$7,200 each, and the Company executed approximately 1,500 projects in this  
 8 category since 2021.

9 **Q. CAN YOU PROVIDE A BREAKDOWN OF THESE ROUTINE CAPITAL**  
 10 **ADDITIONS?**

11 A. Yes. Table ARG-D-28 below shows the routine plant additions broken down  
 12 between Service Renewal/Cutoffs and Main Renewals.

13 **Table ARG-D-28**  
 14 **System Safety and Integrity Routines Plant Additions**  
 15 **January 1, 2022 to December 31, 2023\*** (\$ millions)

| Routine Description    | 2022<br>(Actual) | 2003                   |                            |               | Total<br>Additions<br>Since 2021<br>Test Year |
|------------------------|------------------|------------------------|----------------------------|---------------|---|
|                        |                  | 1/1 – 9/30<br>(Actual) | 10/1 – 12/31<br>(Forecast) | Total         |   |
| Service Renewal/Cutoff | \$45.3           | \$40.3                 | \$12.6                     | \$52.9        | \$98.2  |
| Main Renewal           | \$20.8           | \$15.0                 | \$4.1                      | \$19.1        | \$39.8  |
| Cathodic Protection    | \$5.8            | \$5.4                  | \$0.7                      | \$6.1         | \$11.8  |
| Other                  | \$0.7            | \$0.7                  | \$0.0                      | \$0.7         | \$1.4   |
| <b>Total</b>           | <b>\$72.5</b>    | <b>\$61.3</b>          | <b>\$17.4</b>              | <b>\$78.7</b> | <b>\$151.2</b>                                |

\* Any differences in sums due to rounding

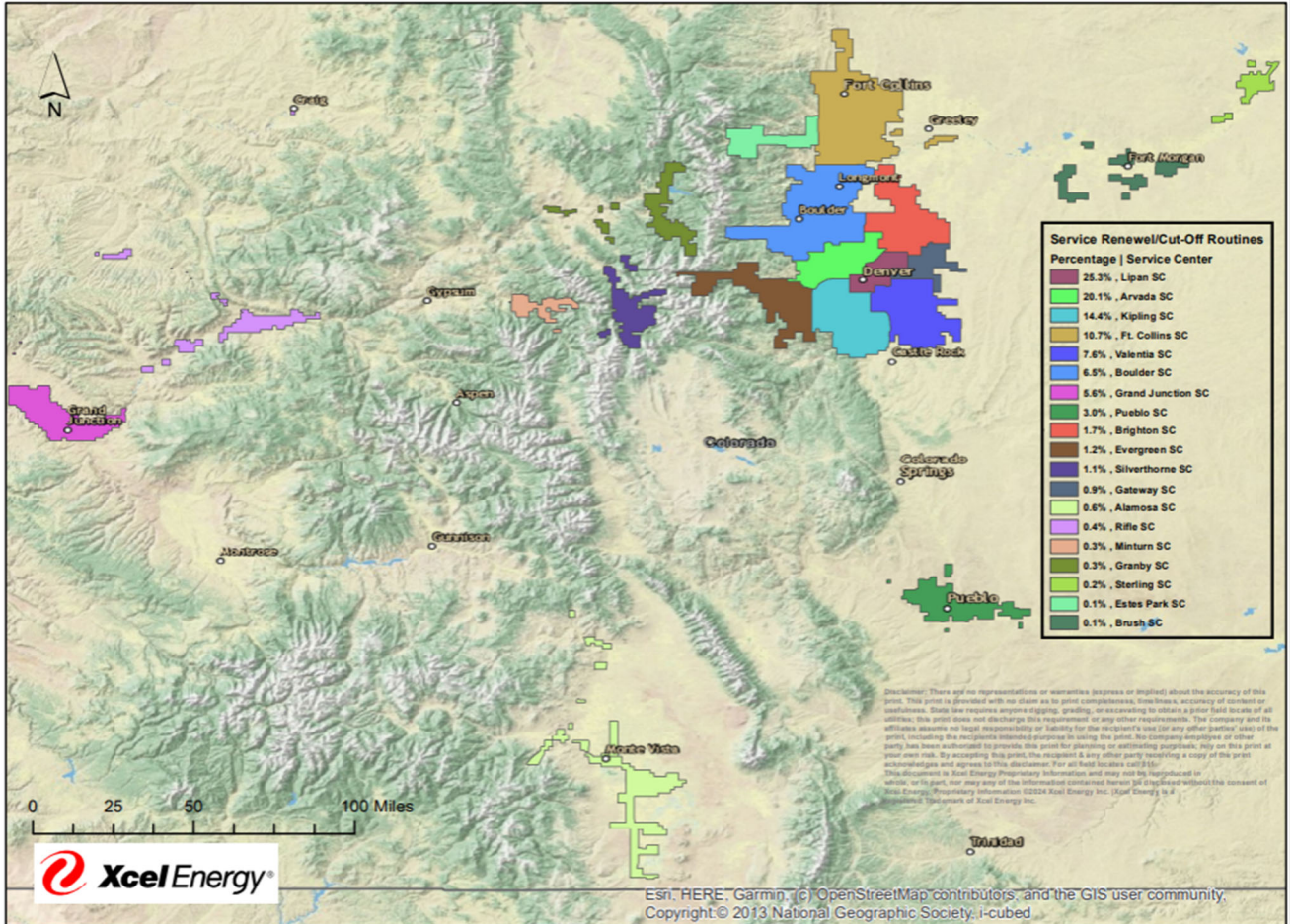
1 **Q. CAN YOU PROVIDE ADDITIONAL DETAIL ABOUT WHERE THIS ROUTINE**  
2 **NEW BUSINESS WORK IS BEING CONDUCTED ON THE COMPANY'S**  
3 **SYSTEM?**

4 A. Yes. Figures ARG-D-12 and ARG-D-13 below demonstrate the system safety and  
5 integrity routines capital expenditures for the period 2022-2023 by geographical  
6 area, broken down by service center. Work related to Service Renewal/Cutoff  
7 Routines and Main Renewal Routines are illustrated separately. As discussed  
8 earlier in my testimony, the capital expenditures for this type of work during the  
9 same period are not equivalent to capital addition amounts, but provide additional  
10 insight into the location of the routine capital investments on our system.



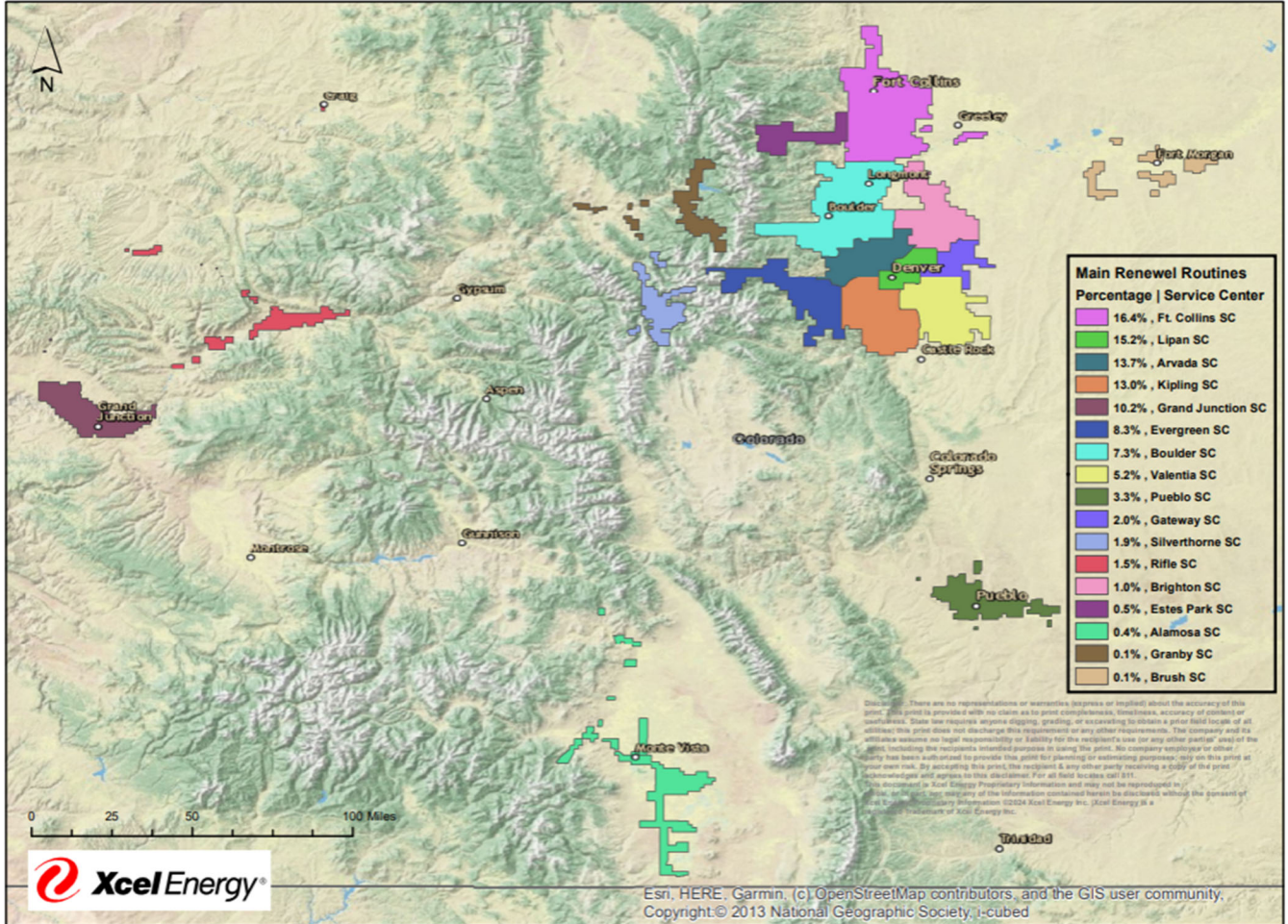
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**Figure ARG-D-12**  
**Routine Service Renewal/Cutoff 2022-2023**  
**Percentage of Capital Expenditures by Service Center**



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**Figure ARG-D-13**  
**Routine Main Renewals 2022-2023**  
**Percentage of Capital Expenditures by Service Center**



1                   **VII. FAILED METER LOT EXCHANGE PROGRAM**

2   **Q.    CAN YOU PROVIDE A HIGH-LEVEL DESCRIPTION OF THE FAILED METER**  
3   **LOT EXCHANGE PROGRAM?**

4   **A.**    Yes. The Failed Meter Lot Exchange program refers to a specific initiative that  
5            began in 2021 to exchange meters in lots that failed under our then-existing and  
6            Commission-approved meter sampling program. As explained in the Company’s  
7            2022 Combined Gas Rate Case, the Failed Meter Lot Exchange Program began  
8            in the second quarter of 2021 and forecasted exchanging an average of 35,000  
9            failed lot meters each year for approximately eight years. Notably, the issue with  
10           the meters in failed lots was not meter leakage or other matters that would imply  
11           safety or environmental concerns – it was purely a meter measurement issue.

12 **Q.    HOW DID THE COMMISSION ADDRESS THIS PROGRAM IN THE 2022**  
13 **COMBINED GAS RATE CASE?**

14 **A.**    While the Commission approved the costs associated with meter replacements in  
15           the cost of service for the test year ended December 31, 2021, the Commission  
16           was concerned about the large backlog of replacements in the future, as well as  
17           the length of time since Commission review of the meter sampling program itself.  
18           As a result, the Commission required a separate filing to address the program as  
19           well as the process for future meter replacements.<sup>43</sup>

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<sup>43</sup> Decision Nos. C22-0642 and C22-0804 in Proceeding No. 23A-0204G. Specifically, in Decision No. C22-0642, at ¶180, the Commission directed “Public Service to confer with Staff and UCA following the conclusion of this Proceeding in anticipation of a future filing for the purpose of a review and potential update to the Failed Meter Program and the process for future meter replacements. Public Service is required to file an application for approval of the continuation of its Failed Meter Program no later than six months from the effective date of this Decision.”

1           In that subsequent proceeding (Proceeding No. 23A-0204G), the Company,  
2 Commission Trial Staff (“Staff”), and the Office of the Utility Consumer Advocate  
3 (“UCA”)(collectively, the “Settling Parties”) reached a unanimous comprehensive  
4 Settlement Agreement (“Settlement Agreement”), which was thereafter approved  
5 by the Commission.<sup>44</sup> The Settlement Agreement amended the technical details  
6 of the gas meter sampling and periodic testing program, addressing topics such  
7 as how meter lots are grouped for sampling, the age of meters to be tested, the  
8 selection and testing protocol for meters, and the failed lot removal protocol. The  
9 Settlement Agreement also addressed reporting requirements, written comment  
10 opportunities, and recovery of costs associated with these meter replacements  
11 through 2023, among other things.

12 **Q. HOW DOES THE SETTLEMENT AGREEMENT IMPACT THE BACKLOG OF**  
13 **METERS THAT WERE IN FAILED LOTS DURING THE 2022 COMBINED GAS**  
14 **RATE CASE?**

15 A. Pursuant to the Settlement Agreement, the Settling Parties agreed to a new  
16 transition protocol for meter groups that were failed (e.g., had at least five  
17 consecutive statistical non-acceptance test results). The impacted meters were,  
18 generally, to be moved to meter lot groupings defined under the new program, with  
19 meter groups that were fast running or with non-conformance of 30 percent or  
20 greater, to be subjected to a faster two-year tightened testing protocol. If a lot in  
21 this transition protocol meets statistics, it will skip a year of testing. If a lot in this

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<sup>44</sup> See Decision No. R23-0610 (mailed September 12, 2023).

1 transition protocol does not meet statistics, the lot will be retested the following test  
2 year. If a lot in this transition protocol does not meet statistics the following year  
3 (two consecutive statistical non-acceptance test results), the lot will be deemed  
4 failed and subject to replacement. Meter groups that do not meet the foregoing  
5 thresholds for the tightened two-year testing protocol would be subject to the five-  
6 year tightened testing under the new program.<sup>45</sup> Based on these changes, there  
7 is no longer a need for the failed meter lot exchange program, as the impacted  
8 meters are, as of January 1, 2024, being subject to retesting under the new  
9 protocol.

10 **Q. HOW DID THE SETTLEMENT AGREEMENT ADDRESS COST RECOVERY?**

11 A. The Settling Parties acknowledge that the Commission approved replacement of  
12 meters in failed lots that were included in the Company's 2021 HTY revenue  
13 requirement, required the filing of the separate meter-related application, and did  
14 not order the Company to cease replacement of meters in failed lots in the interim.  
15 Further, replacement of such meters was consistent with the Commission's cost  
16 recovery for meter replacements that has occurred for decades.<sup>46</sup> As a  
17 consequence, the Settling Parties acknowledged that the Company had continued  
18 to replace meters in failed lots since the conclusion of the 2021 HTY through 2023,  
19 and Staff and UCA agreed not to contest cost recovery of the meters replaced  
20 through 2023.<sup>47</sup>

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<sup>45</sup> Settlement Agreement at §III.B.

<sup>46</sup> Settlement Agreement at ¶56.

<sup>47</sup> Settlement Agreement at ¶57.

1 **Q. WHAT IS THE AMOUNT OF CAPITAL ADDITIONS FOR FAILED METER LOTS**  
2 **SINCE THE LAST GAS RATE CASE?**

3 A. The Company has in-serviced \$11.0 million in capital additions for meters to  
4 replace the failed meter lots in calendar year 2022, followed by an additional \$2.8  
5 million in capital additions in serviced in the first nine months of 2023. The  
6 Company forecasts a credit of \$2.4 million for the final three months of 2023,  
7 resulting in total plant additions for failed meter lot replacements in the Test Year  
8 of \$0.4 million.

9 **Q. WHY IS THE COMPANY FORECASTING A CREDIT FOR FAILED METER LOT**  
10 **REPLACEMENTS IN THE LAST THREE MONTHS OF 2023?**

11 A. The Company is forecasting a credit of \$2.4 million in capital additions in the last  
12 three months of 2023 to account for meters that were in-transit for the failed meter  
13 lot exchange program prior to the program being discontinued, as discussed by  
14 Company witness Ms. Gilliland in her Direct Testimony. These meters will be  
15 received and transferred to routine meter inventory.<sup>48</sup>

16 **Q. WHY DID THE LEVEL OF ADDITIONS FOR FAILED METER LOT**  
17 **REPLACEMENTS IN THE TEST YEAR DECLINE FROM 2022?**

18 A. The Company experienced supply chain challenges which caused limitations with  
19 meter inventory. To maintain the safe, reliable natural gas service for our existing  
20 customers, as of July, the Company made the strategic decision to pause the

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<sup>48</sup> The Settlement Agreement (at ¶58) also requires the Company to provide testimony in this case on the total amount of meter-related costs being recovered in this case, of which the failed meter lot capital additions are a part. Company witness Ms. Gilliland provides information in her Direct Testimony on total meter-related costs being recovered in this case.

1 Failed Meter Lot Replacements until meter inventory resumed to a stable level. In  
2 addition, as mentioned earlier, the Settlement Agreement approved by the  
3 Commission expanded the criteria to assign meters to homogeneous lots, and the  
4 testing protocol for the affected meters.

5 **Q. WHY IS THE LEVEL OF FAILED METER LOT REPLACEMENT CAPITAL**  
6 **ADDITIONS PROPOSED IN THE TEST YEAR REASONABLE?**

7 A. This level of failed meter lot replacement capital additions is reasonable as the  
8 Company conducted replacements in accordance with its then-existing meter  
9 replacement program, as noted above and in the Settlement Agreement.

10 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

11 A. Yes, it does.

## **Statement of Qualifications**

### **Ray Gardner**

I earned a Bachelor of Science degree in Mechanical Engineering from Colorado School of Mines in 2005 and am a licensed Professional Engineer in the state of Colorado. After graduation, I was hired by ATK Thiokol as a manufacturing engineer. In this role I was responsible for the igniter installation process on the Space Shuttle solid rocket boosters as well as the integrated product team lead for both igniter assembly and igniter installation.

In late 2006 I joined Structural Integrity Associates as an Engineer supporting natural gas pipeline operators in the implementation of 49 CFR Part 192, Subpart O and specifically gas transmission pipeline assessments. I was progressively promoted through the organization to Consultant where I was a client and project manager with responsibilities including management of pipeline integrity projects and programs for a variety of natural gas transmission pipeline operators. In this role I managed the gas transmission integrity program for a large gas utility including integrity assessment plans as well as development and implementation of a long term in-line inspection retrofit program.

In 2013 I transitioned to DCP Midstream as a senior engineer with responsibilities for the development and advancement of the company hazardous liquid and gas transmission pipeline integrity programs. In this role I was responsible for the company risk assessment process and managed the development of a stress corrosion cracking threat assessment program as well as a direct assessment program. I served as a technical resource and participant in PHMSA, state, and internal audits. I was also



responsible for jurisdictional analysis for gas processing plants, liquid storage facilities, compressor stations, and gas meter and regulator stations.

In 2015 I was hired by Xcel Energy as Director, Gas Integrity Management Programs. In this role I had oversight of Xcel Energy's Gas Transmission and Distribution Integrity Management Programs in each state in which Xcel Energy operates a gas system as well as Cathodic Protection in the state of Colorado. My responsibilities included management and oversight of the Company's transmission and distribution integrity programs in compliance with federal and state rules and regulations including activities such as risk modeling, pipeline integrity assessments, Maximum Allowable Operating Pressure remediation, and material verification.

In 2023, I was promoted to Area Vice President of Gas Engineering for Xcel Energy Services. In that role I have oversight of Xcel Energy's engineering and system design, integrity management, asset management, and capital project execution of the gas high-pressure systems in each state in which Xcel Energy operates a gas system.

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

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IN THE MATTER OF ADVICE NO. )  
1029-GAS OF PUBLIC SERVICE )  
COMPANY OF COLORADO TO )  
REVISE ITS COLORADO PUC NO. 6- ) PROCEEDING NO. 24AL-\_\_\_\_G  
GAS TARIFF TO INCREASE )  
JURISDICTIONAL BASE RATE )  
REVENUES, IMPLEMENT NEW BASE )  
RATES FOR ALL GAS RATE )  
SCHEDULES, AND MAKE OTHER )  
PROPOSED TARIFF CHANGES )  
EFFECTIVE FEBRUARY 29, 2024

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AFFIDAVIT OF A. RAY GARDNER  
ON BEHALF OF  
PUBLIC SERVICE COMPANY OF COLORADO

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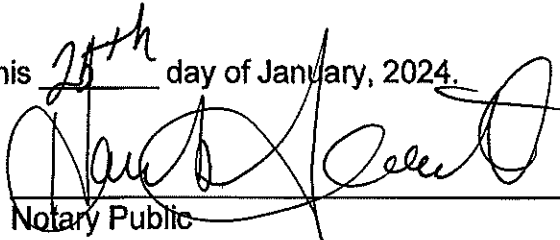
I, A. Ray Gardner, being duly sworn, state that the Direct Testimony and attachments were prepared by me or under my supervision, control, and direction; that the Direct Testimony and attachments are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Denver, Colorado, this 25<sup>th</sup> day of January, 2024.



A. Ray Gardner  
Area Vice President of Gas Engineering

Subscribed and sworn to before me this 25<sup>th</sup> day of January, 2024.

  
Notary Public

Hannah Ahrendt  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID# 20224026062  
MY COMMISSION EXPIRES JULY 5, 2026

My Commission  
expires July 5, 2026

Table with columns: Witness, Budget Organization, Project ID, Project Nbr Desc, Project Type, Expenditure Type, Major Project, Major Category, Func Class Desc, 2022 (Actual), (1/1 - 9/30) Actual, (10/1 - 12/31) Forecast, Total, Total Additions Since 2021 Test Year. The table lists various utility projects including gas service renewals, main relocations, and infrastructure improvements.

| Witness | Budget Organization     | Project ID    | Project Nbr Desc                     | Project Type | Expenditure Type               | Major Project                         | Major Category            | Func Class Desc                 | 2023          |                     |                         |              | Total Additions Since 2021 Test Year |
|---------|-------------------------|---------------|--------------------------------------|--------------|--------------------------------|---------------------------------------|---------------------------|---------------------------------|---------------|---------------------|-------------------------|--------------|--------------------------------------|
|         |                         |               |                                      |              |                                |                                       |                           |                                 | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total        |                                      |
| Gardner | Gas Systems             | E.0010042.004 | CO/Urbint Software/GER Tlx Fcst-202  | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas Intangible Plant            | \$ 1,390,824  | \$ -                | \$ -                    | \$ -         | \$ 1,390,824                         |
| Gardner | Gas Systems             | E.0010067.058 | CO/Chalk Bluffs Control sys upgrade  | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 1,282,812  | \$ 23,098           | \$ 66,000               | \$ 89,098    | \$ 1,371,911                         |
| Gardner | Gas Systems             | E.0010042.122 | CO/Western/GrandJunction/North Ave   | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 778,997    | \$ 1,795            | \$ -                    | \$ 1,795     | \$ 780,792                           |
| Gardner | Gas Systems             | E.0010067.048 | CO/Calmar/Compressor Station         | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 1,280,170  | \$ 98,501           | \$ -                    | \$ 98,501    | \$ 1,358,670                         |
| Gardner | Gas Systems             | E.0010037.002 | CO/SW/Mo/Int Fr US @ C4/70 Releca    | Discrete     | Main Relocation                |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 1,096,808  | \$ 260,310          | \$ -                    | \$ 260,310   | \$ 1,357,118                         |
| Gardner | Gas Systems             | E.0010074.106 | CO/DMR/Reg Station 54 Rebuild        | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ -                | \$ 1,336,109            | \$ 1,336,109 | \$ 1,336,109                         |
| Gardner | Gas Systems             | E.0010074.107 | CO/Above Ground Facility Protection  | Discrete     | Upgrade Non-Trans Reg/Mtr Stat | Above Ground Facility Protection      | System Safety & Integrity | Gas Distribution Plant          | \$ 915,752    | \$ 383,086          | \$ -                    | \$ 383,086   | \$ 1,298,838                         |
| Gardner | Gas Systems             | E.0010074.243 | CO/HPGE/Broomfield/AspenCreek/Mech   | Discrete     | Install Gas Trans Reg/Mtr Stat | CO/BLDR/Aspen Creek                   | New Business              | Gas Distribution Plant          | \$ -          | \$ 857,064          | \$ -                    | \$ 857,064   | \$ 857,064                           |
| Gardner | Gas Systems             | E.0010037.054 | CO/MNTN/Val/RV-12 Vail Ski Resort    | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 1,370,556  | \$ (86,693)         | \$ -                    | \$ (86,693)  | \$ 1,283,863                         |
| Gardner | Gas Systems             | E.0010032.103 | CO/FT/CE SUNIGA RD & N LEMAY/GREINF  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 853,994          | \$ -                    | \$ 853,994   | \$ 853,994                           |
| Gardner | Gas Systems             | E.0010032.133 | CO/SEMR/DRU/AUR/SOUTHSHORE F19 REIN  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 325,024    | \$ 654,163          | \$ -                    | \$ 654,163   | \$ 979,188                           |
| Gardner | Gas Systems             | E.0010010.021 | PSC-CO-GasDist-Mixed-CO              | Routine      | Other-Gas                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 655,896    | \$ 596,624          | \$ -                    | \$ 596,624   | \$ 1,254,520                         |
| Gardner | Gas Systems             | E.0010047.101 | CO/NMR/LT/THO/14831 WASHINGTON ST/   | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 847,741          | \$ -                    | \$ 847,741   | \$ 847,741                           |
| Gardner | Gas Systems             | E.0010079.029 | CO/Additional Filtration at Roundup  | Discrete     | Gas Storage Facilities         |                                       | System Safety & Integrity | Gas Underground Storage Plant   | \$ 984,305    | \$ 239,908          | \$ 4,642                | \$ 244,550   | \$ 1,228,855                         |
| Gardner | Gas Systems             | E.0000020.003 | Install ASV / RCV Pipe SOUTH Div     | Discrete     | Gas Trans Renewal              | ASV/RCV                               | System Safety & Integrity | Gas General Plant               | \$ 836,271    | \$ 373,166          | \$ -                    | \$ 373,166   | \$ 1,209,437                         |
| Gardner | Gas Systems             | E.0010037.055 | CO/SWMR/W Mexico Ave Storm Relocati  | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 1,197,952  | \$ 585              | \$ -                    | \$ 585       | \$ 1,198,538                         |
| Gardner | Gas Systems             | E.0010047.059 | CO/BLDR/Coal Creek/Canyon Pines Sub  | Discrete     | Main Reinforcement             | Coal Creek Canyon Pines               | New Business              | Gas Distribution Plant          | \$ 1,336,102  | \$ 616,746          | \$ -                    | \$ 616,746   | \$ 1,952,848                         |
| Gardner | Gas Systems             | E.0010074.157 | CO/Winter Park/Winter Park Tie       | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Winter Park Tie                       | Capacity Expansion        | Gas Transmission Plant          | \$ 1,104,548  | \$ 91,032           | \$ 3                    | \$ 91,035    | \$ 1,195,583                         |
| Gardner | Gas Systems             | E.0010074.237 | CO/HPGE/Loveland/CNG Lateral         | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 459,454          | \$ -                    | \$ 459,454   | \$ 459,454                           |
| Gardner | Gas Systems             | E.0010072.155 | CO/TIMP Assessment Sleeve Repair/Sou | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant          | \$ 554,982    | \$ 245,337          | \$ 1,032,353            | \$ 1,277,691 | \$ 1,832,673                         |
| Gardner | Gas Systems             | E.0010047.051 | CO/MNTN/Avon Reinforcement           | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ 1,183,964  | \$ 4,820            | \$ -                    | \$ 4,820     | \$ 1,188,784                         |
| Gardner | Gas Systems             | E.0010010.008 | Coupled Pipe IP Pipe Replacement     | Discrete     | Main Renewal                   | Coupled IP                            | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ -                | \$ 1,186,283            | \$ 1,186,283 | \$ 1,186,283                         |
| Gardner | Gas Systems             | E.0010047.100 | CO/MNTN/Breckenridge/Highlands Rive  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 391,672          | \$ -                    | \$ 391,672   | \$ 391,672                           |
| Gardner | Gas Systems             | E.0010067.078 | CO/Yosemite/Unit 6 Overhaul          | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 1,177,429  | \$ 619              | \$ -                    | \$ 619       | \$ 1,178,048                         |
| Gardner | Gas Systems             | E.0010032.149 | CO/BLDR/Erie/Colliers Hill F5 Subdi  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 367,344          | \$ -                    | \$ 367,344   | \$ 367,344                           |
| Gardner | Gas Systems             | E.0000003.007 | Coupled Pipe IP Pipeline Repla       | Discrete     | Main Renewal                   | Coupled IP                            | System Safety & Integrity | Gas Distribution Plant          | \$ 1,174,118  | \$ -                | \$ -                    | \$ -         | \$ 1,174,118                         |
| Gardner | Gas Systems             | E.0000106.001 | CO/DMR/Denver Mart Industrial Reinf  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 309,473          | \$ 131,913              | \$ 441,386   | \$ 441,386                           |
| Gardner | Gas Systems             | E.0010074.377 | CO/East/Greeley/G-B3 - Replace Pip   | Discrete     | Gas Trans Reinforce            | MAOP                                  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ -                | \$ 1,657,069            | \$ 1,657,069 | \$ 1,657,069                         |
| Gardner | Gas Systems             | E.0010032.128 | CO/NMRS/TER/AR/VIST AND CANDELAS PK  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 301,870          | \$ -                    | \$ 301,870   | \$ 301,870                           |
| Gardner | Gas Systems             | E.0010037.082 | CO/NMRS/LOR/VW 72ND AVE SNAIDL/GD    | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 1,120,117  | \$ (1,885)          | \$ -                    | \$ (1,886)   | \$ 1,118,232                         |
| Gardner | Gas Systems             | E.0010072.153 | CO/TIMP Assessment Sleeve Repair In  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant          | \$ 341,008    | \$ -                | \$ 36,350               | \$ 36,350    | \$ 377,358                           |
| Gardner | Gas Systems             | E.0010010.020 | PSC-CO-Gas-Locates                   | Discrete     | Facility Locates-Gas           | Capitalized Locates                   | System Safety & Integrity | Gas Distribution Plant          | \$ 400,740    | \$ 327,879          | \$ 368,853              | \$ 694,732   | \$ 1,095,472                         |
| Gardner | Gas Systems             | E.0010047.089 | CO/BLDR/Lafayette/Parkdale Reinforc  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ 39,844     | \$ 259,659          | \$ -                    | \$ 259,659   | \$ 299,504                           |
| Gardner | Gas Systems             | E.0010032.158 | CO/SWMR/DRU/LIT/STERLING RANCH F6A/  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 258,073          | \$ -                    | \$ 258,073   | \$ 258,073                           |
| Gardner | Gas Systems             | E.0010032.151 | CO/FT/C/TURNBERRY&BRIGHTWATER/GDNEVI | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 252,656    | \$ 257,755          | \$ -                    | \$ 257,755   | \$ 510,411                           |
| Gardner | Gas Systems             | E.0010032.131 | CO/GTWY/AUR/PAINTED PRAIRIE/P2F3/GD  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 246,867          | \$ -                    | \$ 246,867   | \$ 246,867                           |
| Gardner | Gas Systems             | E.0010074.286 | Facilities to allow MAOP validation  | Discrete     | Gas Trans Renewal              | MAOP                                  | System Safety & Integrity | Gas Transmission Plant          | \$ 238,395    | \$ 35,896           | \$ -                    | \$ 35,896    | \$ 274,291                           |
| Gardner | Gas Systems             | E.0010032.168 | CO/MNTN/IR/BR/31120 SIMMS ST/Main    | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 181,357          | \$ -                    | \$ 181,357   | \$ 181,357                           |
| Gardner | Gas Systems             | E.0010010.003 | Distribution Inoperable Valves       | Discrete     | Main Renewal                   | Inoperable Valves                     | System Safety & Integrity | Gas Distribution Plant          | \$ 3,027      | \$ 967,468          | \$ 5,649                | \$ 973,116   | \$ 976,144                           |
| Gardner | Gas Systems             | E.0010067.073 | CO/Paogos Spring/CS Controls Upgrad  | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ -                | \$ 975,985              | \$ 975,985   | \$ 975,985                           |
| Gardner | Gas Systems             | E.0010047.107 | CO/BLDR/Boulder/E-67-143-146 Reinfo  | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ 962,683          | \$ -                    | \$ 962,683   | \$ 962,683                           |
| Gardner | Gas Systems             | E.0010074.234 | CO/SWMP-642 Rebuild                  | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Regulators                   | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ 640,766          | \$ 307,782              | \$ 948,547   | \$ 948,547                           |
| Gardner | Gas Systems             | E.0010032.139 | CO/GTWY/DRU/AUR/AH BRIDGEWATER       | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 171,947          | \$ -                    | \$ 171,947   | \$ 171,947                           |
| Gardner | Gas Systems             | A.0006062.020 | Receive Gas Credits from Billing Sys | Discrete     | New Const CIAC-Gas             |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 160,918          | \$ (11,820)             | \$ 149,098   | \$ 149,098                           |
| Gardner | Gas Systems             | E.0010032.153 | CO/SEMR/Aurora/Aurora Highlands Bri  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 147,021          | \$ -                    | \$ 147,021   | \$ 147,021                           |
| Gardner | Gas Systems             | D.0002484.011 | CO/Urbint Software/GER Tlx Fcst-2    | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ 848,073          | \$ -                    | \$ 848,073   | \$ 848,073                           |
| Gardner | Gas Systems             | E.0010072.154 | CO/TIMP Assessment Sleeve Repair We  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant          | \$ 168,322    | \$ 6,763            | \$ 3,398,844            | \$ 3,405,607 | \$ 3,573,930                         |
| Gardner | Gas Systems             | E.0010074.174 | CO/W-55A/ River Run RS Rebuild       | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | Capacity Expansion        | Gas Transmission Plant          | \$ 842,693    | \$ -                | \$ -                    | \$ -         | \$ 842,693                           |
| Gardner | Gas Systems             | E.0010042.121 | CO/Rifle Gas Plant/Obsolete Odorize  | Discrete     | Other-Gas                      | Obsolete Odorizers                    | System Safety & Integrity | Gas Extraction Production Plant | \$ -          | \$ 784,932          | \$ 9,460                | \$ 794,392   | \$ 794,392                           |
| Gardner | Gas Systems             | E.0010032.117 | CO/NMR/L/OP/THO/WESTWOOD/GD          | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 114,587    | \$ 136,424          | \$ -                    | \$ 136,424   | \$ 251,011                           |
| Gardner | Gas Systems             | E.0010072.117 | CO/West/Pass Creek Ranch Line Lower  | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant          | \$ -          | \$ 770,090          | \$ -                    | \$ 770,090   | \$ 770,090                           |
| Gardner | Gas Systems             | A.0006059.520 | CO/Campion/Gas Transmission Stoppo   | Discrete     | Gas Tools And Equip            | Tools                                 | System Safety & Integrity | Gas General Plant               | \$ 111,865    | \$ 548,686          | \$ 106,302              | \$ 654,989   | \$ 766,853                           |
| Gardner | Gas Systems             | E.0010052.061 | CO/Bristol 3305 RTU-F808 F641 Cogen  | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ 192,109    | \$ 361,183          | \$ 163,769              | \$ 524,952   | \$ 717,061                           |
| Gardner | Gas Systems             | E.0000018.014 | IMP Gas Trans Pipe Capital SOUTH     | Discrete     | Gas Trans Reg/Mtr Stat         | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant          | \$ 353,092    | \$ 318,685          | \$ -                    | \$ 318,685   | \$ 671,778                           |
| Gardner | Gas Systems             | E.0010074.117 | CO/NMRS/310 Bridge Rd. Station       | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 669,830    | \$ (2,885)          | \$ 17                   | \$ (2,868)   | \$ 666,954                           |
| Gardner | Gas Systems             | E.0010072.110 | CO/Rifle/North Rifle Line Lowering   | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant          | \$ 651,198    | \$ 288              | \$ -                    | \$ 288       | \$ 651,486                           |
| Gardner | Gas Systems             | E.0010037.068 | CO/West/Ute Water Relocation         | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 1,321,531  | \$ (62,124)         | \$ -                    | \$ (62,124)  | \$ 1,259,407                         |
| Gardner | Gas Systems             | E.0010032.121 | CO/MNTN/Breckenridge/Berlin Placer   | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ 658,091    | \$ 133,251          | \$ -                    | \$ 133,251   | \$ 791,342                           |
| Gardner | Gas Systems             | E.0010042.118 | CO/ICCP Replacement/Straight Creek   | Discrete     | Other-Gas                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 134,589    | \$ 5,558            | \$ -                    | \$ 5,558     | \$ 140,146                           |
| Gardner | Gas Systems             | E.0010037.062 | CO/SWM/Valve 5930 Removal and Repla  | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 645,883    | \$ 80               | \$ -                    | \$ 80        | \$ 645,964                           |
| Gardner | Gas Systems             | A.0006059.471 | PSCO Gas Operations South            | Discrete     | Gas Tools And Equip            | Tools                                 | System Safety & Integrity | Gas General Plant               | \$ 129,601    | \$ 485,204          | \$ 20,919               | \$ 506,123   | \$ 635,725                           |
| Gardner | Gas Systems             | E.0010032.114 | CO/NMR/DR/COM/BUFFALO HIGHLANDS F4   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 115,955          | \$ -                    | \$ 115,955   | \$ 115,955                           |
| Gardner | Gas Systems             | E.0010037.057 | CO/NMRS/LOR/VW 72ND AVE UPRR/GD      | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 581,233    | \$ 90,303           | \$ -                    | \$ 90,303    | \$ 671,536                           |
| Gardner | Distribution Operations | A.0006059.022 | CO-Dist Logistics                    | Discrete     | Logistics                      |                                       | System Safety & Integrity | Common General Plant            | \$ 286,623    | \$ 127,635          | \$ 235,828              | \$ 363,463   | \$ 620,086                           |
| Gardner | Gas Systems             | E.0010072.111 | CO/Rifle/Silver Spur (Sil. CO) Rel   | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant          | \$ 613,644    | \$ 2,920            | \$ -                    | \$ 2,920     | \$ 616,563                           |
| Gardner | Gas Systems             | E.0010052.071 | CO/Install GK-5/Prospect Valley RT   | Discrete     | Other-Gas                      | CO/Install GK-5/Prospect Valley Dairy | New Business              | Gas General Plant               | \$ -          | \$ 109,858          | \$ -                    | \$ 109,858   | \$ 109,858                           |
| Gardner | Gas Systems             | E.0010037.031 | CO/DEN/20" Brighton to York Coupled  | Discrete     | Main Relocation                | Coupled IP                            | System Safety & Integrity | Gas Distribution Plant          | \$ 594,750    | \$ -                | \$ -                    | \$ -         | \$ 594,750                           |
| Gardner | Gas Systems             | E.0010042.117 | CO/ICCP Replacement/Pueblo West      | Discrete     | Other-Gas                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 99,469     | \$ -                | \$ -                    | \$ -         | \$ 99,469                            |
| Gardner | Gas Systems             | E.0010074.185 | CO/WA-21-A Stillwater Ranch/Line He  | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 584,529    | \$ -                | \$ -                    | \$ -         | \$ 584,529                           |
| Gardner | Gas Systems             | E.0010074.195 | CO/Relocation/Reg Station 47 (191)   | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 642,754    | \$ (69,968)         | \$ -                    | \$ (69,968)  | \$ 572,786                           |
| Gardner | Gas Systems             | E.0010037.045 | CO/SWMR/Lafayette/ South Boulder R   | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 523,362    | \$ 39,483           | \$ -                    | \$ 39,483    | \$ 562,845                           |
| Gardner | Gas Systems             | E.0000002.001 | 2924 - Century Denvers - Service     | Routine      | Service Rent/Cutoff            | Service Renewal/Cutoff Routine        | System Safety & Integrity | Gas Distribution Plant          | \$ 560,440    | \$ -                | \$ -                    | \$ -         | \$ 560,440                           |
| Gardner | Gas Systems             | E.0010067.082 | CO/Tiffany/Unit Two Overhaul         | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 512,711    | \$ 23,634           | \$ -                    | \$ 23,634    | \$ 536,345                           |
| Gardner | Gas Systems             | A.0005514.011 | DMR Central L-70 Main Relocation     | Discrete     | Main Relocation                | PSCO Central 70 Project               | Mandatory Relocation      | Gas Distribution Plant          | \$ 556,884    | \$ (955)            | \$ (20,706)             | \$ (21,661)  | \$ 535,223                           |
| Gardner | Gas                     |               |                                      |              |                                |                                       |                           |                                 |               |                     |                         |              |                                      |

| Witness | Budget Organization     | Project ID    | Project Nbr Desc                          | Project Type | Expenditure Type               | Major Project                         | Major Category            | Func Class Descr                | 2022 (Actual) | 2023                   |                            |              | Total Additions<br>Since 2021 Test<br>Year |
|---------|-------------------------|---------------|---|--------------|--------------------------------|---------------------------------------|---------------------------|---------------------------------|---------------|------------------------|----------------------------|--------------|--|
|         |                         |               |   |              |                                |                                       |                           |                                 |               | (1/1 - 9/30)<br>Actual | (10/1 - 12/31)<br>Forecast | Total        |  |
| Gardner | Gas Systems             | E.0010047.084 | CO/Brockenridge/RB-10 IP Reinforcem       | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ 458,117    | \$ (38,243)            | \$ -                       | \$ (38,243)  | \$ 419,874                                 |
| Gardner | Gas Systems             | E.0010072.082 | CO/Inoperable Valve Replacemnt-East       | Discrete     | Gas Trans Renewal              | Inoperable Valves                     | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ -                   | \$ 405,633                 | \$ 405,633   | \$ 405,633                                 |
| Gardner | Gas Systems             | E.0010067.075 | CO/Roundup/HMI Upgrade                    | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas General Plant               | \$ -          | \$ 402,698             | \$ -                       | \$ 402,698   | \$ 402,698                                 |
| Gardner | Gas Systems             | E.0010047.105 | CO/BLDR/Longmont/EI-65-67-105 Reinf       | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ 399,506             | \$ -                       | \$ 399,506   | \$ 399,506                                 |
| Gardner | Gas Systems             | E.0010047.106 | CO/BLDR/Longmont/EI-65-67-105 Reinf       | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ 398,254             | \$ -                       | \$ 398,254   | \$ 398,254                                 |
| Gardner | Gas Systems             | E.0000117.001 | CO/CLJ/REG/LO's 1ST ST/PIP                | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 921,546                 | \$ 921,546   | \$ 921,546                                 |
| Gardner | Gas Systems             | E.0010074.229 | CO/Eastern HP/Prospect Valley MS          | Discrete     | Install Gas Trans Reg/Mtr Stat |                                       | New Business              | Gas Transmission Plant          | \$ -          | \$ 37,403              | \$ -                       | \$ 37,403    | \$ 37,403                                  |
| Gardner | Gas Systems             | E.0000012.029 | CO/Placeholder/Discrete Proj with n       | Discrete     | Other-Gas                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 378,670                 | \$ 378,670   | \$ 378,670                                 |
| Gardner | Gas Systems             | E.0010074.241 | CO/HPGE/Broomfield/AspenCreek/Comm        | Discrete     | Gas Comm Equip                 |                                       | New Business              | Gas General Plant               | \$ -          | \$ 14,114              | \$ -                       | \$ 14,114    | \$ 14,114                                  |
| Gardner | Gas Systems             | E.0010074.164 | CO/Lakewood/Rooney Valley-F994- REG       | Discrete     | Install Non-Trans Reg/Mtr Stat | F-994 Rooney Valley                   | New Business              | Gas Distribution Plant          | \$ 846,860    | \$ 12,126              | \$ -                       | \$ 12,126    | \$ 858,986                                 |
| Gardner | Gas Systems             | E.0010032.085 | CO/SEM/RV-572 Integration and Reg S       | Discrete     | New Mains                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 324,049    | \$ 10,066              | \$ -                       | \$ 10,066    | \$ 334,114                                 |
| Gardner | Gas Systems             | E.0010072.159 | CO/Above Ground Facility Protection       | Discrete     | Gas Trans Renewal              | Above Ground Facility Protection      | System Safety & Integrity | Gas Transmission Plant          | \$ 32,673     | \$ (4,454)             | \$ -                       | \$ (4,454)   | \$ 28,219                                  |
| Gardner | Gas Systems             | E.0010037.089 | CO/NMR/8BTR & RORR/MAIN/REG/IGD           | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ 847,018             | \$ -                       | \$ 847,018   | \$ 847,018                                 |
| Gardner | Gas Systems             | E.0010047.086 | CO/MNTN/Avon/Avon Reinforcement           | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ 310,381    | \$ -                   | \$ -                       | \$ -         | \$ 310,381                                 |
| Gardner | Gas Systems             | E.0010047.055 | CO/Simms St/Reinforcement                 | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 846,947                 | \$ 846,947   | \$ 846,947                                 |
| Gardner | Gas Systems             | E.0010052.079 | CO/Obsolete RTU Program                   | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ -          | \$ -                   | \$ 306,753                 | \$ 306,753   | \$ 306,753                                 |
| Gardner | Gas Systems             | E.0010037.049 | CO/DMR/E 21st Ave & Marion St/Gas R       | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 256        | \$ 302,003             | \$ 934                     | \$ 302,938   | \$ 303,193                                 |
| Gardner | Gas Systems             | E.0010052.083 | CO/HPGE/Loveland/CNG Lateral              | Discrete     | Gas Comm Equip                 |                                       | New Business              | Gas General Plant               | \$ -          | \$ 11,551              | \$ -                       | \$ 11,551    | \$ 11,551                                  |
| Gardner | Gas Systems             | E.0000223.001 | CO/MTN/Frisco/Riverview Dr REINF/IGD      | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 806,919                 | \$ 806,919   | \$ 806,919                                 |
| Gardner | Gas Systems             | E.0010072.156 | CO/SWMR/8/ In Rampart Range Reinf         | Discrete     | Gas Trans New Main             | Rampart Range Reinforcement           | Capacity Expansion        | Gas Transmission Plant          | \$ 3,107,604  | \$ 675,015             | \$ 1,467                   | \$ 676,482   | \$ 3,784,085                               |
| Gardner | Gas Systems             | E.0000099.033 | CO-Transmission Res and Meter             | Discrete     | Install Gas Trans Reg/Mtr Stat |                                       | New Business              | Gas Transmission Plant          | \$ 183,741    | \$ 11,940              | \$ 16,392                  | \$ 27,422    | \$ 211,163                                 |
| Gardner | Gas Systems             | E.0000111.004 | CO/AHL/HEAT/IG-G Line Heater Instal       | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 817,244    | \$ 113,772             | \$ -                       | \$ 113,772   | \$ 931,016                                 |
| Gardner | Gas Systems             | E.0010057.018 | USFS Region Plan and Permitting-Gas       | Discrete     | Right of Way-Gas               |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 289,187                 | \$ 289,187   | \$ 289,187                                 |
| Gardner | Gas Systems             | E.0010052.091 | CO/WA-21-A Stillwater Ranch/Line He       | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ 28,665     | \$ -                   | \$ -                       | \$ -         | \$ 28,665                                  |
| Gardner | Gas Systems             | E.0010047.098 | CO/26791 E Quincy Av/Aurora SEAM Facility | Discrete     | Main Reinforcement             | Aurora SEAM Facility                  | New Business              | Gas Distribution Plant          | \$ 1,683,346  | \$ 9,327               | \$ 1,491                   | \$ 10,817    | \$ 1,694,163                               |
| Gardner | Gas Systems             | E.0010042.098 | CO/WP/Winter Park Dist Main Renew         | Discrete     | Main Renewal                   | Winter Park Tie                       | Capacity Expansion        | Gas Distribution Plant          | \$ 38,621     | \$ -                   | \$ 234,793                 | \$ 234,793   | \$ 273,414                                 |
| Gardner | Gas Systems             | E.0010037.056 | CO/Silverthorn/Vail Roundabout Rero       | Discrete     | New Mains                      |                                       | Mandatory Relocation      | Relocation                      | \$ 251,373    | \$ 14,080              | \$ -                       | \$ 14,080    | \$ 265,454                                 |
| Gardner | Gas Systems             | E.0010037.006 | CO/SWMR/Chaffield IP gas relocation       | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ 260,473             | \$ -                       | \$ 260,473   | \$ 260,473                                 |
| Gardner | Gas Systems             | E.0000014.071 | Gas Right of Way                          | Discrete     | Right of Way-Gas               |                                       | New Business              | Gas General Plant               | \$ 4,011      | \$ 6,200               | \$ -                       | \$ 6,200     | \$ 10,211                                  |
| Gardner | Gas Systems             | E.0010047.088 | Canyons Relocation HP Pipeline            | Discrete     | Gas Trans Reinforce            | Canyons Development                   | New Business              | Gas Distribution Plant          | \$ 4,485,683  | \$ 3,512               | \$ -                       | \$ 3,512     | \$ 4,489,195                               |
| Gardner | Gas Systems             | E.0000243.001 | CO/MD/52nd & Pecos/Main Renewal           | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ -                   | \$ 765,978                 | \$ 765,978   | \$ 765,978                                 |
| Gardner | Gas Systems             | E.0010072.196 | CO/East/Greeley/replace 8" with 12"       | Discrete     | Gas Trans New Main             | MAOP                                  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ -                   | \$ 761,631                 | \$ 761,631   | \$ 761,631                                 |
| Gardner | Gas Systems             | E.0010032.109 | CO/Lakewood/Rooney Valley - F994          | Discrete     | New Mains                      | F-994 Rooney Valley                   | New Business              | Gas Distribution Plant          | \$ 1,044,551  | \$ 3,058               | \$ -                       | \$ 3,058     | \$ 1,047,609                               |
| Gardner | Gas Systems             | E.0010072.126 | CO/State Wide/Kirk Cell Replacement       | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ 243,539             | \$ -                       | \$ 243,539   | \$ 243,539                                 |
| Gardner | Gas Systems             | E.0010052.090 | CO/Replace regulator station at WR-       | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ 24,017     | \$ -                   | \$ -                       | \$ -         | \$ 24,017                                  |
| Gardner | Gas Systems             | E.0010057.019 | USFS Gas Trans Master Plan                | Discrete     | Right of Way-Gas               |                                       | Mandatory Relocation      | Gas Transmission Plant          | \$ -          | \$ -                   | \$ 239,237                 | \$ 239,237   | \$ 239,237                                 |
| Gardner | Gas Systems             | E.0000158.001 | CO/DMR/TIP/DE/NEllsworth Ave Reloc        | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ 712,819             | \$ 934                     | \$ 713,753   | \$ 713,753                                 |
| Gardner | Gas Systems             | E.0010037.043 | CO/Alamosa 1st ST Repaving Project        | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 231,324    | \$ -                   | \$ -                       | \$ -         | \$ 231,324                                 |
| Gardner | Gas Systems             | E.0000150.001 | CO/MD/CO/Broadway & Cedar/Main Rene       | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ 652,963             | \$ 13,995                  | \$ 666,958   | \$ 666,958                                 |
| Gardner | Gas Systems             | E.0010032.097 | CO/NMR/HOW/LAK/1605 SHERIDAN BLVD/G       | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 80,110     | \$ 1,440               | \$ -                       | \$ 1,440     | \$ 81,550                                  |
| Gardner | Gas Systems             | E.0010074.121 | CO/DMO/Rebuild F-392 - CITY               | Discrete     | Install Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 235,890    | \$ (16,194)            | \$ -                       | \$ (16,194)  | \$ 219,697                                 |
| Gardner | Gas Systems             | E.0010074.245 | CO/Above Ground Facility Protection       | Discrete     | Main Reinforcement             | Above Ground Facility Protection      | System Safety & Integrity | Gas Distribution Plant          | \$ 218,298    | \$ -                   | \$ -                       | \$ -         | \$ 218,298                                 |
| Gardner | Gas Systems             | E.0010032.123 | CO/NOR/PAR/LOV/MILLENNIUM EAST 10TH       | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 362,670    | \$ 1,251               | \$ -                       | \$ 1,251     | \$ 363,921                                 |
| Gardner | Gas Systems             | E.0010052.029 | CO/Bristol 3305 RTU Replac TLW            | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ 199,458    | \$ 11,079              | \$ -                       | \$ 11,079    | \$ 210,537                                 |
| Gardner | Gas Systems             | E.0000062.004 | CO/HPGE MAOP Mesa Boulder Derate Re       | Discrete     | Install Gas Trans Reg/Mtr Stat | 10' Mesa to Boulder PSIA-MAOP         | System Safety & Integrity | Gas Transmission Plant          | \$ 205,382    | \$ 946                 | \$ -                       | \$ 946       | \$ 206,328                                 |
| Gardner | Gas Systems             | E.0010032.080 | CO/Bristol 3305 RTU S154 DIA              | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ -          | \$ -                   | \$ 204,917                 | \$ 204,917   | \$ 204,917                                 |
| Gardner | Gas Systems             | E.0010052.082 | CO/Northern/CSU Boiler H-154              | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ 16,320     | \$ -                   | \$ -                       | \$ -         | \$ 16,320                                  |
| Gardner | Gas Systems             | E.0000099.020 | 2934 Gas System Reg/Meter Stat            | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | -                               | \$ 29,053     | \$ 636                 | \$ 4,956                   | \$ 5,591     | \$ 34,645                                  |
| Gardner | Gas Systems             | E.0010074.159 | CO/Rebuild Reg. Station SP-2              | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 163,918    | \$ 31,158              | \$ -                       | \$ 31,158    | \$ 195,076                                 |
| Gardner | Gas Systems             | E.0010067.107 | CO/Deer Creek/Unit 1/Leak Repair          | Discrete     | Distr Compressor Station       |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 14,594     | \$ 16,267              | \$ -                       | \$ 16,267    | \$ 30,862                                  |
| Gardner | Distribution Operations | A.0006059.025 | CO-Dist Tools Common                      | Discrete     | Tools-Common                   | Tools                                 | System Safety & Integrity | Common General Plant            | \$ -          | \$ -                   | \$ 193,510                 | \$ 193,510   | \$ 193,510                                 |
| Gardner | Gas Systems             | E.0010047.048 | CO/BLDR/MEAD/Sorrento Sub Division        | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant          | \$ (2,132)    | \$ 390                 | \$ -                       | \$ 390       | \$ (1,742)                                 |
| Gardner | Gas Systems             | E.0010079.028 | CO/EAST/Roundup 10 Well Packer Inst       | Discrete     | Gas Storage Facilities         |                                       | System Safety & Integrity | Gas Underground Storage Plant   | \$ 45,568     | \$ 142,144             | \$ -                       | \$ 142,144   | \$ 187,712                                 |
| Gardner | Gas Systems             | E.0010072.120 | Catholic Protection System Installa       | Discrete     | Gas Trans Reinforce            |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 186,548    | \$ 0                   | \$ -                       | \$ 0         | \$ 186,548                                 |
| Gardner | Gas Systems             | E.0002484.003 | CO/Urbant Software/DP-2021                | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas Intangible Plant            | \$ 179,960    | \$ -                   | \$ -                       | \$ -         | \$ 179,960                                 |
| Gardner | Gas Systems             | E.0000099.107 | DIA System Reg & Meter Install            | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 236                 | \$ -                       | \$ 236       | \$ 236                                     |
| Gardner | Gas Systems             | E.0010062.006 | CO/Rifle Gas Plant PHA Safety Impro       | Discrete     | Gas Processing Equipment       | TIMP Assessment                       | System Safety & Integrity | Gas Extraction Production Plant | \$ -          | \$ 173,640             | \$ -                       | \$ 173,640   | \$ 173,640                                 |
| Gardner | Gas Systems             | E.0010037.065 | CO/DMR/SPEER AND MARKET/RELOCATION        | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 519,663    | \$ 22,704              | \$ -                       | \$ 22,704    | \$ 542,367                                 |
| Gardner | Gas Systems             | E.0010032.010 | CO/Northern/Windsor/Raindance Sub         | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 161                 | \$ -                       | \$ 161       | \$ 161                                     |
| Gardner | Gas Systems             | E.0000023.038 | SOUTH Replace Obs PSC Tran Reg            | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Regulators                   | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ 15,656              | \$ 153,800                 | \$ 169,455   | \$ 169,455                                 |
| Gardner | Gas Systems             | E.0010037.064 | CO/SEM/RV- Illif Ave 20" IP Relocat       | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant          | \$ 533,400    | \$ 333                 | \$ -                       | \$ 333       | \$ 533,733                                 |
| Gardner | Gas Systems             | E.0010052.022 | Install ERXs on D M/R Boulder             | Discrete     | Gas Comm Equip                 | ERX                                   | System Safety & Integrity | Gas General Plant               | \$ 50,904     | \$ 70,695              | \$ 37,436                  | \$ 108,132   | \$ 189,037                                 |
| Gardner | Gas Systems             | E.0002484.003 | CO/UBNT Software/DP-2021                  | Discrete     | Gas Comm Equip                 | PSCO Central 70 Project               | System Safety & Integrity | Gas Intangible Plant            | \$ 154,213    | \$ (801)               | \$ -                       | \$ (801)     | \$ 153,412                                 |
| Gardner | Gas Systems             | E.0010074.252 | CO/MTN/SG-4 (Templeton) Rebuild           | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 153,361    | \$ (869)               | \$ -                       | \$ (869)     | \$ 152,492                                 |
| Gardner | Gas Systems             | E.0010032.034 | CO/GATEWAY/Horizon                        | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ 94,975     | \$ 95                  | \$ -                       | \$ 95        | \$ 95,070                                  |
| Gardner | Gas Systems             | E.0010047.054 | CO/MNTN/RV-7 Reinforcement                | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ 145,970    | \$ 590                 | \$ (78)                    | \$ 512       | \$ 146,482                                 |
| Gardner | Gas Systems             | E.0000213.001 | CO/NMR/DEN/Patricia Dr Rmnt/IGD           | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ 490,755             | \$ 993                     | \$ 491,751   | \$ 491,751                                 |
| Gardner | Gas Systems             | E.0010032.017 | CO/MNTN/Ski Hill Rd Dist Mains            | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant          | \$ -          | \$ 42                  | \$ -                       | \$ 42        | \$ 42                                      |
| Gardner | Gas Systems             | E.0010052.023 | Install automation to shut valves         | Discrete     | Upgrade Gas Trans Reg/Mtr Stat | ASW/RVCV                              | System Safety & Integrity | Gas General Plant               | \$ 100,527    | \$ 41,125              | \$ -                       | \$ 41,125    | \$ 141,652                                 |
| Gardner | Gas Systems             | A.0001431.003 | CO/DV/R/Nat Westrn Gas Reblg-Plastic      | Discrete     | New Mains                      | National Western Center Redevelopment | Mandatory Relocation      | Gas Distribution Plant          | \$ 471,244    | \$ (332,768)           | \$ -                       | \$ (332,768) | \$ 138,476                                 |
| Gardner | Gas Systems             | E.0010074.120 | CO/DMR/Rebuild F-382 - OHR                | Discrete     | Install Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 133,515    | \$ 2,129               | \$ -                       | \$ 2,129     | \$ 135,644                                 |
| Gardner | Gas Systems             | E.0010074.022 | CO/Wilson Creek/Replace GQ Equipment      | Discrete     | Main Relocation                |                                       | System Safety & Integrity | Gas Transmission Plant          | \$ 131,264    | \$ -                   | \$ -                       | \$ -         | \$ 131,264                                 |
| Gardner | Gas Systems             | E.0010052.081 | CO/Obsolete RTU Program                   | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant               | \$ -          | \$ -                   | \$ 129,978                 | \$ 129,978   | \$ 129,978                                 |
| Gardner | Gas Systems             | E.0010010.022 | PSC-CO-GasDist-Mixed-OQ-GER               | Routine      | Other-Gas                      |                                       | System Safety & Integrity | Gas Distribution Plant          | \$ 51,917     | \$ 73,656              | \$ -                       | \$ 73,656    | \$ 125,573                                 |
| Gardner | Gas Systems             | E.0010072.149 | CO/Rifle/Divide Creek VS Relocation       | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant          | \$ -          | \$ -                   | \$ 475,561                 | \$ 475,561   | \$ 475,561                                 |
| Gardner | Gas Systems             | A.0001779.002 | CO/Denver/16thGas/Svc ATTos & Renew       | Discrete     | Service Renw/Cutoff            | 16th Street Mall Redevelopment        | Mandatory Relocation      | Gas Distribution Plant          | \$ -          | \$ 74,785              | \$ 50,214                  | \$ 125,000   | \$ 125,000                                 |
|         |                         |               |   |              |                                |                                       |                           |                                 |               |                        |                            |              |  |

| Witness | Budget Organization     | Project ID    | Project Nbr Desc                     | Project Type | Expenditure Type               | Major Project                         | Major Category            | Func Class Descr       | 2023          |                     |                         |               | Total Additions Since 2021 Test Year |               |
|---------|-------------------------|---------------|--------------------------------------|--------------|--------------------------------|---------------------------------------|---------------------------|------------------------|---------------|---------------------|-------------------------|---------------|--------------------------------------|---------------|
|         |                         |               |                                      |              |                                |                                       |                           |                        | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total         |                                      |               |
| Gardner | Gas Systems             | E.0010074.226 | CO/PBLX-88 New Regulator Station I   | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 932,178    | \$ 932,178                           | -             |
| Gardner | Gas Systems             | E.0010074.198 | CO/Mewborne/High H2S Gas             | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | 96,025              | -                       | -             | -                                    | \$ 96,025     |
| Gardner | Gas Systems             | E.0010074.143 | CO/SWM/CanyonsDevelopment-InstF-976  | Discrete     | Install Non-Trans Reg/Mtr Stat | Canyons Development                   | New Business              | Gas Transmission Plant | \$            | 633,985             | -                       | -             | -                                    | \$ 633,985    |
| Gardner | Gas Systems             | E.0010039.125 | SW/MR/DRL/IT/STERLING RANCH F5A/GD   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | 615,333             | -                       | -             | -                                    | \$ 615,333    |
| Gardner | Gas Systems             | E.0010074.175 | CO/Beeper/Creek/Power Drop           | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                       | Capacity Expansion        | Gas Transmission Plant | \$            | 94,409              | \$ (1,281)              | -             | -                                    | \$ 93,128     |
| Gardner | Gas Systems             | E.0010074.207 | CO/Sterling/LS-21 Rebuild            | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant | \$            | 92,055              | -                       | -             | -                                    | \$ 92,055     |
| Gardner | Gas Systems             | E.0000014.002 | 2930 - Boulder - Gas Row             | Routine      | Right of Way-Gas               |                                       | New Business              | Gas Distribution Plant | \$            | 72,418              | \$ 45,750               | -             | \$ 45,750                            | \$ 118,168    |
| Gardner | Gas Systems             | E.0000082.001 | CO/MTN/75 HUNKI DORI CT GD RF PM     | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 595,484    | \$ 595,484                           | \$ 595,484    |
| Gardner | Gas Systems             | A.0005514.013 | DMR Central I-70 New Gas Service     | Discrete     | New Services                   | P5Co Central 70 Project               | Mandatory Relocation      | Gas Distribution Plant | \$            | 89,804              | -                       | -             | -                                    | \$ 89,804     |
| Gardner | Gas Systems             | E.0010074.200 | CO/Replac H2S Analyzer at Platte V   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | 89,701              | -                       | -             | -                                    | \$ 89,701     |
| Gardner | Gas Systems             | E.0010052.048 | Install ERXs Trans. Reg & Meter Eas  | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 36,741              | \$ 36,490               | \$ 16,097     | \$ 52,587                            | \$ 89,328     |
| Gardner | Gas Systems             | E.0010074.323 | CO/F-1010-Monaco/UnionBlvd/Inst6*IP- | Discrete     | Install Non-Trans Reg/Mtr Stat | F-1010 Monaco Union Blvd              | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 437,403    | \$ 437,403                           | \$ 437,403    |
| Gardner | Gas Systems             | E.0000056.001 | Gnarly T-0 to YMCA V5 6"             | Discrete     | Gas Trans New Main             |                                       | Capacity Expansion        | Gas Transmission Plant | \$            | (9,899)             | \$ 98,544               | -             | \$ 88,645                            | \$ 88,646     |
| Gardner | Gas Systems             | E.0010042.064 | CO/Riffe Gas Plant PHA Safety Impro  | Discrete     | Gas Processing Equipment       | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | \$ 85,912               | -             | -                                    | \$ 85,912     |
| Gardner | Gas Systems             | E.0010032.172 | CO/F1010-Monaco/UnionBlvd/Inst6*IP-O | Discrete     | New Mains                      | F-1010 Monaco Union Blvd              | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 409,114    | \$ 409,114                           | \$ 409,114    |
| Gardner | Gas Systems             | E.0010074.140 | CO/Replac regulator station at WR    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | 85,024              | -                       | -             | -                                    | \$ 85,024     |
| Gardner | Gas Systems             | E.0000102.001 | CO/FTCLaderra IP Reinforcement       | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 366,048    | \$ 366,048                           | \$ 366,048    |
| Gardner | Gas Systems             | E.0000208.001 | CO/AUR/DMR/Pepsi IP Main Extension   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 343,059    | \$ 343,059                           | \$ 343,059    |
| Gardner | Gas Systems             | E.0010032.166 | CO/BLDR/DUN/ER/PARKDALE F1 PH3 5/G   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 326,987    | \$ 326,987                           | \$ 326,987    |
| Gardner | Gas Systems             | E.0010067.066 | CO/Pagosa/Make Up Air Unit (MUA)     | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | (2,704)             | \$ 82,444               | -             | \$ 82,444                            | \$ 79,740     |
| Gardner | Gas Systems             | E.0010072.135 | CO/NOR/LCV/121 Forest Creek Relocat  | Discrete     | Gas Trans Relocation           |                                       | New Business              | Gas Transmission Plant | \$            | -                   | -                       | \$ 317,537    | \$ 317,537                           | \$ 317,537    |
| Gardner | Gas Systems             | A.0000059.517 | P5Co-Gas OT Cyber Security - Tools   | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas General Plant      | \$            | -                   | -                       | \$ 77,347     | \$ 77,347                            | \$ 77,347     |
| Gardner | Gas Systems             | E.0010052.015 | Install ERXs on D M/R North.         | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 66,590              | \$ 10,538               | \$ 1          | \$ 10,540                            | \$ 77,130     |
| Gardner | Gas Systems             | E.0010074.214 | CO/MTN/RH-4 Station Removal          | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 77,111              | -                       | -             | -                                    | \$ 77,111     |
| Gardner | Gas Systems             | E.0010047.045 | CO/Pueblo/Thatcher Ave Reinfo        | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant | \$            | -                   | \$ 73,745               | -             | \$ 73,745                            | \$ 73,745     |
| Gardner | Gas Systems             | A.0001431.005 | CO/DVR/Nat Western renew Tieover/Gas | Discrete     | Service Renew/CutOff           | National Western Center Redevelopment | Mandatory Relocation      | Gas Distribution Plant | \$            | 35,931              | \$ 36,998               | -             | \$ 36,998                            | \$ 72,929     |
| Gardner | Gas Systems             | E.0000022.006 | Inside Mtr Moveout Mtr & Reg P       | Discrete     | Purch Gas Meters               |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | -                       | \$ 72,384     | \$ 72,384                            | \$ 72,384     |
| Gardner | Gas Systems             | E.0010052.021 | Install ERXs on D M/R Mountain       | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 11,900              | \$ 23,219               | \$ 36,283     | \$ 59,502                            | \$ 71,402     |
| Gardner | Gas Systems             | E.0000224.001 | CO/BLDR/LE-SS REINFORCEMENT/GD       | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant | \$            | -                   | -                       | \$ 277,078    | \$ 277,078                           | \$ 277,078    |
| Gardner | Gas Systems             | E.0010010.005 | CO/NOR/CIT/CAVINE & MORGANSEY DRI    | Discrete     | Main Renewal                   | Shorted Casings                       | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 68,392               | -             | \$ 68,392                            | \$ 68,392     |
| Gardner | Gas Systems             | E.0010074.246 | CO/Above Ground Facility Protection  | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 67,860              | -                       | -             | -                                    | \$ 67,860     |
| Gardner | Gas Systems             | E.0010074.223 | CO/AboveGround FacilityProtection-F  | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 61,553              | \$(24)                  | -             | \$(24)                               | \$ 61,529     |
| Gardner | Gas Systems             | E.0000023.034 | Inside Meter Moveout Service R       | Discrete     | Service Renew/CutOff           |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | -                       | \$ 61,375     | \$ 61,375                            | \$ 61,375     |
| Gardner | Gas Systems             | E.0010074.193 | CO/F-490/Reg Station Rebuild         | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 65,448              | \$(5,405)               | -             | \$(5,405)                            | \$ 60,043     |
| Gardner | Gas Systems             | E.0000229.001 | CO/BLDR/ANG/MEAD/14175 CO RD 7/GD    | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 289,796    | \$ 289,796                           | \$ 289,796    |
| Gardner | Gas Systems             | E.0010047.070 | CO/NMR/MORG/THO/Willow Bend/GD       | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant | \$            | 276,369             | -                       | -             | -                                    | \$ 276,369    |
| Gardner | Gas Systems             | E.0010067.047 | CO/Marshall Unit 1 Overhaul          | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | \$ 54,679               | -             | \$ 54,679                            | \$ 54,679     |
| Gardner | Gas Systems             | E.0010074.253 | CO/Fort Collins 8" IP 2023 MR Renew  | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 45,023              | \$ 9,385                | -             | \$ 9,385                             | \$ 54,408     |
| Gardner | Gas Systems             | E.0010067.063 | CO/Del Norte Compressor Station - A  | Discrete     | Gas Trans Renewal              | Del Norte Compressor Station          | Capacity Expansion        | Gas Transmission Plant | \$            | -                   | -                       | \$ 11,677,051 | \$ 11,677,051                        | \$ 11,677,051 |
| Gardner | Gas Systems             | E.0010042.145 | 8" Coupled IP/Washington/76th A      | Discrete     | Main Renewal                   | Coupled IP                            | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 7,059,291            | \$ 486,500    | \$ 7,545,791                         | \$ 7,545,791  |
| Gardner | Gas Systems             | E.0000014.003 | 2930 - Southeast Metro - Row         | Routine      | Right of Way-Gas               |                                       | New Business              | Gas Distribution Plant | \$            | 33,486              | \$ 56,974               | -             | \$ 56,974                            | \$ 90,460     |
| Gardner | Gas Systems             | E.0010074.044 | CO/MTN/LEAD/755 County Rd 30 T/MR    | Discrete     | Install Gas Trans Reg/Mtr Stat |                                       | New Business              | Gas Transmission Plant | \$            | 259,358             | -                       | -             | -                                    | \$ 259,358    |
| Gardner | Gas Systems             | E.0010010.014 | GO - DIMP Programmatic Service Repl  | Discrete     | Service Renew/CutOff           | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 3,737,726            | \$ 3,689,207  | \$ 7,426,933                         | \$ 7,426,933  |
| Gardner | Gas Systems             | E.0010042.062 | CO/SW/MO/RS F-971                    | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant | \$            | 49,561              | -                       | -             | -                                    | \$ 49,561     |
| Gardner | Gas Systems             | E.0000189.001 | CO/AUR/SEMR/RENEW/AuroraHighndReinf  | Discrete     | Main Renewal                   |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 219,229    | \$ 219,229                           | \$ 219,229    |
| Gardner | Gas Systems             | E.0010032.144 | CO/NOR/RIC/CT/CAVINE & MORGANSEY DRI | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | 204,165             | -                       | -             | -                                    | \$ 204,165    |
| Gardner | Gas Systems             | E.0000004.024 | 2910 - Southeast Metro - New M       | Routine      | New Mains                      | New Mains Routine                     | New Business              | Gas Distribution Plant | \$            | -                   | \$ 77,877               | -             | \$ 77,877                            | \$ 77,877     |
| Gardner | Gas Systems             | E.0010042.146 | CO/DMD/DNV/Clarkson St. Main Renew-  | Discrete     | Main Renewal                   | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 4,950,420            | \$ 885,430    | \$ 5,835,850                         | \$ 5,835,850  |
| Gardner | Gas Systems             | E.0010010.015 | GO - DIMP Programmatic Main Replace  | Discrete     | Main Renewal                   | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 3,488,149            | \$ 2,313,038  | \$ 5,801,187                         | \$ 5,801,187  |
| Gardner | Gas Systems             | E.0010067.065 | CO/Tiffany Upgrades/Pockets, Dehy    | Discrete     | Gas Trans Compr Stat           | Tiffany Upgrades, Pockets, Dehy       | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | \$ 4,917,940            | -             | \$ 4,917,940                         | \$ 4,917,940  |
| Gardner | Gas Systems             | E.0010052.020 | Install ERXs on D M/R Front Range    | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 20,769              | \$ 23,447               | \$ 4,692      | \$ 28,140                            | \$ 48,909     |
| Gardner | Gas Systems             | E.0010052.049 | Install ERXs Trans. Reg & Meter Sou  | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 10,211              | \$ 12,113               | \$ 26,469     | \$ 38,582                            | \$ 48,793     |
| Gardner | Gas Systems             | E.0000159.001 | CO/MDE/Elitch Gardens-S Platte River | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant | \$            | -                   | -                       | \$ 202,581    | \$ 202,581                           | \$ 202,581    |
| Gardner | Gas Systems             | E.0010072.136 | CO/Greeley Headers/HF Valve Replace  | Discrete     | Gas Trans Renewal              | MAOP                                  | System Safety & Integrity | Gas Transmission Plant | \$            | 47,454              | -                       | -             | -                                    | \$ 47,454     |
| Gardner | Gas Systems             | E.0010042.141 | CO/Fort Collins 8" IP 2023 MR Renew  | Discrete     | Main Renewal                   | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | -                       | \$ 4,454,749  | \$ 4,454,749                         | \$ 4,454,749  |
| Gardner | Gas Systems             | E.0010047.114 | CO/SEMR/SpringValleyRanch/CR174&CR2  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 190,465    | \$ 190,465                           | \$ 190,465    |
| Gardner | Gas Systems             | E.0010074.082 | CO/DMR/Rebuild F-808                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | F-808 Rebuild                         | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | \$ 4,118,401            | \$ 280,325    | \$ 4,398,726                         | \$ 4,398,726  |
| Gardner | Gas Systems             | E.0010032.171 | CO/F1010-Monaco/UnionBlvd/Inst6*IP-  | Discrete     | New Mains                      | F-1010 Monaco Union Blvd              | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 147,707    | \$ 147,707                           | \$ 147,707    |
| Gardner | Gas Systems             | E.0010067.064 | CO/Pagosa Springs CompStat/HMI repl  | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas General Plant      | \$            | -                   | -                       | \$ 46,504     | \$ 46,504                            | \$ 46,504     |
| Gardner | Gas Systems             | E.0000091.004 | CO/LEAD/RENEW/Leadville 2023 6-IN/   | Discrete     | Main Renewal                   | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | \$ 3,156,844            | \$ 219,955    | \$ 3,376,799                         | \$ 3,376,799  |
| Gardner | Gas Systems             | E.0010074.225 | CO/AboveGround Fac. Protection-PV    | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 46,024              | \$(24)                  | -             | \$(24)                               | \$ 46,000     |
| Gardner | Gas Systems             | E.0010052.050 | Install ERXs Trans. Reg & Meter Wes  | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant      | \$            | 14,572              | \$ 31,409               | -             | \$ 31,409                            | \$ 45,981     |
| Gardner | Gas Systems             | E.0010042.138 | CO/Inoperable Valve Replacement      | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | -                       | \$ 2,924,540  | \$ 2,924,540                         | \$ 2,924,540  |
| Gardner | Gas Systems             | E.0010067.099 | CO/MNSOUTHERN/Del Norte Instrument   | Discrete     | Gas Trans Compr Stat           | Inoperable Valves                     | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | -                       | \$ 2,837,164  | \$ 2,837,164                         | \$ 2,837,164  |
| Gardner | Gas Systems             | E.0000091.012 | CO/LEAD/RENEW/Leadville2023 6-IN/MR  | Discrete     | Main Renewal                   | DIMP Programmatic                     | System Safety & Integrity | Gas Distribution Plant | \$            | -                   | -                       | \$ 2,602,716  | \$ 2,602,716                         | \$ 2,602,716  |
| Gardner | Gas Systems             | E.0010072.168 | CO/TIMP/10" Asbury-Garmesa to 25 Rd  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | -                       | \$ 2,438,220  | \$ 2,438,220                         | \$ 2,438,220  |
| Gardner | Gas Systems             | E.0010074.218 | CO/PUEBLO/PUEBLO SOUTH METER REPLAC  | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant | \$            | 44,125              | -                       | -             | -                                    | \$ 44,125     |
| Gardner | Gas Systems             | E.0010067.060 | CO/Overhaul Marshall Unit 2 Compres  | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant | \$            | 42,751              | \$ 999                  | -             | \$ 999                               | \$ 43,749     |
| Gardner | Gas Systems             | E.0000149.001 | CO/NB/7470 Westgate Dr               | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | -                   | -                       | \$ 144,842    | \$ 144,842                           | \$ 144,842    |
| Gardner | Gas Systems             | A.0001431.004 | CO/DVR/Nat Western New Services Gas  | Discrete     | New Services                   | National Western Center Redevelopment | Mandatory Relocation      | Gas Distribution Plant | \$            | -                   | \$ 213,880              | -             | \$ 213,880                           | \$ 213,880    |
| Gardner | Gas Systems             | E.0010072.157 | CO/SW/MR/BRP 2023 F-341 Rebuild      | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant | \$            | 145,249             | -                       | -             | -                                    | \$ 145,249    |
| Gardner | Gas Systems             | E.0010072.189 | CO/PSO/Crested Butte SC 7"Res Tes    | Discrete     | Main Renewal                   | MAOP                                  | System Safety & Integrity | Gas Transmission Plant | \$            | -                   | -                       | \$ 1,968,747  | \$ 1,968,747                         | \$ 1,968,747  |
| Gardner | Gas Systems             | E.0010032.088 | CO/NMR/HAI/DEN/5675 PECCOS ST/GD     | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant | \$            | 144,748             | -                       | -             | -                                    | \$ 144,748    |
| Gardner | Gas Systems             | E.0010052.072 | CO/Install HW-51/Lost Creek Dairy/RT | Discrete     | Gas Tools And Equip            | CO/Install HW-51/Lost Creek Dairy     | New Business              | Gas General Plant      | \$            | -                   | -                       | \$ 107,252    | \$ 107,252                           | \$ 107,252    |
| Gardner | Distribution Operations | A.0005516.001 |                                      |              |                                |                                       |                           |                        |               |                     |                         |               |                                      |               |

| Witness | Budget Organization | Project ID    | Project Nbr Desc                     | Project Type | Expenditure Type               | Major Project                         | Major Category            | Func Class Descr              | 2023          |                     |                         |              |              |
|---------|---------------------|---------------|--------------------------------------|--------------|--------------------------------|---------------------------------------|---------------------------|-------------------------------|---------------|---------------------|-------------------------|--------------|--------------|
|         |                     |               |                                      |              |                                |                                       |                           |                               | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total        |              |
| Gardner | Gas Systems         | E.0010072.158 | RD-6-A Dillon Valley Rebuild         | Discrete     | Gas Trans Reinforce            | RD-6-A Dillon Valley Rebuild          | Capacity Expansion        | Gas Transmission Plant        | \$ 355,603    | \$ (338)            | \$ -                    | \$ (338)     | \$ 355,265   |
| Gardner | Gas Systems         | E.0000156.001 | CO/DeI Norte Comp E-Gen              | Discrete     | Gas Trans Reinforce            | DeI Norte                             | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 1,334,370            | \$ 1,334,370 | \$ 1,334,370 |
| Gardner | Gas Systems         | E.0000198.007 | CO/SWMR/RENW/Vault138 SHolly&Ecaley  | Discrete     | Main Relocation                | Vault Program                         | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 1,258,853            | \$ 1,258,853 | \$ 1,258,853 |
| Gardner | Gas Systems         | E.0010067.067 | CO/EAS7/Backup Generator Tiffany     | Discrete     | Gas Trans Compr Stat           | Compressor Station Back-up Generators | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 1,215,639        | \$ -                    | \$ 1,215,639 | \$ 1,215,639 |
| Gardner | Gas Systems         | E.0010072.172 | CO/PSCO 11 Santa Fe Mt. to Itabho    | Discrete     | Gas Trans Renewal              | MAOP                                  | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 1,191,738        | \$ -                    | \$ 1,191,738 | \$ 1,191,738 |
| Gardner | Gas Systems         | A.0005014.152 | CO/Gas General Furniture/Equip Blkt  | Discrete     | Other-Gas                      |                                       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 38,551               | \$ 38,551    | \$ 38,551    |
| Gardner | Gas Systems         | E.0010067.113 | CO/Tiffany Upgr/Pockets Dehy Vibrat  | Discrete     | Gas Trans Compr Stat           | Tiffany Upgrades, Pockets, Dehy       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 1,186,223            | \$ 1,186,223 | \$ 1,186,223 |
| Gardner | Gas Systems         | E.0010074.302 | CO/CO MTN/Southern (HP)SC-4 Climax   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 922,991          | \$ 259,480              | \$ 1,182,471 | \$ 1,182,471 |
| Gardner | Gas Systems         | E.0000087.004 | CO/MD/OBSODR/WR-1A Odorizer          | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers                    | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 1,168,728            | \$ 1,168,728 | \$ 1,168,728 |
| Gardner | Gas Systems         | E.0000075.002 | CO/BLDR/SUNSET- Reinforcement of Ma  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 102,176              | \$ 102,176   | \$ 102,176   |
| Gardner | Gas Systems         | E.0010032.159 | CO/FTC/Bloom Filing 2-7 Reinforce    | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 100,139              | \$ 100,139   | \$ 100,139   |
| Gardner | Gas Systems         | E.0000156.002 | CO/AH/DeI Norte Compressor Controls  | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 1,062,200            | \$ 1,062,200 | \$ 1,062,200 |
| Gardner | Gas Systems         | E.0010042.149 | CO/SWMR/INOP/HS Valley & E County Li | Discrete     | Main Renewal                   | Inoperable Valves                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 1,019,120        | \$ -                    | \$ 974       | \$ 1,020,095 |
| Gardner | Gas Systems         | E.0010032.112 | CO/SWMR/LOPLIT/STERLING RANCH F3B/   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ 90,672     | \$ -                | \$ -                    | \$ -         | \$ 90,672    |
| Gardner | Gas Systems         | E.0010037.011 | CO/DVMO/Gas Relocation Filing 54 Ph  | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant        | \$ -          | \$ -                | \$ 34,562               | \$ -         | \$ 34,562    |
| Gardner | Gas Systems         | E.0010067.084 | CO/Chalk Bluffs/Back Up Gen          | Discrete     | Gas Trans Compr Stat           | Compressor Station Back-up Generators | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 930,762              | \$ -         | \$ 930,762   |
| Gardner | Gas Systems         | E.0010072.187 | CO/TIMP/10" Plains Lateral MP & ILI  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 922,426          | \$ 4,940                | \$ 927,366   | \$ 927,366   |
| Gardner | Gas Systems         | E.0010067.070 | CO/South/Pagosa Springs/Backup Gene  | Discrete     | Gas Trans Compr Stat           | Compressor Station Back-up Generators | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 919,092              | \$ 919,092   | \$ 919,092   |
| Gardner | Gas Systems         | A.0000691.012 | CO/DMR/DNVR/Two Basins               | Discrete     | Main Relocation                | Two Basins-G                          | Mandatory Relocation      | Gas Distribution Plant        | \$ 31,521     | \$ -                | \$ 1,859                | \$ 1,859     | \$ 33,381    |
| Gardner | Gas Systems         | E.0010074.306 | CO/Boulder/E-147 Vault Removal       | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 864,308              | \$ -         | \$ 864,308   |
| Gardner | Gas Systems         | E.0000091.033 | CO/BR/NMR/RENW/E 161st SL/Removd Cir | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ -                    | \$ 801,651   | \$ 801,651   |
| Gardner | Gas Systems         | E.0000091.019 | CO/DIMP/7605-8460 W 106th Ave/MP     | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 866,170              | \$ -         | \$ 866,170   |
| Gardner | Gas Systems         | E.0010042.150 | CO/BLDR/INOPV Baseline&Brooklawn/1P  | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 759,380          | \$ 121,625              | \$ 881,005   | \$ 881,005   |
| Gardner | Gas Systems         | E.0010074.268 | CO/PSCO/Orchard Mesa Odorant Tank R  | Discrete     | Gas Trans Reinforce            | Obsolete Odorizers                    | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 869,894              | \$ 869,894   | \$ 869,894   |
| Gardner | Gas Systems         | E.0000009.021 | CO - Transmission Comp Overhaul WES  | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 20,121     | \$ 11,781           | \$ 715                  | \$ 12,496    | \$ 32,616    |
| Gardner | Gas Systems         | E.0010010.004 | IMP - Distribution Mains             | Discrete     | Main Renewal                   | TIMP Assessment                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 32,355               | \$ 32,355    | \$ 32,355    |
| Gardner | Gas Systems         | E.0000091.028 | CO/AMRP/Co Rd 4 and Bailey Dr/MR     | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 838,950              | \$ 838,950   | \$ 838,950   |
| Gardner | Gas Systems         | E.0010047.067 | CO/DMR/Survalley Development/Reinfo  | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant        | \$ 85,224     | \$ -                | \$ -                    | \$ -         | \$ 85,224    |
| Gardner | Gas Systems         | E.0000091.032 | CO/BR/NMR/RENW/E 161st SL/Removd Cir | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 813,905              | \$ 813,905   | \$ 813,905   |
| Gardner | Gas Systems         | E.0010047.108 | CO/BLDR/Boulder/E67-143-146 Reinfo   | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ -          | \$ -                | \$ 31,800               | \$ 31,800    | \$ 31,800    |
| Gardner | Gas Systems         | E.0010032.111 | CO/BLDR/BROOME/E-80 Cut Off/Main     | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 81,417               | \$ 81,417    | \$ 81,417    |
| Gardner | Gas Systems         | E.0000091.017 | CO/903-947 Terry St                  | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 732,457              | \$ -         | \$ 732,457   |
| Gardner | Gas Systems         | E.0000113.001 | CO/TIMP/Brighton Sugar Plant Derate  | Discrete     | Install Gas Trans Reg/Mtr Stat | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 729,540              | \$ 729,540   | \$ 729,540   |
| Gardner | Gas Systems         | E.0000087.005 | CO/MD/OBSODR/WR-20-A Odorizer        | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers                    | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 705,277              | \$ 705,277   | \$ 705,277   |
| Gardner | Gas Systems         | E.0010072.200 | CO/TIMP/20" Parker ILI - CAP Repair  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 705,178              | \$ 705,178   | \$ 705,178   |
| Gardner | Gas Systems         | E.0000091.017 | CO/DIMP/AMRP/7427-16909 E Hinsdale/  | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 531,252              | \$ 145,950   | \$ 677,202   |
| Gardner | Gas Systems         | E.0010074.188 | CO/SLV/Replace Regulator at T-171    | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ 31,794     | \$ (148)            | \$ -                    | \$ (148)     | \$ 31,646    |
| Gardner | Gas Systems         | E.0000091.010 | CO/AMRP/Boulder/E67-143-146 Reinfo   | Discrete     | Non-Trans New Main             |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ 75,467     | \$ (44,546)         | \$ -                    | \$ (44,546)  | \$ 30,921    |
| Gardner | Gas Systems         | E.0000241.001 | CO/SEMR/HOYAUJR/1380 N UVALDA ST     | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 73,768               | \$ 73,768    | \$ 73,768    |
| Gardner | Gas Systems         | E.0010074.242 | CO/PUEBLO/PUEBLO NORTH METER REPLAC  | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 30,267               | \$ -         | \$ 30,267    |
| Gardner | Gas Systems         | E.0000198.004 | CO/DMR/DNVR/RENW/INOP/E 38th&Kramer  | Discrete     | Main Renewal                   | Inoperable Valves                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 665,628              | \$ 665,628   | \$ 665,628   |
| Gardner | Gas Systems         | E.0010042.124 | CO/HPGE Hubbard Mesa to New Castle   | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 578,407          | \$ -                    | \$ 578,407   | \$ 578,407   |
| Gardner | Gas Systems         | E.0010047.053 | CO/DMR/400 Grant St/ Reinforcement/  | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ -          | \$ -                | \$ 29,869               | \$ -         | \$ 29,869    |
| Gardner | Gas Systems         | E.0000198.003 | CO/SEMR/AUR/RENW/Vault 132-E13th &   | Discrete     | Main Renewal                   | Vault Program                         | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 564,004              | \$ 564,004   | \$ 564,004   |
| Gardner | Gas Systems         | E.0010042.147 | CO/HPGE 8" Valmont to N Boulder PT-  | Discrete     | Main Renewal                   | MAOP                                  | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 540,719              | \$ 540,719   | \$ 540,719   |
| Gardner | Gas Systems         | E.0000091.010 | CO/BLDR/ORENW/27th Ln and Onole Rd/  | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 528,085              | \$ 528,085   | \$ 528,085   |
| Gardner | Gas Systems         | E.0000091.013 | CO/AMRP/Aikre & W 75th Ave/MP        | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 502,782              | \$ -         | \$ 502,782   |
| Gardner | Gas Systems         | E.0000090.001 | CO/IGNIT/FIFANY CS BLDG LIGHTS       | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 492,200              | \$ 492,200   | \$ 492,200   |
| Gardner | Gas Systems         | E.0010074.247 | CO/Above Ground Facility Protection  | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ 29,460     | \$ -                | \$ -                    | \$ -         | \$ 29,460    |
| Gardner | Gas Systems         | E.0010032.167 | CO/BrushLB-34 Reg Station Build      | Discrete     | New Mains                      | LB-34 Reg Station Build               | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 478,658              | \$ 478,658   | \$ 478,658   |
| Gardner | Gas Systems         | E.0000239.001 | CO/GW/RAE/GD E Cofax& Gun Clu CO 8   | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 66,275               | \$ 66,275    | \$ 66,275    |
| Gardner | Gas Systems         | E.0010052.066 | CO/AKA/Rebuild Interconnect - Equip  | Discrete     | Gas Tools And Equip            |                                       | System Safety & Integrity | Gas General Plant             | \$ 27,802     | \$ -                | \$ -                    | \$ -         | \$ 27,802    |
| Gardner | Gas Systems         | E.0010072.185 | CO/TIMP/6" Frisco-Breck ILL-Piggabi  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 465,109          | \$ 11,856               | \$ 476,965   | \$ 476,965   |
| Gardner | Gas Systems         | E.0000091.001 | CO/BLDR/ORENW/27th Ln and Onole Rd/  | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 458,221              | \$ 458,221   | \$ 458,221   |
| Gardner | Gas Systems         | E.0000115.001 | CO/INB/Mountain Shadows RS Upsize Mt | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Transmission Plant        | \$ -          | \$ -                | \$ 60,190               | \$ 60,190    | \$ 60,190    |
| Gardner | Gas Systems         | E.0000091.018 | CO/DIMP/AMRP/Camino Real & Rudessa/  | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 418,849          | \$ 6,378                | \$ 424,227   | \$ 424,227   |
| Gardner | Gas Systems         | E.0000091.005 | CO/STONE PL AND JAY RD               | Discrete     | Main Renewal                   |                                       | DIMP Programmatic         | Gas Distribution Plant        | \$ -          | \$ -                | \$ 419,469              | \$ 419,469   | \$ 419,469   |
| Gardner | Gas Systems         | E.0000111.003 | CO/RBLD/SP-1 Line Heater Replace     | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 185,512              | \$ 185,512   | \$ 185,512   |
| Gardner | Gas Systems         | E.0000147.001 | CO/TIMP/4" Hummel Casing Replacem    | Discrete     | Gas Trans Reinforce            | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 413,677              | \$ 413,677   | \$ 413,677   |
| Gardner | Gas Systems         | E.0010072.186 | CO/TIMP/6" Frisco-Breck ILL-SleeveR  | Discrete     | Gas Trans Renewal              | TIMP Assessment                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 379,904          | \$ 29,640               | \$ 409,544   | \$ 409,544   |
| Gardner | Gas Systems         | E.0010037.004 | CO/SWMR/6"IP gas main reloc SR       | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Distribution Plant        | \$ -          | \$ -                | \$ 76,593               | \$ -         | \$ 76,593    |
| Gardner | Gas Systems         | E.000018.060  | E&S Gas (Trans & Prod) PSC           | Discrete     | E and S Pool-Gas               |                                       | New Business              | Gas Transmission Plant        | \$ -          | \$ -                | \$ 53,402               | \$ 53,402    | \$ 53,402    |
| Gardner | Gas Systems         | E.0010079.012 | CO/EAST/Welhead Metering at Roundu   | Discrete     | Gas Storage Facilities         |                                       | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ 27,708           | \$ -                    | \$ 27,708    | \$ 27,708    |
| Gardner | Gas Systems         | E.0010074.181 | CO/EAST/Welhead Metering at Roundu   | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 96,510               | \$ 96,510    | \$ 96,510    |
| Gardner | Gas Systems         | E.0010074.224 | CO/AboveGround Fac. Protection-Nort  | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ 26,847     | \$ (48)             | \$ -                    | \$ (48)      | \$ 26,799    |
| Gardner | Gas Systems         | E.0010074.209 | CO/SWMR/Rebuild F-578                | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 41,742     | \$ (16,474)         | \$ -                    | \$ (16,474)  | \$ 25,268    |
| Gardner | Gas Systems         | E.0010052.080 | CO/F-340/Reg Station Rebuild         | Discrete     | Gas Comm Equip                 | F-340 Rebuild                         | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 397,676          | \$ -                    | \$ 397,676   | \$ 397,676   |
| Gardner | Gas Systems         | E.0010052.056 | CO/DMO/Rebuild F-392                 | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant             | \$ 24,204     | \$ -                | \$ -                    | \$ -         | \$ 24,204    |
| Gardner | Gas Systems         | E.0010032.164 | CO/FTC/Prairie Song F1/New Business  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 50,732               | \$ 50,732    | \$ 50,732    |
| Gardner | Gas Systems         | E.0000156.003 | CO/DeI Norte Comp Security           | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 386,269              | \$ 386,269   | \$ 386,269   |
| Gardner | Gas Systems         | E.0010067.050 | Rebuild Odorant Equipment at T-171   | Discrete     | Other-Gas                      | Obsolete Odorizers                    | System Safety & Integrity | Gas Transmission Plant        | \$ 21,067     | \$ -                | \$ -                    | \$ -         | \$ 21,067    |
| Gardner | Gas Systems         | E.0010037.071 | CO/PSCO/TIME/C527 Line Strike        | Discrete     | Main Relocation                |                                       | Mandatory Relocation      | Gas Transmission Plant        | \$ -          | \$ -                | \$ 62,780               | \$ 62,780    | \$ 62,780    |
| Gardner | Gas Systems         | E.0000093.001 | CO/NMR/RBLD/Parshall Compr Vlb Unit  | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 374,134          | \$ -                    | \$ 374,134   | \$ 374,134   |
| Gardner | Gas Systems         | E.0010072.197 | CO/EAST DIV/RVCV Replace             | Discrete     | Gas Trans Renewal              | ASV/RVCV                              | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 354,621              | \$ 354,621   | \$ 354,621   |
| Gardner | Gas Systems         | E.0010032.087 | CO/SEMR/Ridgegate East Gas Backbone  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ 49,065     | \$ -                | \$ -                    | \$ -         | \$ 49,065    |
| Gardner | Gas Systems         | E.0010072.124 | CO/Black Hills/12" Rifle Avon Share  | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant        |               |                     |                         |              |              |

| Witness | Budget Organization | Project ID    | Project Nbr Desc                      | Project Type | Expenditure Type               | Major Project       | Major Category            | Func Class Descr              | 2023          |                     |                         |            |            |
|---------|---------------------|---------------|---------------------------------------|--------------|--------------------------------|---------------------|---------------------------|-------------------------------|---------------|---------------------|-------------------------|------------|------------|
|         |                     |               |                                       |              |                                |                     |                           |                               | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total      |            |
| Gardner | Gas Systems         | E.000091.014  | CO/DIMP/AMRP/11051-11611 Jasper Rd/   | Discrete     | Main Renewal                   | DIMP Programmatic   | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 271,986              | \$ 271,986 | \$ 271,986 |
| Gardner | Gas Systems         | E.0010072.140 | CO/ICCP Installation - Hudson to Ke   | Discrete     | Gas Trans Renewal              | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 246,398          | \$ -                    | \$ 246,398 | \$ 246,398 |
| Gardner | Gas Systems         | E.0010079.047 | CO/Eastern HP/Roundup CS/Replace Ob   | Discrete     | Gas Storage Facilities         | Hardscaping         | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ -                | \$ 246,055              | \$ 246,055 | \$ 246,055 |
| Gardner | Gas Systems         | E.0010062.053 | Install ERXs - Distribution           | Discrete     | Gas Comm Equip                 |                     | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 11,951           | \$ -                    | \$ 11,951  | \$ 11,951  |
| Gardner | Gas Systems         | E.0010074.324 | CO/WestM-4.1A/Financing/Gas Eng Take  | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 243,664              | \$ 243,664 | \$ 243,664 |
| Gardner | Gas Systems         | E.0000004.023 | 2910 - Boulder - New Main             | Routine      | New Mains                      | New Mains Routine   | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 20,378               | \$ 20,378  | \$ 20,378  |
| Gardner | Gas Systems         | E.000018.004  | 2905 Gas Transmission Lines An        | Discrete     | Gas Trans New Main             |                     | New Business              | Gas Transmission Plant        | \$ -          | \$ -                | \$ 42,328               | \$ 42,328  | \$ 42,328  |
| Gardner | Gas Systems         | E.0000186.001 | CO/SEMR/BAI/ELZ/SPRING VALLEY F6/G    | Discrete     | Main Renewal                   |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 226,393              | \$ 226,393 | \$ 226,393 |
| Gardner | Gas Systems         | E.0010074.366 | CO/Gas TRAN-MR STA-EAST DIV-Hardsca   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 221,603              | \$ 221,603 | \$ 221,603 |
| Gardner | Gas Systems         | E.0010072.138 | CO/ICCP Replacement - Thompson Hill   | Discrete     | Gas Trans Renewal              |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 214,569          | \$ -                    | \$ 214,569 | \$ 214,569 |
| Gardner | Gas Systems         | E.0010042.126 | CO/West/Trans Main/Hardscaping Inst   | Discrete     | Gas Trans New Main             | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 79,488           | \$ 134,832              | \$ 214,320 | \$ 214,320 |
| Gardner | Gas Systems         | E.0010072.139 | CO/ICCP Replacement/South Douglas     | Discrete     | Gas Trans Renewal              |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 208,608          | \$ -                    | \$ 208,608 | \$ 208,608 |
| Gardner | Gas Systems         | E.0010074.401 | CO/TWEST/RF/Inst Odorizer WR-34A      | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Odorizers  | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 207,490              | \$ 207,490 | \$ 207,490 |
| Gardner | Gas Systems         | E.0010042.044 | CO/EAST/Replace Switchgear/VFD Yose   | Discrete     | Gas Trans Comp'r Stat          |                     | System Safety & Integrity | Gas Transmission Plant        | \$ (153)      | \$ 16,796           | \$ -                    | \$ 16,643  | \$ 16,643  |
| Gardner | Gas Systems         | E.0010042.133 | CO/East/TransMIR/Reg Station Hardsc   | Discrete     | Gas Trans New Main             | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 127,825          | \$ 72,906               | \$ 200,732 | \$ 200,732 |
| Gardner | Gas Systems         | E.0010072.202 | PSCO/TIMP/8in Climax-Wheeler Flat-T   | Discrete     | Gas Trans Reinforce            | TIMP Assessment     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 191,703          | \$ 4,940                | \$ 196,643 | \$ 196,643 |
| Gardner | Gas Systems         | E.000036.002  | Pipeline Tungsten to Blackhawk ROW    | Discrete     | Gas Trans Right of Way         |                     | Capacity Expansion        | Gas Transmission Plant        | \$ 16,051     | \$ -                | \$ -                    | \$ 16,051  | \$ 16,051  |
| Gardner | Gas Systems         | E.0010072.205 | CO/TIMP/10"Roundup-Brush ILL-Repair   | Discrete     | Gas Trans Renewal              | TIMP Assessment     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 190,859              | \$ 190,859 | \$ 190,859 |
| Gardner | Gas Systems         | E.0010052.092 | CO/DMR/Rebuild F-808-Comm             | Discrete     | Gas Comm Equip                 | F-808 Rebuild       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 187,078              | \$ 187,078 | \$ 187,078 |
| Gardner | Gas Systems         | E.0010074.295 | CO/West/9-A/Upgrades/Gas Eng Tak      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 179,102          | \$ -                    | \$ 179,102 | \$ 179,102 |
| Gardner | Gas Systems         | E.0000379.002 | CO/ICCP Replacement - Greasewood      | Discrete     | Main Reinforcement             |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 178,004              | \$ 178,004 | \$ 178,004 |
| Gardner | Gas Systems         | E.0010074.316 | CO/Eastman/Carestream MS (HWY-38-A)   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 174,233          | \$ -                    | \$ 174,233 | \$ 174,233 |
| Gardner | Gas Systems         | E.0010042.070 | Aldy-A Main Replacements              | Discrete     | Main Renewal                   | DIMP Programmatic   | System Safety & Integrity | Gas Distribution Plant        | \$ 15,774     | \$ -                | \$ -                    | \$ 15,774  | \$ 15,774  |
| Gardner | Gas Systems         | E.0010067.059 | CO/Greasewood Unit 4 Overhaul         | Discrete     | Gas Trans Comp'r Stat          |                     | System Safety & Integrity | Gas Transmission Plant        | \$ (23,225)   | \$ 37,931           | \$ -                    | \$ 37,931  | \$ 14,705  |
| Gardner | Gas Systems         | E.0010082.004 | CO/Yosemite/unit 7 controls           | Discrete     | Gas Processing Equipment       |                     | System Safety & Integrity | Gas Transmission Plant        | \$ 14,246     | \$ (20)             | \$ -                    | \$ (20)    | \$ 14,226  |
| Gardner | Gas Systems         | E.0010032.044 | CO/SW/MR/HE/SED/575 AIRPORT RD/GD     | Discrete     | New Mains                      |                     | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 40,680               | \$ 40,680  | \$ 40,680  |
| Gardner | Gas Systems         | E.0010042.073 | Distribution inoperable valves in C   | Discrete     | Main Renewal                   | Inoperable Valves   | System Safety & Integrity | Gas Distribution Plant        | \$ 1,339      | \$ 12,636           | \$ -                    | \$ 12,636  | \$ 13,975  |
| Gardner | Gas Systems         | E.0000087.003 | CO/PBL/Obsolete Odzr/er/Rplcx-34      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers  | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 167,340          | \$ -                    | \$ 167,340 | \$ 167,340 |
| Gardner | Gas Systems         | E.0010074.412 | CO/DMP/EL-A-57in & Tail R5 Rebid      | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 167,089              | \$ 167,089 | \$ 167,089 |
| Gardner | Gas Systems         | E.0010052.059 | CO/CO Western HP/W/LA Comms           | Discrete     | Gas Comm Equip                 |                     | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 165,197          | \$ -                    | \$ 165,197 | \$ 165,197 |
| Gardner | Gas Systems         | E.0010074.296 | CO/West/WW-11A/Upgrades/Gas Eng Ta    | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 161,074              | \$ 161,074 | \$ 161,074 |
| Gardner | Gas Systems         | E.0010042.118 | CO/NMR/AND/BRO/82511 TRANSIT WY/GD    | Discrete     | Main Reinforcement             |                     | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 39,515               | \$ 39,515  | \$ 39,515  |
| Gardner | Gas Systems         | E.0010037.067 | CO/Kersey Lateral/ICCP Install-For    | Discrete     | Main Relocation                |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 158,582          | \$ -                    | \$ 158,582 | \$ 158,582 |
| Gardner | Gas Systems         | E.0010032.147 | CO/NOR/LOP/SEV/HIDDEN VALLEY 6TH/GD   | Discrete     | New Mains                      |                     | New Business              | Gas Distribution Plant        | \$ 28,682     | \$ -                | \$ -                    | \$ 28,682  | \$ 28,682  |
| Gardner | Gas Systems         | E.0000091.016 | CO/DIMP/AMRP/Linda Vista Dr/MR        | Discrete     | Main Renewal                   | DIMP Programmatic   | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 152,836              | \$ 152,836 | \$ 152,836 |
| Gardner | Gas Systems         | E.0010074.170 | CO/Ridgegate/East HP-Reg Sign         | Discrete     | Install Gas Trans Reg/Mtr Stat |                     | New Business              | Gas Transmission Plant        | \$ 16,944     | \$ -                | \$ -                    | \$ 16,944  | \$ 16,944  |
| Gardner | Gas Systems         | E.0010074.322 | CO/E-72/Station Rebuild/Gas Eng Take  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 143,662              | \$ 143,662 | \$ 143,662 |
| Gardner | Gas Systems         | E.0010042.123 | CO/East/Trans Comp Stn/Hardscaping    | Discrete     | Gas Trans Reinforce            | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 142,459          | \$ -                    | \$ 142,459 | \$ 142,459 |
| Gardner | Gas Systems         | E.0010032.137 | CO/NMR/LEE/THO/WILLOWBEND PH3/GD      | Discrete     | New Mains                      |                     | New Business              | Gas Distribution Plant        | \$ 13,981     | \$ -                | \$ -                    | \$ 13,981  | \$ 13,981  |
| Gardner | Gas Systems         | E.0010074.415 | CO/Cama N-70/Inst Filter Separator    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 142,399              | \$ 142,399 | \$ 142,399 |
| Gardner | Gas Systems         | E.0010072.165 | CO/ICCP/Chalk Bluffs- Mesa Station    | Discrete     | Gas Trans Renewal              |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 142,333              | \$ 142,333 | \$ 142,333 |
| Gardner | Gas Systems         | E.0010074.373 | CO/G Dist-M/R Sta/FrRange/Div/Hardscp | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Hardscaping         | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 142,325              | \$ 142,325 | \$ 142,325 |
| Gardner | Gas Systems         | E.000016.003  | 2903 Gas Storage Lines And Met        | Discrete     | Gas Storage Facilities         |                     | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ 10,873           | \$ -                    | \$ 10,873  | \$ 10,873  |
| Gardner | Gas Systems         | E.0010042.119 | CO/SEMR/SMI/PAR/F17C OFV REPLACEME    | Discrete     | Other-Gas                      |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 138,459              | \$ 138,459 | \$ 138,459 |
| Gardner | Gas Systems         | E.0000091.021 | CO/BLD/REN/W3/786 EldoradoSprings Dr  | Discrete     | Main Renewal                   | DIMP Programmatic   | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 134,948              | \$ 134,948 | \$ 134,948 |
| Gardner | Gas Systems         | E.0010074.192 | CO/Northern/CSU Boller H-154          | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |                     | Capacity Expansion        | Gas Distribution Plant        | \$ (700,869)  | \$ 711,417          | \$ -                    | \$ 711,417 | \$ 711,417 |
| Gardner | Gas Systems         | E.0000029.001 | CO/SED/DMR/INST/TH/KEEP/GD            | Discrete     | New Mains                      |                     | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 13,045               | \$ 13,045  | \$ 13,045  |
| Gardner | Gas Systems         | E.0000026.005 | Replace Obs Dist Regs WEST Div        | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Regulators | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 9,773            | \$ -                    | \$ 9,773   | \$ 9,773   |
| Gardner | Gas Systems         | E.0010047.022 | CO/SLVT-6 System Reinforcement        | Discrete     | Main Reinforcement             |                     | Capacity Expansion        | Gas Distribution Plant        | \$ -          | \$ 8,883            | \$ -                    | \$ 8,883   | \$ 8,883   |
| Gardner | Gas Systems         | E.0010074.155 | CO/AKA/Rebuild Interconnect Install   | Discrete     | Install Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ 8,841      | \$ -                | \$ -                    | \$ 8,841   | \$ 8,841   |
| Gardner | Gas Systems         | E.0010052.018 | Install ERXs on D M/R Platte          | Discrete     | Gas Comm Equip                 |                     | System Safety & Integrity | Gas General Plant             | \$ 7,676      | \$ -                | \$ -                    | \$ 7,676   | \$ 7,676   |
| Gardner | Gas Systems         | E.0010052.063 | CO/SW/M/Canyons Development - Castle  | Discrete     | Gas Comm Equip                 | Canyons Development | New Business              | Gas General Plant             | \$ 12,747     | \$ -                | \$ -                    | \$ 12,747  | \$ 12,747  |
| Gardner | Gas Systems         | E.0000087.002 | CO/PBL/Replace Obsolete Odorizers X   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers  | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 129,468          | \$ -                    | \$ 129,468 | \$ 129,468 |
| Gardner | Gas Systems         | E.0010087.020 | CO/East/Yosemite South Compressor S   | Discrete     | Gas Trans Comp'r Stat          |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 7,323            | \$ -                    | \$ 7,323   | \$ 7,323   |
| Gardner | Gas Systems         | E.0010072.199 | CO/TIMP/10" Mesa-Boilder Line-2023    | Discrete     | Gas Trans Reinforce            | TIMP Assessment     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 121,192          | \$ -                    | \$ 121,192 | \$ 121,192 |
| Gardner | Gas Systems         | E.0010042.128 | CO/Dist Meter Reg Stn-FrontRange/Div  | Discrete     | Install Non-Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 46,836           | \$ 65,965               | \$ 112,801 | \$ 112,801 |
| Gardner | Gas Systems         | E.0000206.002 | CO/GO/DFs LeakSurvey Blkt Cap DR/FR/O | Discrete     | Main Renewal                   |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 112,764          | \$ -                    | \$ 112,764 | \$ 112,764 |
| Gardner | Gas Systems         | E.0000008.038 | Replace Obsolete Dist Reg Fmt Rng     | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Regulators | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 3,207            | \$ 3,910                | \$ 7,117   | \$ 7,117   |
| Gardner | Gas Systems         | E.0010072.095 | CO/Install ASV/RVCV East Div          | Discrete     | Gas Trans Renewal              | ASV/RVCV            | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 111,891              | \$ 111,891 | \$ 111,891 |
| Gardner | Gas Systems         | E.0010052.058 | CO/Bristol 3305 RTU-Pueblo West       | Discrete     | Gas Comm Equip                 |                     | System Safety & Integrity | Gas General Plant             | \$ 6,553      | \$ -                | \$ -                    | \$ 6,553   | \$ 6,553   |
| Gardner | Gas Systems         | E.0010067.089 | CO/Meadow Mountain Facility/Failed    | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 111,812          | \$ -                    | \$ 111,812 | \$ 111,812 |
| Gardner | Gas Systems         | E.0000078.003 | CO/ICCP Replacement Rifle to Picea    | Discrete     | Main Reinforcement             |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 109,874              | \$ 109,874 | \$ 109,874 |
| Gardner | Gas Systems         | E.0010074.375 | CO/T/SOUL/EA/DRBLD/Rebuild RL-3       | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 103,779          | \$ 4,990                | \$ 108,769 | \$ 108,769 |
| Gardner | Gas Systems         | E.0000078.007 | CO/TWEST/ICCP Black Sulfur            | Discrete     | Main Reinforcement             |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 107,262              | \$ 107,262 | \$ 107,262 |
| Gardner | Gas Systems         | E.0010042.139 | CO/Dist/Dis System Hardscaping        | Discrete     | Gas Trans New Main             | Hardscaping         | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 105,737              | \$ 105,737 | \$ 105,737 |
| Gardner | Gas Systems         | E.0010079.060 | CO/Roundup/22 Workover-Reclass        | Discrete     | Gas Storage Facilities         |                     | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ 105,012          | \$ -                    | \$ 105,012 | \$ 105,012 |
| Gardner | Gas Systems         | E.0010052.031 | Install ERXs on Distribution Reg Pu   | Discrete     | Gas Comm Equip                 |                     | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 6,416                | \$ 6,416   | \$ 6,416   |
| Gardner | Gas Systems         | E.0000211.001 | CO/GT/WY/BAI/AUR/34TH & MAIN ST/GD    | Discrete     | Main Renewal                   |                     | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 101,306              | \$ 101,306 | \$ 101,306 |
| Gardner | Gas Systems         | E.0010072.190 | CO/GT-LINE-CO-EAST DIV-Hardscaping    | Discrete     | Gas Trans Renewal              | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 94,157               | \$ 94,157  | \$ 94,157  |
| Gardner | Gas Systems         | E.0000087.006 | CO/PuebloX-59/Obsolete Odorizers      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers  | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 94,054           | \$ -                    | \$ 94,054  | \$ 94,054  |
| Gardner | Gas Systems         | E.0000078.001 | CO/ICCP Replacement 19 Rd & Deser     | Discrete     | Main Reinforcement             |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 83,935               | \$ 83,935  | \$ 83,935  |
| Gardner | Gas Systems         | E.0000078.004 | CO/ICCP Replacement CS Replacement    | Discrete     | Main Reinforcement             |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 80,706               | \$ 80,706  | \$ 80,706  |
| Gardner | Gas Systems         | E.0010074.308 | PSCO Obsolete Gas Chromatograph Rep   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 86,577               | \$ 86,577  | \$ 86,577  |
| Gardner | Gas Systems         | E.0010074.022 | CO/East/189/125 Regulator Station     | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                     | System Safety & Integrity | Gas Transmission Plant        | \$ 6,352      | \$ -                | \$ -                    | \$ 6,352   | \$ 6,352   |
| Gardner | Gas Systems         | E.0010074.339 | CO/Western Div/Trans M-R Hdsco        | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Hardscaping         | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 84,390               | \$ 84,390  | \$ 84,390  |
| Gardner | Gas Systems         | E.0010072.206 | CO/West                               |              |                                |                     |                           |                               |               |                     |                         |            |            |



| Witness | Budget Organization | Project ID    | Project Nbr Desc                      | Project Type | Expenditure Type               | Major Project                         | Major Category            | Func Class Descr              | 2023          |                     |                         |            |                                      |           |
|---------|---------------------|---------------|---------------------------------------|--------------|--------------------------------|---------------------------------------|---------------------------|-------------------------------|---------------|---------------------|-------------------------|------------|--------------------------------------|-----------|
|         |                     |               |                                       |              |                                |                                       |                           |                               | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total      | Total Additions Since 2021 Test Year |           |
| Gardner | Gas Systems         | E.0010062.004 | CO/Brush/LB-34 Reg S/Bld-Land Purch   | Discrete     | Install Non-Trans Reg/Mtr Stat | LB-34 Reg Station Build               | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ -                    | \$ 61,098  | \$ 61,098                            | \$ 61,098 |
| Gardner | Gas Systems         | E.0010074.358 | CO/DMRG/CPCE Divorced Head Pilot Swa  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 59,201               | \$ 59,201  | \$ 59,201                            |           |
| Gardner | Gas Systems         | E.0010052.078 | CO/B' Estes Park PSIA - MAOP          | Discrete     | Gas Comm Equip                 | 6' Estes Park PSIA                    | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 55,211           | \$ -                    | \$ 55,211  | \$ 55,211                            |           |
| Gardner | Gas Systems         | A.0006369.467 | PSC Gas Metering Systems Tool         | Discrete     | Gas Tools And Equip            | Tools                                 | System Safety & Integrity | Gas General Plant             | \$ 5,115      | \$ -                | \$ -                    | \$ 5,115   | \$ 5,115                             |           |
| Gardner | Gas Systems         | E.0010074.395 | CO/GPCE FrontRange Obsolete 630 Reg   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Regulators                   | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ -                    | \$ 49,929  | \$ 49,929                            |           |
| Gardner | Gas Systems         | E.0010042.132 | CO/WestTrans/MtrReg Station Hardsc    | Discrete     | Gas Trans New Main             | Hardscaping                           | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 48,768               | \$ 48,768  | \$ 48,768                            |           |
| Gardner | Gas Systems         | E.0010072.096 | CO/Odorizer Failure at Highline VS    | Discrete     | Gas Trans Renewal              | Obsolete Odorizers                    | System Safety & Integrity | Gas Transmission Plant        | \$ 5,768      | \$ -                | \$ -                    | \$ -       | \$ 5,768                             |           |
| Gardner | Gas Systems         | E.0010052.070 | CO/East/189 125 Reg Station-Comm      | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 5,606            | \$ -                    | \$ 5,606   | \$ 5,606                             |           |
| Gardner | Gas Systems         | E.0000236.002 | CO/GDOPS Rsp to Emergcy Bklt Cap DR/  | Discrete     |                                |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 45,413           | \$ -                    | \$ 45,413  | \$ 45,413                            |           |
| Gardner | Gas Systems         | E.0010074.384 | CO/La Plata Cnty Airport MS(SB-8)/Fe  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 45,409               | \$ 45,409  | \$ 45,409                            |           |
| Gardner | Gas Systems         | E.0010079.027 | CO/EAST/Plug and abandon 5 Roundup    | Discrete     | Gas Storage Facilities         |                                       | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ -                | \$ 5,054                | \$ 5,054   | \$ 5,054                             |           |
| Gardner | Gas Systems         | E.0010032.162 | CO/FTCO/Great Plains Village/New Bus  | Discrete     | New Mains                      |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ -                | \$ 10,647               | \$ 10,647  | \$ 10,647                            |           |
| Gardner | Gas Systems         | E.0000175.003 | CO/R/W/Coonhills 4th & Indiana Recr   | Discrete     | Main Renewal                   | ASV/RVCV                              | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 44,119               | \$ 44,119  | \$ 44,119                            |           |
| Gardner | Gas Systems         | E.0010047.069 | CO/NMR/MORG/THO/Willow Bend/PMGDR     | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant        | \$ 7,432      | \$ -                | \$ -                    | \$ -       | \$ 7,432                             |           |
| Gardner | Gas Systems         | E.0010072.193 | CO/Gas Trans Line/East Div Hardscap   | Discrete     | Gas Trans Renewal              | Hardscaping                           | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 41,725               | \$ 41,725  | \$ 41,725                            |           |
| Gardner | Gas Systems         | E.0010074.122 | CO/West/Install heater WP-19 (Core    | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 5,387      | \$ (511)            | \$ -                    | \$ (511)   | \$ 4,876                             |           |
| Gardner | Gas Systems         | E.0010067.057 | CO/Asbury North/Install New Danie     | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 4,692      | \$ -                | \$ -                    | \$ -       | \$ 4,692                             |           |
| Gardner | Gas Systems         | E.0010042.082 | CO/East Troublesome Fire MAIN RENEW   | Routine      | Main Renewal                   | Wildfire Renewal                      | System Safety & Integrity | Gas Distribution Plant        | \$ 4,095      | \$ -                | \$ -                    | \$ -       | \$ 4,095                             |           |
| Gardner | Gas Systems         | E.0010072.100 | CO/HPGE FARM TAP EG-0597 HFV00339 R   | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 3,982      | \$ (30)             | \$ -                    | \$ (30)    | \$ 3,952                             |           |
| Gardner | Gas Systems         | E.0010074.056 | Install new Gas Dist reg station X-   | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Distribution Plant        | \$ -          | \$ 6,071            | \$ -                    | \$ -       | \$ 6,071                             |           |
| Gardner | Gas Systems         | E.0010074.330 | CO/R/L/Obsolete Reg/Gas EngTakeAct    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 35,014               | \$ 35,014  | \$ 35,014                            |           |
| Gardner | Gas Systems         | E.0010052.038 | CO/MNTN/Granby/River Run Ranch Sub    | Discrete     | Gas Comm Equip                 |                                       | New Business              | Gas General Plant             | \$ -          | \$ -                | \$ 4,989                | \$ 4,989   | \$ 4,989                             |           |
| Gardner | Gas Systems         | A.0001431.002 | CO/DVR/Nat Western Gas/Rebuild-Steel  | Discrete     | New Mains                      | National Western Center Redevelopment | Mandatory Relocation      | Gas Distribution Plant        | \$ -          | \$ -                | \$ -                    | \$ 3,564   | \$ 3,564                             |           |
| Gardner | Gas Systems         | E.0010074.347 | CO/Rebuild Reg Station SP-2-RTU for   | Discrete     | Gas Comm Equip                 | RTU                                   | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 34,253           | \$ -                    | \$ 34,253  | \$ 34,253                            |           |
| Gardner | Gas Systems         | E.0010042.084 | CO/Estes Park/Fire response           | Routine      | Main Renewal                   | Wildfire Renewal                      | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 3,450            | \$ -                    | \$ 3,450   | \$ 3,450                             |           |
| Gardner | Gas Systems         | E.0000175.004 | CO/West DIV/RVCV Replace              | Discrete     | Gas Trans Renewal              | ASV/RVCV                              | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 33,886               | \$ 33,886  | \$ 33,886                            |           |
| Gardner | Gas Systems         | E.0010042.022 | IMP - Distribution Mains              | Discrete     | Main Renewal                   | TIMP Assessment                       | System Safety & Integrity | Gas Distribution Plant        | \$ 2,217      | \$ 516              | \$ -                    | \$ 516     | \$ 2,733                             |           |
| Gardner | Gas Systems         | E.0010042.134 | CO/Dist/MountainDiv MtrReg S/n Hard   | Discrete     | Install Non-Trans Reg/Mtr Stat | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 32,961               | \$ 32,961  | \$ 32,961                            |           |
| Gardner | Gas Systems         | E.0010042.138 | CO/Dist/BoulderMtrReg S/n Hardscap    | Discrete     | Gas Trans New Main             | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 32,911               | \$ 32,911  | \$ 32,911                            |           |
| Gardner | Gas Systems         | E.0010074.410 | CO/SWMP/PGCE PMCR F-771 REG SWAP      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ 2,860      | \$ (140)            | \$ -                    | \$ 2,720   | \$ 2,720                             |           |
| Gardner | Gas Systems         | E.0010067.077 | CO/Yosemite/H2O Analyzer Obsolete     | Discrete     | Other-Gas                      |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ 23,097     | \$ (20,587)         | \$ -                    | \$ (2,587) | \$ 2,509                             |           |
| Gardner | Gas Systems         | E.0010067.019 | Comp Overhauls Yosemite #7 2017       | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 30,204           | \$ -                    | \$ 30,204  | \$ 30,204                            |           |
| Gardner | Gas Systems         | E.0010074.364 | CO/GD-MR STA/North Div Hardscaping    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 30,025               | \$ 30,025  | \$ 30,025                            |           |
| Gardner | Gas Systems         | E.0010072.063 | CO/HPGE SH52 WCR37 Relo Hudson-Keen   | Discrete     | Gas Trans Relocation           |                                       | Mandatory Relocation      | Gas Transmission Plant        | \$ 2,034      | \$ -                | \$ -                    | \$ -       | \$ 2,034                             |           |
| Gardner | Gas Systems         | E.0010032.051 | CO/BLDR/LONG/Longmont EL-25-81-96     | Discrete     | New Mains                      |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ 1,659      | \$ 351              | \$ -                    | \$ 351     | \$ 2,010                             |           |
| Gardner | Gas Systems         | E.0010074.321 | CO/R/L-3/Obsolete Reg/Gas EngTakeAct  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 27,292           | \$ -                    | \$ 27,292  | \$ 27,292                            |           |
| Gardner | Gas Systems         | E.0010072.198 | CO/Transmission Repair Capitalizati   | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 24,869           | \$ 1,858                | \$ 26,727  | \$ 26,727                            |           |
| Gardner | Gas Systems         | E.0010074.410 | CO/West/West Fac Rcs (WF-F33-A)/GETA  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 26,151               | \$ 26,151  | \$ 26,151                            |           |
| Gardner | Gas Systems         | E.0010079.041 | Roundup NGL Compressor OH             | Discrete     | Gas Storage Facilities         |                                       | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ 25,518           | \$ -                    | \$ 25,518  | \$ 25,518                            |           |
| Gardner | Gas Systems         | E.0000175.001 | CO/WEST/RVCV/Tiffany CS Mainline VS   | Discrete     | Gas Trans Compr Stat           | ASV/RVCV                              | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 23,151               | \$ 23,151  | \$ 23,151                            |           |
| Gardner | Gas Systems         | E.0010067.117 | CO Ft Collins CNG Rebuild             | Discrete     |                                |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 22,949               | \$ 22,949  | \$ 22,949                            |           |
| Gardner | Gas Systems         | E.0010074.362 | CO/GT-MR Sta/East Div Hardscaping     | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Hardscaping                           | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 22,816               | \$ 22,816  | \$ 22,816                            |           |
| Gardner | Gas Systems         | E.0010072.166 | CO/West/WC-3-A (valves)/Upgrades      | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 21,626           | \$ -                    | \$ 21,626  | \$ 21,626                            |           |
| Gardner | Gas Systems         | E.0010067.110 | CO Sterling CNG Rebuild               | Discrete     |                                |                                       | System Safety & Integrity | Common General Plant          | \$ -          | \$ 21,373           | \$ -                    | \$ 21,373  | \$ 21,373                            |           |
| Gardner | Gas Systems         | E.0010067.109 | CO Alamosa CNG Rebuild                | Discrete     |                                |                                       | System Safety & Integrity | Common General Plant          | \$ -          | \$ 20,884           | \$ -                    | \$ 20,884  | \$ 20,884                            |           |
| Gardner | Gas Systems         | E.0010052.057 | CO/Bristol 3305 RTU D1A1 D148         | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ 1,977            | \$ -                    | \$ 1,977   | \$ 1,977                             |           |
| Gardner | Gas Systems         | E.0010042.116 | CO/CP Replacement/Boone Avondale      | Discrete     | Main Reinforcement             |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 20,669               | \$ 20,669  | \$ 20,669                            |           |
| Gardner | Gas Systems         | E.0010067.111 | CO Grand Junction CNG Rebuild         | Discrete     |                                |                                       | System Safety & Integrity | Common General Plant          | \$ -          | \$ 20,622           | \$ -                    | \$ 20,622  | \$ 20,622                            |           |
| Gardner | Gas Systems         | E.0010074.196 | RD-6-A Dillon Valley Rebid-Diat Reg   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | RD-6-A Dillon Valley Rebid            | Capacity Expansion        | Gas Distribution Plant        | \$ 1,930      | \$ -                | \$ -                    | \$ -       | \$ 1,930                             |           |
| Gardner | Gas Systems         | E.0010042.127 | CO/South/Trans Main/Hardscaping Ins   | Discrete     | Gas Trans New Main             | Hardscaping                           | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 20,140           | \$ -                    | \$ 20,140  | \$ 20,140                            |           |
| Gardner | Gas Systems         | E.0010067.108 | CO Brighton CNG Rebuild               | Discrete     |                                |                                       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 19,636               | \$ 19,636  | \$ 19,636                            |           |
| Gardner | Gas Systems         | E.0000009.042 | High Plains Reg & Meter Install       | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | New Business              | Gas Distribution Plant        | \$ 3,643      | \$ -                | \$ -                    | \$ -       | \$ 3,643                             |           |
| Gardner | Gas Systems         | E.0010042.135 | CO/Dist/Western Div MtrReg S/n Hard   | Discrete     | Install Non-Trans Reg/Mtr Stat | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 17,451           | \$ 972                  | \$ 18,424  | \$ 18,424                            |           |
| Gardner | Gas Systems         | E.0000016.008 | US Gas Stor Trans Comp Stat EAST      | Discrete     | Gas Trans Compr Stat           |                                       | System Safety & Integrity | Gas Underground Storage Plant | \$ -          | \$ 18,414           | \$ -                    | \$ 18,414  | \$ 18,414                            |           |
| Gardner | Gas Systems         | E.0010047.065 | CO/BLDR/Meat/The Highlands Reinforc   | Discrete     | Main Reinforcement             |                                       | New Business              | Gas Distribution Plant        | \$ 1,849      | \$ -                | \$ -                    | \$ -       | \$ 1,849                             |           |
| Gardner | Gas Systems         | E.0010072.081 | CO/Ridgegate/East HP Main             | Discrete     | Gas Trans New Main             |                                       | New Business              | Gas Transmission Plant        | \$ 1,807      | \$ -                | \$ -                    | \$ -       | \$ 1,807                             |           |
| Gardner | Gas Systems         | E.0010074.340 | CO/Gas Dist/MR Sta/Denver Div Hdsco   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 16,267               | \$ 16,267  | \$ 16,267                            |           |
| Gardner | Gas Systems         | E.0010074.286 | CO/Brush/LB-34 Reg Station Build LB   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | LB-34 Reg Station Build               | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 15,913               | \$ 15,913  | \$ 15,913                            |           |
| Gardner | Gas Systems         | E.0010072.195 | CO/GTRAN-EAST Div Hardscaping         | Discrete     | Gas Trans Renewal              | Hardscaping                           | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 15,350               | \$ 15,350  | \$ 15,350                            |           |
| Gardner | Gas Systems         | E.0010074.337 | CO/Dist/Western DivMR S/n Hardscap    | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ 14,218           | \$ 972                  | \$ 15,190  | \$ 15,190                            |           |
| Gardner | Gas Systems         | E.0010042.148 | CO/GA D SYS-CO- Hardscaping           | Discrete     | Gas Trans New Main             | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 14,540               | \$ 14,540  | \$ 14,540                            |           |
| Gardner | Gas Systems         | E.0010074.367 | CO/GD-MR STA-BoulderDiv Hardscaping   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Hardscaping                           | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 14,339               | \$ 14,339  | \$ 14,339                            |           |
| Gardner | Gas Systems         | E.0010010.011 | Facilities to allow MAOP valid        | Discrete     | New Mains                      | MAOP                                  | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 17,930               | \$ 17,930  | \$ 17,930                            |           |
| Gardner | Gas Systems         | E.0000192.001 | CO/W-64-A Reg Swap                    | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 13,555               | \$ 13,555  | \$ 13,555                            |           |
| Gardner | Gas Systems         | E.0000008.041 | CO/Pueblo West/Distribution Reinfor   | Discrete     | Main Reinforcement             |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ 518        | \$ 1,204            | \$ -                    | \$ 1,204   | \$ 1,722                             |           |
| Gardner | Gas Systems         | E.0010074.382 | CO/NMTR/NF-43 Pilot Heater            | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 10,226           | \$ -                    | \$ 10,226  | \$ 10,226                            |           |
| Gardner | Gas Systems         | E.0010057.016 | Upsize pipe for Boulder 285# to inc   | Discrete     | Right of Way-Gas               |                                       | Capacity Expansion        | Gas Distribution Plant        | \$ 1,360      | \$ -                | \$ -                    | \$ -       | \$ 1,360                             |           |
| Gardner | Gas Systems         | E.0010072.173 | Install ERXs- Gas Trans Main - West   | Discrete     | Gas Trans Renewal              |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 10,201               | \$ 10,201  | \$ 10,201                            |           |
| Gardner | Gas Systems         | E.0010052.104 | CO/SWMP-F-642 Rebuild                 | Discrete     | Gas Comm Equip                 | Obsolete Regulators                   | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 9,964                | \$ 9,964   | \$ 9,964                             |           |
| Gardner | Gas Systems         | E.0000009.069 | MAOP for Transmission Reg SOUTH       | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | MAOP                                  | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 1,299            | \$ -                    | \$ 1,299   | \$ 1,299                             |           |
| Gardner | Gas Systems         | E.0010073.084 | CO/Mississippi Valve Replace South    | Discrete     | Gas Trans Renewal              | Inoperable Valves                     | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ -                | \$ 1,209                | \$ 1,209   | \$ 1,209                             |           |
| Gardner | Gas Systems         | E.0000012.004 | CO/LL/AGFP Dist Reg Stat BLDR Div     | Discrete     | Upgrade Non-Trans Reg/Mtr Stat | Above Ground Facility Protection      | System Safety & Integrity | Gas Distribution Plant        | \$ 1,086      | \$ -                | \$ -                    | \$ -       | \$ 1,086                             |           |
| Gardner | Gas Systems         | E.0010052.011 | CO/Meteorite Monitoring Units UG Gath | Discrete     | Gas Comm Equip                 |                                       | System Safety & Integrity | Gas General Plant             | \$ -          | \$ -                | \$ 789                  | \$ 789     | \$ 789                               |           |
| Gardner | Gas Systems         | E.0010074.356 | CO/RD-18 Pilot Heater                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 8,822            | \$ -                    | \$ 8,822   | \$ 8,822                             |           |
| Gardner | Gas Systems         | E.0010042.091 | CO/PBLO/Adams St & Bessemer Ditch B   | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,806                | \$ 8,806   | \$ 8,806                             |           |
| Gardner | Gas Systems         | E.0010074.095 | CO/SEMR/Install New RS to Replace 1   | Discrete     | Install Non-Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ 771        | \$ -                | \$ -                    | \$ -       | \$ 771                               |           |
| Gardner | Gas Systems         | E.0010042.096 | CO/PBLO/Thatcher Ave & Bessemer Dlt   | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,806                | \$ 8,806   | \$ 8,806                             |           |
| Gardner | Gas Systems         | E.0010042.097 | CO/PBLO/S Prairie Ave & Adam Bridge   | Discrete     | Main Renewal                   |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,806                | \$ 8,806   | \$ 8,806                             |           |
| Gardner | Gas Systems         | E.0010074.344 | CO/RD-28 Pilot Heater                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Transmission Plant        | \$ -          | \$ 8,422            | \$ -                    | \$ 8,422   | \$ 8,422                             |           |
| Gardner | Gas Systems         | E.0010074.348 | CO/Valkyr/F-1 Pilot Heater            | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,368                | \$ 8,368   | \$ 8,368                             |           |
| Gardner | Gas Systems         | E.0010074.388 | CO/SEMT/RIF-539 Pilot Heater          | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,367                | \$ 8,367   | \$ 8,367                             |           |
| Gardner | Gas Systems         | E.0010074.380 | CO/SWMT/RIF-595 Pilot Heater          | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,359                | \$ 8,359   | \$ 8,359                             |           |
| Gardner | Gas Systems         | E.0010074.381 | CO/NMTR/F-848 Pilot Heater            | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,331                | \$ 8,331   | \$ 8,331                             |           |
| Gardner | Gas Systems         | E.0010074.387 | F-528-M Pilot Heater                  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,293                | \$ 8,293   | \$ 8,293                             |           |
| Gardner | Gas Systems         | E.0010074.379 | CO/SWMT/RIF-583 Pilot Heater          | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,290                | \$ 8,290   | \$ 8,290                             |           |
| Gardner | Gas Systems         | E.0010074.383 | CO/MTR/F-589 Pilot Heater             | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                       | System Safety & Integrity | Gas Distribution Plant        | \$ -          | \$ -                | \$ 8,284                | \$ 8,284   | \$ 8,284                             |           |
| Gardner | Gas Systems         | E.0010074.385 | CO/SEMT/RIF-528-H Pilot Heater        |              |                                |                                       |                           |                               |               |                     |                         |            |                                      |           |

| Witness | Budget Organization     | Project ID    | Project Nbr Desc                     | Project Type | Expenditure Type               | Major Project                    | Major Category            | Func Class Descr               | 2023          |                     |                         | Total    | Total Additions Since 2021 Test Year |          |
|---------|-------------------------|---------------|--------------------------------------|--------------|--------------------------------|----------------------------------|---------------------------|--------------------------------|---------------|---------------------|-------------------------|----------|--------------------------------------|----------|
|         |                         |               |                                      |              |                                |                                  |                           |                                | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |          |                                      |          |
| Gardner | Gas Systems             | E.0010074.345 | CO/IRD-3 Pilot Heater                | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 8,265                | \$ -     | \$ 8,265                             | \$ 8,265 |
| Gardner | Gas Systems             | E.0010074.349 | CO/RF-1 Pilot Heater                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 8,265                | \$ -     | \$ 8,265                             | \$ 8,265 |
| Gardner | Gas Systems             | E.0010074.343 | CO/RG-1 Pilot Heater                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 8,136                | \$ -     | \$ 8,136                             | \$ 8,136 |
| Gardner | Gas Systems             | E.0010074.355 | CO/IR-1 Pilot Heater                 | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 8,044                | \$ -     | \$ 8,044                             | \$ 8,044 |
| Gardner | Gas Systems             | E.0010074.350 | CO/NMRN-43 Pilot Heater              | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 7,906                | \$ -     | \$ 7,906                             | \$ 7,906 |
| Gardner | Gas Systems             | E.0010074.357 | CO/IR-1A Pilot Heater                | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 7,605                | \$ -     | \$ 7,605                             | \$ 7,605 |
| Gardner | Gas Systems             | E.0010072.055 | CO/SEMR/6 Stroh Rd Lateral           | Discrete     | Gas Trans New Main             |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ 599        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 599   |
| Gardner | Gas Systems             | E.0000006.020 | 2912 - Southeast Metro - Main        | Routine      | Main Relocation                | Main Relocation Routine          | Mandatory Relocation      | Gas Distribution Plant         | \$ -          | \$ -                | \$ -                    | \$ 475   | \$ -                                 | \$ 475   |
| Gardner | Gas Systems             | E.0010057.002 | Stroh Rd HP Reinforcement            | Discrete     | Gas Trans New Main             |                                  | Capacity Expansion        | Gas Transmission Plant         | \$ 464        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 464   |
| Gardner | Gas Systems             | E.0010079.055 | CO/Roundup Well #14/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ -                    | \$ 6,729 | \$ -                                 | \$ 6,729 |
| Gardner | Gas Systems             | E.0010074.417 | CO/DNV RBLD/GPCE OBS REG STA 153     | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Regulators              | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ -                    | \$ 6,708 | \$ -                                 | \$ 6,708 |
| Gardner | Gas Systems             | E.0010079.048 | CO/Roundup Well #21/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,854                | \$ 840   | \$ 6,695                             | \$ 6,695 |
| Gardner | Gas Systems             | E.0000009.014 | CO Trans Reg Mtr Stations - WEST     | Discrete     | Install Gas Trans Reg/Mtr Stat |                                  | New Business              | Gas Transmission Plant         | \$ 1,745      | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 1,745 |
| Gardner | Gas Systems             | E.0000012.022 | Above Ground-(Retro)Reg Sta-Pr       | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ 417        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 417   |
| Gardner | Gas Systems             | E.0000047.003 | Del Norte to Alamosa MAOP Dist Main  | Discrete     | Main Renewal                   | MAOP                             | System Safety & Integrity | Gas Distribution Plant         | \$ 417        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 417   |
| Gardner | Gas Systems             | E.0010074.144 | CO/Hm/Henderson Mine RCV install     | Discrete     | Upgrade Non-Trans Reg/Mtr Stat | ASV/RVCV                         | System Safety & Integrity | Gas Distribution Plant         | \$ (3,774)    | \$ 4,190            | \$ -                    | \$ 4,190 | \$ -                                 | \$ 416   |
| Gardner | Gas Systems             | E.0000009.084 | GC & H2O EQUIP COMP STA WEST D       | Discrete     | Gas Tools And Equip            |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 388                  | \$ -     | \$ 388                               | \$ 388   |
| Gardner | Gas Systems             | E.0000036.004 | Tungsten to Blackhawk - Reg Sta      | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                  | Capacity Expansion        | Gas Transmission Plant         | \$ 385        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 385   |
| Gardner | Gas Systems             | E.0000005.001 | COGD New Services-CO                 | Routine      | New Services                   | New Services Routine             | New Business              | Gas Distribution Plant         | \$ 252        | \$ 167              | \$ -                    | \$ -     | \$ -                                 | \$ 419   |
| Gardner | Gas Systems             | E.0010079.054 | CoRoundup Well #01/Replace Burner    | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ -                    | \$ 5,586 | \$ -                                 | \$ 5,586 |
| Gardner | Distribution Operations | A.0005014.079 | Furniture @ Various SC's             | Discrete     | Tools-Common                   |                                  | System Safety & Integrity | Common General Plant           | \$ -          | \$ -                | \$ 315                  | \$ -     | \$ 315                               | \$ 315   |
| Gardner | Gas Systems             | E.0010079.056 | CoRoundup Well #19/Replace Burner    | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ -                    | \$ 5,548 | \$ -                                 | \$ 5,548 |
| Gardner | Gas Systems             | E.0010079.052 | CoRoundup Well #10/Replace Burner    | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,543                | \$ -     | \$ 5,543                             |          |
| Gardner | Gas Systems             | E.0010079.057 | CoRoundup Well #11/Replace Burner    | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,529                | \$ -     | \$ 5,529                             |          |
| Gardner | Gas Systems             | E.0010079.051 | CoRoundup Well #17/Replace Burner    | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,525                | \$ -     | \$ 5,525                             |          |
| Gardner | Gas Systems             | E.0000103.001 | CO/DMR/5020 Ivy St Reinforcement     | Discrete     | Main Reinforcement             |                                  | New Business              | Gas Distribution Plant         | \$ -          | \$ -                | \$ 1,003                | \$ -     | \$ 1,003                             |          |
| Gardner | Gas Systems             | E.0010079.058 | CO/Roundup Well #32/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,487                | \$ -     | \$ 5,487                             |          |
| Gardner | Gas Systems             | E.0010079.050 | CO/Roundup Well #26/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,418                | \$ -     | \$ 5,418                             |          |
| Gardner | Gas Systems             | E.0010079.049 | CO/Roundup Well #22/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,218                | \$ -     | \$ 5,218                             |          |
| Gardner | Gas Systems             | E.0010079.053 | CO/Roundup Well #31/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 5,211                | \$ -     | \$ 5,211                             |          |
| Gardner | Gas Systems             | E.0010074.368 | CO/RBL/DIE-104 Valve Replace         | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 5,162                | \$ -     | \$ 5,162                             |          |
| Gardner | Gas Systems             | E.0010052.016 | Install ERXs on D/M/R Western        | Discrete     | Gas Comm Equip                 |                                  | System Safety & Integrity | Gas General Plant              | \$ 311        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 311   |
| Gardner | Gas Systems             | E.0010032.043 | CO/DMSW/F278/PM Reinf Main           | Discrete     | New Mains                      |                                  | Capacity Expansion        | Gas Distribution Plant         | \$ -          | \$ -                | \$ 290                  | \$ -     | \$ 290                               |          |
| Gardner | Gas Systems             | E.0010079.059 | CO/Roundup Well #28/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 4,557                | \$ -     | \$ 4,557                             |          |
| Gardner | Gas Systems             | E.0010079.061 | CO/Roundup Well #20/Replace Burner   | Discrete     | Gas Storage Facilities         |                                  | System Safety & Integrity | Gas Underground Storage Plant  | \$ -          | \$ -                | \$ 3,741                | \$ -     | \$ 3,741                             |          |
| Gardner | Gas Systems             | E.0000175.002 | CO/RVCV/Chattfield-Wadsworth VS      | Discrete     | Main Renewal                   | ASV/RVCV                         | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 3,674                | \$ -     | \$ 3,674                             |          |
| Gardner | Gas Systems             | E.0010072.072 | Install automation to shut valves    | Discrete     | Gas Trans Renewal              | ASV/RVCV                         | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ 263              | \$ -                    | \$ 263   | \$ 263                               |          |
| Gardner | Gas Systems             | E.0010074.142 | F-927 4th and Salvia, Golden CO      | Discrete     | Install Gas Trans Reg/Mtr Stat |                                  | New Business              | Gas Transmission Plant         | \$ 347        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 347   |
| Gardner | Gas Systems             | E.0010082.005 | CO/Grand Junction/Hunter Compressor  | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Gathering Production Plant | \$ -          | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 234   |
| Gardner | Gas Systems             | E.0000005.012 | New Gas Services - Front Range       | Routine      | New Services                   | New Services Routine             | New Business              | Gas Distribution Plant         | \$ -          | \$ -                | \$ 227                  | \$ -     | \$ 227                               |          |
| Gardner | Gas Systems             | E.0010074.319 | CO/SB-6/Obsolete Regs/Gas Eng Take   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 1,652                | \$ -     | \$ 1,652                             |          |
| Gardner | Gas Systems             | E.0010079.038 | CO/Meeker/Antelope Wells Lateral Ab  | Discrete     | Gas Trans Renewal              |                                  | System Safety & Integrity | Gas Gathering Production Plant | \$ -          | \$ -                | \$ 220                  | \$ -     | \$ 220                               |          |
| Gardner | Gas Systems             | E.0010042.125 | CO/East/Trans Main/Hardscaping Inst  | Discrete     | Gas Trans New Main             | Hardscaping                      | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 1,566                | \$ -     | \$ 1,566                             |          |
| Gardner | Gas Systems             | E.0010074.154 | CO/AKA/Rebuild Interconnect-Rebuild  | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ 204        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 204   |
| Gardner | Gas Systems             | E.0000023.012 | ROW for MAOP TRANS Main EAST D       | Discrete     | Gas Trans Right of Way         | MAOP                             | System Safety & Integrity | Gas Transmission Plant         | \$ 200        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 200   |
| Gardner | Gas Systems             | A.0005014.038 | Install New Regulator Station 184    | Discrete     | Install Non-Trans Reg/Mtr Stat | PSCo Central 70 Project          | Mandatory Relocation      | Gas Distribution Plant         | \$ -          | \$ 135              | \$ -                    | \$ -     | \$ -                                 | \$ 135   |
| Gardner | Gas Systems             | E.0010074.248 | CO/For Collins/Leaking Bypass Valv   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 1,065                | \$ -     | \$ 1,065                             |          |
| Gardner | Gas Systems             | E.0010074.392 | CO/PBLX-88 New Reg Station RTU       | Discrete     | Gas Comm Equip                 |                                  | System Safety & Integrity | Gas General Plant              | \$ -          | \$ -                | \$ 996                  | \$ -     | \$ 996                               |          |
| Gardner | Gas Systems             | E.0010032.108 | CO/SWMR/LOP/LIT/SOLSTICE F4 PH 2/GD  | Discrete     | New Mains                      |                                  | New Business              | Gas Distribution Plant         | \$ -          | \$ -                | \$ 46                   | \$ -     | \$ 46                                |          |
| Gardner | Gas Systems             | E.0000012.008 | Install AGFP Dist Reg Station SLV D  | Discrete     | Upgrade Non-Trans Reg/Mtr Stat | Above Ground Facility Protection | System Safety & Integrity | Gas Distribution Plant         | \$ 116        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 116   |
| Gardner | Gas Systems             | E.0000091.006 | CO/900-1090 S Quince St              | Discrete     | Main Renewal                   | DIMP Programmatic                | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 974                  | \$ -     | \$ 974                               |          |
| Gardner | Gas Systems             | E.0010047.023 | CO/HPI/Reinf/Fort Morgan/Reinforce   | Discrete     | Main Reinforcement             |                                  | Capacity Expansion        | Gas Distribution Plant         | \$ -          | \$ 107              | \$ -                    | \$ -     | \$ -                                 | \$ 107   |
| Gardner | Gas Systems             | E.0000012.015 | Install AGFP Dist Reg Stat Platte V  | Discrete     | Upgrade Non-Trans Reg/Mtr Stat | Above Ground Facility Protection | System Safety & Integrity | Gas Distribution Plant         | \$ 85         | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 85    |
| Gardner | Gas Systems             | E.0010074.288 | CO/IR/IR RD-10/Upgrades/Gas Eng Take | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 832                  | \$ -     | \$ 832                               |          |
| Gardner | Gas Systems             | E.0010074.069 | Stroh Rd HP Reinforcement            | Discrete     | Install Non-Trans Reg/Mtr Stat |                                  | Capacity Expansion        | Gas Distribution Plant         | \$ -          | \$ -                | \$ -                    | \$ 75    | \$ -                                 | \$ 75    |
| Gardner | Gas Systems             | E.0010042.086 | CO/DMR/PP-30 Cut Off/Station Cut Of  | Discrete     | Service RmW/Cutoff             |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ 74         | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 74    |
| Gardner | Gas Systems             | A.000514.012  | DMR Central L-70 Renewal             | Discrete     | Service RmW/Cutoff             | PSCo Central 70 Project          | Mandatory Relocation      | Gas Distribution Plant         | \$ 18         | \$ -                | \$ 48                   | \$ -     | \$ 48                                | \$ 67    |
| Gardner | Gas Systems             | E.0010074.135 | CO/SWMR/Replace Aboveground Piping   | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ 65               | \$ -                    | \$ 65    | \$ -                                 | \$ 65    |
| Gardner | Gas Systems             | E.0010037.029 | CO/GJ/Broadway Main Relocation CDOT  | Discrete     | Main Relocation                |                                  | Mandatory Relocation      | Gas Distribution Plant         | \$ 57         | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 57    |
| Gardner | Gas Systems             | E.0010074.041 | CO/SWMR/F-768 Regulator Stn          | Discrete     | Main Reinforcement             |                                  | Capacity Expansion        | Gas Distribution Plant         | \$ -          | \$ 7                | \$ -                    | \$ -     | \$ -                                 | \$ 7     |
| Gardner | Gas Systems             | E.0010074.397 | CO/NMRN-43 Pilot Heater-Corrected    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ 719                  | \$ -     | \$ 719                               |          |
| Gardner | Gas Systems             | E.0010072.105 | CO/Silverthorn/Vail Roundabout Rero  | Discrete     | Gas Trans New Main             |                                  | New Business              | Gas Transmission Plant         | \$ 0          | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ 0     |
| Gardner | Gas Systems             | E.0000014.014 | Gas Tran Mtr Stat ROW Easement EAST  | Discrete     | Gas Trans Right of Way         |                                  | New Business              | Gas Transmission Plant         | \$ (0)        | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ (0)   |
| Gardner | Gas Systems             | E.0010074.171 | CO/BLDR/BROOME-80 Cut Off/Station    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 592                  | \$ -     | \$ 592                               |          |
| Gardner | Gas Systems             | E.0010052.059 | CO/Bristol 3305 RTU-Hunter           | Discrete     | Gas Comm Equip                 |                                  | System Safety & Integrity | Gas General Plant              | \$ -          | \$ -                | \$ 24                   | \$ -     | \$ 24                                |          |
| Gardner | Gas Systems             | E.0010067.055 | CO/Replace 5th stage compressor      | Discrete     | Gas Processing Equipment       |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ 22               | \$ -                    | \$ 22    | \$ -                                 | \$ 22    |
| Gardner | Gas Systems             | E.0000024.028 | Comm Eq Gas Dist MTR Sta Denver Div  | Discrete     | Gas Gathering                  |                                  | System Safety & Integrity | Gas General Plant              | \$ -          | \$ -                | \$ 12                   | \$ -     | \$ 12                                |          |
| Gardner | Gas Systems             | E.0010074.294 | CO/Edwards/MS (RA-4-A) Control Valv  | Discrete     | Gas Trans Reinforce            |                                  | Capacity Expansion        | Gas Transmission Plant         | \$ -          | \$ 0                | \$ -                    | \$ 0     | \$ -                                 | \$ 0     |
| Gardner | Gas Systems             | E.0010072.192 | CO/Trans main/Southern Division Har  | Discrete     | Gas Trans Renewal              |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 583                  | \$ -     | \$ 583                               |          |
| Gardner | Gas Systems             | E.0010074.201 | CO/EDCF-465-Odorant Contamination    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Odorizers               | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ 1                    | \$ -     | \$ 1                                 |          |
| Gardner | Gas Systems             | E.0000015.001 | CO/GP/Ferrous Renewals-Gas CO        | Discrete     | Gas Comm Equip                 |                                  | System Safety & Integrity | Gas Intangible Plant           | \$ -          | \$ 383              | \$ -                    | \$ 383   | \$ -                                 | \$ 383   |
| Gardner | Gas Systems             | E.0010072.071 | CO/Shorted Casings Transmission East | Discrete     | Gas Trans Renewal              | Shorted Casings                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ 0                | \$ -                    | \$ -     | \$ -                                 | \$ 0     |
| Gardner | Gas Systems             | A.0006059.073 | Install Gas Leak Training Center at  | Discrete     | Gas Tools And Equip            |                                  | System Safety & Integrity | Common General Plant           | \$ -          | \$ 0                | \$ -                    | \$ -     | \$ -                                 | \$ 0     |
| Gardner | Gas Systems             | E.0010047.001 | CO/SEMR/F-670 Main Reinforcements    | Discrete     | Main Reinforcement             |                                  | Capacity Expansion        | Gas Distribution Plant         | \$ -          | \$ -                | \$ 0                    | \$ -     | \$ 0                                 |          |
| Gardner | Gas Systems             | E.0000009.002 | CO Trans Reg & Mtr Stations SOUTH    | Discrete     | Install Gas Trans Reg/Mtr Stat |                                  | New Business              | Gas Transmission Plant         | \$ -          | \$ -                | \$ (62)                 | \$ -     | \$ (62)                              |          |
| Gardner | Gas Systems             | E.0010072.077 | RD-6-A Dillon Valley Trans Reinforc  | Discrete     | Gas Trans Reinforce            | RD-6-A Dillon Valley Rebuild     | Capacity Expansion        | Gas Transmission Plant         | \$ -          | \$ -                | \$ -                    | \$ 0     | \$ -                                 | \$ 0     |
| Gardner | Gas Systems             | E.0010032.076 | CO/GT/WY/Aurora Highlands Ph1A/GD    | Discrete     | New Mains                      | Aurora Highlands Development     | New Business              | Gas Distribution Plant         | \$ (883)      | \$ -                | \$ -                    | \$ -     | \$ -                                 | \$ (883) |
| Gardner | Gas Systems             | E.0010072.133 | CO/HGPE Hubbard Mesa to New Castle   | Discrete     | Gas Trans Renewal              |                                  | System Safety & Integrity | Gas Transmission Plant         | \$ -          | \$ -                | \$ (0)                  | \$ -     | \$ (0)                               |          |
| Gardner | Gas Systems             | E.0010074.156 | CO/GP/Ferrous Renewals-Gas CO        | Discrete     | Gas Tools And Equip            | Obsolete Odorizers               | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ (0)              | \$ -                    | \$ -     | \$ (0)                               |          |
| Gardner | Gas Systems             | E.0010082.003 | CO/Replace RTU panel at Watkins      | Discrete     | Gas Processing Equipment       |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ (0)                  | \$ -     | \$ (0)                               |          |
| Gardner | Gas Systems             | E.0010042.024 | CO/DNVM/Cherokee/Inst Block Valve    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |                                  | System Safety & Integrity | Gas Distribution Plant         | \$ -          | \$ -                | \$ (0)                  | \$ -     | \$ (0)                               |          |
| Gardner |                         |               |                                      |              |                                |                                  |                           |                                |               |                     |                         |          |                                      |          |

| Witness | Budget Organization | Project ID    | Project Nbr Desc                       | Project Type | Expenditure Type               | Major Project                          | Major Category            | Func Class Descr                | 2023          |                     |                         | Total        | Total Additions Since 2021 Test Year |
|---------|---------------------|---------------|--|--------------|--------------------------------|--|---------------------------|---------------------------------|---------------|---------------------|-------------------------|--------------|--------------------------------------|
|         |                     |               |  |              |                                |  |                           |                                 | 2022 (Actual) | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |              |                                      |
| Gardner | Gas Systems         | E.0000007.037 | Dist/ Valves Replacement Progr         | Discrete     | Main Renewal                   |  | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (45)             | \$ -                    | \$ (45)      | \$ (45)                              |
| Gardner | Gas Systems         | E.0010032.005 | CO/MOUN/Silverthorne/Widemest (RD      | Discrete     | New Mains                      |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (183)            | \$ -                    | \$ (183)     | \$ (183)                             |
| Gardner | Gas Systems         | E.0000210.001 | COMTN/KUNZ/AVON/38460 HIGHWAY 6/GD     | Discrete     | Main Reinforcement             |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (3,998)              | \$ (3,998)   | \$ (3,998)                           |
| Gardner | Gas Systems         | E.0010047.078 | CO/WNTN/Writer Park/Winter Park Re     | Discrete     | Main Reinforcement             |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (77)             | \$ -                    | \$ (77)      | \$ (77)                              |
| Gardner | Gas Systems         | E.0010032.110 | CO/P-16/Regulator Stn Rebuild Main     | Discrete     | Non-Trans Reg/Mtr Stat         |  | System Safety & Integrity | Gas Distribution Plant          | \$ (1,337)    | \$ 1,256            | \$ -                    | \$ (81)      | \$ (81)                              |
| Gardner | Gas Systems         | E.0000007.018 | Main Renewal                           | Routine      | Main Renewal Routine           |  | System Safety & Integrity | Gas Distribution Plant          | \$ (107)      | \$ -                | \$ -                    | \$ (107)     | \$ (107)                             |
| Gardner | Gas Systems         | E.0010047.015 | CO/SEMR/F481 & F872/ IP Reinforce      | Discrete     | Main Reinforcement             |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (115)            | \$ -                    | \$ (115)     | \$ (115)                             |
| Gardner | Gas Systems         | E.0010067.054 | CO/Ordard Mesa Instrument Air Repla    | Discrete     | Gas Processing Equipment       | Hardscaping                            | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (115)            | \$ -                    | \$ (115)     | \$ (115)                             |
| Gardner | Gas Systems         | E.0010047.043 | CO/BLDR/ERIE/Ernie Highlands Reinf     | Discrete     | Main Reinforcement             |  | New Business              | Gas Distribution Plant          | \$ (59,782)   | \$ -                | \$ -                    | \$ (59,782)  | \$ (59,782)                          |
| Gardner | Gas Systems         | E.0000040.002 | Install Lancaster Trans Reg Station    | Discrete     | Install Gas Trans Reg/Mtr Stat |  | Capacity Expansion        | Gas Transmission Plant          | \$ -          | \$ (176)            | \$ -                    | \$ (176)     | \$ (176)                             |
| Gardner | Gas Systems         | E.0010032.145 | CO/SEMR/CAL/LT/SOUTHWEST VILLAGE F1    | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (67,745)             | \$ (67,745)  | \$ (67,745)                          |
| Gardner | Gas Systems         | E.0010072.078 | CO/Meeker/Howelsen Hill Road Groun     | Discrete     | Gas Trans Relocation           |  | Mandatory Relocation      | Gas Transmission Plant          | \$ -          | \$ (357)            | \$ -                    | \$ (357)     | \$ (357)                             |
| Gardner | Gas Systems         | E.0010084.003 | Gas Prod-Comp Sta-CO-WestDiv-Hunter    | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Gathering Production Plant  | \$ -          | \$ -                | \$ (376)                | \$ (376)     | \$ (376)                             |
| Gardner | Gas Systems         | E.0010072.067 | CO/Salida/Marshall Pass shallow HP     | Discrete     | Gas Trans Renewal              |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (458)            | \$ -                    | \$ (458)     | \$ (458)                             |
| Gardner | Gas Systems         | E.0000012.002 | Replace Sta Control - West Div         | Discrete     | Gas Processing Equipment       |  | System Safety & Integrity | Gas Extraction Production Plant | \$ -          | \$ (629)            | \$ -                    | \$ (629)     | \$ (629)                             |
| Gardner | Gas Systems         | E.0000012.002 | Install AGFP Dist Reg Stat Western     | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (662)            | \$ -                    | \$ (662)     | \$ (662)                             |
| Gardner | Gas Systems         | E.0000023.023 | Replace Obsolete Trans PSCo Re         | Discrete     | Rebuild Gas Trans Reg/Mtr Stat | Obsolete Regulators                    | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (768)            | \$ -                    | \$ (768)     | \$ (768)                             |
| Gardner | Gas Systems         | E.0000179.001 | CO/DMR/Bal/DEN/3601BrightonBlvdMain    | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (140,906)            | \$ (140,906) | \$ (140,906)                         |
| Gardner | Gas Systems         | E.0010074.094 | CO/SEMR/Rebuild 125-P                  | Discrete     | Install Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ (944)      | \$ -                | \$ -                    | \$ (944)     | \$ (944)                             |
| Gardner | Gas Systems         | E.0010037.012 | CO/SWMR/US 85 CDOT Gas Main Reloc      | Discrete     | Main Relocation                |  | Mandatory Relocation      | Gas Distribution Plant          | \$ (1,057)    | \$ -                | \$ -                    | \$ (1,057)   | \$ (1,057)                           |
| Gardner | Gas Systems         | E.0000018.025 | MAOP for Transmission Main SOUTH       | Discrete     | Gas Trans New Main             | MAOP                                   | System Safety & Integrity | Gas Transmission Plant          | \$ (1,103)    | \$ -                | \$ -                    | \$ (1,103)   | \$ (1,103)                           |
| Gardner | Gas Systems         | E.0010084.008 | GasProd-Gain Sys-COWestDiv-BaxCar-H    | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Gathering Production Plant  | \$ -          | \$ (709)            | \$ (457)                | \$ (1,166)   | \$ (1,166)                           |
| Gardner | Gas Systems         | E.0000017.017 | Install AGFP Dist Reg Station High     | Discrete     | Upgrade Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (1,325)          | \$ -                    | \$ (1,325)   | \$ (1,325)                           |
| Gardner | Gas Systems         | E.0000050.001 | CO/COLUP/27th and Blake SJMR           | Discrete     | Main Reinforcement             | 27th St and Blake St Couple IP Project | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (1,347)          | \$ -                    | \$ (1,347)   | \$ (1,347)                           |
| Gardner | Gas Systems         | E.0010032.173 | CO/NB/BLDR/LOPLON/9880 UTE HWY/GDR     | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (142,082)            | \$ (142,082) | \$ (142,082)                         |
| Gardner | Gas Systems         | E.0010084.006 | Gas Prod-Well-COWestDiv-BaxterGov1     | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Gathering Production Plant  | \$ -          | \$ -                | \$ (1,477)              | \$ (1,477)   | \$ (1,477)                           |
| Gardner | Gas Systems         | E.0000075.001 | CO/BLDR/SUNSET-INSTL F1/GD             | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (182,442)            | \$ (182,442) | \$ (182,442)                         |
| Gardner | Gas Systems         | E.0010074.093 | CO/SEMR/Rebuild 125-E, 125-P, 125-Q    | Discrete     | Install Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ (1,823)    | \$ -                | \$ -                    | \$ (1,823)   | \$ (1,823)                           |
| Gardner | Gas Systems         | E.0000157.001 | CO/SEMTR/Tallman Gulch F1 Main Inst    | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (210,998)            | \$ (210,998) | \$ (210,998)                         |
| Gardner | Gas Systems         | E.0010032.086 | Stroh Rd HP Reinforcement              | Discrete     | New Mains                      |  | Capacity Expansion        | Gas Distribution Plant          | \$ (2,006)    | \$ -                | \$ -                    | \$ (2,006)   | \$ (2,006)                           |
| Gardner | Gas Systems         | E.0000089.002 | CO/20th Southeast Metro MAOP Projec    | Discrete     | Main Renewal                   | 20' Southeast Metro MAOP               | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ -                | \$ (1,945)              | \$ (1,945)   | \$ (1,945)                           |
| Gardner | Gas Systems         | E.0000183.001 | CO/NB/NMR/WIS/COM/TURNBERRY FS/GD      | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (234,690)            | \$ (234,690) | \$ (234,690)                         |
| Gardner | Gas Systems         | E.0010032.163 | CO/SWMR/DRU/LT/STERLING RANCH F6B/     | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (269,880)            | \$ (269,880) | \$ (269,880)                         |
| Gardner | Gas Systems         | E.0000009.034 | Replace Obsolete Dist Regs Pueblo      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Regulators                    | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (2,368)          | \$ -                    | \$ (2,368)   | \$ (2,368)                           |
| Gardner | Gas Systems         | E.0010074.123 | CO/Install a Glycol Heater at Beave    | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Transmission Plant          | \$ (2,961)    | \$ -                | \$ -                    | \$ (2,961)   | \$ (2,961)                           |
| Gardner | Gas Systems         | E.0000056.004 | Granby T-O to YMCA VS 6" Gas Rebuild   | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |  | Capacity Expansion        | Gas Transmission Plant          | \$ -          | \$ (2,999)          | \$ -                    | \$ (2,999)   | \$ (2,999)                           |
| Gardner | Gas Systems         | E.0010072.109 | CO/Grand Junction/US Clifton Reloc     | Discrete     | Gas Trans Relocation           | GJ/UE Clifton Relocation               | Mandatory Relocation      | Gas Transmission Plant          | \$ 0          | \$ (3,232)          | \$ -                    | \$ (3,232)   | \$ (3,232)                           |
| Gardner | Gas Systems         | E.0010079.037 | CO/Overhaul Union Unit 3               | Discrete     | Gas Storage Facilities         |  | System Safety & Integrity | Gas Underground Storage Plant   | \$ (6,769)    | \$ 3,526            | \$ -                    | \$ (3,243)   | \$ (3,243)                           |
| Gardner | Gas Systems         | E.0010067.045 | CO/SOUTH/Fuel Shutoff Williams Fork    | Discrete     | Gas Trans Compr Stat           |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (3,750)          | \$ -                    | \$ (3,750)   | \$ (3,750)                           |
| Gardner | Gas Systems         | E.0010052.088 | CO/West/Henderson Mine RCV install     | Discrete     | Gas Comm Equip                 | ASV/RCV                                | System Safety & Integrity | Gas General Plant               | \$ -          | \$ (4,110)          | \$ -                    | \$ (4,110)   | \$ (4,110)                           |
| Gardner | Gas Systems         | E.0010032.185 | CO/TTC/Bloom Filing 1/New Business     | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (288,042)            | \$ (288,042) | \$ (288,042)                         |
| Gardner | Gas Systems         | E.0010074.187 | CO/WN-B/A-Meeker Line Heater Instal    | Discrete     | Upgrade Gas Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Transmission Plant          | \$ (4,699)    | \$ -                | \$ -                    | \$ (4,699)   | \$ (4,699)                           |
| Gardner | Gas Systems         | E.0000154.001 | CO/NB/Bloom Reinforce F2/3             | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ -                | \$ (362,033)            | \$ (362,033) | \$ (362,033)                         |
| Gardner | Gas Systems         | E.0010047.077 | CO/Alamosa/PL System Reinforcement     | Discrete     | Main Reinforcement             |  | Capacity Expansion        | Gas Distribution Plant          | \$ (5,866)    | \$ -                | \$ -                    | \$ (5,866)   | \$ (5,866)                           |
| Gardner | Gas Systems         | E.0000012.013 | Capitalized Locating Costs-Gas         | Discrete     | Facility Locates-Gas           | Capitalized Locates                    | System Safety & Integrity | Gas Distribution Plant          | \$ (8,725)    | \$ -                | \$ -                    | \$ (8,725)   | \$ (8,725)                           |
| Gardner | Gas Systems         | E.0010067.036 | Chalk Bluffs Filter Sep Upgrade        | Discrete     | Gas Trans Compr Stat           |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (9,136)          | \$ -                    | \$ (9,136)   | \$ (9,136)                           |
| Gardner | Gas Systems         | E.0010084.002 | GasExtr-GasRec Pir-CO-WestDiv-Baxte    | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Extraction Production Plant | \$ -          | \$ (9,702)          | \$ (9,136)              | \$ (18,838)  | \$ (18,838)                          |
| Gardner | Gas Systems         | E.0010052.044 | CO/SWMR/Rebuild F-87B                  | Discrete     | Gas Comm Equip                 |  | System Safety & Integrity | Gas General Plant               | \$ (12,354)   | \$ 844              | \$ -                    | \$ (11,510)  | \$ (11,510)                          |
| Gardner | Gas Systems         | E.0010074.113 | CO/SWMR/US 85 CDOT Gas Relocation L    | Discrete     | Install Non-Trans Reg/Mtr Stat |  | Mandatory Relocation      | Gas Distribution Plant          | \$ 657        | \$ (12,499)         | \$ -                    | \$ (11,842)  | \$ (11,842)                          |
| Gardner | Gas Systems         | E.0010084.007 | Gas Tran-Comp Sta-CO-WestDiv-Baxter    | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (18,086)         | \$ -                    | \$ (18,086)  | \$ (18,086)                          |
| Gardner | Gas Systems         | E.0010079.025 | CO/Replace valves at Roundup           | Discrete     | Gas Storage Facilities         |  | System Safety & Integrity | Gas Underground Storage Plant   | \$ 11,293     | \$ (33,231)         | \$ -                    | \$ (21,938)  | \$ (21,938)                          |
| Gardner | Gas Systems         | E.0000009.031 | Replace Obsolete Dist Regs SLV Div     | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Regulators                    | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (28,513)         | \$ 3,911                | \$ (24,602)  | \$ (24,602)                          |
| Gardner | Gas Systems         | E.0010047.059 | CO-Gas Capacity/Main Reinforcement J   | Discrete     | Main Reinforcement             |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (27,211)         | \$ -                    | \$ (27,211)  | \$ (27,211)                          |
| Gardner | Gas Systems         | E.0000007.014 | 2913 - Southwest Metro - Main          | Routine      | Main Renewal Routine           |  | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ (27,233)         | \$ -                    | \$ (27,233)  | \$ (27,233)                          |
| Gardner | Gas Systems         | E.0010067.044 | CO/EAST/Replace Marshall CS Gen Sep    | Discrete     | Gas Trans Compr Stat           |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (29,965)         | \$ -                    | \$ (29,965)  | \$ (29,965)                          |
| Gardner | Gas Systems         | E.0010047.081 | CO/NMNTN/Grand Lake/RG-9 Reinforcement | Discrete     | Main Reinforcement             |  | Capacity Expansion        | Gas Distribution Plant          | \$ (2,797)    | \$ (31,628)         | \$ -                    | \$ (34,425)  | \$ (34,425)                          |
| Gardner | Gas Systems         | A.0001431.006 | CO/DVR/Net Western Gas Rebuild 187     | Discrete     | Install Non-Trans Reg/Mtr Stat | National Western Center Redevelopment  | Mandatory Relocation      | Gas Distribution Plant          | \$ 241,210    | \$ 22,127           | \$ (298,233)            | \$ (34,896)  | \$ (34,896)                          |
| Gardner | Gas Systems         | E.0010037.048 | CO/Tiffleton/F-759 Fire Valve Rebuil   | Discrete     | Main Relocation                |  | Mandatory Relocation      | Gas Distribution Plant          | \$ (36,703)   | \$ 1,339            | \$ -                    | \$ (35,364)  | \$ (35,364)                          |
| Gardner | Gas Systems         | E.0000007.001 | CO/GD Main Renewal-CO                  | Routine      | Main Renewal Routine           |  | System Safety & Integrity | Gas Distribution Plant          | \$ 19         | \$ (35,538)         | \$ (326)                | \$ (35,864)  | \$ (35,864)                          |
| Gardner | Gas Systems         | E.0010074.166 | CO/Sterling/Rebuild LB-5 Reg Station   | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ -          | \$ -                | \$ (39,014)             | \$ (39,014)  | \$ (39,014)                          |
| Gardner | Gas Systems         | E.0010074.138 | CO/JM Shafer Plant MS Rebuild          | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Transmission Plant          | \$ -          | \$ (41,131)         | \$ -                    | \$ (41,131)  | \$ (41,131)                          |
| Gardner | Gas Systems         | E.0000009.087 | CO/Pueblo West/Dist Reinforcement      | Discrete     | Install Non-Trans Reg/Mtr Stat |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (43,065)         | \$ -                    | \$ (43,065)  | \$ (43,065)                          |
| Gardner | Gas Systems         | E.0000056.005 | Granby T-O to YMCA VS 6" Rebuild Re    | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |  | Capacity Expansion        | Gas Distribution Plant          | \$ -          | \$ (46,144)         | \$ -                    | \$ (46,144)  | \$ (46,144)                          |
| Gardner | Gas Systems         | E.0010074.167 | CO/P-16/Regulator Station Rebuild      | Discrete     | Rebuild Non-Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Distribution Plant          | \$ (35,239)   | \$ (12,771)         | \$ -                    | \$ (48,010)  | \$ (48,010)                          |
| Gardner | Gas Systems         | E.0010074.057 | Rid Obsolete Cdr Pump Sheep Draw       | Discrete     | Other-Gas                      |  | System Safety & Integrity | Gas Transmission Plant          | \$ (88,578)   | \$ 33,347           | \$ -                    | \$ (55,231)  | \$ (55,231)                          |
| Gardner | Gas Systems         | E.0010074.158 | CO/Boulder/IBM Meter Station           | Discrete     | Rebuild Non-Trans Reg/Mtr Stat | Obsolete Odorizers                     | System Safety & Integrity | Gas Distribution Plant          | \$ 10,699     | \$ (66,462)         | \$ -                    | \$ (55,763)  | \$ (55,763)                          |
| Gardner | Gas Systems         | E.0010074.049 | CO/SEMR/F481 & F872/ IP Reg Install    | Discrete     | Install Non-Trans Reg/Mtr Stat |  | New Business              | Gas Distribution Plant          | \$ (18)       | \$ (102)            | \$ -                    | \$ (120)     | \$ (120)                             |
| Gardner | Gas Systems         | E.0010032.104 | CO/NMR/LC/FOR/COUNTY RD 29 1/2/GD      | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ (4,666)    | \$ (211)            | \$ -                    | \$ (4,877)   | \$ (4,877)                           |
| Gardner | Gas Systems         | E.0000009.043 | Mountain Reg & Meter Install           | Discrete     | Install Non-Trans Reg/Mtr Stat |  | New Business              | Gas Distribution Plant          | \$ -          | \$ (308)            | \$ -                    | \$ (308)     | \$ (308)                             |
| Gardner | Gas Systems         | E.0010032.122 | CO/NOR/RIC/FTC/6015 S TIMBERLINE RD    | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ 31,555     | \$ (1,173)          | \$ -                    | \$ (1,173)   | \$ (1,173)                           |
| Gardner | Gas Systems         | E.0010079.034 | CO/Roundup/Emergency Generator Repl    | Discrete     | Gas Storage Facilities         | Compressor Station Back-up Generators  | System Safety & Integrity | Gas Underground Storage Plant   | \$ -          | \$ (60,837)         | \$ -                    | \$ (60,837)  | \$ (60,837)                          |
| Gardner | Gas Systems         | E.0010032.098 | CO/NOR/KOEWIN/Raindance Filing 9/G     | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ -          | \$ (1,838)          | \$ -                    | \$ (1,838)   | \$ (1,838)                           |
| Gardner | Gas Systems         | E.0010079.024 | CO/EAST/Replace compressor cooler      | Discrete     | Gas Storage Facilities         |  | System Safety & Integrity | Gas Underground Storage Plant   | \$ -          | \$ (170,380)        | \$ -                    | \$ (170,380) | \$ (170,380)                         |
| Gardner | Gas Systems         | E.0010072.051 | CO/Tri-Tron Interconnect VS Repair     | Discrete     | Gas Trans Renewal              |  | System Safety & Integrity | Gas Transmission Plant          | \$ (259,008)  | \$ -                | \$ -                    | \$ (259,008) | \$ (259,008)                         |
| Gardner | Gas Systems         | E.0010074.039 | Install 4"x6" RS to serve Horizon      | Discrete     | Install Non-Trans Reg/Mtr Stat |  | New Business              | Gas Distribution Plant          | \$ -          | \$ (2,257)          | \$ -                    | \$ (2,257)   | \$ (2,257)                           |
| Gardner | Gas Systems         | E.0010032.095 | CO/GTWY/Shamrock Food IP Reinforce     | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ (1,357)    | \$ (3,970)          | \$ 40,158               | \$ 36,188    | \$ 34,830                            |
| Gardner | Gas Systems         | E.0010032.115 | CO/NMR/HAI/COM/REUNION VILLAGE 1A      | Discrete     | New Mains                      |  | New Business              | Gas Distribution Plant          | \$ (79)       | \$ (4,295)          | \$ -                    | \$ (4,374)   | \$ (4,374)                           |
| Gardner | Gas Systems         | E.0010074.150 | CO/WC-8-A/Steamboat #2 Rebuild         | Discrete     | Rebuild Gas Trans Reg/Mtr Stat |  | System Safety & Integrity | Gas Transmission Plant          | \$ (266,457)  | \$ -                | \$ -                    | \$ (266,457) | \$ (266,457)                         |
| Gardner | Gas Systems</       |               |  |              |                                |  |                           |                                 |               |                     |                         |              |                                      |

**PSCo Gas Discrete Mandatory Relocations Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects               | Description  | 2022 (Actual) | 2023                |                         |        | Total Additions Since 2021 Test Year |
|----------|-------------------------------------|--|---------------|---------------------|-------------------------|--------|--------------------------------------|
|          |                                     |  |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total  |                                      |
| 1        | CO/NMD/E 58th Avenue Relocation     | Relocated 2,000' of 12" and 1,500' of 16" intermediate pressure ("IP") gas main located on East 58th Avenue between Downing Street and York Street within Adams County due to a roadway grade change, road expansion, and storm water upgrade project. | \$6.9         | \$0.1               | \$0.0                   | \$0.1  | \$7.0                                |
| 2        | CO/Summit/280 Gold Hill Relocation  | Relocated 2,300' of 3" and 2,300' of 6" steel high pressure mains in the Summit County area. Driven by easement requirement.   | \$0.0         | \$3.4               | \$0.0                   | \$3.5  | \$3.5                                |
| 3        | CO/Grand Junction/US6 Clifton Reloc | Relocated 2,300' of 8" high pressure steel pipeline along US Hwy 6 in Clifton, CO. Driven by Colorado Department of Transportation ("CDOT") roadway improvements.  | \$3.1         | \$0.0               | \$0.0                   | \$0.0  | \$3.1                                |
| 4        | CO/GJ/3240-3266 F Rd Relo - Clifton | Relocate 1,750' of 12" high density polyethylene ("HDPE") pipe and 500' of 4" main along F Rd. in Clifton, CO. Driven by CDOT roadway improvements.  | \$2.9         | \$0.0               | \$0.0                   | \$0.0  | \$2.9                                |
| 5        | CO/SWMR/Quincy&Simms/GD             | Relocate 3,650' of 2" and 4" polyethylene ("PE") main and 1,800' of 6" IP main and two 6" valves. Driven by Jefferson County project.  | \$1.4         | \$1.0               | \$0.0                   | \$1.0  | \$2.3                                |
| 6        | CO/NMR/62ND AVE883 MAIN RELOCATION  | Relocate 1,500' of 16" Intermediate Pressure ("IP") main and 3,800' of 4" distribution main on 62nd Ave in Denver, CO. Driven by Adams County roadway project on 62nd Ave.   | \$0.0         | \$0.0               | \$2.2                   | \$2.2  | \$2.2                                |
| 7        | 16th Street Mall Redevelopment      | Multi-year relocation effort of 4,300' of 4", 6", and 12" PE main in downtown Denver. Driven by City and County of Denver redevelopment of the 16th St. Mall area.   | \$0.0         | \$2.1               | \$0.1                   | \$2.1  | \$2.1                                |
| 8        | CO/NMR/MAN/WHE/WADSWORTH & 35TH TO  | Relocate 200' of 6" IP main and 9,500' of 2", 4", 6", and 8" PE main. Driven by City of Wheat Ridge sewer and water project.   | \$0.8         | \$0.8               | \$0.0                   | \$0.8  | \$1.6                                |
| 9        | CO/Relocate CHRO HP Pipeline for E  | Relocation of Cherokee Pipeline on plant property. Driven by plant request.  | \$1.7         | -\$0.1              | \$0.0                   | -\$0.1 | \$1.6                                |
| 10       | CO/SWMO/Santa Fe US 85 @C470 Reloca | Relocate 5,700' of 3" and 6" high pressure line, 200' of 24" high pressure line, and impacted distribution lines in Littleton, CO. Driven by Douglas County and CDOT driven widening of US Hwy 85 at C-470.  | \$1.1         | \$0.3               | \$0.0                   | \$0.3  | \$1.4                                |
| 11       | CO/MNTN/Vail/RV-12 Vail Ski Resort  | Relocate 8,500' of 2" PE main in Vail. Driven by City of Vail request.   | \$1.4         | -\$0.1              | \$0.0                   | -\$0.1 | \$1.3                                |

**PSCo Gas Discrete Mandatory Relocations Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects               | Description   | 2022 (Actual) | 2023                |                         |        | Total Additions Since 2021 Test Year |
|----------|-------------------------------------|---|---------------|---------------------|-------------------------|--------|--------------------------------------|
|          |                                     |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total  |                                      |
| 12       | CO/West/Ute Water Relocation        | Relocate 1,200' of 6" high pressure steel. Driven by landowner request and existing easement and Ute Water construction of ponds.         | \$1.3         | -\$0.1              | \$0.0                   | -\$0.1 | \$1.3                                |
| 13       | CO/SWMR/W Mexico Ave Storm Relocati | Relocate 2,600' of 4" steel and 1,380' of 2" steel. Driven by City and County of Denver storm sewer project.                              | \$1.2         | \$0.0               | \$0.0                   | \$0.0  | \$1.2                                |
| 14       | CO/NMR/SLO/ARV/W 72ND AVE SWADL/GD  | Relocate 3,600' of 4" PE main in Arvada, CO. Driven by City of Arvada water main and grading project.                                     | \$1.1         | \$0.0               | \$0.0                   | \$0.0  | \$1.1                                |
| 15       | CO/GJ/RELO/S 1ST ST/IP              | Relocate 1,200' of 12" IP steel in Grand Junction, CO. Driven by Colorado Department of Transportation roadway project.                   | \$0.0         | \$0.0               | \$0.9                   | \$0.9  | \$0.9                                |
| 16       | CO/NMR/88TH & HOFFMAN/RELO/GD       | Relocate 120' of 16" IP main in Thornton, CO. Driven by City of Thornton storm water project.   | \$0.0         | \$0.8               | \$0.0                   | \$0.8  | \$0.8                                |
| 17       | PSCo Central 70 Project             | Relocate various gas assets in conflict with the Colorado Department of Transportation rebuild of I-70 in central Denver, CO.             | \$0.8         | \$0.0               | \$0.0                   | \$0.0  | \$0.8                                |
| 18       | CO/West/Pass Creek Ranch Line Lower | Relocate 200' of 3" high pressure steel main in Fruita, CO. Driven by City of Fruita bridge replacement.                                  | \$0.0         | \$0.8               | \$0.0                   | \$0.8  | \$0.8                                |
| 19       | CO/MD/52nd & Pecos/Main Renewal     | Relocate 855' of 6" steel main in Denver, CO. Driven by City and County of Denver road and sewer project.                                 | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| 20       | CO/DMR/TIP/DEN/Ellsworth Ave Reloc  | Relocate 1,400' of 6" PE main in Denver, CO. Driven by City and County of Denver storm sewer project.                                     | \$0.0         | \$0.7               | \$0.0                   | \$0.7  | \$0.7                                |
| 21       | CO/MD/CO/Broadway & Cedar/Main Rene | Relocate 90' of 16" and 20" steel main in Denver, CO. Driven by City and County of Denver storm sewer replacement.                        | \$0.0         | \$0.7               | \$0.0                   | \$0.7  | \$0.7                                |
| 22       | CO/Rifle/North Rifle Line Lowering  | Relocate high pressure pipeline in the Rifle, CO area. Driven by exposed sections and shallow depth of cover in an off-road vehicle area. | \$0.7         | \$0.0               | \$0.0                   | \$0.0  | \$0.7                                |
| 23       | CO/SWM/Valve 5930 Removal and Repla | Relocate leaking valve in vault in Cherry Hills Village, CO. Driven by leak in vault in intersection.                                     | \$0.6         | \$0.0               | \$0.0                   | \$0.0  | \$0.6                                |
| 24       | CO/NMR/SLO/ARV/W 72ND AVE UPRR/GD   | Relocate 2,470' of 2" and 4" main in Arvada, CO. Driven by City of Arvada water main and grading project.                                 | \$0.6         | \$0.1               | \$0.0                   | \$0.1  | \$0.6                                |
| 25       | CO/Rifle/Silver Spur (Silt, CO) Rel | Relocate 550' of 4" steel main in Silt, CO. Driven by main being out of easement and landowner development.                               | \$0.6         | \$0.0               | \$0.0                   | \$0.0  | \$0.6                                |

**PSCo Gas Discrete Mandatory Relocations Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects                 | Description   | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|----------|---------------------------------------|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|          |                                       |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total         |                                      |
| 26       | CO/SWMMR/US-85 & Blakeland Relocatio  | Relocate 1,635' of 2" PE main on US Hwy 85 in Littleton, CO. Driven by Colorado Department of Transportation road widening.                             | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.6                                |
| 27       | CO/DMR/SPEER AND MARKET/RELOCATION    | Relocate 110' of 20" IP steel main in Denver, CO. Driven by main outside of approved easement and development by the landowner.                         | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| 28       | CO/SEMR/E Illiff Ave 20" IP Relocat   | Relocate 20' of 20" IP steel main in Aurora, CO. Driven by an Arapahoe County storm sewer project.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| 29       | CO/BLDR/Lafayette/E South Boulder R   | Relocate 2,750' of 3" main in Lafayette, CO. Driven by City of Lafayette road reconstruction along E. South Boulder Rd and 120th St.                    | \$0.2         | \$0.3               | \$0.0                   | \$0.3         | \$0.5                                |
| 30       | CO/Rifle/Divide Creek VS Relocation   | Relocate 4" valve-set in Silt, CO. Driven by valve-set being constructed outside of easement and development by the landowner.                          | \$0.0         | \$0.0               | \$0.5                   | \$0.5         | \$0.5                                |
| 31       | National Western Center Redevelopment | Relocate gas assets due to the redevelopment of the National Western Center in Denver, CO.  | \$0.7         | -\$0.1              | -\$0.3                  | -\$0.4        | \$0.4                                |
| 32       | CO/DMR/E 21st Ave & Marion St/Gas R   | Relocate 560' of 12" steel and 2" PE inches low main and 650' of 12" IP steel main in Denver, CO. Driven City and County of Denver storm sewer project. | \$0.0         | \$0.3               | \$0.0                   | \$0.3         | \$0.3                                |
| 33       | Mandates Discrete - Other             | Mandatory Relocations projects <\$300,000   | \$0.7         | \$0.4               | \$0.8                   | \$1.2         | \$1.9                                |
| 34       | <b>Discrete Mandates - Total</b>      |   | <b>\$29.3</b> | <b>\$11.5</b>       | <b>\$5.0</b>            | <b>\$16.4</b> | <b>\$45.8</b>                        |

**Attachment ARG-3**  
**Mandatory Relocation Project Descriptions**  
**(Projects over \$3 million)**

1. East 58<sup>th</sup> Avenue Relocation
2. 280 Gold Hill Relocation
3. US6 Clifton Relocation



**East 58th Avenue Relocation**  
 Unincorporated Adams County, CO

**Project Overview**

The existing infrastructure has been relocated in order to meet federal, state, or local requirements.

- Entity Requesting Relocation: Adams County
- Relocation Reason: Adams County requested the relocation due to a roadway grade change, road expansion, and storm water upgrade project in which the County will install new storm water pipe, irrigation drains, and a retention pond.
- Infrastructure relocated to: Within the existing street ROW, portions of the gas main was lowered to accommodate the new grade while the rest were realigned based upon coordination with other utilities.

Relocated approximately 1,500 feet of 16" IP gas main 2,000 feet of 12" IP gas main due to change of grade and County's stormwater project.

**Project Technical Details**

- Project Type: Pipeline Relocation
- Project Location: East 58th Ave between Downing St and York St

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1,500' & 2,000'
- New Piping: 16" & 12" Steel IP
- Existing Piping: 16" & 12" Steel IP
- Status of Existing Piping: Abandoned in place. Some removal by other utilities

**Explanation of Need**

The East 58th Avenue Main Relocation project is a mandated relocation project for an existing 16-inch & 12-inch Intermediate Pressure (IP) gas main located on East 58th Avenue between Downing Street and York Street within Adams County. Adams County requested the relocation due to a newly proposed roadway grade change, road expansion & storm water upgrade project in which new stormwater pipe, irrigation drains and a retention pond will be installed. Approximately 1,500 feet of 16-inch IP gas main and 2,000 feet of 12-inch IP gas main were relocated/lowered due to the existing utilities being exposed with the grade change as well as clearance conflicts with new storm drains and retention pond.

**Project Category:**

**Mandatory Relocation**

**Project Cost**

- Project Cost (Additions 2022-2023): \$7,023,412
- Xcel Contribution: \$7,023,412
- Third Party Contribution: 0

**Project Status**

- Construction Kick-Off: November 2021
- Construction Phases: 1
- Construction Completion: June 2022
- In-Service Date: April 2022

**Additional Project Details**

- PHMSA Requirements: No
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

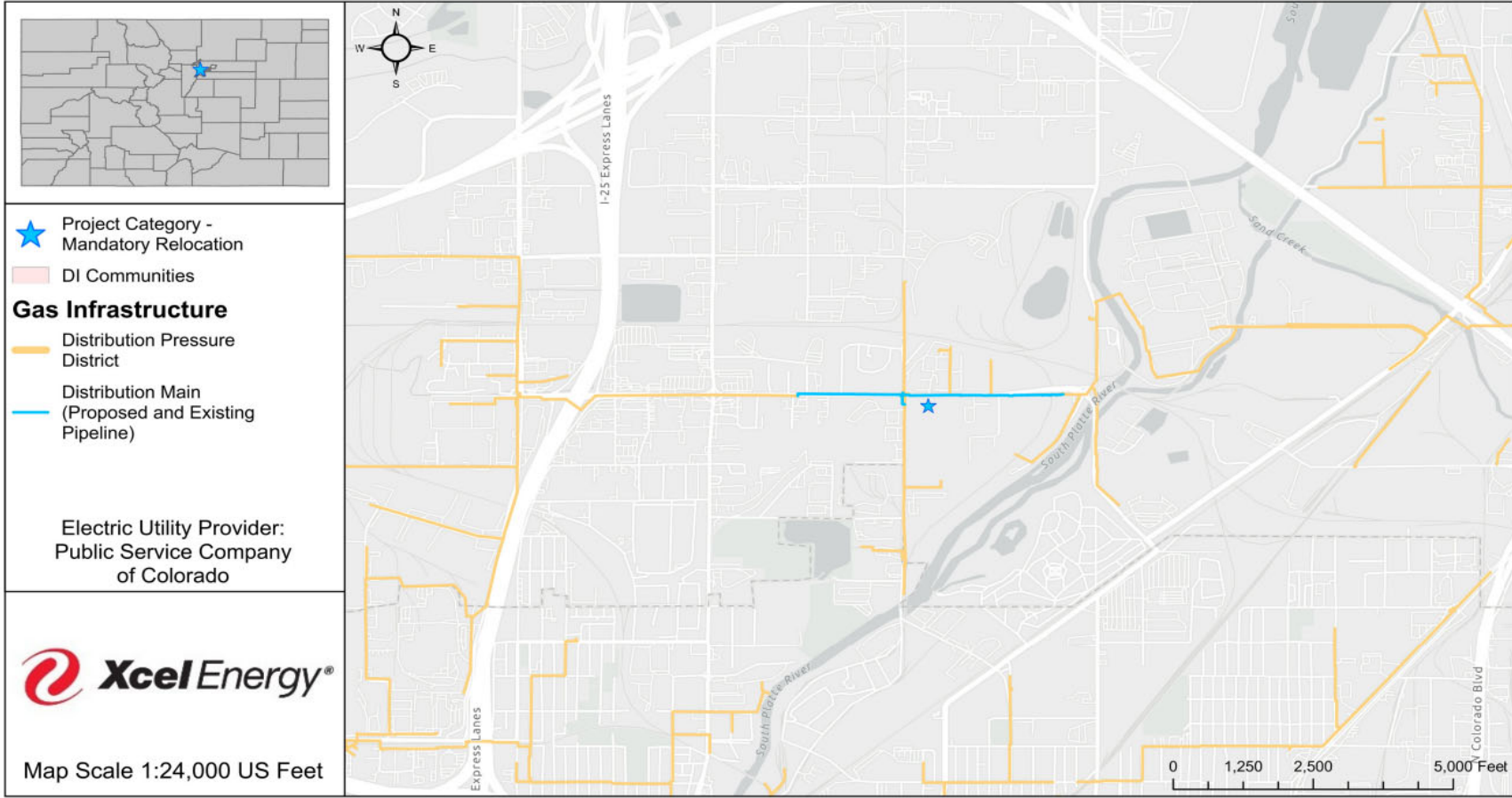
**Risk and Alternative Considerations**

Risks: Failure to relocate this main could result in leaks and customer outages due to damage to a live main when the grade of the road is changed. Additional risks include potential fines associated with violating agreements with the county.

Alternatives: This gas main is critical to the IP system and surrounding distribution systems. Alternative routes were considered, but none were viable due to lack of roadway and therefore higher cost to install new pipeline. The Company also considered alternatives in the form of different pipeline diameters. However, capacity projections for this area indicated that while it was not necessary to upsize the pipe diameter, a smaller diameter pipe would not be sufficient to ensure reliable service. As such, pipes of the same size as in the original location were installed in the new location.



# 58th Ave Relocation Project Map





**280 Gold Hill Relocation**  
 Unincorporated Summit County, CO

**Project Overview**

The existing infrastructure has been relocated as required by the landowner and associated easement.

- Entity Requesting Relocation: Landowner
- Relocation Reason: Easement language stated Company must relocate at Landowners discretion
- Infrastructure will be relocated to: Newly acquired easements on landowners property

Relocated 6" and 3" line to the east and co-locate a segment with an existing 25kV electric distribution line.

**Project Technical Details**

- Project Type: Pipeline Relocation
- Project Location: 280 Gold Hill Rd, Breckenridge, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 2300' of 3" Steel; 2300' of 6" Steel
- New Piping: 2300' of 3" Steel; 2300' of 6" Steel
- Existing Piping: 1100' of 3" Steel; 1100' of 6" Steel
- Status of Existing Piping: Abandoned in place
- Other: AC Mitigation measures installed

**Explanation of Need**

Assets were required to be relocated per the landowners request and language in the 1965 easement, giving the landowner rights to request to move Company assets at the Company's expense.

**Project Category:**

**Mandatory Relocation**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,453,200
- Xcel Contribution: \$3,453,200
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: May 2023
- Construction Phases: 1
- Construction Completion: August 2023
- In-Service Date: August 2023

**Additional Project Details**

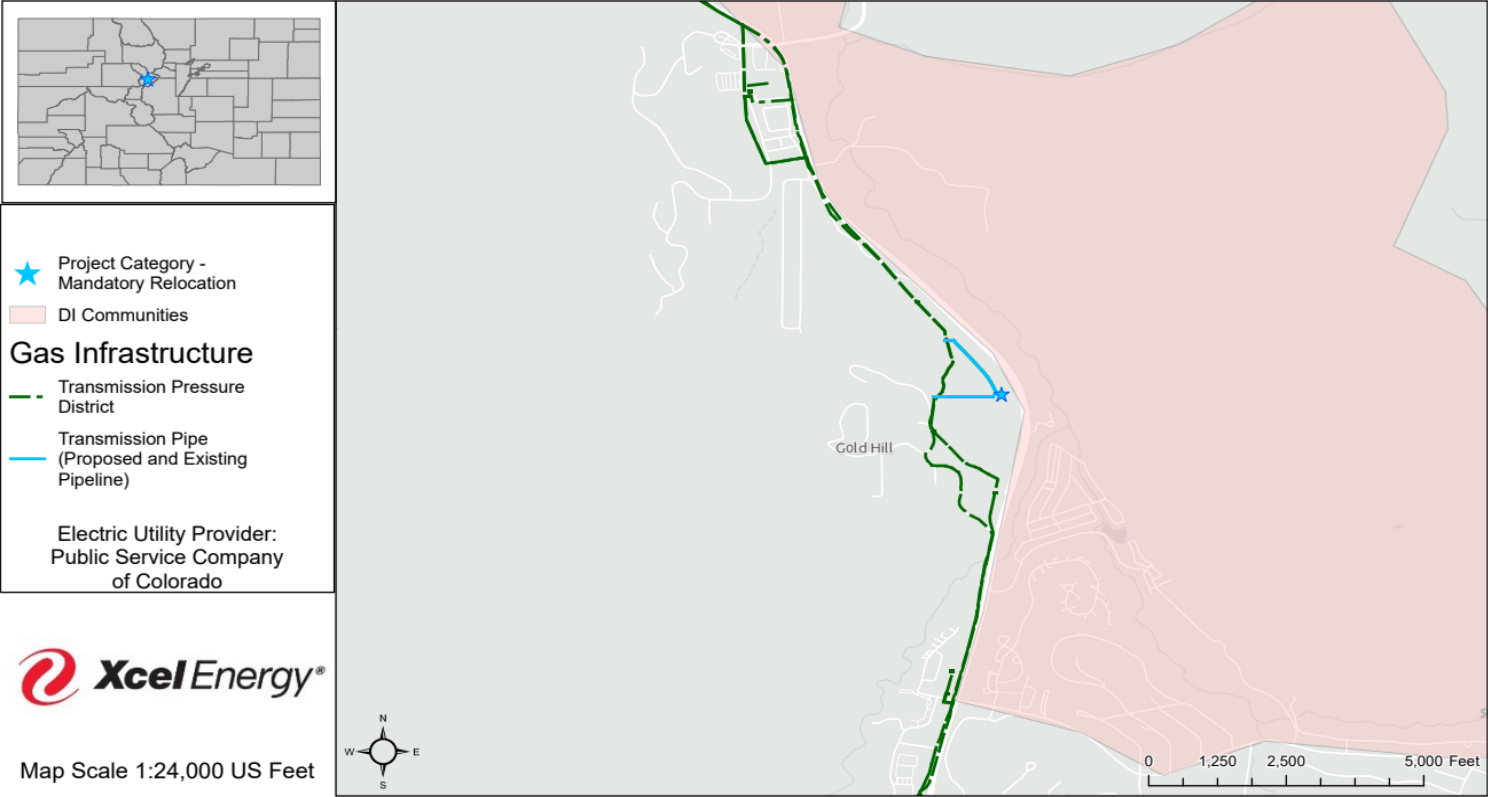
- PHMSA Requirements: No
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Risks: Due to the easement agreement, the Company was required to relocate the infrastructure or face legal recourse.

Alternatives: This facility is critical to supply gas to the Breckenridge area, as there are no other existing gas transmission facilities to this area; therefore, alternatives were very limited. Relocating the facility outside the current property would have required acquisition of land for a new easement, potentially involving multiple additional parties, a longer relocation, additional permitting and easement procurements, higher costs.

# 280 Gold Hill Relocation Project Map





**US6 Clifton Relocation**  
 Clifton, CO

**Project Overview**

The existing infrastructure has been relocated in order to meet federal, state, or local requirements.

- Entity Requesting Relocation: CDOT - Colorado Department of Transportation
- Relocation Reason: CDOT was doing roadway improvements and all utilities were required to be relocated due to being in the Right of Way (ROW).
- Infrastructure will be relocated to: Approximately 30' to the South of the existing alignment, (still within the CDOT ROW) to provide clearance for all the other relocated utilities.

Relocated approximately 2,300 feet of existing high pressure transmission pipeline (620030-Palisade Lateral 8")

**Project Technical Details**

- Project Type: Pipeline Relocation
- Project Location: US Highway 6 through Clifton, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 2,300
- New Piping: 8" Steel
- Existing Piping: 8" Steel
- Status of Existing Piping: Abandoned in place via cut and cap pipeline and purge the pack with Nitrogen

**Explanation of Need**

CDOT planned roadway improvements for US Highway 6 through Clifton, CO so this was a mandated relocation per the agreement in place with CDOT that Xcel Energy must relocate at company cost anytime CDOT needs require relocation.

All existing utilities (water, sewer, electric, gas distribution, etc.) in the road ROW were required to be relocated.

**Project Category:**

**Mandatory Relocation**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,097,852
- Xcel Contribution: \$3,097,852
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: May 2022
- Construction Phases: 1
- Construction Completion: July 2022
- In-Service Date: October 2022

**Additional Project Details**

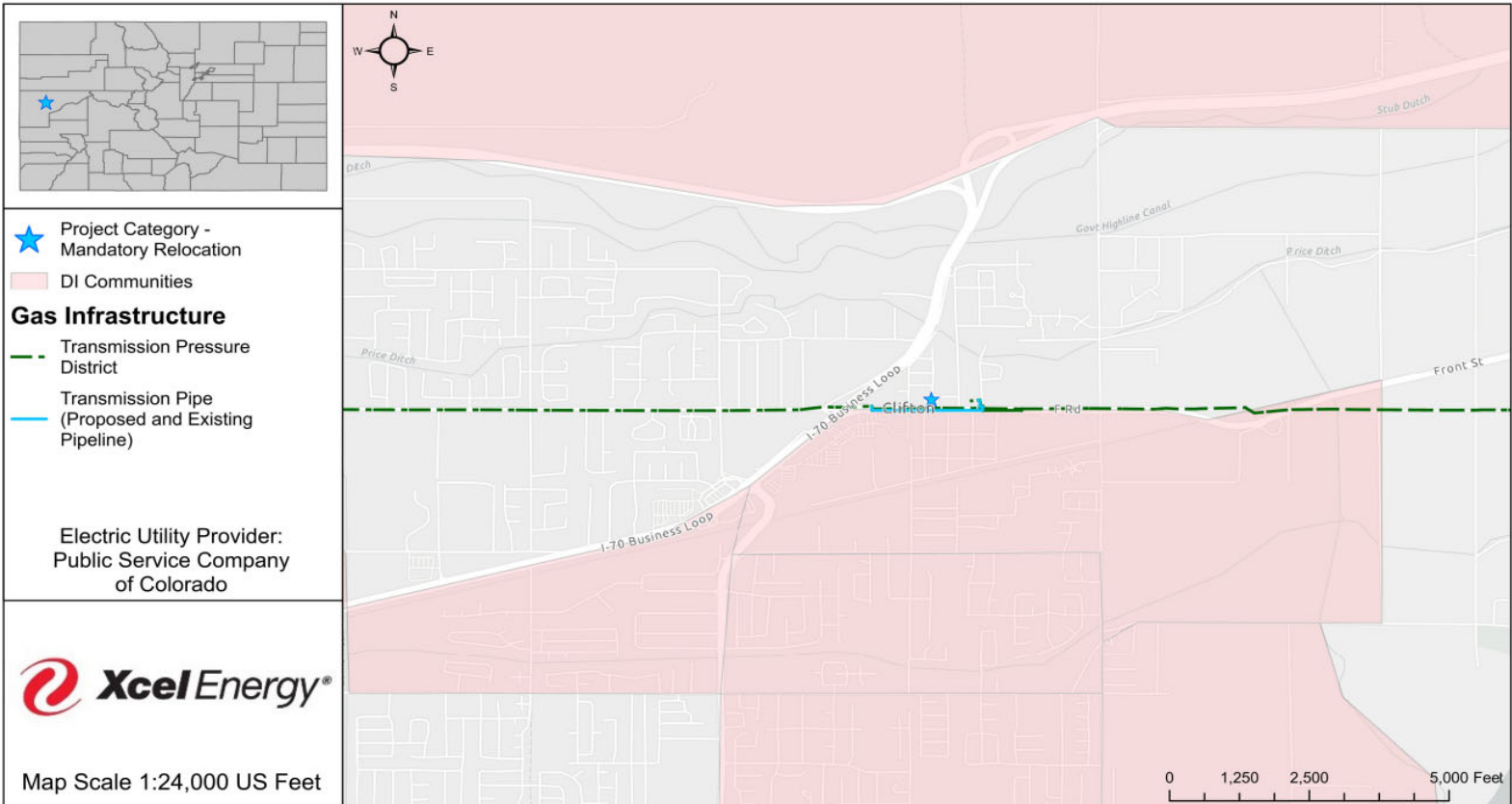
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Risk: This project could not be avoided as the pipeline was located within the CDOT ROW.

Alternatives: As pipeline was in CDOT ROW, no real alternative exist as the surrounding area is completely developed with no reasonable relocation routes. The Clifton Town Border Station (W-12-A) is near the intersection of Holland Street and US Highway 6 in Clifton, CO and would need to be fed with any reroute.

# Clifton US-6 Relocation Project Map



**PSCo Gas Discrete New Business Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects                     | Description   | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|----------|---|---|---------------|---------------------|-------------------------|-------|--------------------------------------|
|          |   |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total |                                      |
| 1        | Canyons Development                       | Install 1.1 miles of 6" high pressure pipeline and new high pressure to pounds medium regulator station in Castle Pines, CO. Driven by customer request to serve new Canyons development. | \$5.1         | \$0.0               | \$0.0                   | \$0.0 | \$5.1                                |
| 2        | Coal Creek Canyon Pines                   | Install new regulator station, reinforce 3,000' of 3" IP main with 6" IP main, and install 23,465 feet of medium PE main. Driven by customer request to serve new subdivision.            | \$1.3         | \$3.0               | \$0.0                   | \$3.0 | \$4.3                                |
| 3        | CO/BLDR/Aspen Creek                       | Install 4" high pressure reinforcement to new regulating station EB-23. Required to serve new 315 home subdivision in Broomfield, CO.   | \$0.0         | \$2.1               | \$0.0                   | \$2.1 | \$2.1                                |
| 4        | F-994 Rooney Valley                       | Install 5,500' of 8" IP steel main and new regulating station. Required to serve new development in Lakewood, CO.   | \$1.9         | \$0.0               | \$0.0                   | \$0.0 | \$1.9                                |
| 5        | CO/Littleton/Littleton Lateral Relo       | Relocate 3,900' of 24" steel high pressure pipeline in Lone Tree, CO. Driven by customer request to relocate for development.   | \$0.0         | \$0.0               | \$1.7                   | \$1.7 | \$1.7                                |
| 6        | CO/Loveland/CNG                           | Install 970' of 4" high pressure steel main and meter station. Required to serve City of Loveland requested CNG fueling station.  | \$1.1         | \$0.5               | \$0.0                   | \$0.5 | \$1.6                                |
| 7        | CO/Install GK-5/Prospect Valley Dairy     | Install new interconnect station for new Renewable Natural Gas ("RNG") supply. Driven by Prospect Valley Dairy request near Keenesburg, CO.   | \$0.0         | \$0.1               | \$1.1                   | \$1.2 | \$1.2                                |
| 8        | CO/Install HW-51/Lost Creek Dairy         | Install new interconnect station for RNG supply. Driven by Lost Creek Dairy request near Roggen, CO.  | \$0.0         | \$0.0               | \$1.1                   | \$1.1 | \$1.1                                |
| 9        | CR3E & CR18/GD-svc to 288 new homes       | Install 26,700' of 2" and 4" PE in the Johnstown, CO area. Driven by new customer request for 288 homes.  | \$0.0         | \$1.0               | \$0.0                   | \$1.0 | \$1.0                                |
| 10       | F-1010 Monaco Union Blvd                  | Install new station F-1010, including 3,000' of 6" IP line and 2,800' in Denver, CO. Driven by new load on the system and F-352 system.   | \$0.0         | \$0.0               | \$1.0                   | \$1.0 | \$1.0                                |
| 11       | CO/SEMR/DRU/AUR/SOUTHSHORE F19 REIN       | Install 1,450' of 4" and 8" PE main in Aurora, CO. Driven by customer request to serve Southshore Filing 19.  | \$0.3         | \$0.7               | \$0.0                   | \$0.7 | \$1.0                                |
| 12       | CO/PBL/X-88 New Regulator Station Install | Install new X-88 regulating station in Pueblo, CO. Driven by developments in the North Pueblo area.   | \$0.0         | \$0.0               | \$0.9                   | \$0.9 | \$0.9                                |
| 13       | CO/FTC/E Suniga RD & N Lemay/GREINF       | Install 8,300' of 2", 4", and 6" PE main in Fort Collins, CO. Driven by customer request to serve 440 customer development.   | \$0.0         | \$0.9               | \$0.0                   | \$0.9 | \$0.9                                |
| 14       | CO/MNTN/Breckenridge/Berlin Placer        | Install 740' of 4" PE main and reinforce 1,165' of 2" PE with 4" PE main in Breckenridge, CO. Driven by customer request to serve new Berlin subdivision.                                 | \$0.7         | \$0.1               | \$0.0                   | \$0.1 | \$0.8                                |
| 15       | CO/NMR/ULT/THO/14831 Washington St/       | Reinforce 4,100' of 4" PE with 6" PE and extend 3,500' of 4" IP main in Thornton, CO. Driven by customer request to serve new development.  | \$0.0         | \$0.6               | \$0.0                   | \$0.6 | \$0.6                                |

**PSCo Gas Discrete New Business Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects               | Description   | 2022 (Actual) | 2023                |                         |        | Total Additions Since 2021 Test Year |
|----------|-------------------------------------|---|---------------|---------------------|-------------------------|--------|--------------------------------------|
|          |                                     |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total  |                                      |
| 16       | SWMR/DRU/LIT/Sterling Ranch F5A/GD  | Install 19,500' of 2" and 4" PE main in Littleton, CO. Driven by customer request as part of further Sterling Ranch development.  | \$0.6         | \$0.0               | \$0.0                   | \$0.0  | \$0.6                                |
| 17       | CO/MTN/75 Hunki Dori Ct GD RF PM    | Install 19,500' of 2" and 4" PE main in Littleton, CO. Driven by customer request as part of further Sterling R   | \$0.0         | \$0.0               | \$0.6                   | \$0.6  | \$0.6                                |
| 18       | CO/FTC/Turnberry&Brightwater/GDNevi | Install 19,500' of 2" and 4" PE in Fort Collins, CO. Driven by customer request to serve new 400 home development.  | \$0.3         | \$0.3               | \$0.0                   | \$0.3  | \$0.5                                |
| 19       | Aurora SEAM Facility                | Reinforce 3,700' of 2" steel high pressure main with 4" steel high pressure main in Aurora, CO. Driven by customer request to serve new development.  | \$1.7         | -\$1.3              | \$0.0                   | -\$1.3 | \$0.4                                |
| 20       | CO/DMR/Denver Mart Industrial Reinf | Reinforce 1,200' of 6" steel main with 8" PE main in Denver, CO. Driven by customer request to serve new development.   | \$0.0         | \$0.3               | \$0.1                   | \$0.4  | \$0.4                                |
| 21       | CO/MNTN/Breckenridge/Highlands Rive | Reinforce 1,600' of 2" main with 6" PE main and install 3,100' of 2" and 4" PE main in Breckenridge, CO. Driven by customer request for new 35 customer development.                        | \$0.0         | \$0.4               | \$0.0                   | \$0.4  | \$0.4                                |
| 22       | CO/BLDR/Erie/Colliers Hill F5 Subdi | Install 4,100' of 4" PE main in Erie, CO. Driven by customer request to serve new 53 customer development.  | \$0.0         | \$0.4               | \$0.0                   | \$0.4  | \$0.4                                |
| 23       | Aurora Highlands Development        | Install 730' of 8" PE main to provide adequate odorization for the new Aurora Highlands development. Driven by 49 CFR 192.625 code requirements to adequately odorize distribution mains.   | \$0.0         | \$0.1               | \$0.2                   | \$0.4  | \$0.4                                |
| 24       | CO/FTC/Ladera IP Reinforcement      | Install 1,100' of 6" IP main in Timnath, CO. Driven by customer request to serve new commercial development.  | \$0.0         | \$0.0               | \$0.4                   | \$0.4  | \$0.4                                |
| 25       | CO/NOR/PAR/LOV/Millennium East 10TH | Install 17,250' of 2" and 4" PE in Loveland, CO. Driven by customer request to serve new 164 customer development.  | \$0.4         | \$0.0               | \$0.0                   | \$0.0  | \$0.4                                |
| 26       | CO/AUR/DMR/Pepsi IP Main Extension  | Install 5,650' of 6" IP main in Aurora, CO. Driven by customer request to serve new Pepsi Plant.  | \$0.0         | \$0.0               | \$0.3                   | \$0.3  | \$0.3                                |
| 27       | CO/BLDR/DUN/ERI/PARKDALE F1 PH3 5/G | Install 35,100' of 2" and 4" PE in Erie, CO. Driven by customer request to serve new development.   | \$0.0         | \$0.0               | \$0.3                   | \$0.3  | \$0.3                                |
| 28       | CO/NOR/LOV/12" Fossil Creek Relocat | Relocate 1,000' of 12" steel transmission line in Loveland, CO. Partially funded by customer conflict for new development and partially in conflict due to City of Loveland new roundabout. | \$0.0         | \$0.0               | \$0.3                   | \$0.3  | \$0.3                                |
| 29       | CO/NMR/STE/ARV/91ST AND CANDELAS PK | Reinforce 2,400' of 6" PE with 8" PE in Arvada, CO. Driven by customer request to serve new multi-family development  | \$0.0         | \$0.3               | \$0.0                   | \$0.3  | \$0.3                                |

**PSCo Gas Discrete New Business Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects                | Description   | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|----------|--------------------------------------|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|          |                                      |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total         |                                      |
| 30       | CO/BLDR/Lafayette/Parkdale Reinforc  | Reinforce 4,500' of 2" PE with 6" PE in Lafayette, CO. Driven by customer request to serve new 595 home subdivision.                                  | \$0.0         | \$0.3               | \$0.0                   | \$0.3         | \$0.3                                |
| 31       | CO/BLDR/ANG/MEAD/14175 CO RD 7/GD    | Relocate 815' of 2" and 4" main in Mead, CO. Driven by customer funded request.   | \$0.0         | \$0.0               | \$0.3                   | \$0.3         | \$0.3                                |
| 32       | CO/NMR/MORG/THO/Willow Bend/GD       | Reinforce 3,260' of 1 1/4" and 3" steel main with 4" PE main in Thornton, CO. Driven by customer request to serve phase 2 of Willow Bend development. | \$0.3         | \$0.0               | \$0.0                   | \$0.0         | \$0.3                                |
| 33       | CO/MNTN/LEAD/755 County Rd 30 T/MR   | Install farm tap and 230" of 2" PE main in Twin Lakes, CO. Driven by new customer request.  | \$0.3         | \$0.0               | \$0.0                   | \$0.0         | \$0.3                                |
| 34       | CO/SWMR/DRU/LIT/STERLING RANCH F6A/  | Install 16,755' of 2" and 6" PE main in Littleton, CO. Driven by customer request to serve new 228 customer development                               | \$0.0         | \$0.3               | \$0.0                   | \$0.3         | \$0.3                                |
| 35       | CO/NMR/LOP/THO/WESTWOOD/GD           | Install 3,550' of 4" PE main in Brighton, CO. Driven by customer request to serve new subdivision.  | \$0.1         | \$0.1               | \$0.0                   | \$0.1         | \$0.3                                |
| 36       | CO/GTWY/AUR/Painted Prairie/P2F3/GD  | Install 24,700' of 2" PE and 4"PE in Aurora, CO. Driven by customer request to serve new 347 customer development.                                    | \$0.0         | \$0.2               | \$0.0                   | \$0.2         | \$0.2                                |
| 37       | CO/MNTN/Kremmling/RK-8 Farm Tap-3 M  | Install farm tap and 20' of 2" PE main in Kremmling, CO. Driven by new customer request.  | \$0.3         | -\$0.1              | \$0.0                   | -\$0.1        | \$0.2                                |
| 38       | SEMR/SMI/DEN/E BELLEVIEW & S QUEBEC  | Reinforce 1,320' of 2" steel IP main with 4" steel main in Denver, CO. Driven by customer request to serve new development.                           | \$0.3         | \$0.0               | \$0.0                   | \$0.0         | \$0.2                                |
| 39       | New Business - Other                 | Discrete New Business projects <\$200,000   | \$1.1         | \$0.8               | -\$0.7                  | \$0.1         | \$1.2                                |
| 40       | <b>Discrete New Business - Total</b> |   | <b>\$15.7</b> | <b>\$11.2</b>       | <b>\$7.7</b>            | <b>\$18.9</b> | <b>\$34.5</b>                        |



**Attachment ARG-5**  
**New Business Project Descriptions**  
**(Projects over \$3 million)**

1. Canyons Development
2. Coal Creek Canyon Pines



**Canyons Development**  
 Castle Pines, Co

**Project Overview**

A new gas service is requested:

- Entity Requesting New Service: Canyons Development
- Type of Service Requested: Residential and Commercial
- Number of Residential Units: 1,500 homes, 250 townhomes, 325 apartments
- Number of Commercial Units in the Building: 2.1 million square feet
- Design Day Peak Hour Gas Demand Requested (mscfh): 400

The Canyons Development is a new mixed-use development planned in Castle Pines, Colorado east of the intersection of I25 and Hess Rd. The development will require a new 6” HP pipeline, regulator station and distribution piping to serve the development.

**Project Technical Details**

- Project Type: HP pipeline and gas pressure regulator station
- Project Location: East of I25 and Hess Road in Castle Pines, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 5808'
- New Piping: 6" HP Steel
- Existing Piping: N/A
- Status of Existing Piping: N/A
- Other: Regulator Station F-976

**Explanation of Need**

The Canyons Development project included installation of approximately 1.1 miles of 6-inch HP pipeline, to which the customer contribution would apply, and installation of a new high pressure-to-pounds medium regulator station F-976. A regulator station is a facility that works to ensure proper gas flow and pressure for end-use customers – increasing gas flow when demand is high in order to maintain adequate pressures and decreasing the flow when demand is low. Prior to this project, there was not a regulator station within four square miles.

**Project Category:**

**New Business**

**Project Cost**

- Project Cost (Additions 2022-2023): \$5,135,927
- Xcel Contribution: \$2,804,707
- Third Party Contribution: \$2,331,220

**Project Status**

- Construction Kick-Off: April 2021
- Construction Phases: 2
- Construction Completion: August 2021
- In-Service Date: June 2022

**Additional Project Details**

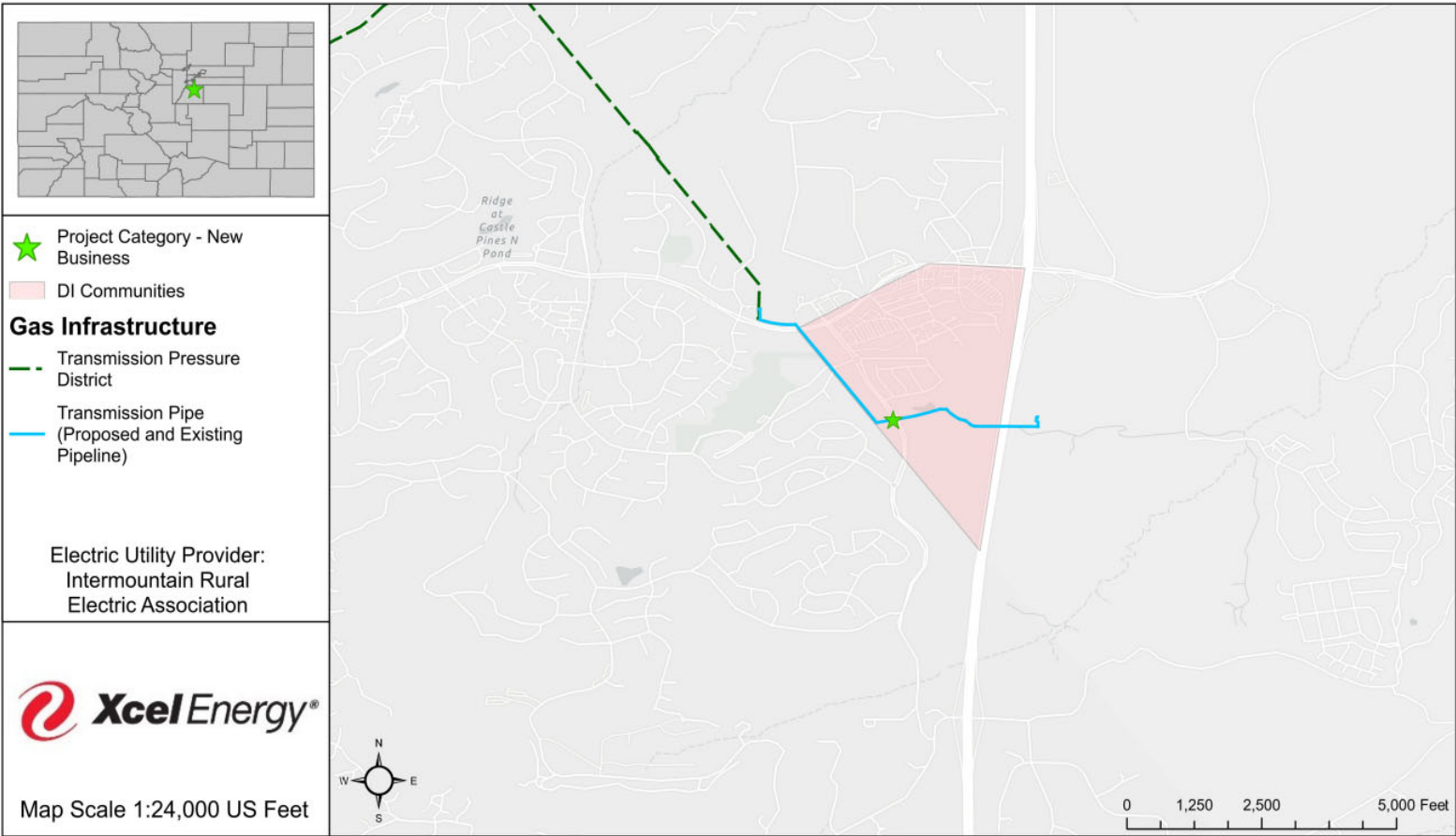
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Risk: PSCo has an obligation to serve gas in its service territory. The Canyons Development was a new development consisting of residential and commercial.

Alternative: Alternative HP pipeline routes were considered; the route selected was economical, would meet the customers’ timeline, and minimized the impact to existing and future developments.

# Canyons Development Project Map





**Coal Creek Canyon Pines**  
 Boulder, Colorado

**Project Overview**

A new gas service is requested:

- Entity Requesting New Service: CP Dev Co, LLC
- Type of Service Requested: Residential
- Number of Residential Units: 90
- Number of Commercial Units in the Building: 0
- Design Day Peak Hour Gas Demand Requested (mscfh): 47

The Canyon Pines development is an upcoming large custom home development located at the edge of Boulder, and Arvada. Construction of the development has started at the end of 2022 and is ongoing today with 90 lots expected to be developed.

**Project Technical Details**

- Project Type: Main Reinforcement, New Pipe, and Regulator Station
- Project Location: Coal Creek Canyon Rd and Canyon Pines Dr

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 17,365' of 2", 6,100' of 4", and 3,000' of 6"
- New Piping: 2" & 4" PE, and 6" IP Steel
- Existing Piping: 3" IP Steel
- Status of Existing Piping: Abandon in place
- Other: Regulator Station F-1001 Install

**Explanation of Need**

A main reinforcement of 3,000' was required to reinforce the existing upstream 3" IP steel main. A new regulator station (F-1001) was connected to the existing 3" IP steel main to reduce pressure. 23,465' of PE main was installed on-site to provide service to future residential lots.

**Project Category:**

**New Business**

**Project Cost**

- Project Cost (Additions 2022-2023): \$4,314,030
- Xcel Contribution (net of third party contribution): \$4,314,030
- Third Party Contribution: \$996,477

**Project Status**

- Construction Kick-Off: August 2022
- Construction Phases: 3
- Construction Completion: July 2023
- In-Service Date: October 2022 & October 2023

**Additional Project Details**

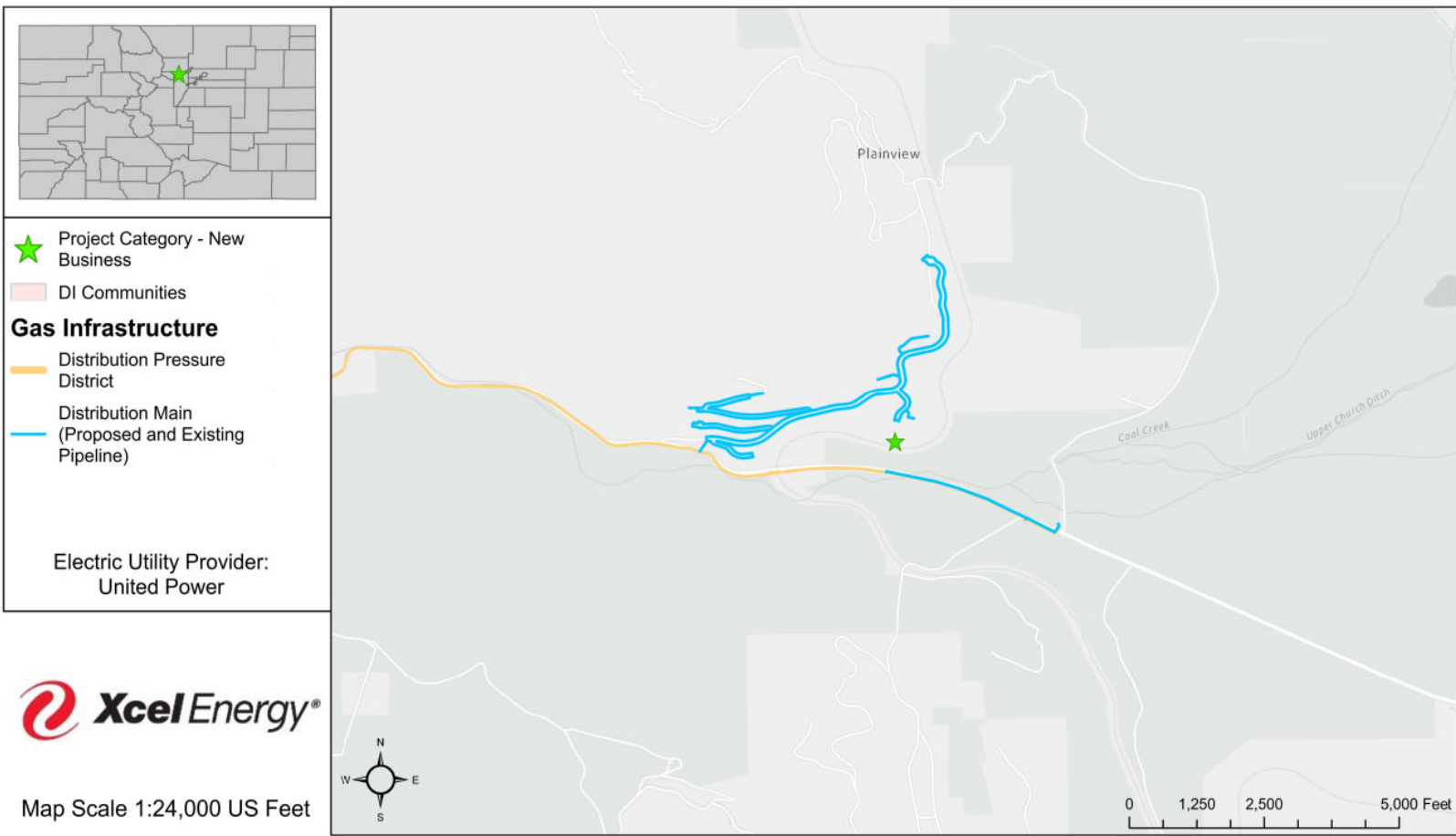
- PHMSA Requirements: No
- Permitting: Yes
- Environmental: No
- Xcel Electric Territory: No
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

This project is for new gas service requested by a developer.

Alternatives: Public Service explored several different alternative designs to meet the needs of the new development, including a 4-inch pipe reinforcement with greater footage, or rebuilding an existing regulator station and extending lower pressure main to the site of the new development with a reinforcement on the existing pounds medium system. Public Service selected this project as the least cost and least footage option to serve customers in the area.

# Coal Creek Canyon Pines Project Map



**PSCo Gas Discrete Capacity Expansion Table**  
**Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects               | Description  | 2022 (Actual) | 2023                |                         |        | Total Additions Since 2021 Test Year |
|----------|-------------------------------------|--|---------------|---------------------|-------------------------|--------|--------------------------------------|
|          |                                     |  |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total  |                                      |
| 1        | CO/Rifle/Questar Supply             | Install new source of supply for Rifle-Avon Pipeline (serving De Beque, Battlement Mesa, Parachute, Rifle, Silt, New Castle, Edwards, Avon, Vail, and Minturn) including a new gas compressor facility, gas quality monitoring, and upstream facilities near Rifle, CO. Driven by need for additional upstream supply for Rifle-Avon pipeline and to replace existing obsolete gas compression facilities. | \$0.0         | \$19.1              | \$0.8                   | \$19.9 | \$19.9                               |
| 2        | West Metro Reinforcement            | Install new regulator station, 8,500' of 12" IP steel main and 9,550' of 6" and 8" PE in Denver, CO. Driven by need reinforce Highlands and Boosting distribution systems near Sheridan and Colfax due to load growth. Conducted pursuant to a CPCN.   | \$0.0         | \$0.0               | \$16.5                  | \$16.5 | \$16.5                               |
| 3        | CO/SWMR/8I In Rampart Range Main    | Reinforce 16,307' of 6" Steel IP main with 8" steel IP and high pressure steel main in Littleton, CO. Driven by need to add additional capacity due to load growth.  | \$10.5        | \$3.8               | \$0.1                   | \$3.9  | \$14.4                               |
| 4        | CO/Winter Park/Winter Park Tie      | Install 6,864' of 6" steel high pressure pipeline and 1,400 4" steel and rebuild and relocate other facilities in Winter Park, CO. Driven by need to reinforce the existing 2" steel high pressure pipeline serving Winter Park and Fraser.  | \$5.1         | \$2.5               | \$0.4                   | \$2.9  | \$8.0                                |
| 5        | CO/Del Norte Compressor Station     | Install second gas compressor driver, cooler, and controls at the Del Norte Compressor Station near Del Norte, CO. Driven by need to provide additional reliability to supplement existing, obsolete compressor unit.  | \$0.0         | \$0.0               | \$11.7                  | \$11.7 | \$11.7                               |
| 6        | CO/DMR/F-972/GD                     | Reinforce F-755 and F-675 systems with installation of new regulating station F-972 and installation of 3,500' of 6" PE main in Parker, CO. Driven by need to reduce outage risk due to existing stations not having sufficient capacity.  | \$3.4         | \$0.0               | \$0.0                   | \$0.0  | \$3.4                                |
| 7        | CO/DMO/Highlands PL/W Colfax/IP Mai | Install new regulator station, 8,500' of 12" IP steel main and 9,550' of 6" and 8" PE in Denver, CO. Driven by need reinforce Highlands and Boosting distribution systems near Sheridan and Colfax due to load growth. Conducted pursuant to a CPCN.   | \$0.0         | \$0.0               | \$2.0                   | \$2.0  | \$2.0                                |
| 8        | New 6" PE I-25 NE Frontage Rd       | Install 4,400' of 6" PE near Johnstown, CO. Driven by need to reinforce the system around the I-25 Frontage Rd. between Lacy Ln. and Ronald Reagan Blvd. due to additional customer growth.  | \$0.0         | \$1.7               | \$0.0                   | \$1.7  | \$1.7                                |
| 9        | CO/MNTN/BRECK/Breckenridge Reinforc | Install 10,990' of 2", 4" and 6" PE in Breckenridge, CO. Driven by need to reinforce the Breckenridge system to reduce the risk of outages.  | \$0.0         | \$1.5               | \$0.0                   | \$1.5  | \$1.5                                |
| 10       | CO/DMR/Reg Station 54 Rebuild       | Rebuild Station 54 in Denver, CO. Driven by the regulating station being over capacity and adding a redundant regulating run.  | \$0.0         | \$0.0               | \$1.3                   | \$1.3  | \$1.3                                |
| 11       | CO/MNTN/Avon Reinforcement          | Reinforce 3,900' of 4" main with 6" PE main in Avon, CO. Driven by reducing outage risks of additional load that had been loaded in the area.  | \$1.2         | \$0.0               | \$0.0                   | \$0.0  | \$1.2                                |
| 12       | ISP SW ? PSCo - Clean Gas           | Modeling and planning efforts around Clean Heat.   | \$0.0         | \$0.0               | \$1.1                   | \$1.1  | \$1.1                                |
| 13       | CO/BLDR/Boulder/E-67-143-146 Reinfo | Reinforce 1,510' of 2" PE main with 6" PE and install 2,050" of 6" PE main in the Boulder, CO area. Driven by need to reduce risk of customer outage on the E-67-143-146 system.   | \$0.0         | \$1.0               | \$0.0                   | \$1.0  | \$1.0                                |
| 14       | CO/Simms St/Reinforcement           | Reinforce F-555 regulating station by installing 3,100' of 6" and 8" IP main in Arvada, CO. Driven by need to reduce outage risk on the F-555 system.  | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| 15       | CO/W-55A/ River Run RS Rebuild      | Rebuild W-55-A regulating station in the Grand Junction, CO area.  | \$0.8         | \$0.0               | \$0.0                   | \$0.0  | \$0.8                                |
| 16       | CO/MTN/Frisco/Riverview Dr REINF/GD | Reinforce 2,000' of 3/4", 1 1/4", and 2" steel main with 4" PE main in Frisco, CO. Driven by need to add additional capacity to the Frisco area.   | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| 17       | CO/NMR/DEN/Patricia Dr Rfmnt/GD     | Reinforce 1,400' of 2" steel main with 4" PE main in Denver, CO. Driven by insufficient capacity and reducing outage risks in the Patricia Dr. area.   | \$0.0         | \$0.5               | \$0.0                   | \$0.5  | \$0.5                                |
| 18       | CO/MNTN/Breck/Gondola Reinforcement | Reinforce 1,600' of 6"IP main with 12" IP main to reinforce the Breckenridge beyond the Gondola request in Breckenridge, CO. Driven by additional reinforcement from the Company while installing the required reinforcement for the Gondola Resorts.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0  | \$0.5                                |

**PSCo Gas Discrete Capacity Expansion Table****Capital Additions 2022, 01/1/2023 - 9/30/2023 and Forecasted Capital Additions 10/1/2023 - 12/31/2023**

| Line No. | New Business Projects                      | Description   | 2022 (Actual) | 2023                |                         |               | Total Additions Since 2021 Test Year |
|----------|--|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|          |  |   |               | 1/1 - 9/30 (Actual) | 10/1 - 12/31 (Forecast) | Total         |                                      |
| 19       | CO/RG-4 Integration                        | Install 3,800' of 6" PE to connect RG-4 to RG-5 in Granby, CO. Driven by RG-4 being over capacity and reduces risk of customers relying on one regulating station.                              | \$0.0         | \$0.5               | \$0.0                   | \$0.5         | \$0.5                                |
| 20       | CO/Breckenridge/RB-10 IP Reinforcem        | Reinforce 1,000' of 2" main with 4" main in Breckenridge, CO. Driven by increasing system load and reduce risk on the RB-10 system.   | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.4                                |
| 21       | CO / E-111 Integration                     | Install 3,000' of 4" PE and upgrade regulators at E-111 in Eldorado Springs, CO. Driven by need to reduce outage risk by integrating E-111 to E-18/E-55 systems.                                | \$0.0         | \$0.0               | \$0.4                   | \$0.4         | \$0.4                                |
| 22       | CO/BLDR/Longmont/EI-65-67-105 Reinf        | Reinforce 2,060' of 2" main with 6" PE main in the Longmont, CO area. Driven by need to reduce outage risk to customers on the EL-65-67-105 system.   | \$0.0         | \$0.4               | \$0.0                   | \$0.4         | \$0.4                                |
| 23       | CO/BLDR/Longmont/EI-65-67-105 Reinf        | Reinforce 2,060' of 2" main with 6" PE main in the Longmont, CO area. Driven by need to reduce outage risk to customers on the EL-65-67-105 system.   | \$0.0         | \$0.4               | \$0.0                   | \$0.4         | \$0.4                                |
| 24       | RD-6-A Dillon Valley Rebuild               | Rebuild regulating station and increase inlet pipe size from 2" to 4" in Silverthorne, CO. Driven by lack of sufficient capacity at the station to serve existing customer and increasing load. | \$0.4         | \$0.0               | \$0.0                   | \$0.0         | \$0.4                                |
| 25       | CO/MNTN/Avon/Avon Reinforcement            | Reinforce 4,600' of 4" main with 6" PE main in the Avon, CO. Driven by need to reduce outage risk of up to 787 customers.   | \$0.3         | \$0.0               | \$0.0                   | \$0.0         | \$0.3                                |
| 26       | Capacity Expansion - Other                 | Discrete Capacity Expansion projects <\$300,000   | -\$0.1        | \$0.7               | -\$1.5                  | -\$0.8        | -\$0.9                               |
| 27       | <b>Discrete Capacity Expansion - Total</b> |   | <b>\$22.5</b> | <b>\$32.0</b>       | <b>\$34.5</b>           | <b>\$66.5</b> | <b>\$89.1</b>                        |

**Attachment ARG-7  
Capacity Expansion Project Descriptions  
(Projects over \$3 million)**

1. Questar Supply
2. West Metro Reinforcement
3. Rampart Range Reinforcement
4. Winter Park Tie
5. Del Norte Compressor Station
6. F-972 Regulator Station





**Questar Supply**  
 Rifle, CO

**Project Overview**

This project increased supply into the Rifle-Avon pipeline in response to growth in the Western Mountain System, and replaced an existing compressor station at the end of its life. The following work was required:

- New source of supply for 12" Rifle-Avon pipeline to meet 1-in-30 -year Design Day by providing an additional 15 Million Standard Cubic Foot Per Day (MMSCFD) of supply.
- Installed a new compressor facility to replace existing compressor facility.
- Modified existing control skid for gas quality monitoring at Rifle Gas Plant to direct receipt gas to plant or bypass to Rifle-Avon pipeline.
- Reimbursed upstream pipeline company for meter station and pipe installation ( ~1000' new pipeline and metering skid for interconnection at compressor facility).

**Project Technical Details**

- Project Type: Facility Replacement
- Project Location: County Road 264, Rifle, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1000
- New Piping: 2", 4", 6" and 8" Steel HP
- Existing Piping: 8" Steel HP
- Status of Existing Piping: Remain in place from Compressor Station to Rifle Gas Plant
- Other: Compressor Station Replacement

**Explanation of Need**

The project was driven by forecasted peak demand growth that would otherwise exceed the available Western Mountain system supply by the 2022-2023 heating season, causing the project area to drop below minimum system design criteria required to maintain reliable service to firm service customers.

The new source of supply meets 1-in-30-year Design Day for the 12" Rifle-Avon pipeline by providing additional supply via the Rifle Gas Plant.

Due to customer growth on the system (approx. 1.2% annually), the system would not be able to serve Design Day. The approximate supply shortfall was 14,000 Dth/day on Design Day, thus putting approximately 4,200 equivalent firm customers (of the total 19,000 firm customers) at risk of outage.

In addition the existing compressor 1970s compressor and facility were at the end of their useful life and required replacement to maintain system reliability. The existing compressor faced unknown availability of parts, and the existing compressor facility did not meet current operational standards.

**Project Category:**

**Capacity Expansion**

**Project Cost**

- Project Cost (Additions 2022-2023): \$19,899,694
- Xcel Contribution: \$19,899,694
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: July 2022
- Construction Phases: 1
- Construction Completion: July 2023
- In-Service Date: August 2023

**Additional Project Details**

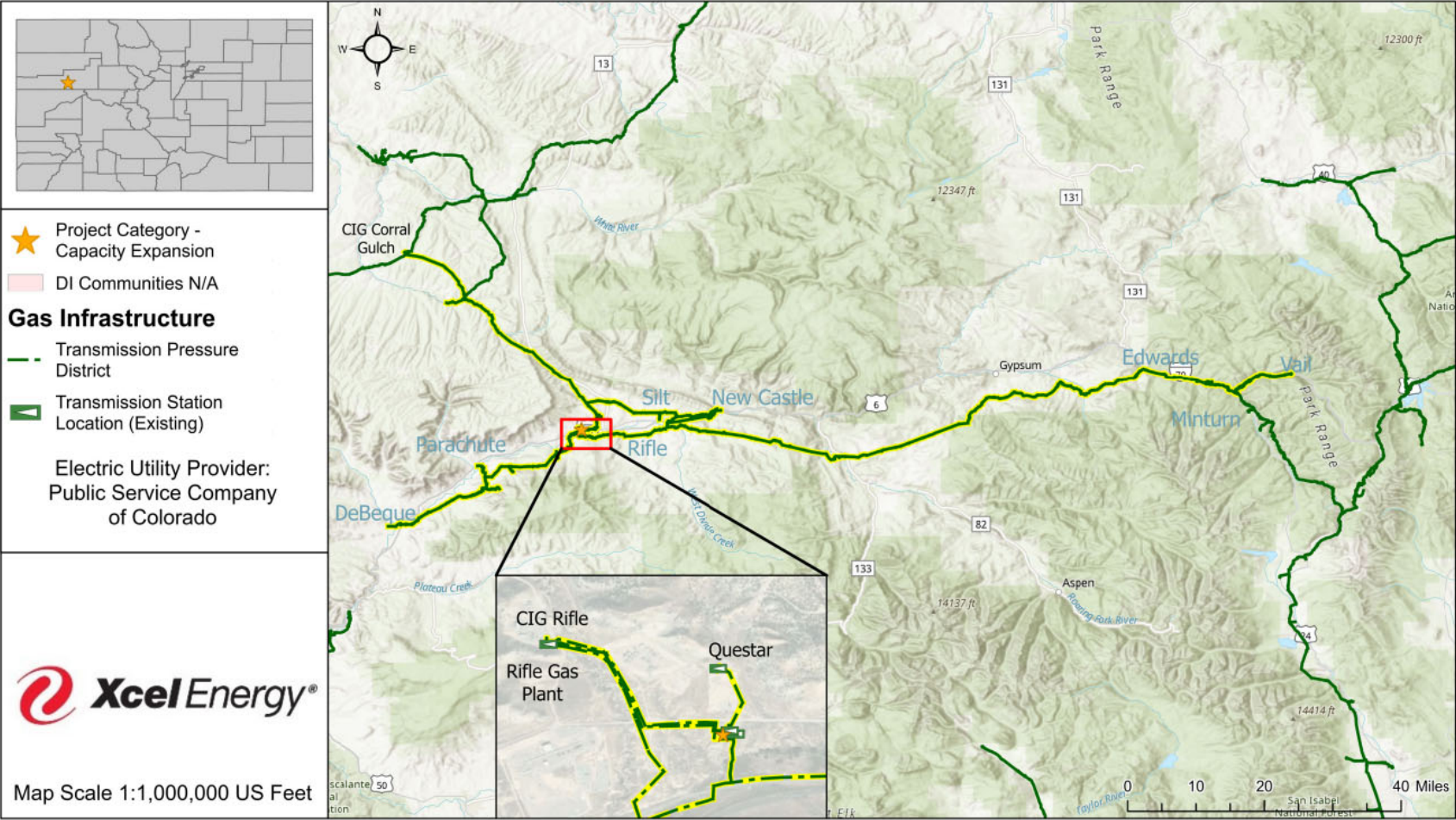
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: No
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Risk: With out this additional support, the system would only be able to serve a low temperature of -15°F (1 time per year probabilistic occurrence) and have an approximate capacity shortfall of 14,000 Dth/day on Design Day, thus putting approximately 4,200 equivalent firm customers (of the total 19,000 firm customers) at risk of outage.

Alternatives: Other alternatives evaluated included overhaul (versus replacement) of the existing compressor unit within the existing compressor facility, or the replacement of the existing compressor with a new unit combined with the replacement of the surrounding compressor facility. The Company also evaluated the installation of 15 miles of new pipeline from Battlement Mesa to Rifle, 30 miles of new pipeline from De Beque to Rifle, and various scope alternatives for facility overhaul with capacity, redundancy, or cost tradeoffs.

# Questar Supply Project Map





## West Metro Reinforcement (IP Pipe and Regulator Station)

Lakewood, CO

### Project Overview

The existing infrastructure is not able to take on the forecasted growth and maintain minimum system design pressures under Design Day conditions. The following reinforcement is required:

The Highlands IH & Boosting PL distribution systems near Sheridan and Colfax are at capacity. Project to accommodate growth in the area that is expected to continue for the foreseeable future while meeting Design Day temperatures and will involve the following installation:

- Intermediate Pressure - 8,500 feet extension of IP system of 12" steel pipeline with tie-in to existing 10" IP at Wadsworth & 14th Ave.
- New Reg Station w/ Dual Runs to Boosting & Highlands distribution systems
- Distribution Main Replacement for the Highlands IH system (5,600 feet 8") and a HDD under Dry Gulch at Denver Parks. Also, including the Boosting System PL (3,000 feet 6", 950 feet 8") and a HDD across Colfax and Dry Gulch

### Project Technical Details

- Project Type: Pipeline Reinforcement
- Project Location: Along 14th Avenue from Wadsworth to Sheridan and 13th Avenue.,

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 8500' of 12" Steel, 6550' of 8" PE and 3000' of 6" PE
- New Piping: 12" Steel, 8" and 6" PE
- Existing Piping: None
- Status of Existing Piping: Remain and we tie into existing pipe
- Other: Regulator Station F-995A and B

### Explanation of Need

The existing distribution system is out of capacity in a rapidly developing area of the city.

- Yearly growth in the area is conservatively approximated at 50 mscfh per year (Approximately 500 customers per year)
- Based on inlet design for these stations, able to serve a morning low of -14°F in 2021 without reinforcement (up to a once a year event)
- Bypassing stations does not help the distribution system
- Proposed project will serve a morning low of -25°F (1-in-30 year event)
- Future load growth of 500+ customers

Due to this growth and need to meet customer demands this project is needed to ensure the reliability to serve existing and future customers.

### Project Category:

Capacity Expansion

### Project Cost

- Project Cost (Additions 2022-2023): \$16,535,968
- Xcel Contribution: \$16,535,968
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: December 2022
- Construction Phases: 4
- Construction Completion: September 2024
- In-Service Date: December 2023

### Additional Project Details

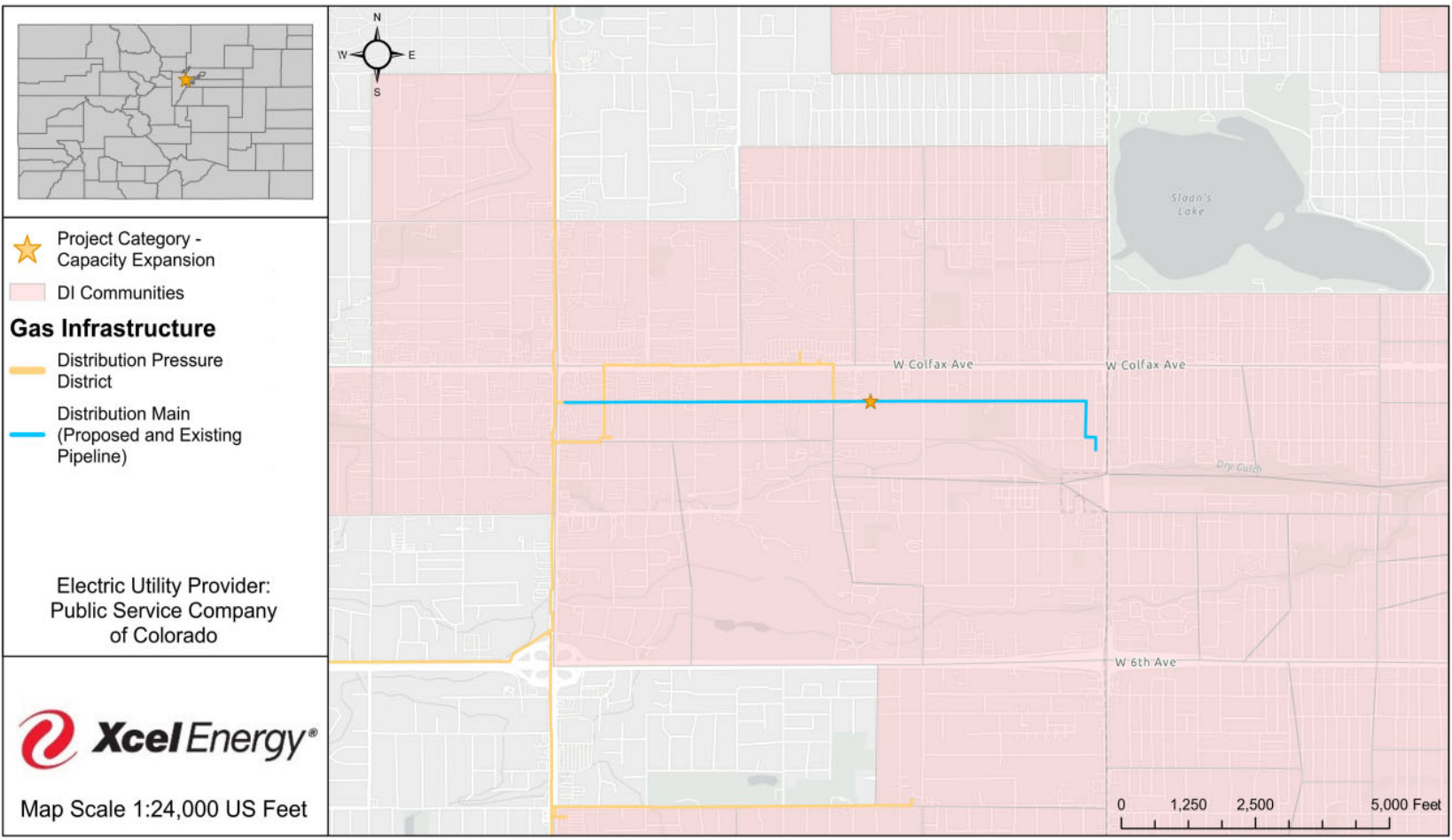
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: No
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

### Risk and Alternative Considerations

Risk: Without the addition of this 12" IP supply line and regulator station in conjunction with installing new distribution lines on the highlands and boosting systems, the system is at the risk of not being able to supply customers with the necessary gas. It is anticipated that over 6000 customers could be with out service if this reinforcement project is not completed.

Alternatives: Considerations included CNG to support incremental demand on systems and non-pipe alternatives including increasing interruptible load, increased DSM penetration, and electrification of gas load.

# West Metro Reinforcement Project Map





**Rampart Range Reinforcement**  
 Unincorporated Douglas County, Colorado

**Project Overview**

The existing infrastructure is not able to take on the forecasted growth and maintain minimum system design pressures under Design Day conditions. The following reinforcement was required:

- Reinforced approximately 11,500 feet of existing 6" IP pipeline with 8" IP pipeline
- Installed approximately 4,800 feet of new 8" IP pipeline
- Installed two new regulator stations
- Rebuilt an existing regulator station
- Relocated an existing distribution main for proper connection
- Upgraded two distribution services to address additional load

**Project Technical Details**

- Project Type: Pipeline Reinforcement, New Pipeline, New Regulator Stations, Regulator Station Rebuild
- Project Location: Rampart Range Road, Douglas County, Colorado

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 16,300
- New Piping: 8" IP Steel
- Existing Piping: 6" IP Steel
- Status of Existing Piping: Remain in Place
- Other: Install New Regulator Stations (F-999 and F-1000), Rebuild Regulator Station (F-635)

**Explanation of Need**

Forecasted Design Day peak demand growth that would otherwise exceed the available system capacity by the 2022-2023 heating season causing the project area to drop below minimum system design criteria required to maintain reliable service to firm service customers. Approximately 3,900 equivalent customers in the project area were at risk of experiencing outages.

**Project Category:**

**Capacity Expansion**

**Project Cost**

- Project Cost (Additions 2022-2023): \$14,418,554
- Xcel Contribution: \$14,418,554
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: July 2020
- Construction Phases: 1
- Construction Completion: June 2023
- In-Service Date: December 2022

**Additional Project Details**

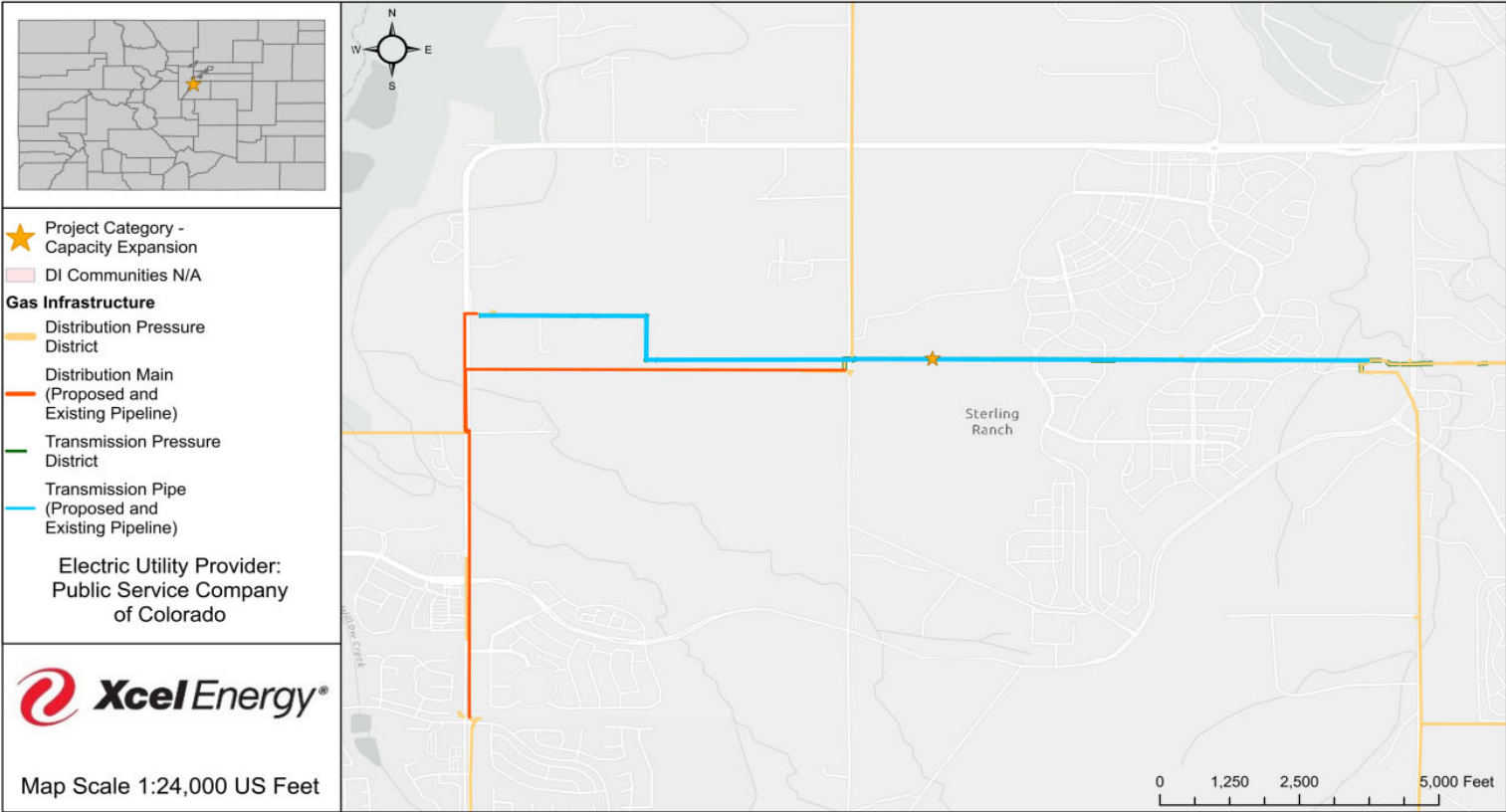
- PHMSA Requirements: No
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

**Risk:** The hydraulic model showed insufficient inlet pressures at the HP-PM regulator stations F-971 and F-740 by the 2022-2023 heating season, which would in turn impact service reliability to firm service customers beginning at -1°F as compared to a Design Day temperature of -25°F, which has a probabilistic occurrence of 7 times per year. Insufficient inlet pressures at critical facilities, such as regulator stations, can impact the station's ability to hold its setpoint which will impact the normal operation of the facility and reduce delivery pressures to customer meters that can result in customer loss of service. In short, without capacity expansion, approximately 3,900 equivalent customers in the project area were at risk of experiencing outages, including customers within the new developments.

**Alternatives:** As this reinforcement project was needed to bring sufficient gas into the project area, the Company investigated other siting locations for the regulator stations and pipeline runs. However, alternative locations would have been in the same vicinity and likely more expensive because they would have crossed land the Company did not already own (thereby increasing costs associated with acquiring land, permitting, and environmental work). Based on these considerations, the project team selected the most efficient locations for the regulator stations, pipeline installations, and associated infrastructure.

# Rampart Range Reinforcement Project Map





**Winter Park Tie**  
 Winter Park, CO

**Project Overview**

The existing infrastructure is not able to take on the forecasted growth and maintain minimum system design pressures under Design Day conditions. The following reinforcement is required:

- 6" HP Winter Park Reinforcement
  - Install about 6,800' of new 6" HP Main to create a tie between the existing 6" HP line in Corona Pass Road (USFS) to the 2" HP main at slightly relocated RH-1 in Winter Park.
- 4" HP Winter Park Relocations to abandon two relatively short segments of existing 2" HP main within the Town of Winter Park to accommodate development.
  - Rebuild and relocate existing regulator station RH-1 to a more suitable and usable site within new development area.
  - Distribution main to run between the new south RH-1 and the existing RH-1 sites.
  - RCVs
  - ILI Receiver at end of new 6" HP main

**Project Technical Details**

- Project Type: Pipeline Reinforcement; Regulator station rebuild
- Project Location: Winter Park, CO

**Physical Equipment Characteristics of Facilities:**

- Length of New Pipe (ft): 6864' 6", 1400' 4"
- New Piping: 6" Steel, 4" Steel
- Existing Piping: 6" Steel, 2" Steel
- Status of Existing Piping: Remain in place
- Other: Regulator Station Rebuild

**Explanation of Need**

The existing 2" Winter Park Lateral was beyond capacity for Design Day and the towns of Winter Park and Fraser were under a new gas connect moratorium. The 6" HP main tie between existing parallel 6" FB HP & 2" MW HP lines was in-serviced in Oct 2021 with temporary end point ties to get through the 2021/22 winter load season.

**Project Category:**

**Capacity Expansion**

**Project Cost**

- Project Cost (Additions 2022-2023): \$7,976,860
- Xcel Contribution: \$7,976,860
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: May 2022
- Construction Phases: 2
- Construction Completion: October 2022
- In-Service Date: November 2022 & December 2022

**Additional Project Details**

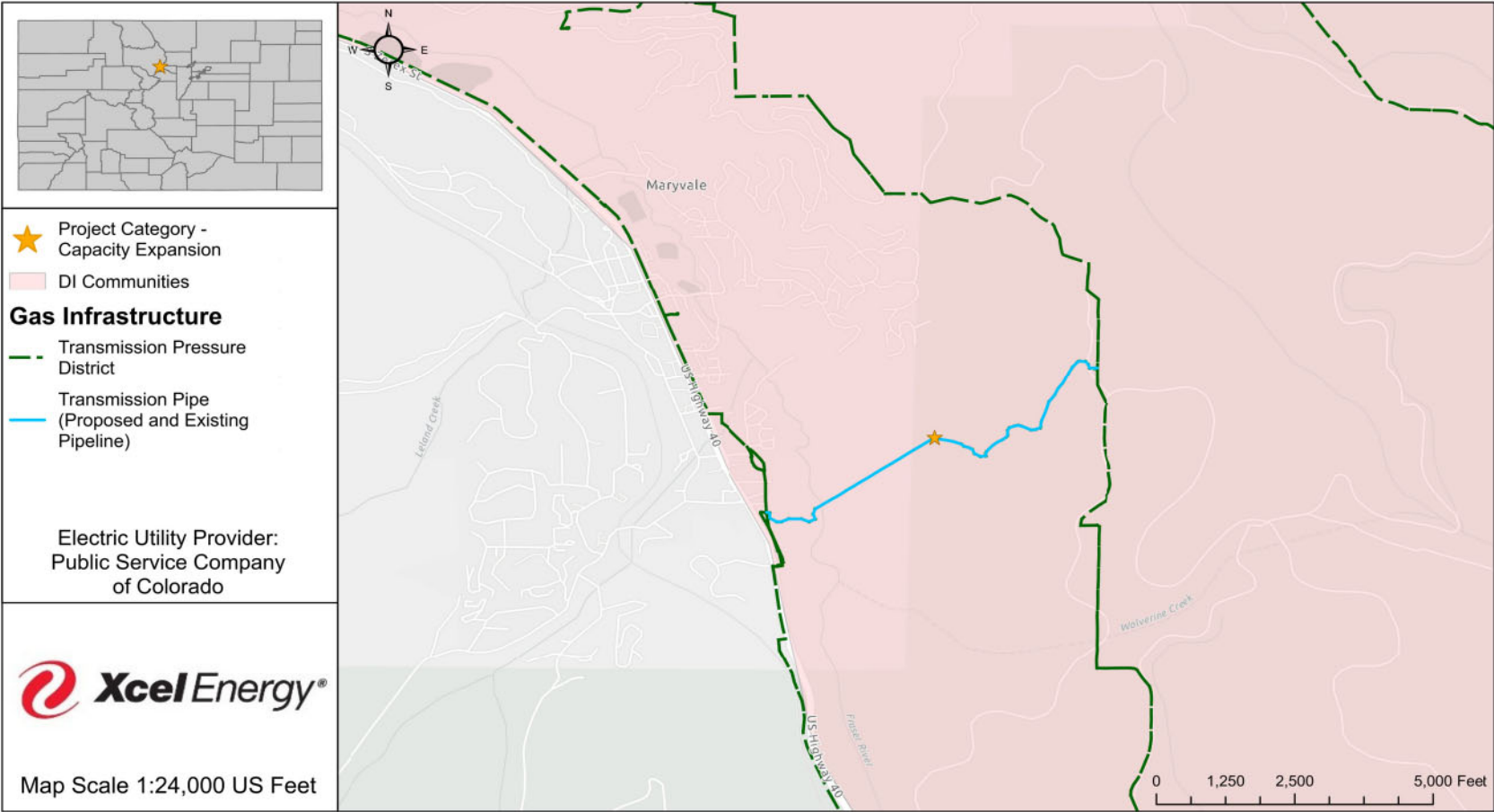
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Risk: If this system was not reinforced, a moratorium would be needed to prevent future growth and expansion. Without this reinforcement, the system would not be able to meet the growth and expansion in the area.

Alternatives: The Company considered installation of a new 6" reinforcement line approx. 3 miles along US40 from the existing 10" HP main to reinforce existing 2" Winter Park lateral. Other items would remain the same. Also, a longer potential route for the 6" HP reinforcement further northeast.

# Winter Park Tie-In Project Map







## Del Norte Compressor Station

Del Norte, Co

### Project Overview

The existing infrastructure is not able to take on the forecasted growth and maintain minimum system design pressures under Design Day conditions. The following work is required:

Install a second, redundant gas compressor with driver, cooler and controls at the Del Norte Station to increase reliability. Extend existing compressor building and modify auxiliaries (building heating/ventilation, fire eyes, LEL, ESD, access, etc.).

### Project Technical Details

- Project Type: Redundant Gas Compressor
- Project Location: 2000 County Rd 14, Del Norte CO

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 0
- New Piping: N/A
- Existing Piping: N/A
- Status of Existing Piping: N/A
- Other: New 1480 HP driver, gas compressor and aftercooler

### Explanation of Need

The increased reliance on the five existing compressors was evidenced by the annual run hours for the Del Norte compressor increasing from approximately 1,200 to 4,100 annual hours from 2017 to 2023. Similarly, the compressor station at Pagosa Springs has been operating at higher levels in recent years. Thus, there was a need for additional compression to ensure adequate support for customers in the winter months if one of the compressors should become unavailable (for maintenance, repair, operational difficulty or any other reason).

### Project Category:

Capacity Expansion

### Project Cost

- Project Cost (Additions 2022-2023): \$11,677,051
- Xcel Contribution: \$11,677,051
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: August 2022
- Construction Phases: 2
- Construction Completion: October 2023
- In-Service Date: December 2023

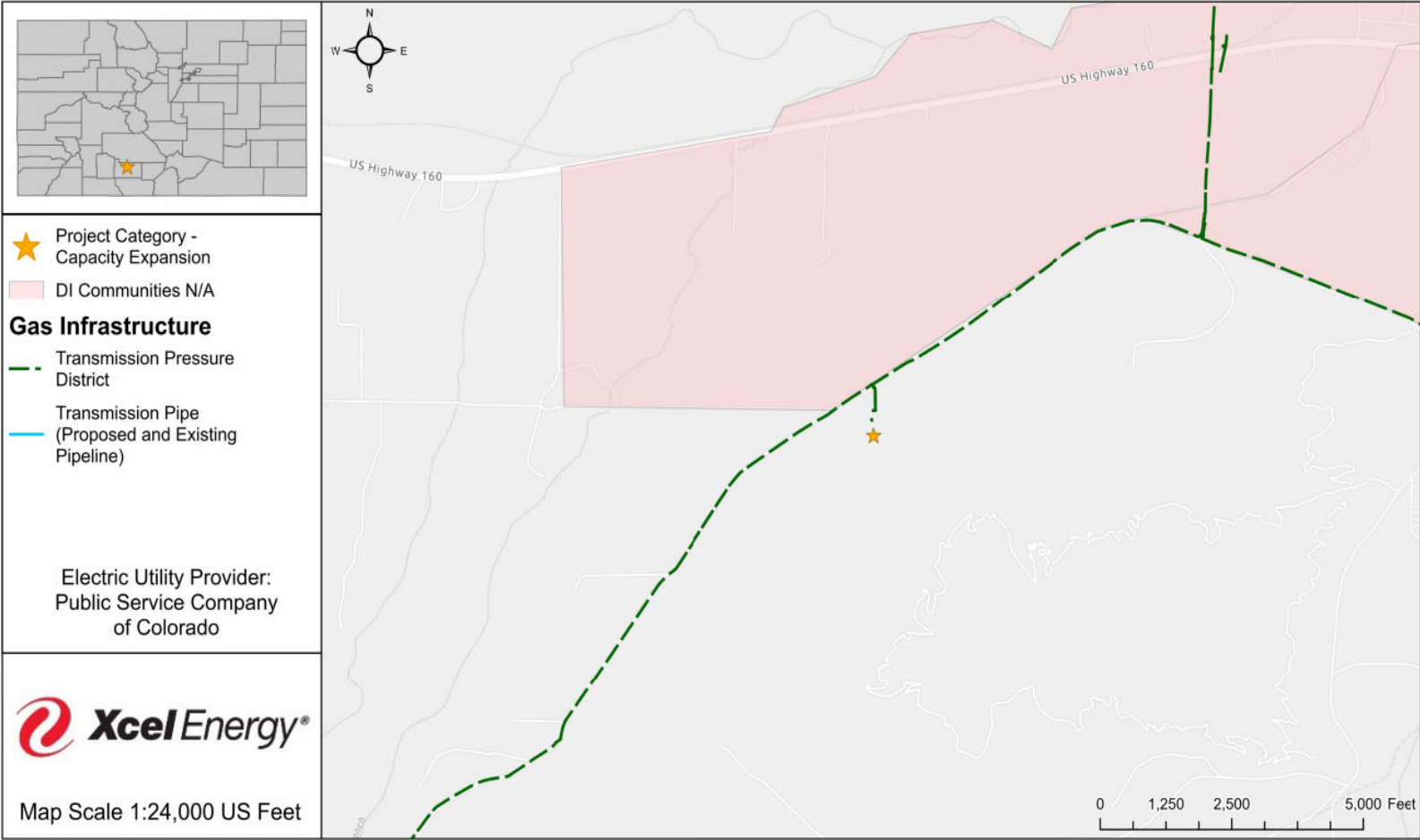
### Additional Project Details

- PHMSA Requirements: No
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

### Risk and Alternative Considerations

The Company investigated adding a new compressor to the existing Del Norte station, to the Pagosa Springs station, to the Tiffany site, or to a new location with no existing compressor. Compared to the Del Norte site, the Pagosa Springs property is more constrained, and the Tiffany site was not an option given the need to increase system pressures further down the line rather than at the gas delivery point at Tiffany. Furthermore, development of a new site would have entailed additional infrastructure costs as compared to expanding an existing site. The Company also considered a simpler project focused on only installing a second compressor and extending the existing building. But the Company determined that work on Unit 1 was necessary to help ensure reliability. The Company also considered increasing the size of a segment of the transmission pipeline from Tiffany (~35 miles southeast of Durango) to Leadville to decrease reliance on the compressors in the Southern Mountain System. While increasing the size and MAOP of the transmission pipeline would decrease the reliance on the compressors, such a project would require approximately 195 miles of 6" and 8" pipe and such replacements would be cost prohibitive. Last, the Company also considered simply increasing the MAOP of the Southern Mountain System. However, the Company has already been operating the system close to its MAOP and there was insufficient capacity available with the existing compressor stations to further increase line pack and system pressures during cold weather events.

# Del Norte Compressor Station Project Map





**F-972 Regulator Station Rebuild**  
 Parker, CO

**Project Overview**

The existing infrastructure was not able to take on the forecasted growth and maintain minimum system design pressures under Design Day conditions. The following reinforcement was required:

Integrate the systems in Parker by installing F-972, approximately 2300' of 6" PE distribution piping along Parker Rd to replace the 2" line, approximately 1200' of 6" PE distribution piping along Stroh Ranch Rd to integrate the systems, and removing F-675 and F-755 to remove the older stations that existed in road ROW.

**Project Technical Details**

- Project Type: Regulator station installation and distribution piping reinforcement
- Project Location: Along Parker Rd for 0.5 miles north of Stroh Ranch Rd

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 3500
- New Piping: 6" PM PE
- Existing Piping: 2" PM Steel
- Status of Existing Piping: Abandoned in place
- Other: F-972

**Explanation of Need**

This project was completed to integrate the distribution system in Parker and increase the load capacity to the area. The prior 2 stations, F-675 and F-755, were on average approaching or above capacity during cold weather, and bypassing one of the stations was already occurring. By removing these stations, installing F-972, and installing PE piping to integrate the 2 stations, the area can be safely fed throughout the winter. Since this is a single feed to the area, the station was installed with redundant runs for additional support if one run were to fail and as additional load is added in the area in the near future.

**Project Category:**

**Capacity Expansion**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,435,412
- Xcel Contribution: \$3,435,412
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: February 2022
- Construction Phases: 1
- Construction Completion: September 2022
- In-Service Date: April 2022

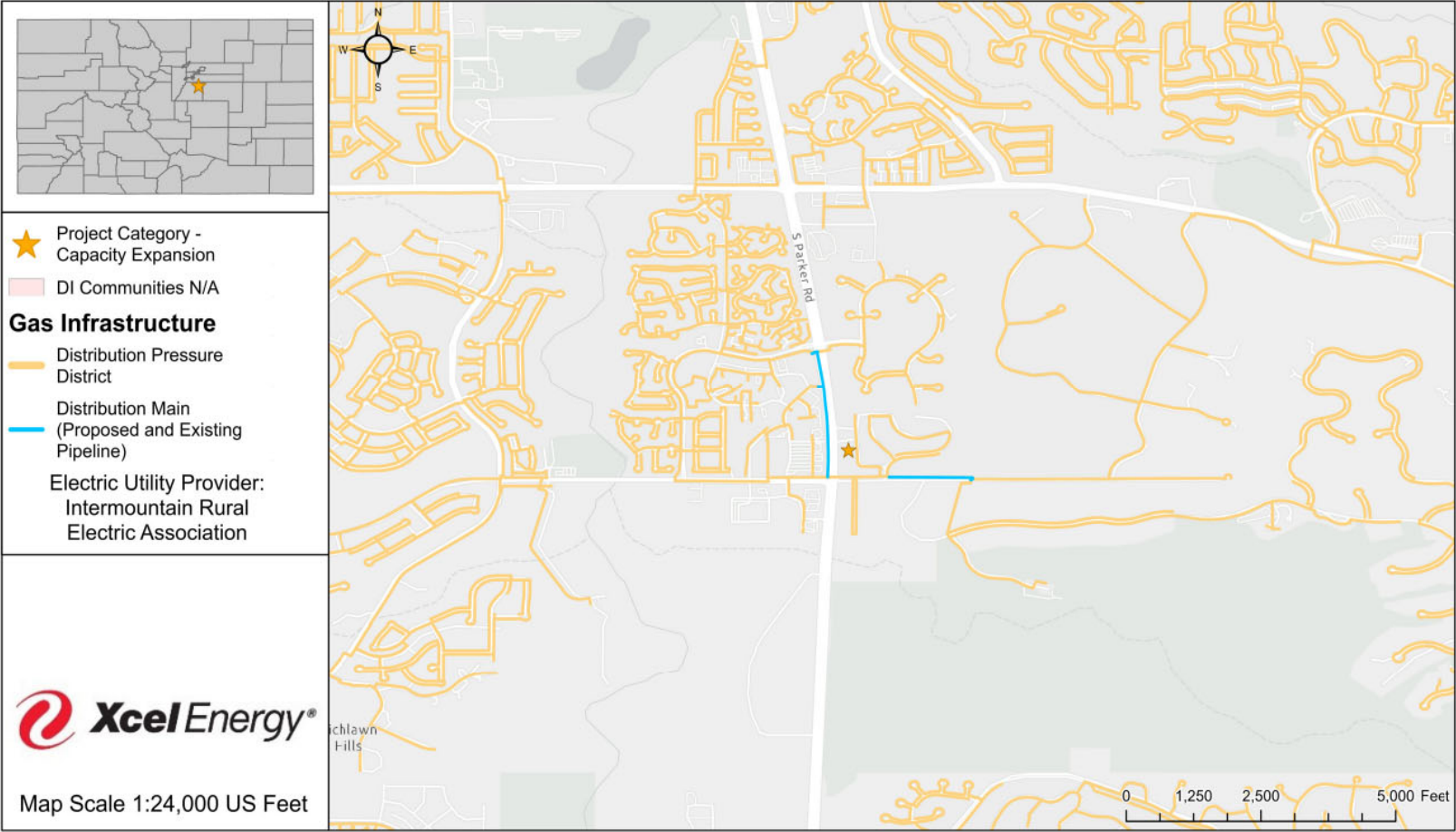
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Upgrading regulator stations in the area could not be avoided. Identified alternatives to the project were rebuilding both stations (F-675 and F-755) or installing the new station at a different location. The location at the other existing station (F-675) was too close to the public road right of way, and additional land to develop the site was unavailable, making a project at that site infeasible. A completely different location was also not viable due to the lack of available and suitable properties in the surrounding area due to recent development but a need to enhance regulator station capacity in that same area. Installing a building/RTU were looked into for increased security and visibility, but was determined not to be necessary.

# F-972 Rebuild Project Map



| Project Nbr Desc                     | Description  | 2022 (Actual) | 2023                |                         | Total  | Total Additions Since 2021 Test Year |
|--------------------------------------|--|---------------|---------------------|-------------------------|--------|--------------------------------------|
|                                      |  |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |        |                                      |
| AMRP-Colorado main replac            | Multiple projects throughout the state to renew existing PVC mains. PVC is considered a high risk material due to properties.  | \$23.2        | \$2.7               | \$5.2                   | \$8.0  | \$31.2                               |
| CSMRP - Coated Steel Main Replaceme  | Multiple projects throughout the state to renew vintage steel mains. Projects replace risk ranked vintage steel mains.   | \$15.3        | \$2.6               | \$5.9                   | \$8.5  | \$23.8                               |
| AMRP Services                        | Multiple projects throughout the state to renew existing PVC services or services associated with PVC mains. PVC is considered a high risk material due to properties. | \$9.0         | \$2.6               | \$0.9                   | \$3.5  | \$12.5                               |
| CO - DIMP Programmatic Service Repl  | Multiple projects throughout the state to renew either high risk material or vintage steel services.   | \$0.0         | \$3.7               | \$3.7                   | \$7.4  | \$7.4                                |
| CSMRP - Gas Mains Discrete           | Multiple projects throughout the state to renew vintage steel mains. Projects replace risk ranked vintage steel mains.   | \$5.4         | \$0.6               | \$0.1                   | \$0.7  | \$6.1                                |
| CO/DMO/DNV/Clarkson St. Main Renew-  | Renew 2,000' of 20" steel inches low distribution system in Denver, CO. Project replaces high risk mill wrap gas main.   | \$0.0         | \$5.0               | \$0.9                   | \$5.8  | \$5.8                                |
| CO - DIMP Programmatic Main Replace  | Multiple projects throughout the state to renew either high risk material or vintage steel mains.  | \$0.0         | \$3.5               | \$2.3                   | \$5.8  | \$5.8                                |
| CSMRP - Gas Services Discrete        | Multiple projects throughout the state to renew vintage steel services or services attached to vintage steel mains.  | \$4.2         | \$0.8               | \$0.3                   | \$1.0  | \$5.2                                |
| CO/Fort Collins 8" IP 2023/MR Renew  | Renew 5,400' of 8" steel main in Fort Collins. Mitigated high risk for leak/failure due to age install.  | \$0.0         | \$0.0               | \$4.5                   | \$4.5  | \$4.5                                |
| CO/LEAD//RENEW//Leadville 2023 6-IN/ | Renew 6,200' of 6", 4", and 2" main in Leadville. Mitigated high risk weld quality.  | \$0.0         | \$3.2               | \$0.2                   | \$3.4  | \$3.4                                |
| CO/LEAD/RENEW/Leadville2023 6-IN/MR  | Renew 15,000' of 2" main in Leadville. Mitigated high risk weld quality  | \$0.0         | \$0.0               | \$2.6                   | \$2.6  | \$2.6                                |
| AMRP Main                            | Multiple projects throughout the state to renew existing PVC mains. PVC considered a high risk material due to properties.   | \$1.7         | \$0.0               | \$0.0                   | \$0.0  | \$1.7                                |
| CO/DNV/AMRP/13101-13671 RANDOLPH PL  | Renew 15,000' of 2" main in Denver. Mitigated high risk PVC pipe.  | \$0.0         | \$0.0               | \$1.4                   | \$1.4  | \$1.4                                |
| CO/NM/AMRP/TellurideSt&Uravan St/MR  | Renew 7,160' of 1 1/4" main in Brighton. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.9                   | \$0.9  | \$0.9                                |
| CO/DIMP/7605-8460 W 106th Ave/MR     | Renew 9,905' of 1 1/4" main in Broomfield. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.9                   | \$0.9  | \$0.9                                |
| CO/AMRP/Co Rd 4 and Bailey Dr/MR     | Renew 6,550' of 1" main in Brighton. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| CO/BRI/NMR/RNEW/E 161st &Lomand Cir  | Renew 4,220' of 1" main in Brighton. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| CO/903-947 Terry St                  | Renew 3,400' of 2" main in Longmont. Mitigated potential for leakage on high risk steel main.  | \$0.0         | \$0.0               | \$0.7                   | \$0.7  | \$0.7                                |
| CO/DIMP/AMRP/7427-16909 E Hinsdale/  | Renew 3,138' of 1 1/4" main in Centennial. Mitigated high risk PVC pipe.   | \$0.0         | \$0.5               | \$0.1                   | \$0.7  | \$0.7                                |
| CO/AMRP/Santa Fe Dr and 40th Ln/MR   | Renew 10,650' of 1" main in Pueblo. Mitigated high risk PVC pipe.  | \$0.0         | \$0.0               | \$0.5                   | \$0.5  | \$0.5                                |
| CO/AMRP/Alkire & W 75th Ave/MR       | Renew 4,000' of 2" main in Arvada. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.5                   | \$0.5  | \$0.5                                |
| CO/DIMP/AMRP/Camino Real & Ruidosa/  | Renew 1,360' of 2" main in Fort Collins. Mitigated high risk PVC pipe.   | \$0.0         | \$0.4               | \$0.0                   | \$0.4  | \$0.4                                |
| CO/DIMP/72nd & Arbutus               | Renew 1,900' of 2" main in Arvada. Mitigated high risk PVC pipe.   | \$0.0         | \$0.3               | \$0.0                   | \$0.3  | \$0.3                                |
| CO/PBLO/RENEW/27th Ln and Oriole Rd/ | Renew 3,850' of 1" main in Pueblo. Mitigated high risk PVC pipe.   | \$0.0         | \$0.0               | \$0.5                   | \$0.5  | \$0.5                                |
| CO/STONE PL AND JAY RD               | Renew 2,200' of 1" main in Boulder. Mitigated high risk PVC pipe.  | \$0.0         | \$0.0               | \$0.4                   | \$0.4  | \$0.4                                |
| CO/AMRP/600-1100 S Saint Louis Ave/  | Renew 1,820' of 1" main in Loveland. Mitigated high risk PVC pipe.   | \$0.0         | \$0.3               | \$0.0                   | \$0.3  | \$0.3                                |
| Other - DIMP Programmatic            | Various DIMP Programmatic projects.  | \$0.0         | \$0.0               | \$0.6                   | \$0.6  | \$0.6                                |
| Total DIMP Programmatic              |  | \$58.7        | \$26.2              | \$34.8                  | \$61.1 | \$119.8                              |
| CO/MAOP/6in Estes Park (Line Loop 8  | MAOP reconfirmation projects on the 6" Estes Park line near Estes Park, CO. Projects needed to ensure traceable, verifiable, and complete MAOP records.                | \$15.6        | \$0.9               | \$0.0                   | \$0.9  | \$16.5                               |
| Facilities to allow MAOP valid       | Various MAOP reconfirmation projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$4.4         | \$3.6               | \$0.0                   | \$3.6  | \$8.0                                |

| Project Nbr Desc                              | Description   | 2022 (Actual) | 2023                |                         | Total  | Total Additions Since 2021 Test Year |
|---|---|---------------|---------------------|-------------------------|--------|--------------------------------------|
|   |   |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |        |                                      |
| CO/MAOP/10" Mesa to Boulder (Line I           | Pressure testing, derating, and installation of regulator stations in the Broomfield, Westminster/Lafayette, CO areas. Projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$5.5         | \$0.6               | \$0.0                   | \$0.6  | \$6.1                                |
| CO/HPGE MAOP Mesa Boulder Derate Re           | Pressure testing, derating, and installation of regulator stations in the Broomfield, Westminster/Lafayette, CO areas. Projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$3.6         | \$0.7               | \$0.0                   | \$0.7  | \$4.3                                |
| CO/HPGE MAOP 12in Fossil Creek                | Renew 2,952' of 12" pipeline in Windsor, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.   | \$0.0         | \$3.6               | \$0.2                   | \$3.8  | \$3.8                                |
| CO/HPGE-MAOP/8in Mesa to Chalk Bluf           | Pressure test 3.1 miles of 8" pipeline and replace 1,000' of 8" pipeline near Brighton and Lochbuie, CO. Driven by insufficient records to support pipeline MAOP.   | \$0.0         | \$3.2               | \$0.1                   | \$3.3  | \$3.3                                |
| CO/20" Southeast Metro MAOP Projec            | Renew 5 miles of 20" pipeline in Denver, CO. Driven by insufficient records to support pipeline MAOP.   | \$3.3         | \$0.0               | \$0.0                   | \$0.0  | \$3.3                                |
| CO/HPGE MAOP Mesa Boulder Derate Re           | Pressure testing, derating, and installation of regulator stations in the Broomfield, Westminster/Lafayette, CO areas. Projects needed to ensure traceable, verifiable, and complete MAOP records.  | \$2.7         | \$0.5               | \$0.0                   | \$0.5  | \$3.2                                |
| CO/6" Estes Park PSIA - MAOP                  | MAOP reconfirmation projects on the 6" Estes Park line near Estes Park, CO. Projects needed to ensure traceable, verifiable, and complete MAOP records.   | \$1.9         | \$0.1               | \$0.0                   | \$0.1  | \$2.1                                |
| CO/PSCO/Crested Butte SC-7/Pres Tes           | Prepare and pressure test SC-7 regulator station in Crested Butte, CO. Driven by insufficient records to support station MAOP.  | \$0.0         | \$0.0               | \$2.0                   | \$2.0  | \$2.0                                |
| CO/East/Greeley/Greeley Headers MAO           | Replace Greeley Headers station piping in Greeley, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.   | \$0.0         | \$0.0               | \$1.7                   | \$1.7  | \$1.7                                |
| CO/East/Greeley/ G-3B - Replace Pip           | Replace 8" CIG to Greeley Headers pipeline with 12" pipeline. Driven by need to ensure traceable, verifiable, and complete MAOP records.  | \$0.0         | \$0.0               | \$1.7                   | \$1.7  | \$1.7                                |
| CO - TIMP Transmission Rule                   | Engineering and permitting activities for emerging MAOP projects.   | \$0.0         | \$0.0               | \$1.4                   | \$1.4  | \$1.4                                |
| CO/PSCO   6" Santa Fe Mtn to Idaho            | Replace 550' of 6" high pressure pipeline and pressure test 1,500' of 6" high pressure pipeline. Driven by need to ensure traceable, verifiable, and complete MAOP records.   | \$0.0         | \$1.2               | \$0.0                   | \$1.2  | \$1.2                                |
| CO/East/Greeley/replace 8" with 12"           | Replace 8" pipeline with 12" pipeline feeding the Greeley Headers station in Greeley, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.  | \$0.0         | \$0.0               | \$0.8                   | \$0.8  | \$0.8                                |
| CO/HPGE 8" Valmont to N Boulder PT-           | Multi-year project to pressure test and replace 14,000' of 6" and 8" pipeline and regulator station E-47. Driven by need to ensure traceable, verifiable, and complete MAOP records.  | \$0.0         | \$0.0               | \$0.5                   | \$0.5  | \$0.5                                |
| Other MAOP                                    | Various MAOP projects.  | -\$4.2        | \$0.2               | \$0.0                   | \$0.2  | -\$4.1                               |
| Total MAOP                                    |   | \$32.8        | \$14.6              | \$8.5                   | \$23.0 | \$55.9                               |
| CO/Coupled IP/Vasquez Blvd & E 48th Phase 2/3 | Renew 4,600 ft. of 12" and 20" IP main in Vasquez Blvd, including 2000 ft of new 20" IP main from 52nd Ave. to E 56th Ave. and 2,600 ft. of new 12" IP main in E 56 <sup>th</sup> Ave west toward Brighton Blvd, as well as 1,665 ft of 4" IP main along E 56th Ave. and Brighton Blvd. Driven by removal of mechanically coupled main. | \$4.3         | \$7.2               | \$0.0                   | \$7.3  | \$11.5                               |
| CO/Coupled IP 20" Brighton Coupled IP         | Replace various coupled IP projects across Colorado.  | \$9.8         | \$0.0               | \$0.0                   | \$0.0  | \$9.8                                |
| 8" Coupled IP/Washington - Phase 2            | 5,000 ft. of existing 8" IP steel main with new 8" IP steel main, which was installed under Washington Street via open trench with one HDD crossing underneath 84th Ave. in Adams County. Driven due to removal of mechanically coupled main.   | \$0.0         | \$7.1               | \$0.5                   | \$7.5  | \$7.5                                |
| CO/Coupled IP/Vasquez Blvd & E 48th - Phase 1 | Renew 3,400' of 20" IP main in Vasquez Blvd. between 48th Ave. and E 52nd Ave. in Denver, CO. Driven by removal of mechanically coupled main  | \$7.3         | \$0.0               | \$0.0                   | \$0.0  | \$7.3                                |

| Project Nbr Desc                    | Description  | 2022 (Actual) | 2023                |                         | Total  | Total Additions Since 2021 Test Year |
|-------------------------------------|--|---------------|---------------------|-------------------------|--------|--------------------------------------|
|                                     |  |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |        |                                      |
| 8" Coupled IP ,Washington- Phase 1  | Renew 4,500 ft. of existing 8" steel IP main in Washington St between E. 76th Ave and E. 83rd Dr and renewed or tied over 10 customer services in unincorporated Adams County. Driven due to removal of mechanically coupled main. | \$2.9         | \$0.8               | \$0.0                   | \$0.8  | \$3.7                                |
| Coupled Pipe IP Pipe Replacement    | Various projects including close-out of projects.  | \$0.0         | \$0.0               | \$1.2                   | \$1.2  | \$1.2                                |
| Coupled Pipe IP Pipeline Repla      | Various projects including close-out of projects.  | \$1.2         | \$0.0               | \$0.0                   | \$0.0  | \$1.2                                |
| CO/DEN/20" Brighton to York Coupled | Replacement of 20" coupled IP pipe in Denver, CO. Driven by replacement of mechanical couplings.   | \$0.6         | \$0.0               | \$0.0                   | \$0.0  | \$0.6                                |
| Total Coupled IP                    |  | \$26.0        | \$15.1              | \$1.7                   | \$16.8 | \$42.8                               |
| IMP Capital Related Work            | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$8.0         | \$2.6               | \$0.0                   | \$2.6  | \$10.6                               |
| IMP Gas Trans Pipe Capital EAST     | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$3.5         | \$2.6               | \$0.0                   | \$2.6  | \$6.1                                |
| CO/TIMP Assessment Sleeve Repair We | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.2         | \$0.0               | \$3.4                   | \$3.4  | \$3.6                                |
| IMP Trans Reg Station - East Div    | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$2.6         | \$0.4               | \$0.0                   | \$0.4  | \$2.9                                |
| CO/TIMP/10" Asbury-Garmesa to 25 Rd | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.0               | \$2.4                   | \$2.4  | \$2.4                                |
| CO/TIMP Assessment Sleeve RepairSou | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.6         | \$0.2               | \$1.0                   | \$1.3  | \$1.8                                |
| CO/TIMP/10" Coal Creek MP & ILI     | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$1.3               | \$0.1                   | \$1.4  | \$1.4                                |
| CO/TIMP/10" Plains Lateral MP & ILI | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.9               | \$0.0                   | \$0.9  | \$0.9                                |
| CO/TIMP/Brighton Sugar Plant Derate | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.0               | \$0.7                   | \$0.7  | \$0.7                                |
| CO/TIMP/20" Parker ILI - CAP Repair | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.0               | \$0.7                   | \$0.7  | \$0.7                                |
| IMP Gas Trans Pipe Capital SOUTH    | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.4         | \$0.3               | \$0.0                   | \$0.3  | \$0.7                                |
| CO/TIMP/6" Frisco-Breck ILI-Piggabl | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.5               | \$0.0                   | \$0.5  | \$0.5                                |
| CO/TIMP/4" Hummel Casing Replacemen | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.0               | \$0.4                   | \$0.4  | \$0.4                                |
| CO/TIMP/6" Frisco-Breck ILI-SleeveR | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.4               | \$0.0                   | \$0.4  | \$0.4                                |
| CO/TIMP Assessment Sleeve Repair In | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.3         | \$0.0               | \$0.0                   | \$0.0  | \$0.4                                |
| CO/PSCo/TIMP/6" Steamboat toCatamnt | See Attachment ARG-10: TIMP Assessment Projects 2022-2023  | \$0.0         | \$0.0               | \$0.3                   | \$0.3  | \$0.3                                |
| Other TIMP Assessments              |  | \$0.0         | \$0.6               | \$0.3                   | \$0.9  | \$0.9                                |
| Total TIMP Assessments              |  | \$15.4        | \$9.8               | \$9.5                   | \$19.4 | \$34.8                               |
| Install shut off valves on pip      | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$9.9         | \$0.2               | \$3.6                   | \$3.8  | \$13.7                               |
| Install Automation to Shut Valves W | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$4.9         | \$2.3               | \$0.0                   | \$2.3  | \$7.2                                |
| Install ASV/RCV East Division       | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$3.4         | \$0.3               | \$1.2                   | \$1.5  | \$4.9                                |
| Install Automation to Shut Valves S | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$3.9         | \$0.1               | \$0.0                   | \$0.1  | \$4.0                                |
| Install Automation to Shut Valves W | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$1.4         | \$0.9               | \$0.0                   | \$0.9  | \$2.3                                |
| Install ASV / RCV Pipe SOUTH Div    | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$0.8         | \$0.4               | \$0.0                   | \$0.4  | \$1.2                                |
| CO/EAST DIV/RCV Replace             | See Attachment ARG-11: ASV/RCV Projects 2022-2023  | \$0.0         | \$0.0               | \$0.4                   | \$0.4  | \$0.4                                |
| Other ASV/RCV                       | Various ASV/RCV installations  | -\$3.0        | \$0.3               | \$0.3                   | \$0.5  | -\$2.4                               |
| Total ASV/RCV                       | Total ASV/RCV  | \$21.4        | \$4.4               | \$5.4                   | \$9.8  | \$31.2                               |
| CO/Aurora 20" EDC Shorted Casing    | Replace 1,500' of 20" pipe due to a shorted casing in Aurora, CO. Driven by need to replace shorted casing to properly maintain pipe integrity.  | \$6.5         | \$0.9               | \$0.0                   | \$0.9  | \$7.3                                |
| CO/Replace 10" Shorted Casings      | Replace 1,700' of 26" pipe due to a shorted casing in Aurora, CO. Driven by need to replace shorted casing to properly maintain pipe integrity.  | \$5.5         | \$0.0               | \$0.0                   | \$0.0  | \$5.5                                |
| CO/Shorted Casings 2022-2024        | Replace various shorted casings on the distribution system across Colorado.  | \$0.3         | \$0.0               | \$1.4                   | \$1.4  | \$1.6                                |
| Other Shorted Casings               | Various shorted casings projects.  | \$0.0         | \$0.1               | \$0.0                   | \$0.1  | \$0.1                                |
| Total Shorted Casings               |  | \$12.3        | \$0.9               | \$1.4                   | \$2.3  | \$14.6                               |
| CO/Inoperable Valve Replacement     | Replace various inoperable valves on the distribution system throughout Colorado. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.   | \$0.0         | \$0.0               | \$2.9                   | \$2.9  | \$2.9                                |
| CO/INOPV/BLDR/28th St & Colorado Av | Renew 750' of 12" steel main and replace three inoperable 12" valves in Boulder, CO. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.                                      | \$0.0         | \$0.0               | \$1.9                   | \$1.9  | \$1.9                                |

| Project Nbr Desc                    | Description  | 2022 (Actual) | 2023                |                         | Total | Total Additions Since 2021 Test Year |
|-------------------------------------|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|                                     |  |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |       |                                      |
| CO/SWMR/INOPV/S Holly & E County Li | Replace three inoperable 10" valves with new 12" valves in Centennial, CO. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.  | \$0.0         | \$1.0               | \$0.0                   | \$1.0 | \$1.0                                |
| Distribution Inoperable Valves      | Replace various inoperable valves on the distribution system throughout Colorado. Driven by need to have valves that are able to be operated to maintain system isolation and maintenance.   | \$0.0         | \$1.0               | \$0.0                   | \$1.0 | \$1.0                                |
| CO/BLDR/INOPV Baseline&Brooklawn/IP | Replace inoperable 10", 12", and 16" isolation valves with two new 12" valves and install 160' of 12" and 16" steel main. Driven by inoperable isolation valves.   | \$0.0         | \$0.8               | \$0.1                   | \$0.9 | \$0.9                                |
| CO/DMR/DNV/RENW/INOPV/E 38th&Kramer | Replace inoperable 8" and 10" mainline valve with new 8" and 6" valveset in Denver, CO. Driven by inoperable valves and corrosion in vault.  | \$0.0         | \$0.0               | \$0.7                   | \$0.7 | \$0.7                                |
| CO/Inoperable Valve Replacemnt-East | Various smaller inoperable valve projects including projects in Boulder and Denver, CO.  | \$0.0         | \$0.0               | \$0.4                   | \$0.4 | \$0.4                                |
| Other Inoperable Valves             | Replacement of inoperable valves.  | \$0.0         | \$0.0               | \$0.0                   | \$0.0 | \$0.0                                |
| Total Inoperable Valves             |  | \$0.0         | \$2.8               | \$6.1                   | \$8.8 | \$8.8                                |
| CO/MD/OBSODR/WR-1-A Odorizer        | Replaced temporary odorizer with permanent odorizer at regulator station WR-1-A in Grand Junction, CO. Driven by need to odorize line per 49 CFR §192.625.   | \$0.0         | \$0.0               | \$1.2                   | \$1.2 | \$1.2                                |
| CO/PSCo/Orchard Mesa Odorant Tank R | Replace odorant tank and structure at Orchard Mesa Compressor Station near Orchard Mesa, CO. Driven unstable soil conditions around tank structure and avoid failure of odorizer and ability to properly odorize gas per 49 CFR 192.625. | \$0.0         | \$0.0               | \$0.9                   | \$0.9 | \$0.9                                |
| CO/Rifle Gas Plant/Obsolete Odorize | Replace obsolete odorizer at the Rifle Gas Plant in Rifle, CO. Driven by need to replace odorizer that could no longer be repaired   | \$0.0         | \$0.8               | \$0.0                   | \$0.8 | \$0.8                                |
| CO/MD/OBSODR/WR-20-A Odorizer       | Replaced temporary odorizer with permanent odorizer at regulator station WR-20-A in the Grand Junction, CO area. Driven by need to odorize line per 49 CFR §192.625.   | \$0.0         | \$0.0               | \$0.7                   | \$0.7 | \$0.7                                |
| Other Obsolete Odorizer             | Various replacements of obsolete odorizers   | -\$0.1        | \$0.4               | \$0.3                   | \$0.7 | \$0.6                                |
| Total Obsolete Odorizer             |  | -\$0.1        | \$1.2               | \$3.0                   | \$4.2 | \$4.2                                |
| Replace Obsolete Distribution       | Replace various distribution system obsolete regulators. Driven by need to replace regulators that are no longer able to be repaired   | \$1.3         | \$0.0               | \$0.3                   | \$0.3 | \$1.6                                |
| CO/DNV Metro/F-553 Reg Station Rebu | Replace obsolete regulators and rebuild station at F-553 in Denver, CO. Driven by need to replace regulators that are no longer able to be repaired.   | \$1.0         | \$0.5               | \$0.0                   | \$0.5 | \$1.4                                |
| Other Obsolete Regulators           | Various smaller obsolete regulator replacements.   | \$0.0         | \$0.0               | \$0.2                   | \$0.2 | \$0.2                                |
| Total Obsolete Regulators           |  | \$2.3         | \$0.4               | \$0.5                   | \$1.0 | \$3.2                                |
| CO/SWMR//BRP 2023_F-34_Rebuild      | Replace obsolete boosting regulator station F-34 in the Southwest Metro Denver, CO area. Driven by need to replace leaking valves and obsolete station equipment that is no longer able to be repaired.                                  | \$0.0         | \$0.0               | \$1.6                   | \$1.6 | \$1.6                                |
| CO/SWMR/BRP_F-13_Rebuild            | Replace obsolete boosting regulator station F-13 in the Southwest Metro Denver, CO area. Driven by need to replace leaking valves and obsolete station equipment that is no longer able to be repaired.                                  | \$0.0         | \$0.0               | \$1.4                   | \$1.4 | \$1.4                                |
| CO/F-340/Reg Station Rebuild        | Rebuild regulator station F-340 in the Denver, CO area. Driven by need to replace multiple obsolete control valve regulators and inoperable valves, while adding redundancy.   | \$0.0         | \$2.3               | \$2.4                   | \$4.7 | \$4.7                                |
| CO/F-340/Reg Station Rebuild        | Rebuild regulator station F-340 in the Denver, CO area. Driven by need to replace multiple obsolete control valve regulators and inoperable valves, while adding redundancy.   | \$0.0         | \$0.4               | \$0.0                   | \$0.4 | \$0.4                                |



| Project Nbr Desc                           | Description   | 2022 (Actual) | 2023                |                         | Total | Total Additions Since 2021 Test Year |
|--|---|---------------|---------------------|-------------------------|-------|--------------------------------------|
|  |   |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |       |                                      |
| CO/DMR/Rebuild F-808                       | Rebuild regulator station F-808 in the Denver, CO area. Driven by the need to replace obsolete control valves, actuators, generator and RTU, while also increasing capacity and addressing station safety.                        | \$0.0         | \$4.1               | \$0.3                   | \$4.4 | \$4.4                                |
| CO/DMR/Rebuild F-808-Comm                  | Rebuild regulator station F-808 in the Denver, CO area. Driven by the need to replace obsolete control valves, actuators, generator and RTU, while also increasing capacity and addressing station safety.                        | \$0.0         | \$0.0               | \$0.2                   | \$0.2 | \$0.2                                |
| CO/Tiffany Upgrades/Pockets, Dehy          | Replace obsolete compressor and auxiliary equipment at the Tiffany Compressor Station near the Durango, CO area. Driven by need to replace various equipment to maintain compressor units and maintain gas quality for customers. | \$0.0         | \$4.9               | \$0.0                   | \$4.9 | \$4.9                                |
| CO/Tiffany Upgr/Pockets Dehy Vibrat        | Replace obsolete compressor and auxiliary equipment at the Tiffany Compressor Station near the Durango, CO area. Driven by need to replace various equipment to maintain compressor units and maintain gas quality for customers. | \$0.0         | \$0.0               | \$1.2                   | \$1.2 | \$1.2                                |
| CO/MNWEST/RIFLE BACKUP GENERATOR           | Installation of back-up generator at Rifle Gas Plant in Rifle, CO. Needed to support critical activities in electrical power loss event.  | \$0.0         | \$1.4               | \$0.0                   | \$1.4 | \$1.4                                |
| CO/EAST/Backup Generator Tiffany           | Installation of back-up generator at Del Norte Compressor Station in Del Norte, CO. Needed to support critical activities in electrical power loss event.   | \$0.0         | \$1.2               | \$0.0                   | \$1.2 | \$1.2                                |
| CO/Chalk Bluffs/Back Up Gen                | Installation of back-up generator at Tiffany Compressor Station near the Durango, CO area. Needed to support critical activities in electrical power loss event.  | \$0.0         | \$0.0               | \$0.9                   | \$0.9 | \$0.9                                |
| CO/South/Pagosa Springs/Backup Gene        | Various activities around the installation of generators at three facilities.   | \$0.0         | \$0.0               | \$0.9                   | \$0.9 | \$0.9                                |
| Other Compressor Station Backup Generators | Various replacements of other compressor station Backup Generators  | \$0.0         | -\$0.1              | \$1.3                   | \$1.3 | \$1.3                                |
| Total Compressor Station Backup Generators |   | \$0.0         | \$2.5               | \$3.2                   | \$5.8 | \$5.8                                |
| CO/Pipeline Marker Project                 | Install Light Detection and Ranging ("LIDAR") caps on existing pipeline markers across all 2,200 miles of the Company's gas transmission assets in Colorado. The project also replaced any missing, worn, or damaged              | \$1.5         | \$1.3               | \$1.2                   | \$2.5 | \$4.0                                |
| Psc Gas Tools Rep Discrete                 | Various tool purchases as needed to support gas operations  | \$2.1         | \$2.0               | \$0.5                   | \$2.5 | \$4.5                                |
| CO/Campion/Gas Transmission Stopple        | Various tool purchases as needed to support gas operations  | \$0.1         | \$0.5               | \$0.1                   | \$0.7 | \$0.8                                |
| PSCo Gas Operations South                  | Various tool purchases as needed to support gas operations  | \$0.1         | \$0.5               | \$0.0                   | \$0.5 | \$0.6                                |
| PSCO Gas Training Tools & Equi             | Various tool purchases as needed to support gas operations  | \$0.0         | \$0.0               | \$0.4                   | \$0.5 | \$0.5                                |
| Other Tools                                | Various tool purchases as needed to support gas operations  | \$0.1         | \$0.0               | \$0.2                   | \$0.2 | \$0.3                                |
| Total Tools                                |   | \$2.4         | \$3.1               | \$1.2                   | \$4.3 | \$6.8                                |
| CO/Install Redundant Regulators on         | Replace or rebuild high risk regulator stations. These stations feed non-integrated/sparsely integrated systems where failure of equipment has the risk of an over or under pressure event.                                       | \$2.4         | \$0.0               | \$0.0                   | \$0.0 | \$2.4                                |
| CO/MTN/RB-4 Reg Station Rebuild            | Rebuild regulator station RB-4 as part of the redundant regulator program. These stations feed non-integrated/sparsely integrated systems where failure of equipment has the risk of an over or under pressure event.             | \$0.0         | \$0.0               | \$1.3                   | \$1.3 | \$1.3                                |
| Other Redundant Regulators                 | Various other rebuilds for redundant regulators   | \$0.0         | \$0.0               | \$0.1                   | \$0.1 | \$0.1                                |
| Total Redundant Regulators                 |   | \$2.4         | \$0.0               | \$1.4                   | \$1.4 | \$3.9                                |
| CO/HPGE/2in Bayfield EXP                   | Replace 400' of exposed 4" high pressure pipeline near Bayfield, CO. Driven by need to reduce risk to transmission assets.  | \$0.9         | \$0.9               | \$0.0                   | \$0.9 | \$1.8                                |

| Project Nbr Desc                       | Description  | 2022 (Actual) | 2023                |                         | Total | Total Additions Since 2021 Test Year |
|--|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|  |  |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |       |                                      |
| CO/HPGE_Hubbard Mesa to New Castle     | Renew 100' of 4: high pressure pipeline in exposed sections near New Castle, CO. Driven by need to reduce risk to exposed assets.  | \$0.0         | \$0.6               | \$0.0                   | \$0.6 | \$0.6                                |
| Cathodic Protection                    | Installation and replacement of cathodic protection systems to reduce corrosion on assets.   | \$0.5         | \$0.8               | \$0.8                   | \$1.6 | \$2.2                                |
| CO/Bristol 3305 RTU-F808,F641,Cogen    | Replace obsolete Bristol 3305 Remote Terminal Units.   | \$0.2         | \$0.4               | \$0.2                   | \$0.5 | \$0.7                                |
| CO/Obsolete RTU Program                | Replace obsolete RTUs across Colorado. Driven by need to reduce risk of  | \$0.0         | \$0.0               | \$0.3                   | \$0.3 | \$0.3                                |
| Other - RTU Replacements               | Other RTU replacements.  | \$0.4         | \$0.1               | \$0.3                   | \$0.4 | \$0.8                                |
| Total RTU Replacements                 |  | \$0.6         | \$0.4               | \$0.8                   | \$1.2 | \$1.8                                |
| CO/SWMR/RENW/Vault138 SHolly&ECaley    | Replace obsolete vault due to inoperable valves and corrosion.   | \$0.0         | \$0.0               | \$1.3                   | \$1.3 | \$1.3                                |
| CO/SEMR/AUR/RENW/Vault 132-E13th &     | Replace 80' of 6" steel IP line and 40' of steel IP line, including the installation of 6" and 8" valves to retire Vault 132 in Aurora, CO. Driven by inoperable valves and corrosion issues associate with vaults.  | \$0.0         | \$0.0               | \$0.6                   | \$0.6 | \$0.6                                |
| CO/Above Ground Facility Protection    | Above Ground Facility Protection projects reduce the risk of damage on above ground facilities including, but not limited to, meters and regulator stations on above ground pipeline systems. The installed protection will help protect against potential outside force damage, primarily due to vehicular traffic. | \$0.9         | \$0.4               | \$0.0                   | \$0.4 | \$1.3                                |
| Other Above Ground Facility Protection | Various installations to protect above ground facilities.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0 | \$0.5                                |
| Total Above Ground Facility Protection |  | \$1.4         | \$0.4               | \$0.0                   | \$0.4 | \$1.8                                |
| Hardscaping                            | Ensure resilience of above ground natural gas assets through preparation of site to mineral earth, clearing of weeds or trees, application of weed erosion control fabric, and completion with compacted recycled asphalt or gravel and edging.  | \$0.0         | \$0.4               | \$1.1                   | \$1.5 | \$1.5                                |
| Install ERXs on D M/R Denver           | Installation of ERX devices to better monitor gas system across Colorado.  | \$0.2         | \$0.1               | \$0.2                   | \$0.3 | \$0.5                                |
| Other ERX Installation                 | Installation of ERX devices to better monitor gas system across Colorado.  | \$0.3         | \$0.3               | \$0.2                   | \$0.4 | \$0.7                                |
| Total ERX Installation                 |  | \$0.5         | \$0.4               | \$0.4                   | \$0.8 | \$1.3                                |
| PSC-CO-Gas-Locates                     | Capitalized component of damage prevention locates.  | \$0.4         | \$0.3               | \$0.4                   | \$0.7 | \$1.1                                |

**Attachment ARG-9**  
**System Safety and Integrity Project Descriptions**  
**(Projects over \$3 million)**

1. Clarkson Street 2022
2. Clarkson Street 2023
3. Fort Collins 8" IP
4. Leadville Main Renewal 2022
5. Leadville Main Renewal 2023
6. 6" Estes Park
7. 10" Mesa to Boulder
8. 20" Southeast Metro
9. 12" Fossil Creek
10. 8" Mesa to Chalk Bluffs
11. Washington Coupled IP Phase 1
12. Washington Coupled IP Phase 2
13. Vasquez Blvd & East 48<sup>th</sup> – Phase 1
14. Vasquez Blvd & East 48<sup>th</sup> – Phase 2/3
15. Brighton to York 20" Coupled IP
16. Replace 10" Shorted Casings (Aurora 26")
17. Aurora 20" Shorted Casings
18. F-340 Regulator Station Rebuild
19. F-808 Regulator Station Rebuild
20. Tiffany Compressor Station Upgrades
21. Transmission Pipeline Marker Project



**Clarkson St Main Renewal 2022**  
 Denver, CO

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coated Steel Main Replacement
- Risk Ranking: High

Clarkson Street main renewal projects are part of an overall multi-year, multi-phase effort to renew a coated steel gas main. The 2022 work renewed approximately 3,000' of coupled 10" and 12" MW gas main between 9th Ave to 14th Ave on Clarkson St in Denver, CO. Approximately 68 services were renewed or tied over to the new main using various pipe sizes for the service pipe.

**Project Technical Details**

- Project Type: Pipeline Replacement
- Project Location: Clarkson St between 14th Ave and 9th Ave in Denver, CO.

**Physical Equipment Characteristics of Proposed Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 3,000'
- New Piping: 12"; IL HDPE
- Existing Piping: 10" & 12"; IL Steel
- Status of Existing Piping: Abandon in place

**Explanation of Need**

Based on the Company's risk analysis, the existing MW gas main was classified as high-risk under the coated steel program. The existing pipeline was installed in the late 1940s and was past its useful life, and also used compression couplings, which are prone to leaks. Due to pipe age and material type, as well as use of compression couplings, the existing pipeline was susceptible to a risk of leaks at the fittings and a risk of blowing gas if the fittings failed. Based on the Company's DIMP assessment, this existing gas main was susceptible to potential leaks and deemed high risk to the gas system. PHMSA C.F.R. 192.1007(d) requires operators to identify and implement measures to address risks, which is why this project was identified for inclusion into the Company's DIMP problematic steel main renewal program. Moreover, due to the large diameter and densely populated urban area of the pipeline, there would be a large impact to customers should failure occur. The project was necessary to address these risks.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost: \$4,096,141
- Xcel Contribution: \$4,096,141
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: April 2022
- Construction Phases: 1
- Construction Completion: April 2023
- In-Service Date: August 2022

**Additional Project Details**

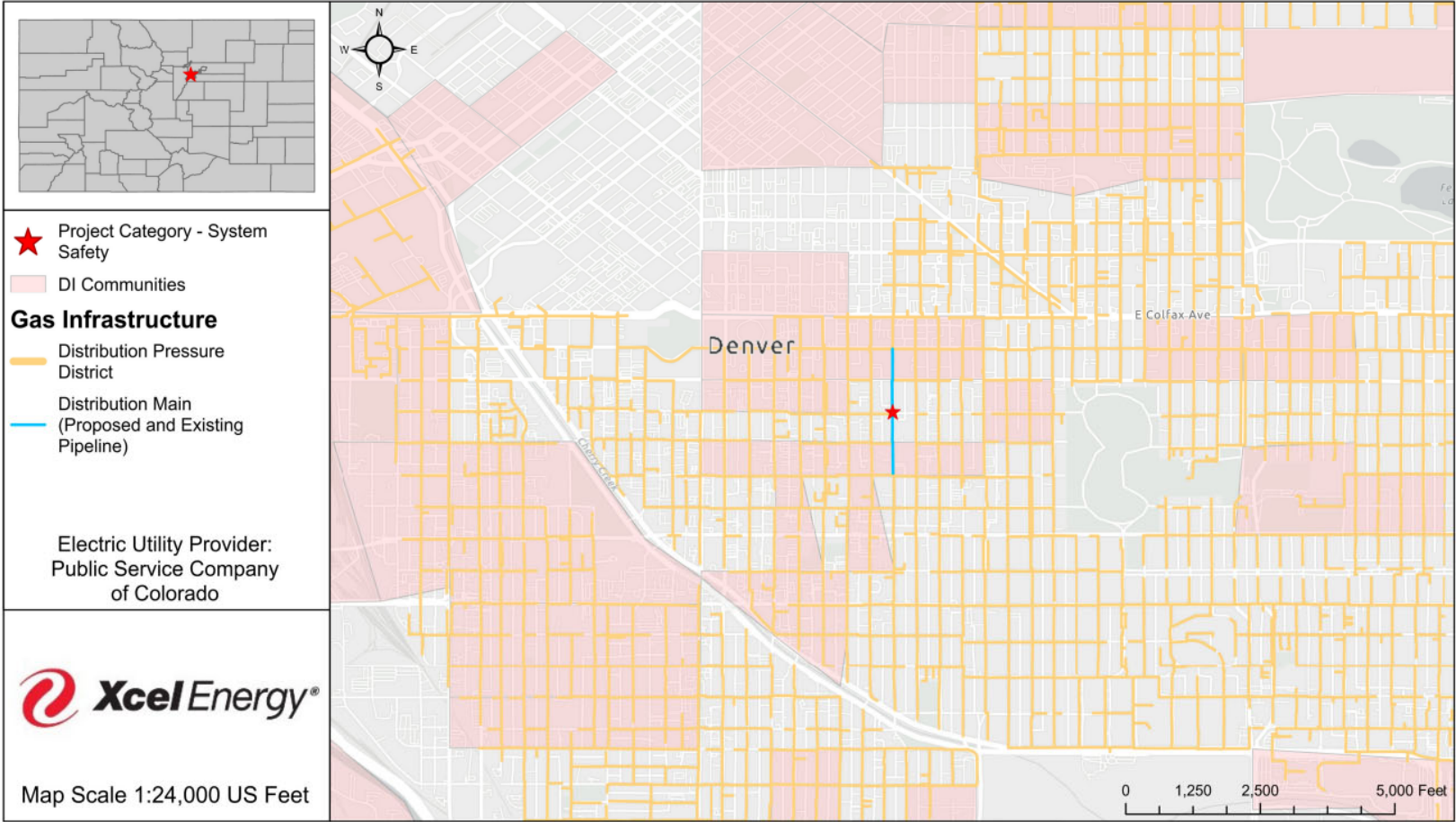
- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Alternatives to the project such as a reroute the gas main were not considered as there were not any conflicts with existing utilities in the road ROW.

No non-pipeline alternatives were not considered because only a small portion of existing customers were fed off of the existing main and would be affected.

# Clarkson 2022 Project Map





**Clarkson St Main Renewal 2023**  
 Denver, CO

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Vintage and/or Problematic Steel
- Risk Ranking: High

Clarkson Street main renewal projects are part of an overall multi-year, multi-phase effort to renew a coated steel gas main. The 2023 work renewed approximately 2,000' of coupled 20" MW gas main between 20th and Downing to 18th Ave and Clarkson St. in Denver, CO. Approximately 20 services were renewed or tied over to the new main using using various pipe sizes for the service pipe.

**Project Technical Details**

- Project Type: Pipeline Replacement
- Project Location: 20th Ave and Downing St to 18th Ave and Clarkson St in Denver, CO.

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 2,000'
- New Piping: 20"; IL Steel
- Existing Piping: 20"; IL Steel
- Status of Existing Piping: Abandon in place and remove

**Explanation of Need**

Based on the Company's risk analysis, the existing MW gas main was classified as high-risk under the coated steel program. The existing pipeline was installed in 1948 and was past its useful life, and also used compression couplings, which are prone to leaks. Due to pipe age and material type, as well as use of compression couplings, the existing pipeline was susceptible to a risk of leaks at the fittings and a risk of blowing gas if the fittings failed. Thus, based on the Company's DIMP assessment, this existing gas main is susceptible to potential leaks and is deemed high risk to the gas system. PHMSA C.F.R. 192.1007(d) requires operators to identify and implement measures to address risks, which is why this project was identified for inclusion into the Company's DIMP problematic steel main renewal program. Moreover, due to the large diameter and densely populated urban area of the pipeline, there would be a large impact to customers should failure occur. The project was necessary to address these risks.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$5,835,850
- Xcel Contribution: \$5,835,850
- Third Party Contribution: 0

**Project Status**

- Construction Kick-Off: June 2023
- Construction Phases: 1
- Construction Completion: October 2023
- In-Service Date: September 2023

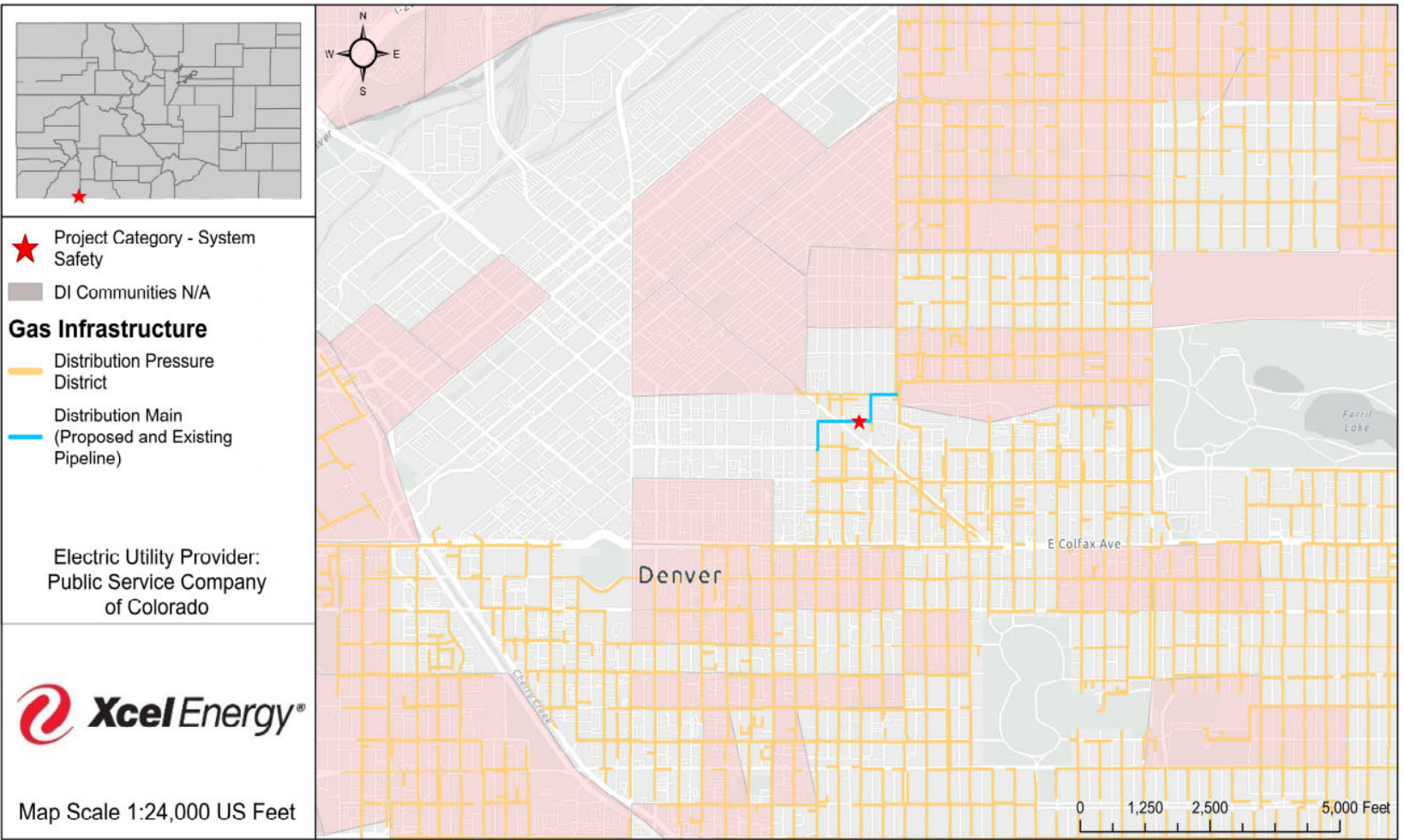
**Additional Project Details**

- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Alternatives the Company considered whether a re-route was feasible. However, a re-route was not a viable option because it would require installing 20" pipe on the new route and also 8-12" pipe on the existing route to continue to feed the existing services, which would result in a higher overall project cost. No non-pipeline alternatives were not considered because only a small portion of customers were directly fed off the existing main such that electrification of these customers would not solve the broader issue. Derating was also not a viable option due to the existing main being located on Public Service's lowest pressure system.

# Clarkson St Main Renewal Project Map





## Fort Collins 8" IP – 2022 and 2023 Projects

Fort Collins, Co

### Project Overview

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Vintage and/or Problematic Steel
- Risk Ranking: High

The Fort Collins 8" IP 2022 and 2023 projects are part of a multi-year replacement of portions of high-risk 8" steel IP main in Fort Collins, Colorado.

In 2022, the Company completed renewal which addressed 5,500 feet of existing 8" steel IP main and also renewed 500 feet of existing 6" steel IP main and tied over seven customer services.

The 2023 project renewed approximately 5,400 feet of existing 8" steel IP main and installed new 6" to reach the existing 6", as well as renewing or tying over four customer services.

### Project Technical Details

- Project Type: Pipeline Replacement
- Project Location: 2022: In Wood St and Washington Ave from Cherry St to Muberry St; in Grant Ave to Shields St  
2023: In Shields St between Prospect Rd and Drake Rd

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 5,500' 8"; 5,400' 8"
- New Piping: 8", 6" Steel
- Existing Piping: 8", 6" Steel
- Status of Existing Piping: Abandon in Place

### Explanation of Need

These projects are within DIMP. The need for these projects was identified based on their high risk ranking as well as field evaluation of the infrastructure, the age of the pipe, and original construction materials and methods. Due to pipe age and quality, these mains were susceptible to leaks, blowing gas, and and customer outages (as a result of leaks or blowing gas). These mains are a major feed to all the lower pressure systems in Fort Collins. The projects were necessary to address these risks.

### Project Category:

System Safety and Integrity

### Project Cost

- Project Cost (Additions 2022-2023): \$9,419,859
- Xcel Contribution: \$9,419,859
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: May 2022
- Construction Phases: 1
- Construction Completion: November 2022 & December 2023
- In-Service Date: November 2022 & December 2023

### Additional Project Details

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

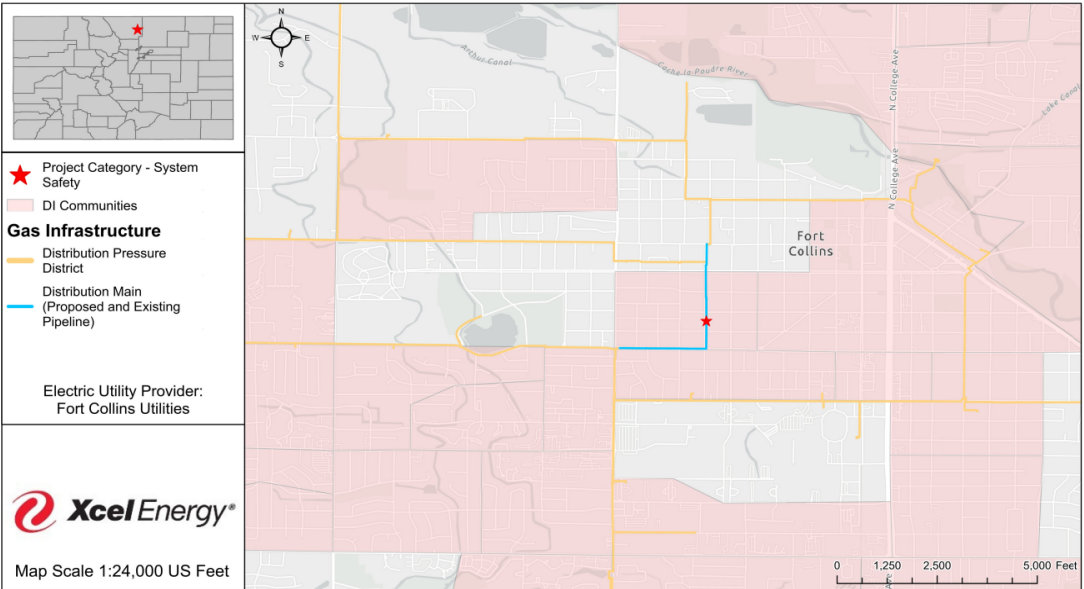
### Risk and Alternative Considerations

This risk is mainly concerned with leaks that could occur at the fittings as well as the potential for blowing gas if the main is significantly disturbed due to corrosion and mechanical couplings. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation.

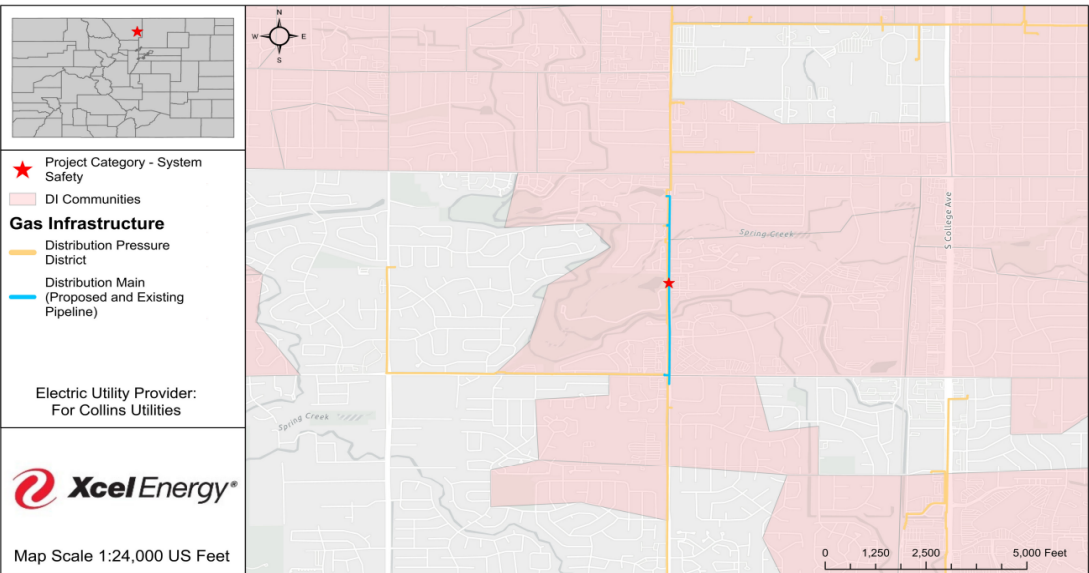
Given the nature of these projects as coated steel replacement projects to preserve system safety and integrity, alternatives are generally not viable options. Re-routing is generally not feasible because a new route would increase the length of pipeline used and increase costs. Derating also is not feasible due to the criticality of the existing main to serving the majority of Fort Collins.



Fort Collins 8" IP 2022 Project Map



Fort Collins 8" IP 2023 Project Map





## Leadville Main Renewal - 2022

Leadville, CO

### Project Overview

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coated Steel Main Replacement (CSMR)
- Risk Ranking: High

This project renewed approximately 12,500 feet of 2-inch high risk steel gas main running along Toledo Ave and E 2nd Street to E 8th St, east of Hazel St, along with renew/tie over 227 service lines that vary in pipe size in Leadville, CO.

### Project Technical Details

- Project Type: Pipeline Replacement
- Project Location: Leadville, CO

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 12,500
- New Piping: 2" ; PL MDPE
- Existing Piping: 2" ; PL Steel
- Status of Existing Piping: Abandon in place

### Explanation of Need

The existing gas infrastructure within Leadville had been identified to be thin-walled gas main that was constructed using non-standardized welding techniques in the 1960s and 1970s. This poses a significant risk on the system due to leaks at fittings and the potential of blowing gas due to the welds failing. Thus, the Company renewed this gas main to enhance the safety, integrity, and reliability of the distribution gas infrastructure within Leadville. The project will further decrease the possibility of any type of customer outage should a leak or blowing gas situation occur.

### Project Category:

**System Safety and Integrity**

### Project Cost

- Project Cost (Additions 2022-2023): \$5,139,049
- Xcel Contribution: \$5,139,049
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: May 2022
- Construction Phases: 1
- Construction Completion: July/August 2022
- In-Service Date: September 2022

### Additional Project Details

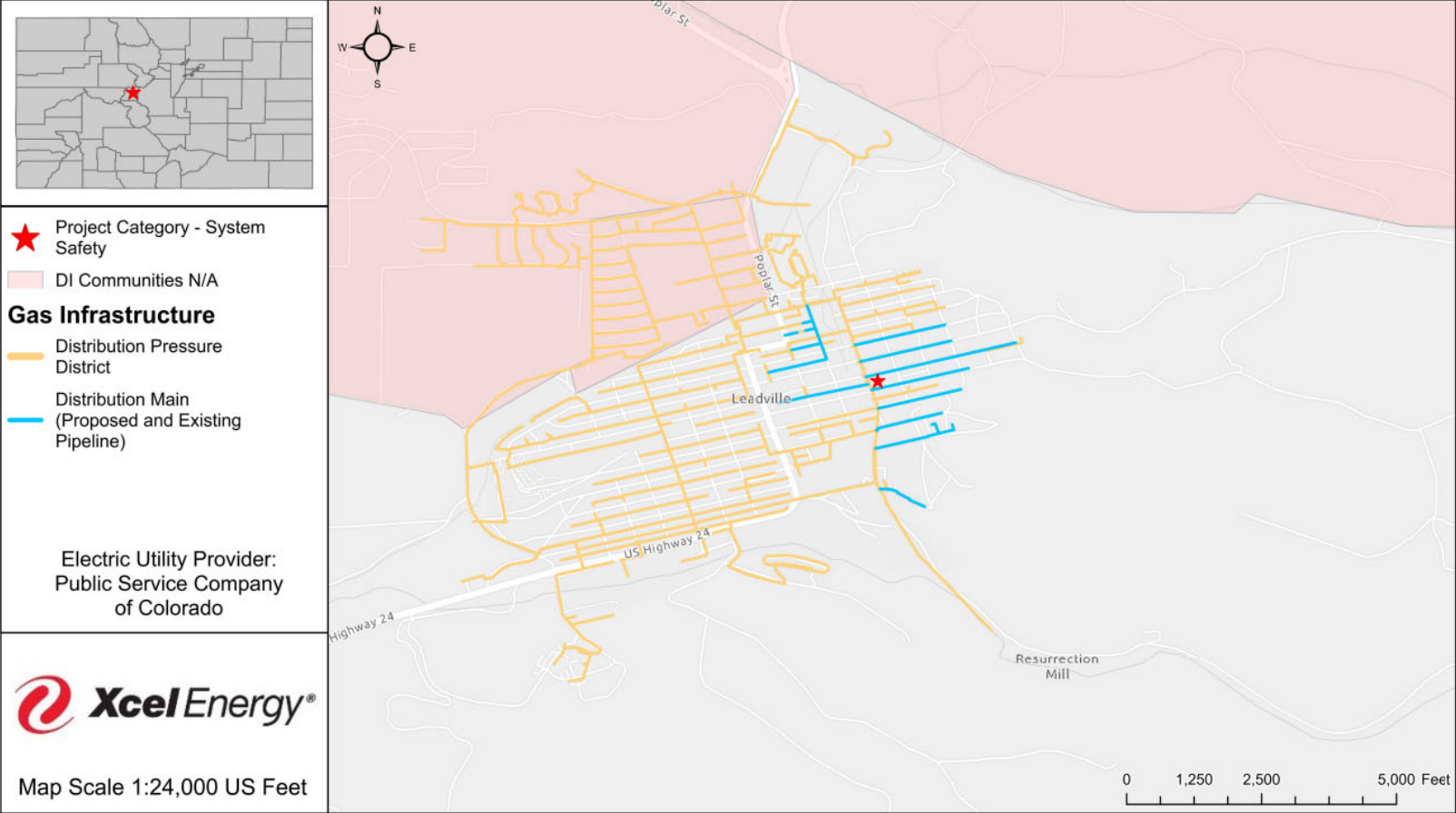
- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: Yes

### Risk and Alternative Considerations

Due to the existing thin-walled gas main that was constructed using non-standardized welding techniques in the 1960s and 1970s, existing steel fittings and joints pose a risk of leakage. There is also the risk that these welds will fail, which could result in the potential for blowing gas in the area.

The Company considered several construction alternatives. Because of thin-walled pipe and poor welding practices associated with the existing gas main, there is no effective way to replace or otherwise remediate the joints or fittings needing attention. The only practical and cost-effective alternative was complete replacement of the gas infrastructure.

# Leadville 2022 Project Map





## Leadville Main Renewal - 2023

Leadville, CO

### Project Overview

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coated Steel Main Replacement (CSMR)
- Risk Ranking: High

This project renewed approximately 18,200 feet of 2-inch and 6-inch high risk steel gas main running along Leiter Street and between W 3rd Street and W 9th Street along with renew/tie over 267 service lines that vary in pipe size in Leadville, CO.

### Project Technical Details

- Project Type: Pipeline Replacement
- Project Location: Leadville, CO

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 18,200
- New Piping: 2" & 6" ; MDPE
- Existing Piping: 2" & 6" ; Steel
- Status of Existing Piping: Abandon in place

### Explanation of Need

The existing gas infrastructure within Leadville had been identified to be thin-walled gas main that was constructed using non-standardized welding techniques in the 1960s and 1970s. This poses a significant risk on the system due to leaks at fittings and the potential of blowing gas due to the welds failing. Thus, the Company renewed the gas main to enhance the safety, integrity, and reliability of the distribution gas infrastructure within Leadville. The project will further decrease the possibility of any type of customer outage should a leak or blowing gas situation occur.

### Project Category:

System Safety and Integrity

### Project Cost

- Project Cost (Additions 2022-2023): \$5,960,000
- Xcel Contribution: \$5,960,000
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: May 2023
- Construction Phases: 1
- Construction Completion: September 2023
- In-Service Date: August 2023

### Additional Project Details

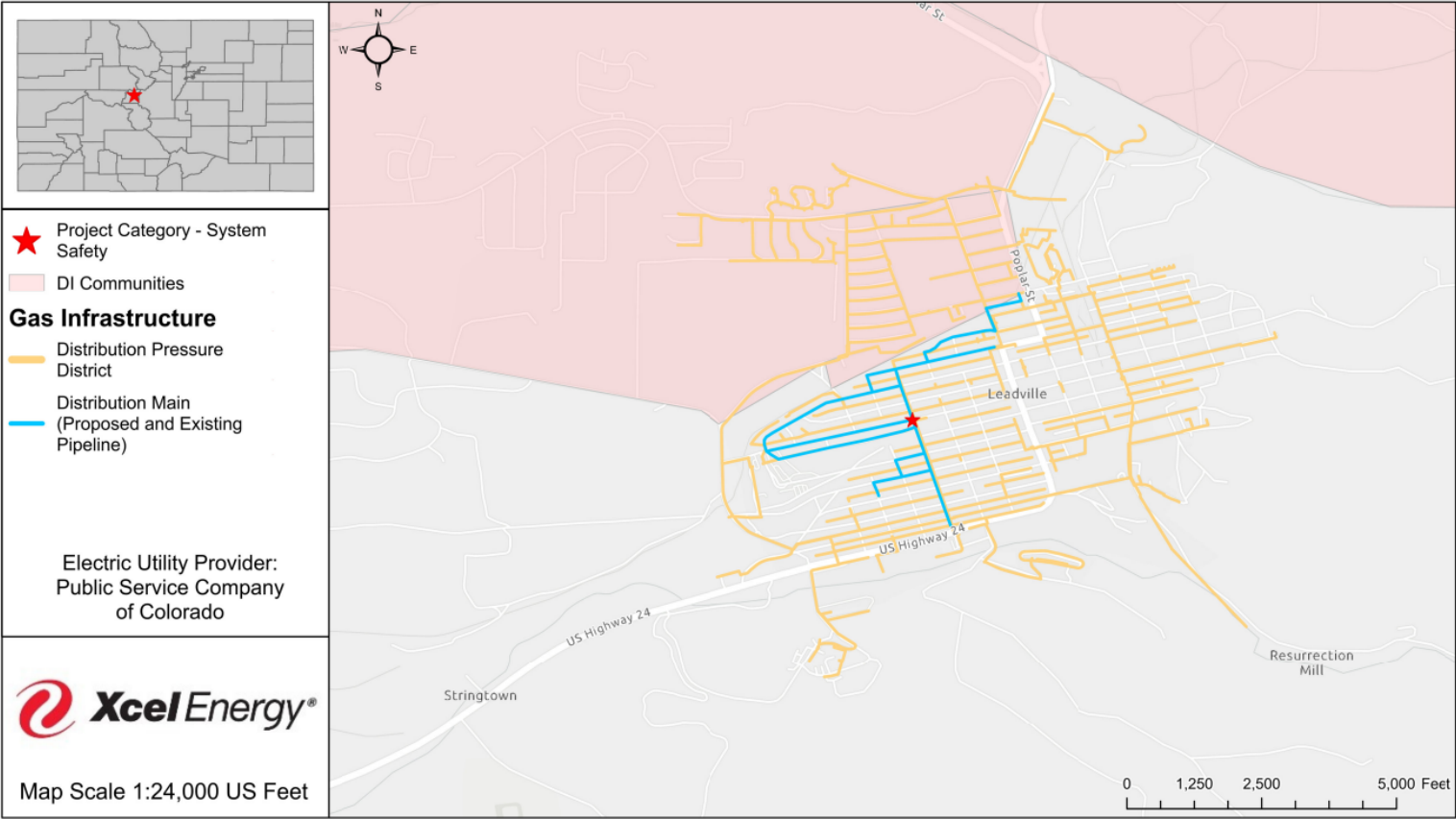
- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: Yes

### Risk and Alternative Considerations

Due to the existing thin-walled gas main that was constructed using non-standardized welding techniques in the 1960s and 1970s, existing steel fittings and joints pose a risk of leakage. There is also the risk that these welds will fail, which could result in the potential for blowing gas in the area.

The Company considered several construction alternatives. Because of thin-walled pipe and poor welding practices associated with the existing gas main, there is no effective way to replace or otherwise remediate the joints or fittings needing attention. The only practical and cost-effective alternative was complete replacement of the gas infrastructure.

# Leadville 2023 Project Map





**6" Estes Park**  
 Estes Park, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: MAOP / PSIA
- Risk Ranking: High

Replace 2.75 miles of existing 6" HP mainline (Estes Park "A") in Loveland area and qualify new main. • Pressure test a one mile segment of existing 6" MW HP main (Estes Park "A") near Flatiron Reservoir to qualify, and install a new mainline valve set. • Replace 1100 feet of existing 6" HP main (Estes Park "A") in east Estes Park. • Rebuild and replace existing HP-IP regulator station HE-1 in east Estes Park. • Re-Purpose existing reg station HL-95 to derate the Estes Park "Z" line to just under 20% SMYS • Capacity check on reg stations HL-48 and HL-77 with lowered inlet pressure. • Derate the 6" HP main Estes Park "Z" line. • Induced Current CP Rectifier System to cathodically protect the 6" HP Estes Park Lateral.

**Project Technical Details**

- Project Type: Pipeline replace and Pressure Test
- Project Location: Estes Park, Colorado to Loveland, Colorado

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 6,600
- New Piping: 6" Steel
- Existing Piping: 6" Steel
- Status of Existing Piping: Some was left in place and pressure tested and some was abandoned.

**Explanation of Need**

The Estes Park 6" HP Lateral main replacement / pressure test sections of concern did not have sufficient pressure test records supporting the MAOP, given the current class location designation of Class 3. This project ensured traceable, verifiable, and complete records exist as needed per the PHMSA requirements. (PHMSA ADB-12-06, PHMSA-2012-0068, PHMSA-2013-0019-0047)

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$18,712,219
- Xcel Contribution: \$18,712,219
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: April 2022
- Construction Phases: 1
- Construction Completion: December 2022
- In-Service Date: November 2022

**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Pressure testing long segments of the line is not feasible due to one-way feed Loveland to Estes Park. The test on LCR 18E is being done in two segments, using 2" HP temp above ground by-pass main.

Alternatives Considered: This project was required to meet the Company's requirements of traceable, verifiable, and complete documentations of the Company's transmission pipelines records per 49 C.F.R. §192.624.

# 6" Estes Park MAOP Project Map





**10" Mesa to Boulder Projects**  
 Broomfield/Westminster/Lafayette, Co

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: MAOP / PSIA
- Risk Ranking: High

-Pressure Testing the eastern segment will ensure traceable, verifiable, and complete pressure test records are available for the line segment.

-Derating the western segment will allow the line to operate at a pressure of less than 20% SMYS and will satisfy all PHMSA and DOT requirements. The line has been found to be in good condition and will continue to operate but at substantially less pressure.

- Pressure regulation and a receiver will be included at the west end of the segment remaining at full high pressure operating pressure and pressure regulation will be added at Boulder Junction as a backup feed to the derated segment.

-This project will address the lack of pressure test record in Class 3, MCA and HCA areas.

-Project will involve pressure testing approximately 2 miles of 10" high pressure gas main between the Huron St and 144th, derate 7 miles between 144th & Lowell and the Boulder Junction VS and rebuild 2 stations to remediate a section of assets that do not have sufficient pressure test and material records supporting the MAOP. This project ensures traceable, verifiable, and complete records exist for this line.

**Project Technical Details**

- Project Type: Pipeline Replacement and Derate
- Project Location: Broomfield / Westminster / Lafayette, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1790
- New Piping: 1790' of 10" Steel
- Existing Piping: 1680' of 10" Steel
- Status of Existing Piping: 980' Abandoned in place; 700' Removed
- Other: 2 Regulator Station Rebuilds and 3 new Regulator Station installs

**Explanation of Need**

The projects were identified as part of the MAOP assessment process, which revealed that certain Class 3 and high- and medium-consequence areas along this pipeline segment did not have sufficient traceable, verifiable, and complete pressure test records to support the MAOP. This project ensured traceable, verifiable, and complete records exist as needed per the PHMSA requirements.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$13,782,979
- Xcel Contribution: \$13,782,979
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: May 2022
- Construction Phases: 1
- Construction Completion: May 2022
- In-Service Date: October 2022 & December 2022

**Additional Project Details**

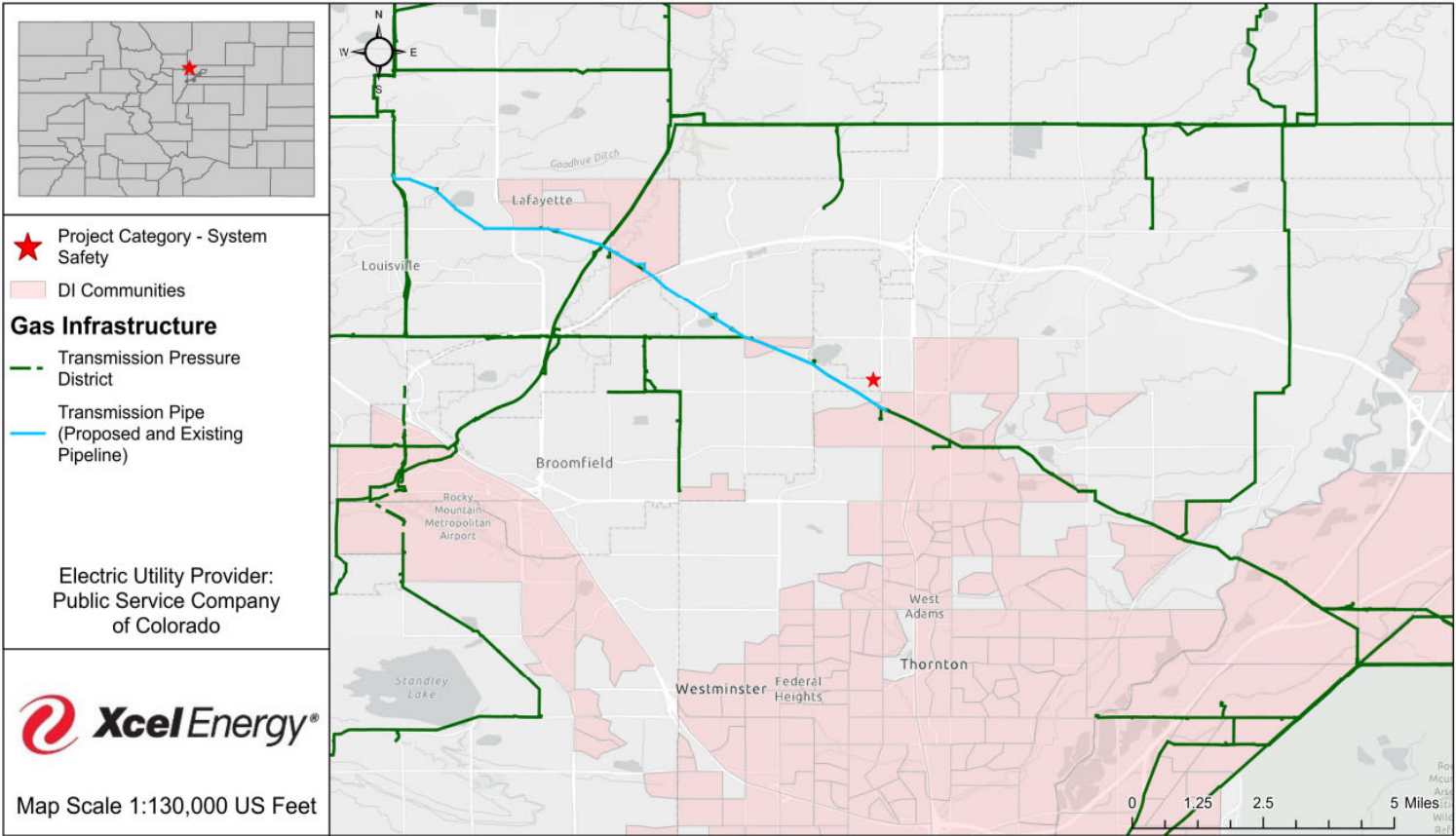
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

The Company considered all of the available alternatives—pipeline replacement, pressure testing re-confirmation, and derating. The Company initially considered replacing all nine miles of 10" high pressure steel main. However, areas near this segment of pipeline have numerous structures near the ROW, making construction complex and expensive. Instead, the combination of pressure testing the eastern segment and derating the western segment was more considerably more cost-effective while balancing capacity needs, integrity management, and operational considerations. The Company's process for identifying the best alternative was a collaborative effort between the Company's engineering, operations, capacity planning, and integrity management groups, which collectively developed this less costly approach.



# 10" Mesa to Boulder Project Map





**20" Southeast Metro**  
 Denver, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: MAOP / PSIA
- Risk Ranking: High

This project renewed approximately 5 miles of 20" pipeline between Regulator Station 125 at Hampden & Yosemite in Denver CO and the end point near East Caley Avenue and South Troy Circle in Centennial.

**Project Technical Details**

- Project Type: Pipeline Replacement
- Project Location: Hampden & Yosemite in Denver CO and traverse generally southeast for 5 miles to its end point near East Caley Avenue and South Troy Circle in Centennial

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 26400
- New Piping: 20" Steel
- Existing Piping: 20" Steel
- Status of Existing Piping: One portion of it was abandoned, and the other was derated.

**Explanation of Need**

The 20" Southeast Metro MAOP Project replaced around 5 miles of 20" pipeline installed in the mid-1950s. The existing pipeline had insufficient records supporting the maximum allowable operating pressure (MAOP). The new pipeline was installed in a more suitable route, starting at Regulator-Station 125 in Denver and ending near East Caley Avenue and South Troy Circle in Centennial. The pipeline traverse parts of unincorporated Arapahoe County, Aurora, Centennial, Cherry Creek State Park, Denver, and Greenwood Village.

The new pipeline was directly tied into the existing 20" Parker pipeline on both ends to allow continuous ILL/pigging on the pipeline—the new pipeline. The old pipeline remained in service throughout the construction of the new pipeline. After the commissioning of the new pipeline, the existing 20" pipeline was de-rated to IP pressure and tied into the Quincy IP system at Regulator-Station 125.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,306,944
- Xcel Contribution: \$3,306,944
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: June 2020
- Construction Phases: 1
- Construction Completion: November 2021
- In-Service Date: November 2021

**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

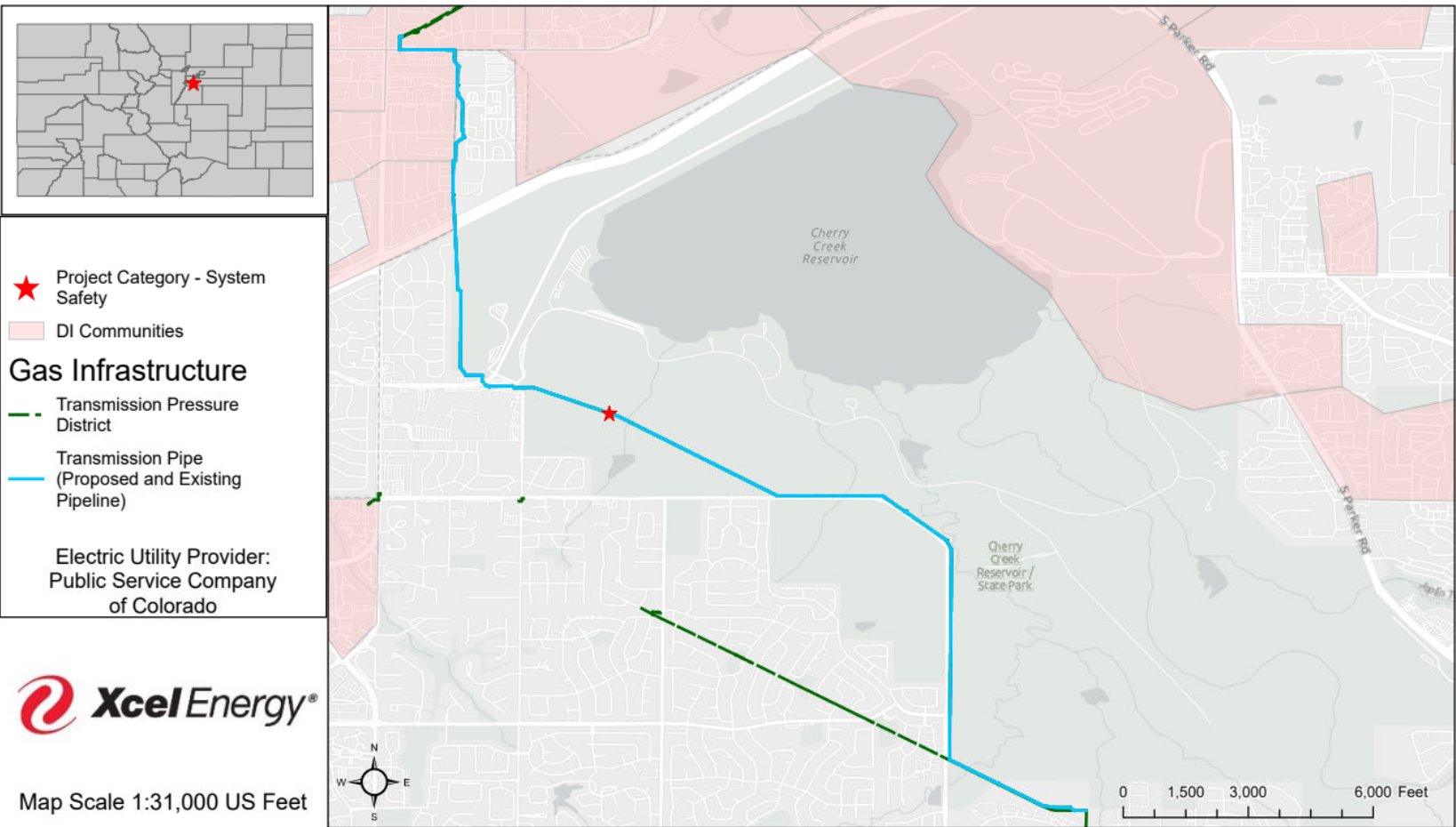
**Risk and Alternative Considerations**

Two options were considered: replacement and hydro test. Replacement was selected because:

\*Most of the 5-mile section of pipe was over 60 years old.

\*Much of the pipeline is located in close proximity to densely populated areas; as this pipe segment is a major gas supply feed year-round, there was potential risk of interruption to customers while attempting a hydro test, when adequate back-up natural gas supply would be required.

# 20" Southeast Metro MAOP Project Map



Map Scale 1:31,000 US Feet



**12" Fossil Creek**  
 Greeley and Windsor, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: MAOP / PSIA
- Risk Ranking: High

Pressure Tested 1,252 feet of 12" pipeline, less than 100 feet of station piping just west of Windsor.  
 Pressure Test 1,700 feet of 12" pipeline in Greeley. Both sections were done to ensure traceable, verifiable, and complete pressure test records on all pipeline within currently identified class 3 locations.

**Project Technical Details**

- Project Type: Pipeline Replacement and Pressure Test
- Project Location: Greeley and Windsor, Colorado

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 58' of 12"; 20' of 4"
- New Piping: 12" Steel; 4" Steel
- Existing Piping: 12" Steel; 4" Steel
- Status of Existing Piping: Verified, tested, at correct pressure for 2,952'. Replaced 78'

**Explanation of Need**

Pipeline identified to be lacking the necessary documentation to support its MAOP.  
 This pipeline lacked a pressure test record and material verification in a newly-designated class 3 location.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,824,486
- Xcel Contribution: \$3,824,486
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: June 2021
- Construction Phases: 2
- Construction Completion: June 2023
- In-Service Date: June 2023

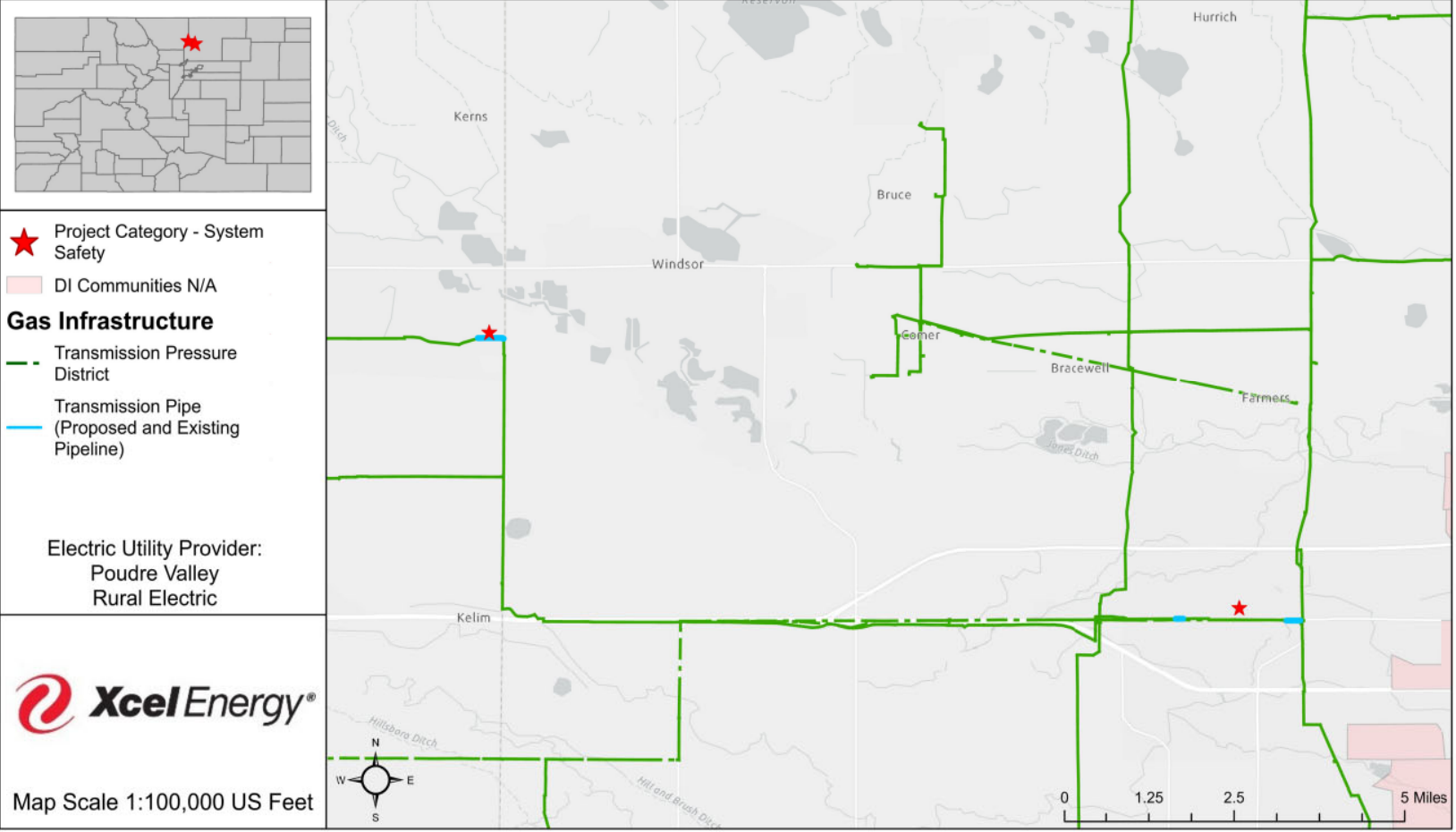
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Failure to provide traceable, verifiable, and complete material documentation as well as MAOP documentation would result in a PHMSA compliance violation.

# 12" Fossil Creek Project Map





**8" Mesa to Chalk Bluffs Carma**  
 Brighton and Lochbuie, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: MAOP / PSIA
- Risk Ranking: High

Pressure Test 3.1 miles of 8" pipeline between Carma Regulator Station and Regulator Station N-30. This will ensure traceable, verifiable, and complete records within currently identified class 3 areas along the line loop. Replace 1,000 feet of pipe north of N-30/Lochbuie. At 104th/Tower created an interconnect to mitigate large customer (Suncor/DIA) outage risk.

**Project Technical Details**

- Project Type: Pipeline Replacement and Pressure Test
- Project Location: Brighton and Lochbuie, Colorado

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1000'
- New Piping: 8"; HP Steel
- Existing Piping: 8"; HP Steel
- Status of Existing Piping: Abandoned in place

**Explanation of Need**

Originally installed in 1948, this pipeline did not have sufficient pressure test records supporting the MAOP, given the current class location designation of Class 3. This project ensures traceable, verifiable, and complete records exist as needed per the PHMSA requirements. (PHMSA ADB-12-06, PHMSA-2012-0068, PHMSA-2013-0019-0047)

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,311,775
- Xcel Contribution: \$3,311,775
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: June 2021
- Construction Phases: 2
- Construction Completion: August 2023
- In-Service Date: August 2023

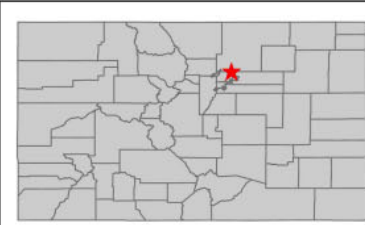
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

Failure to provide traceable, verifiable, and complete material documentation as well as MAOP documentation would result in a PHMSA compliance violation.

# 8" Mesa to Chalk Bluffs (Carma) Project Map

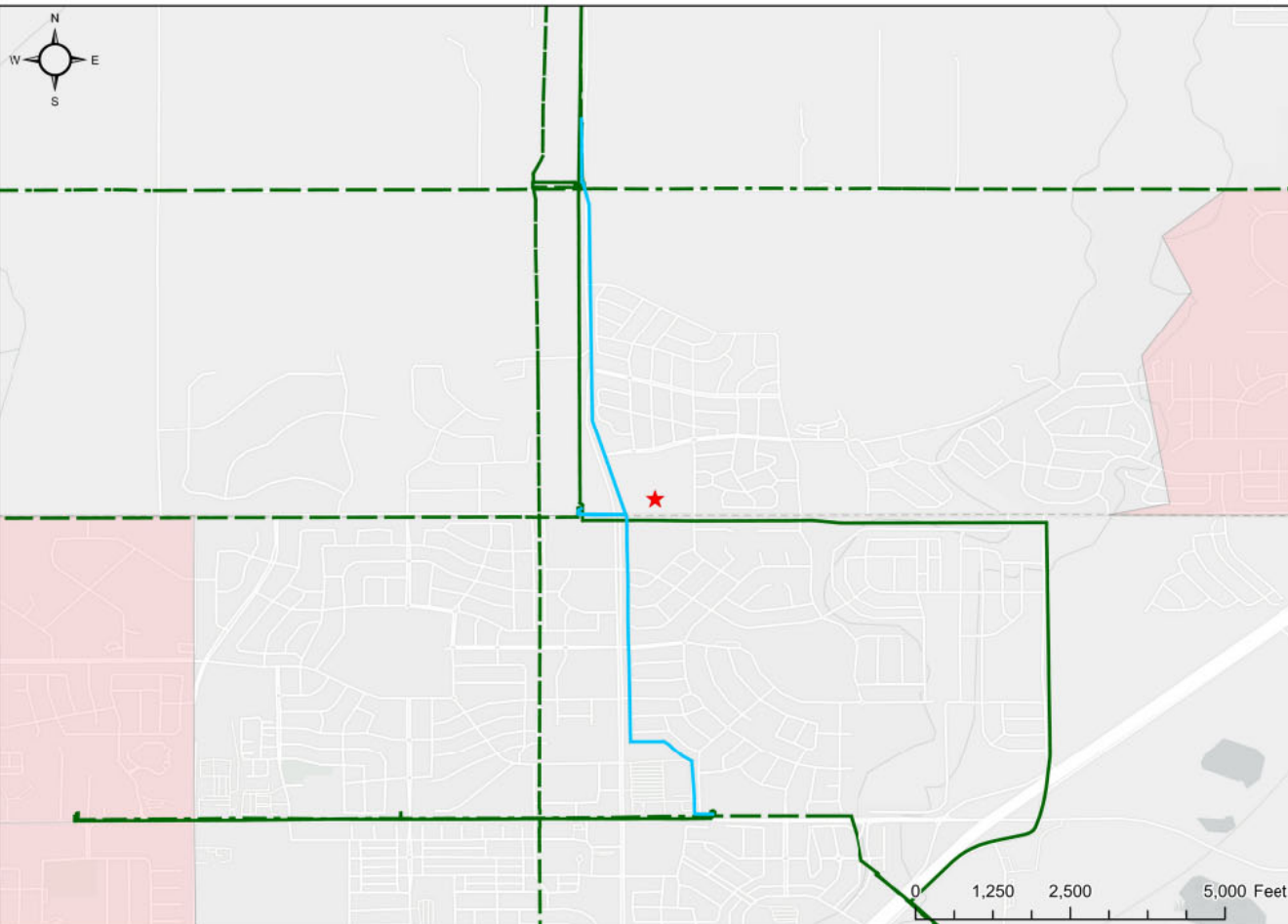


- ★ Project Category - System Safety
- DI Communities N/A
- Gas Infrastructure**
  - Transmission Pressure District
  - Transmission Pipe (Proposed and Existing Pipeline)

Electric Utility Provider:  
United Power



Map Scale 1:24,000 US Feet





**Washington Coupled IP - Phase 1**  
 Unincorporated Adams County, Colorado

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coupled IP
- Risk Ranking: High

This project renewed approximately 4,500' of existing 8" steel intermediate pressure main in Washington St between E 76th Ave and E 83rd Dr and renew or tie over 10 customer services in Unincorporated Adams County.

**Project Technical Details**

- Project Type: Pipeline Renewal
- Project Location: In Washington St between E 76th Ave and E 83rd Dr

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 4,500
- New Piping: 8" Steel
- Existing Piping: 8" Steel
- Status of Existing Piping: Abandon in Place

**Explanation of Need**

The mechanical couplings that were used for installation of these pipes in the 1950s pose a significant risk of leaks at these fittings, as well as a blowing gas situation should the coupling fail completely. The project need was identified based on risk ranking of the mains that are a part of the Coupled IP pressure system, and determined to be necessary due to the rate of historical leaks on this main.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$3,669,933
- Xcel Contribution: \$3,669,933
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: March 2022
- Construction Phases: 1
- Construction Completion: October 2022
- In-Service Date: October 2022

**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

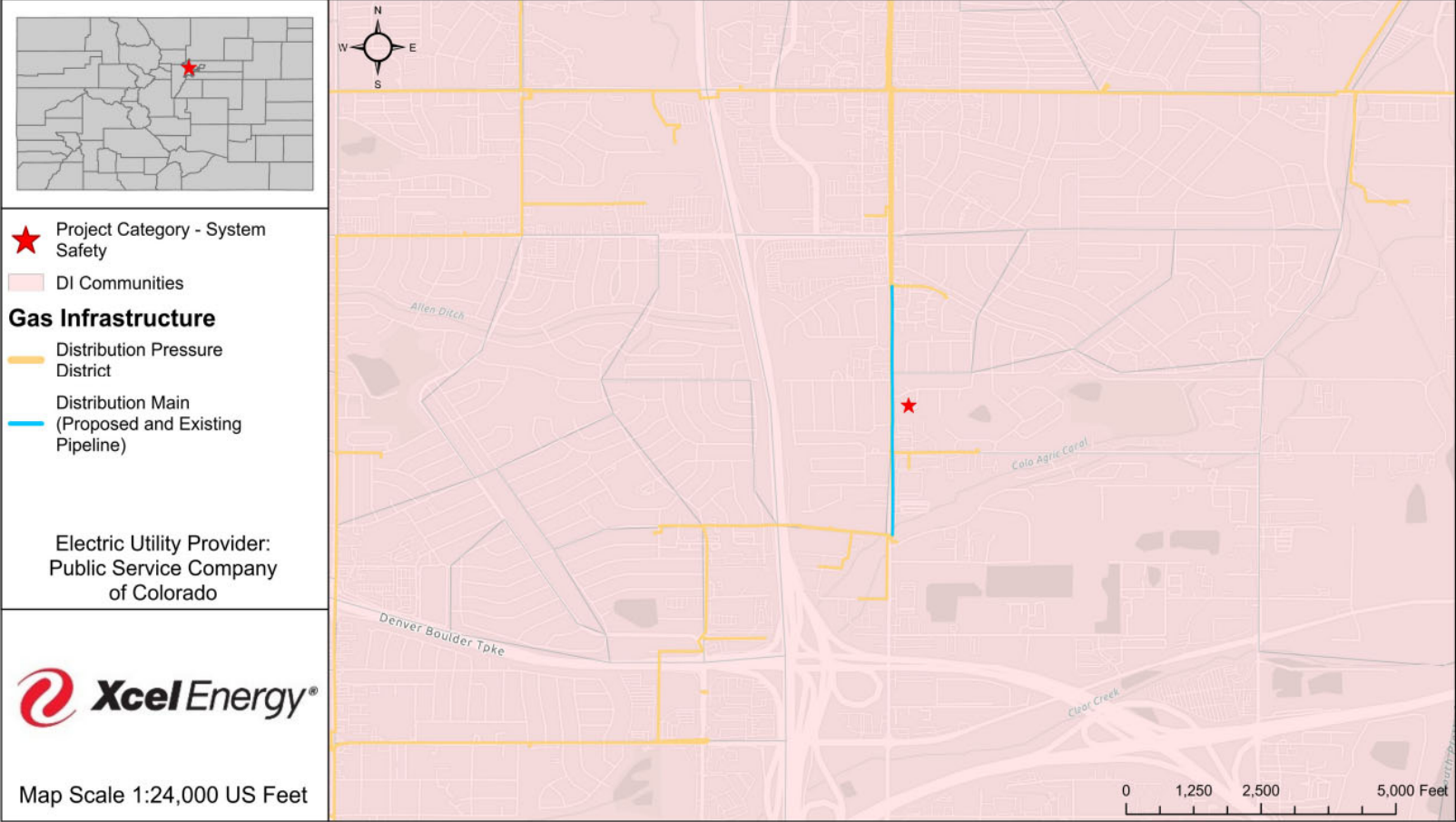
**Risk and Alternative Considerations**

This risk is mainly concerned with leaks that could occur at these fittings as well as potential for blowing gas if the coupling should fail completely. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation.

The project is part of the DIMP and is further subcategorized within Coupled IP. Feasible alternatives are not available given the nature of Coupled IP fittings and the associated risks. There was no alternative for a shorter route, and derate was not an option due to the criticality of the existing mains to serving the project area.



# Coupled IP Washington Phase 1 Project Map





**8" Coupled IP, Washington - Phase 2**  
 Thornton Colorado

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coupled IP
- Risk Ranking: High

This project renewed approximately 5,000' of existing 8" steel intermediate pressure main in Washington St between E 83rd Dr and Russell Blvd and renew or tie over 17 customer service lines varying in pipe sizes in Thornton, Colorado

**Project Technical Details**

- Project Type: Pipeline Renewal
- Project Location: In Washington St between E 83rd Dr and Russell Blvd

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 5,000
- New Piping: 8" Steel
- Existing Piping: 8" Steel
- Status of Existing Piping: Abandon in Place

**Explanation of Need**

The mechanical couplings that were used for installation of these pipes in the 1950s pose a significant risk of leaks at these fittings, as well as a blowing gas situation should the coupling fail completely. The project need was identified based on risk ranking of the mains that are a part of the Coupled IP pressure system, and determined to be necessary due to the rate of historical leaks on this main.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$7,545,791
- Xcel Contribution: \$7,545,791
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: January 2023
- Construction Phases: 1
- Construction Completion: August 2023
- In-Service Date: August 2023

**Additional Project Details**

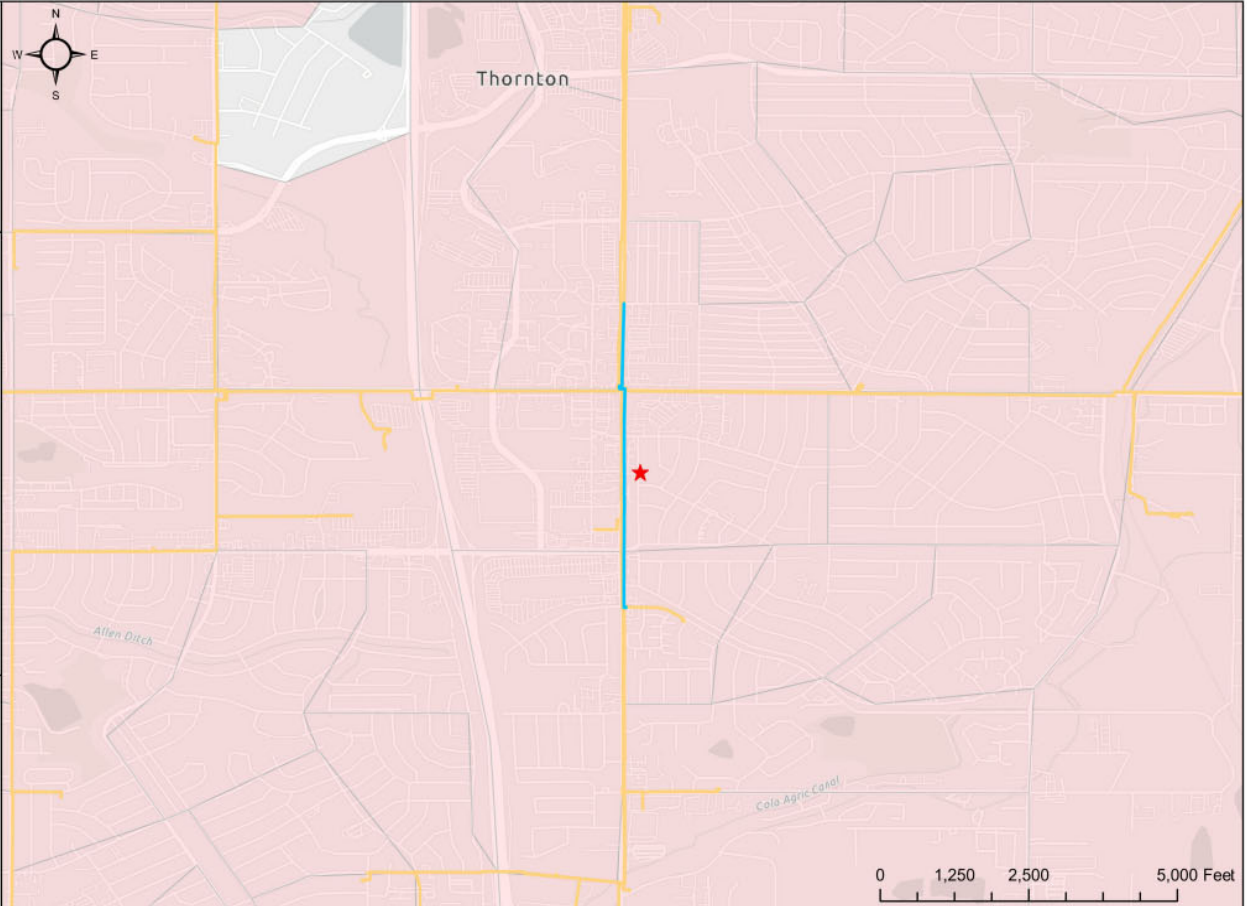
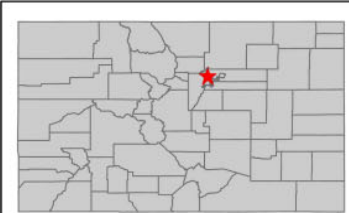
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

This risk is mainly concerned with leaks that could occur at the fittings as well as potential for blowing gas if the main is significantly disturbed. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation.

The project is part of the DIMP and is further subcategorized within Coupled IP. Feasible alternatives are not available given the nature of Coupled IP fittings and the associated risks. There was no alternative for a shorter route, and derate was not an option due to the criticality of the existing mains to serving the project area.

# Coupled IP Washington Phase 2 Project Map



★ Project Category - System Safety

DI Communities

### Gas Infrastructure

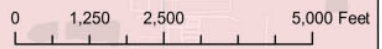
Distribution Pressure District

Distribution Main  
(Proposed and Existing Pipeline)

Electric Utility Provider:  
Public Service Company  
of Colorado



Map Scale 1:24,000 US Feet





**Vasquez Blvd and E 48th Ave Phase 1**  
 Denver, Colorado

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coupled IP
- Risk Ranking: High

This project renewed approximately 3,400 ft of 20" intermediate pressure main in Vasquez Blvd from E 48th Ave to E 52nd Ave in Denver, Colorado. Four customer services were renewed or tied over as well.

**Project Technical Details**

- Project Type: Pipeline Renewal
- Project Location: Vasquez Blvd between 48th Ave and E 52nd Ave

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 3,400' of 20"
- New Piping: 20" Steel
- Existing Piping: 20" Steel
- Status of Existing Piping: Abandon in Place

**Explanation of Need**

Due to the operating pressure of the intermediate pressure system, the mechanical couplings that were used for joining pipe pose a significant risk to our system, including blowing gas events on large piping and significant outages to customers with emergency isolation. The project need was identified based on risk ranking of the mains that are a part of the Coupled IP pressure system. This project was a high priority due to the size of the pipeline and the number of residents/buildings potentially affected. This main provides service to downstream regulators serving the northern Denver area.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions): \$7,310,572
- Xcel Contribution: \$7,310,572
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: August 2021
- Construction Phases: 2
- Construction Completion: June 2022
- In-Service Date: June 2022

**Additional Project Details**

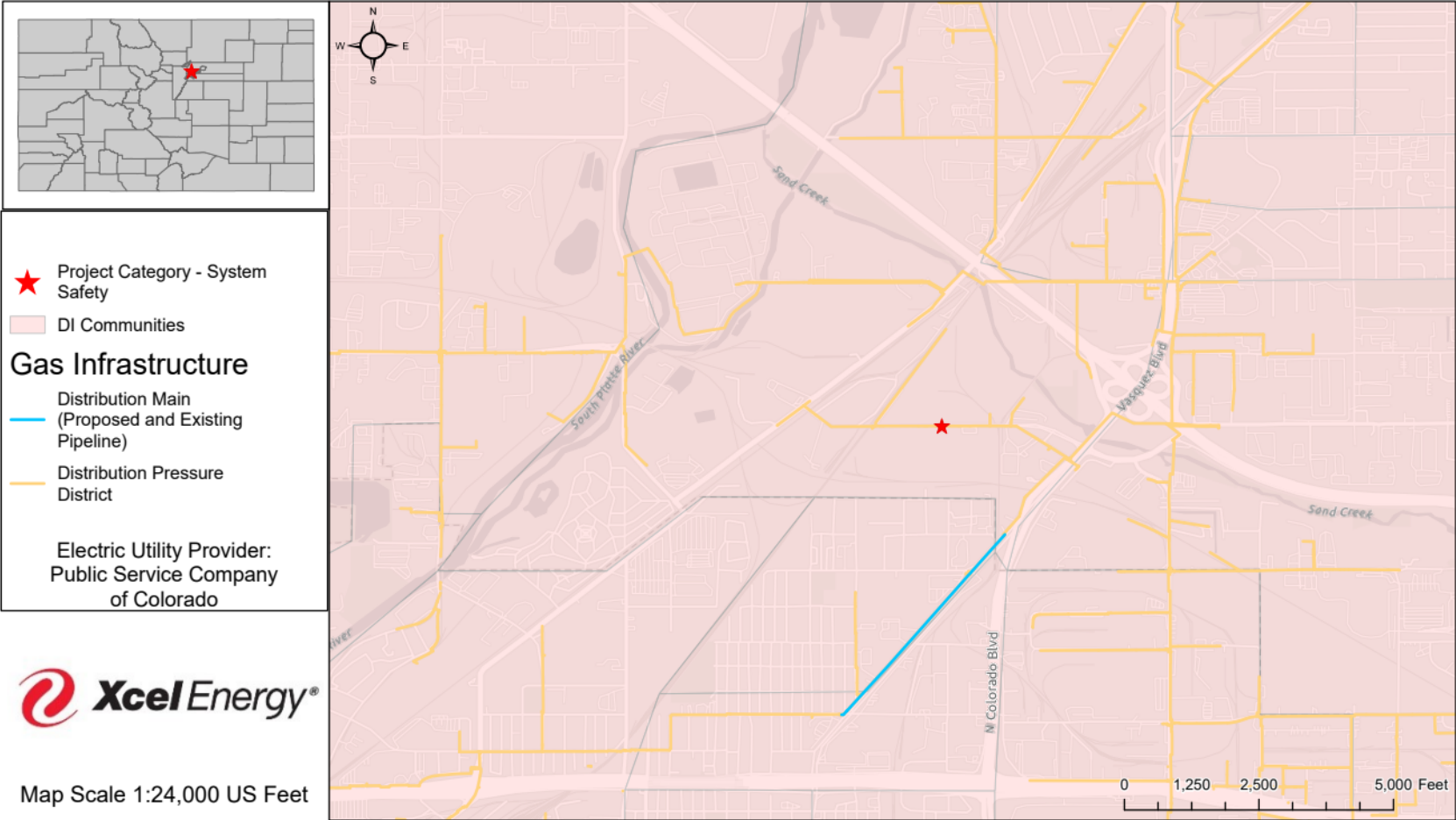
- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

This risk is mainly concerned with leaks that could occur at these fittings as well as potential for blowing gas if the main is significantly disturbed. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation.

The project is part of the DIMP and is further subcategorized within Coupled IP; alternatives such as derating and a re-route are not viable or reasonable options.

# Vasquez Blvd and E 48th Ave Phase 1 Project Map





**Vasquez Blvd and E 48th Ave Phase 2/3**  
 Denver and Commerce City, Colorado

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coupled IP
- Risk Ranking: High

This project renewed approximately 4,600 feet of 20" IP main by installing 2,000 feet of new 20" IP main in Vasquez Blvd from 52nd Ave to E 56th Ave and 2,600 feet of new 12" IP main in E 56th Ave west toward Brighton Blvd. The project also renewed approximately 1,665 feet of 4" IP main with equidistant new 4" IP main along E 56th Ave and Brighton Blvd. Seventeen customer services were renewed or tied over in Denver and Commerce City, Colorado.

**Project Technical Details**

- Project Type: Pipeline Renewal
- Project Location: Vasquez Blvd between E 52nd Ave and E 56th Ave and in E 56th Ave from Vasquez Blvd to Brighton Blvd

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1,665' of 4", 2,600' of 12", and 4,600' of 20"
- New Piping: 4", 12", and 20" Steel
- Existing Piping: 3" and 20" Steel
- Status of Existing Piping: Abandon in Place

**Explanation of Need**

Due to the operating pressure of the intermediate pressure system, the mechanical couplings that were used for joining pipe pose a significant risk to our system including blowing gas events on large piping and significant outages to customers with emergency isolation. The project need was identified based on risk ranking of the mains that are a part of the Coupled IP pressure system. This project was a high priority due to the size of the pipeline and the number of residents/buildings potentially affected. This main provides service to downstream regulators serving the northern Denver area.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$11,514,922
- Xcel Contribution: \$11,514,922
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: August 2022
- Construction Phases: 2
- Construction Completion: June 2023
- In-Service Date: June 2023

**Additional Project Details**

- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

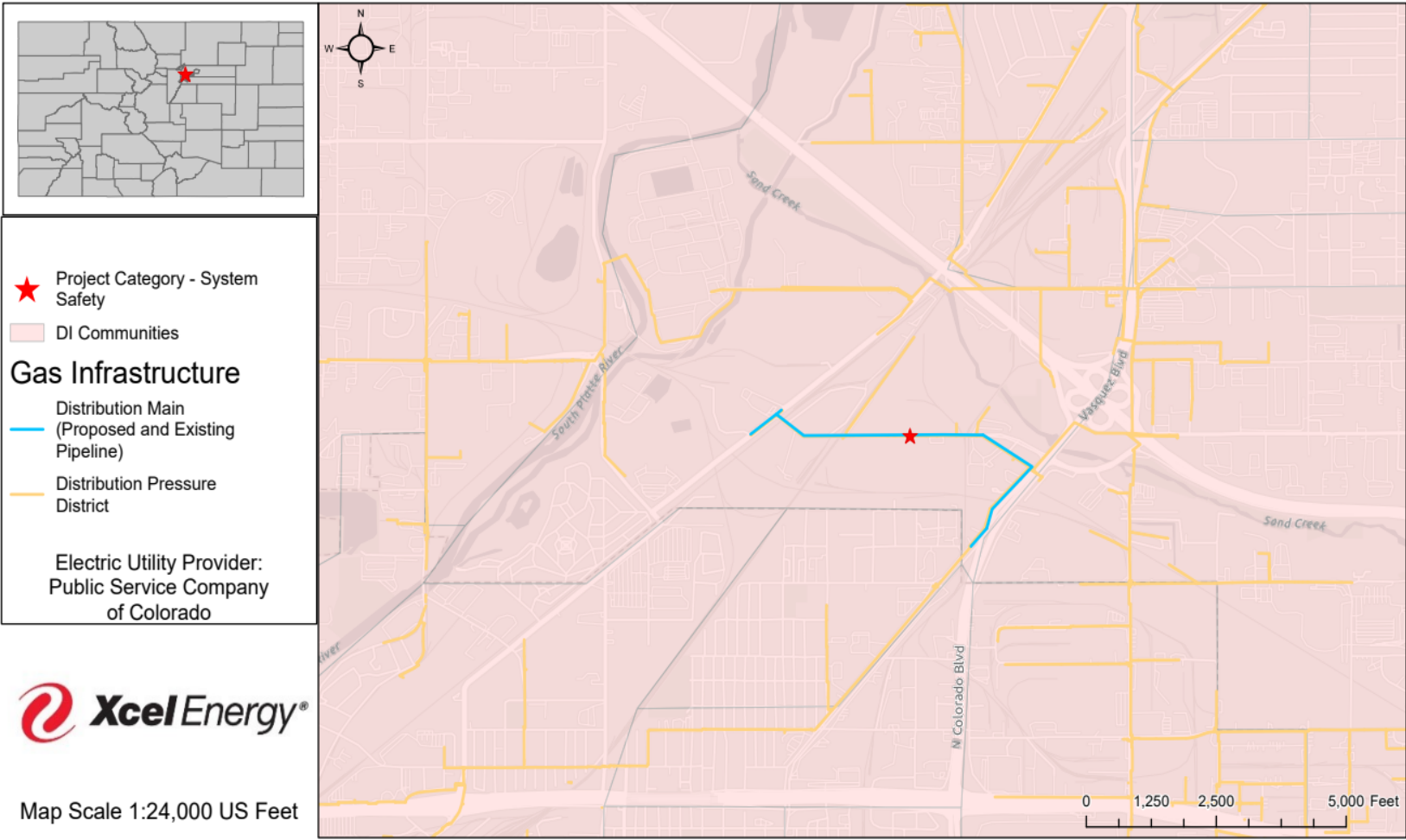
**Risk and Alternative Considerations**

This risk is mainly concerned with leaks that could occur at these fittings as well as potential for blowing gas if the main is significantly disturbed. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation.

The project is part of the DIMP and is further subcategorized within Coupled IP; alternatives such as derating and a re-route are not viable or reasonable options.

The Company identified the opportunity to install 12" IP main instead of 20" IP main along E 56th Avenue without posing system risk, which helped contain costs for the project.

### Vasquez Blvd and E 48th Ave Phase 2/3 Project Map





**Brighton To York**  
 Denver, Colorado

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: Distribution Integrity Management Program (DIMP)
- Initiative: Coupled IP
- Risk Ranking: High

This project renewed approximately 2,600' of existing 20" and 650' of 3" steel main, by installing 4,480' of 20" steel main, re-routing the main from E 47th Ave to E 48th Ave, and installing 670' of 4" steel IP main down Gaylord St to connect the existing regulator station. No customer services were renewed or tied over as part of this project.

**Project Technical Details**

- Project Type: Pipeline Renewal
- Project Location: Brighton Blvd from E 46th Ave to E 48th Ave, in E 48th Ave from Brighton Blvd to York St, and York St from E 48th Ave to E 47th Ave.

**Physical Equipment Characteristics of Proposed Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 670' of 4", and 4,480' of 20"
- New Piping: 4" and 20" Steel
- Existing Piping: 3" and 20" Steel
- Status of Existing Piping: Abandon in Place

**Explanation of Need**

Due to the operating pressure of the intermediate pressure system, the mechanical couplings that were used for joining pipe pose a significant risk to our system. The existing pipeline, which was installed in the late 1940s, was determined to be high-risk due to its age, the weak nature of mechanical couplings, and concerns that the original structure did not meet current construction standards due to construction practices in place at the time of installation.

Additionally, relocation of this main was necessary due to conflicts with the I70 CDOT project occurring at both Brighton Blvd and York St, as well as existing utility congestion in E 47th Ave.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$10,396,589
- Xcel Contribution: \$10,396,589
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: September 2020
- Construction Phases: 1
- Construction Completion: July 2022
- In-Service Date: December 2022

**Additional Project Details**

- DOT/PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

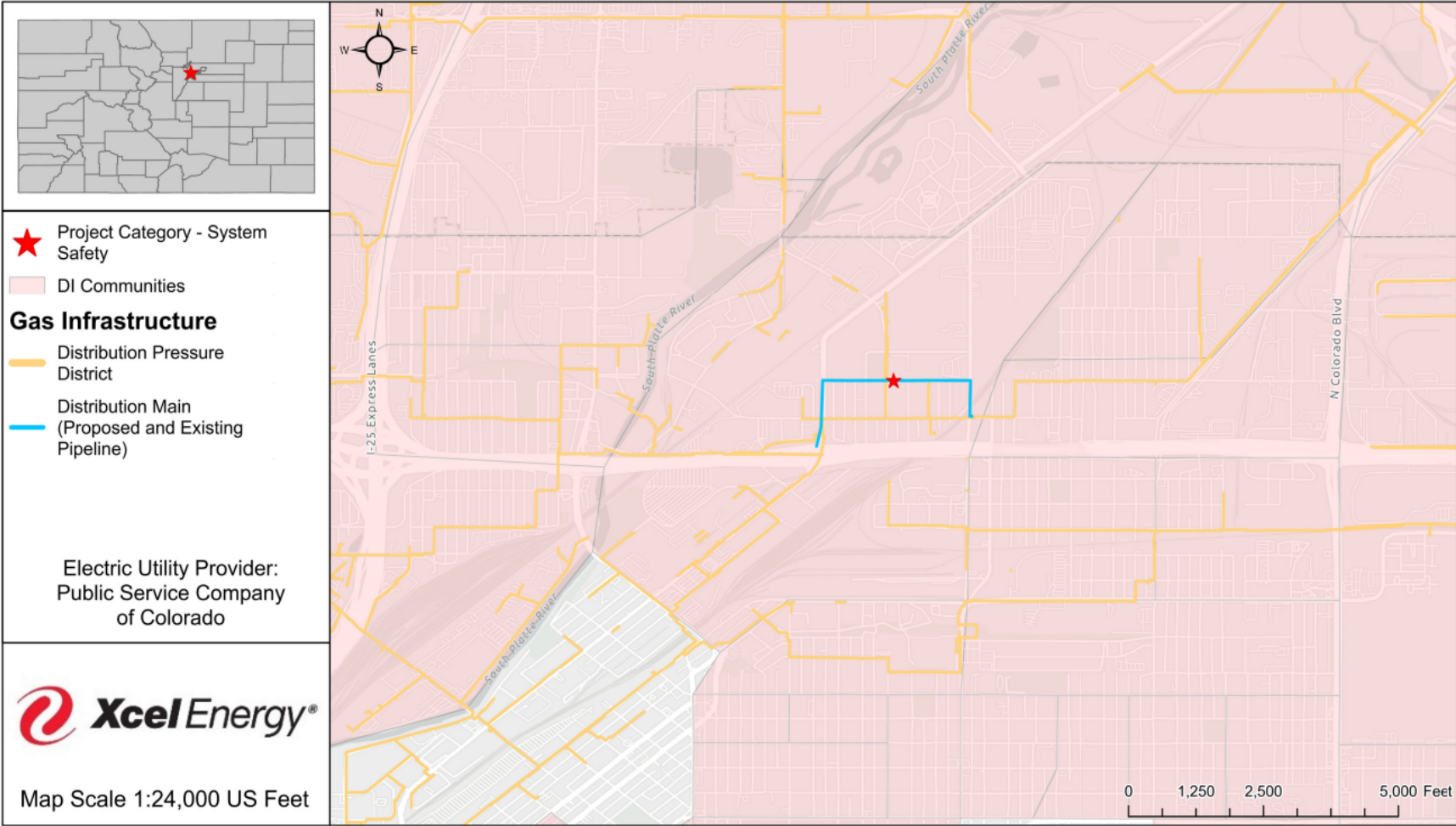
**Risk and Alternative Considerations**

This risk is mainly concerned with leaks that could occur at these fittings as well as potential for blowing gas if the main is significantly disturbed. The project addresses these risks and associated potential for customer outage due to a leak or blowing gas situation

The project is part of the DIMP and is further subcategorized within Coupled IP; alternatives such as derating are not a viable or reasonable option.



# Brighton to York Coupled IP Project Map





**Replace 10" Shorted Casings (Aurora 26")**  
 Aurora, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: Shorted Casing
- Risk Ranking: Non-Discretionary

Project Scope: The 26" Pipeline between Smith Road and North Chambers Road and East Hampden Avenue and Yosemite Street was installed along Chambers Road before 1970 as a casing, crossing 6th Ave in Aurora. However, with time, the carrier pipe came into contact with the metallic casing pipe resulting in a cathodic protection electrical short. According to CFR 192, pipelines must be electrically isolated from metallic casings.

**Project Technical Details**

- Project Type: Pipeline Replacement
- Project Location: 6th and Chambers, Aurora, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1700'
- New Piping: 26" Steel
- Existing Piping: 26" Steel
- Status of Existing Piping: Shorted Casing

**Explanation of Need**

The TIMP Shorted Casing Program focuses on replacement of cased pipelines throughout Colorado for corrosion prevention. In accordance with 192.467(c), pipelines must be electrically isolated from metallic casings or other measures need to be taken to reduce corrosion.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$5,509,107
- Xcel Contribution: \$5,509,107
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: May 2021
- Construction Phases: 1
- Construction Completion: June 2022
- In-Service Date: June 2022

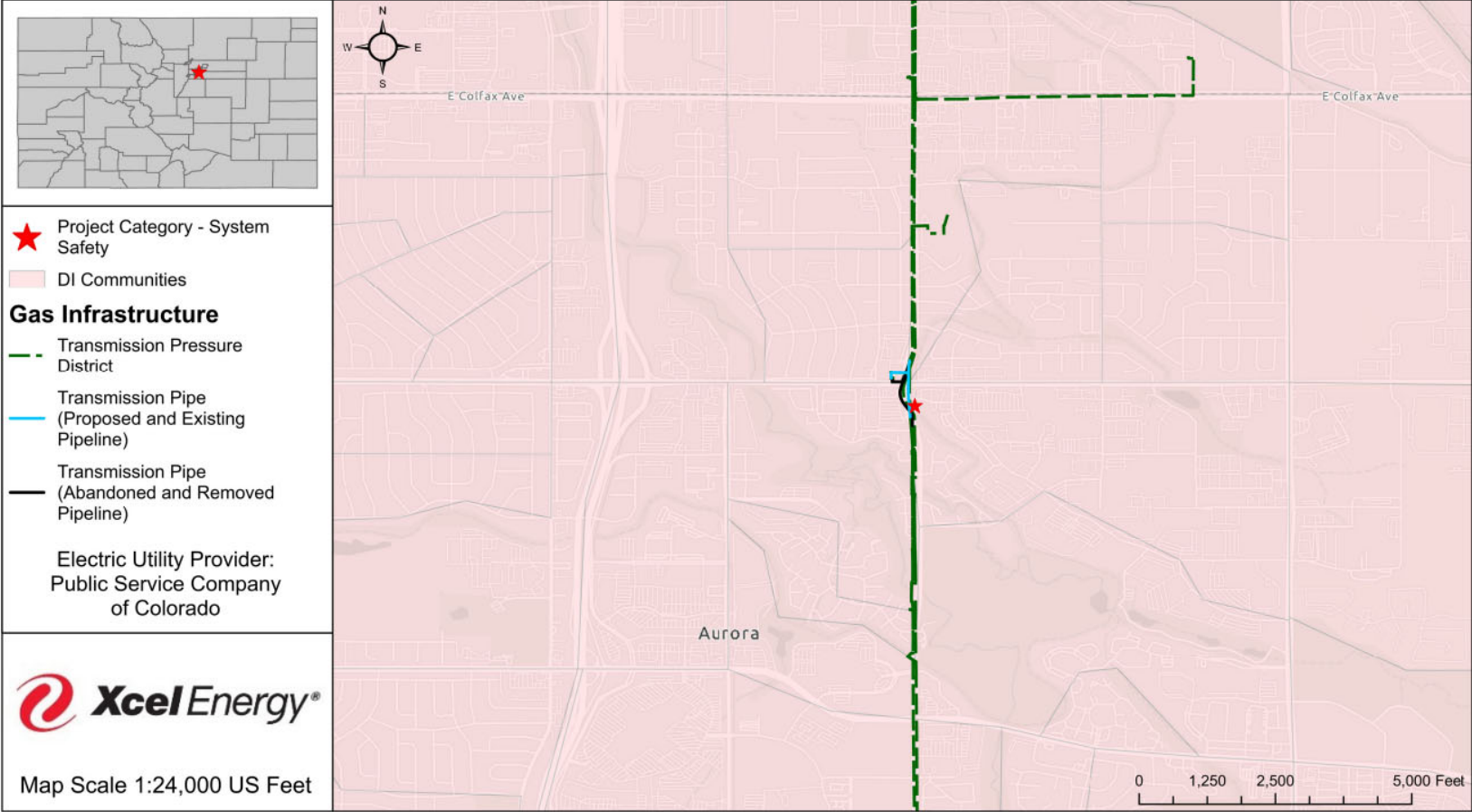
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: Yes

**Risk and Alternative Considerations**

For this Shorted Casing project, no other permanent solution exists to satisfy the CFR 192.467 requirements.

# Aurora 26" Shorted Casings Project Map





**Aurora 20" Shorted Casing**  
 Aurora, CO

**Project Overview**

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Transmission Integrity Management Program (TIMP)
- Initiative: Shorted Casing
- Risk Ranking: Non-Discretionary

The 20" Pipeline between Smith Road and North Chambers Road and East Hampden Avenue and Yosemite Street was originally installed along Chambers Road pre 1970 as a casing crossing of what is now 6th Ave in Aurora. Overtime the carrier pipe made contact with the metallic casing pipe resulting in a cathodic protection electrical short. Per CFR 192, pipelines must be electrically isolated from metallic casings.

**Project Technical Details**

- Project Type: Pipeline Replacement
- Project Location: 6th and Chambers, Aurora, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 1500'
- New Piping: 20" Steel
- Existing Piping: 20" Steel
- Status of Existing Piping: Shorted Casing

**Explanation of Need**

Shorted Casing projects focus on replacement of cased pipelines throughout Colorado for corrosion prevention. In accordance with 192.467(c), pipelines must be electrically isolated from metallic casings or other measures need to be taken to reduce corrosion.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$7,346,226
- Xcel Contribution: \$7,346,226
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: June 2022
- Construction Phases: 1
- Construction Completion: October 2022
- In-Service Date: November 2022

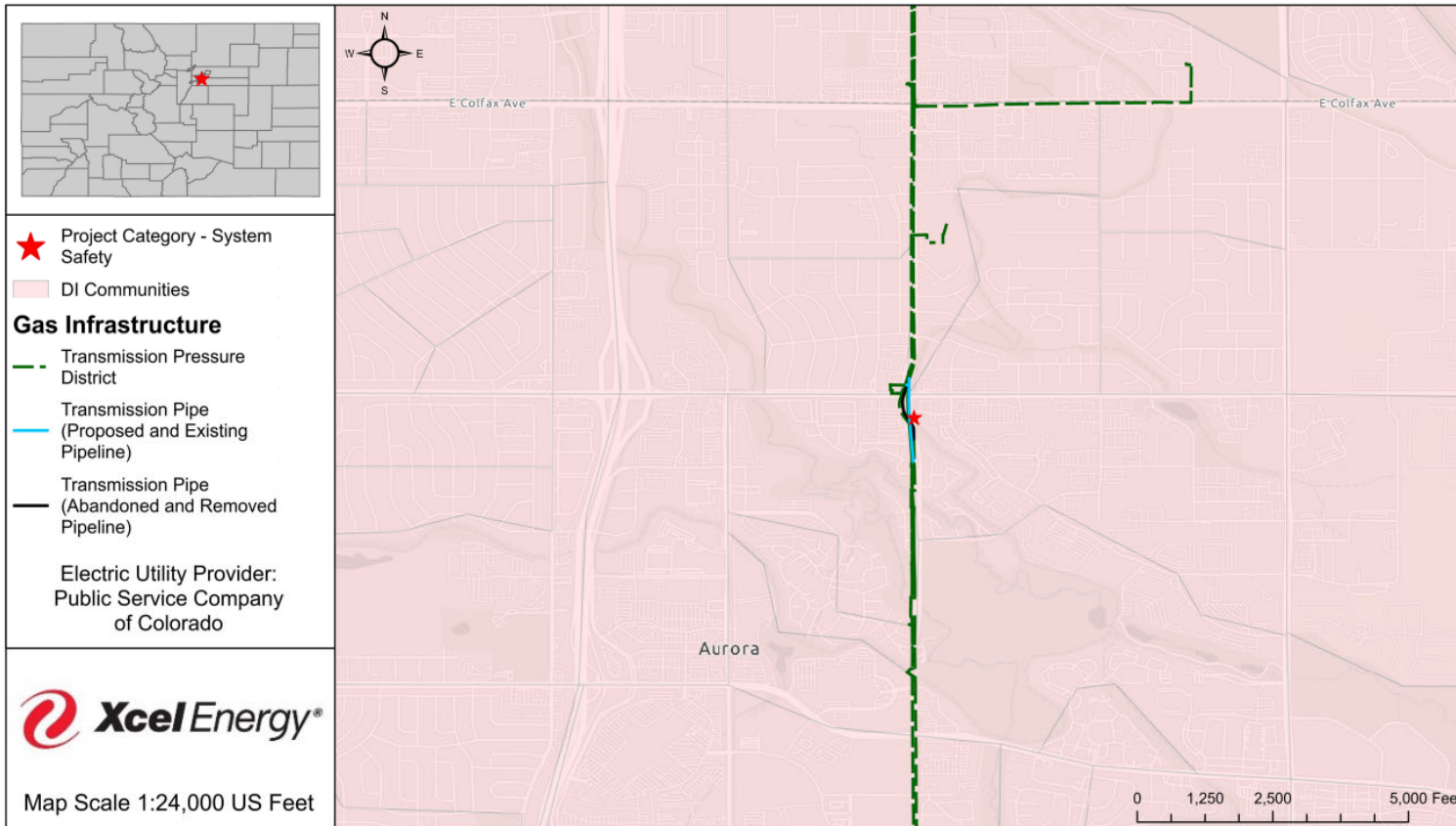
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: Yes

**Risk and Alternative Considerations**

For this Shorted Casing project, no other permanent solution exists to satisfy the CFR 192.467 requirements.

# Aurora 20" Shorted Casings Project Map





**F-340 Regulator Station Rebuild**  
 Arvada and Thornton, Co

**Project Overview**

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: System Safety and Integrity
- Initiative: Obsolete Regulators
- Risk Ranking: High

Project scope includes replacing all F-340 facilities (regulator stations F-340-A and F-340-T) at the site due to asset health and reliability concerns. There are two runs on the site, each of which feed a different IP system. Each run was to be rebuilt from the inlet fire valve to just past the two separate outlet fire valves for each outlet run of the station. The controls were also replaced.

**Project Technical Details**

- Project Type: Regulator Station Rebuild Project
- Project Location: Arvada and Thornton, CO

**Physical Equipment Characteristics of Facilities:**

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 256' x 1", 27' x 4", 49' x 6", 14' x 10", 30' x 12", 100' x 16"
- New Piping: 1", 4", 6", 10", 12", and 16" steel main installed
- Existing Piping: 4", 6", 10", 12", and 16"
- Status of Existing Piping: Removed and abandoned in place
- Other: Regulator station F-340-A and F-340-T

**Explanation of Need**

The F-340 regulator station is critical to bringing feed from Station F-808 into two IP systems (Arvada and Thornton) in the Denver metro area. The station feeds approximately 3,300 MCFH, equivalent to around 41,000 customers. Due to its age, the station contained several obsolete control valve regulators and inoperable valves on each run. Each station run (i.e., the feeds into Arvada and Thornton), had no redundancy so were critical to the system. The F-340 rebuild project replaced the existing F-340-A (Arvada) run and the F-340-T (Thornton) run from the inlet fire valves to the outlet fire valves to restore reliability at the site and provide redundancy to each separate IP system by adding a bypass from one run to the other.

**Project Category:**

**System Safety and Integrity**

**Project Cost**

- Project Cost (Additions 2022-2023): \$5,113,726
- Xcel Contribution: \$5,113,726
- Third Party Contribution: \$0

**Project Status**

- Construction Kick-Off: June 2022
- Construction Phases: 1
- Construction Completion: September 2023
- In-Service Date: September 2023

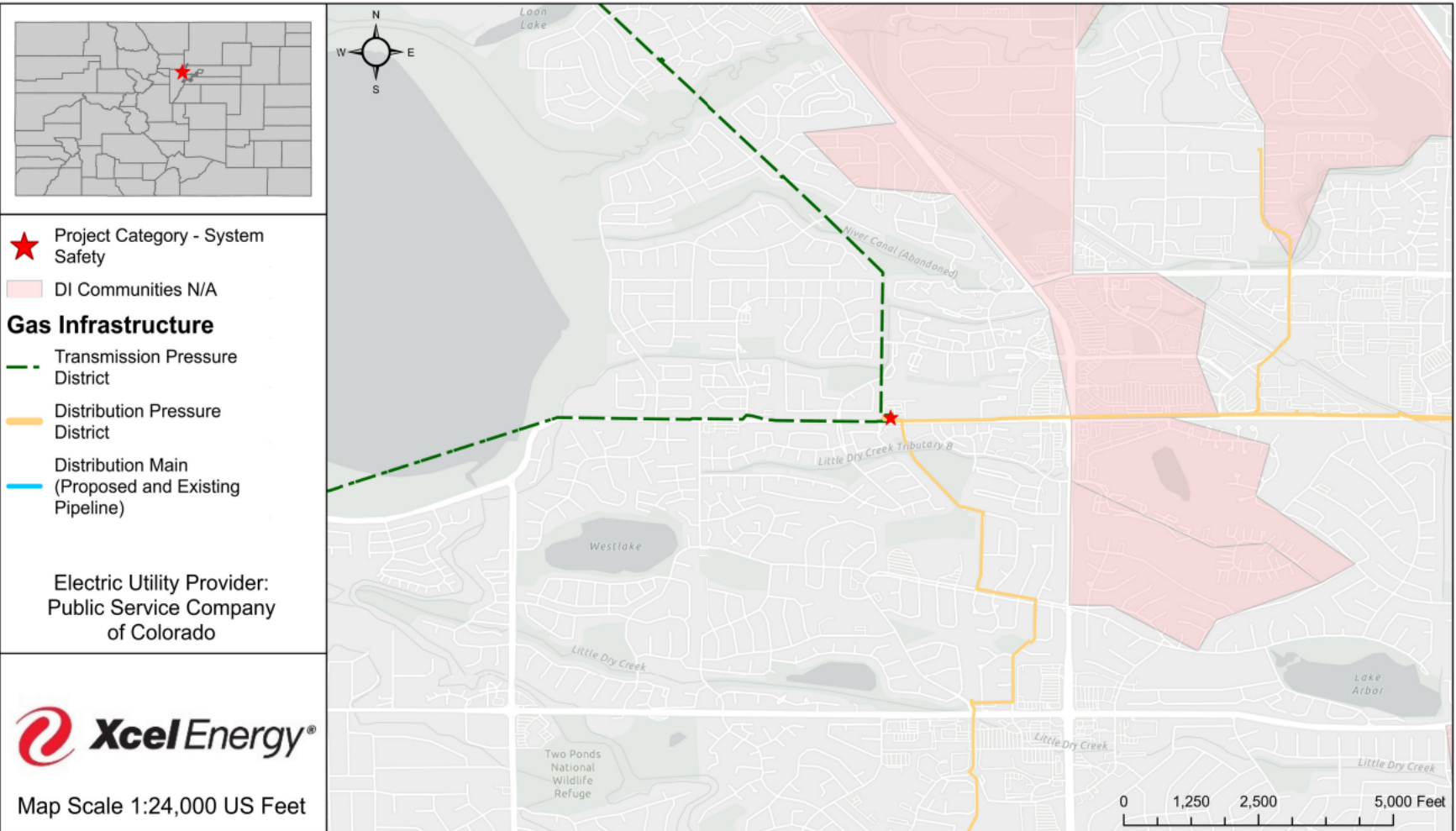
**Additional Project Details**

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

**Risk and Alternative Considerations**

F-340 is critical for operation of the Arvada and Thornton systems, such that there was no opportunity to avoid this project or replace it with an alternative project. The need for the F-340 station rebuild was not able to be mitigated by upstream or downstream main work because this station is critical to serving customers on two separate systems, and the load supported by this station could not be reallocated to any adjacent stations while maintaining required system load, pressure differential, and operability. The Company evaluated including a station F-490 rebuild in this project because the station shares a yard with F-340 and was of similar vintage. However, the F-490 station was assessed and its condition deemed sufficient to remain in service with minimal piping upgrades. The Company also considered demolishing and replacing the existing RTU building, but was able to use which reduced overall project costs.

# Station F-340 Rebuild Project Map





## F-808 Regulator Station Rebuild

Arvada, CO

### Project Overview

The existing infrastructure has been identified for a system safety and/or integrity project.

- Type: System Safety and Integrity
- Initiative: Obsolete Regulators
- Risk Ranking: High

F-808 is critical for operating the West Fringe IP system and all distribution systems downstream and the site was over capacity for peak days. The existing control valves, actuators, generator, and RTU were obsolete. The rebuild also addressed noise mitigation, and the height of the current actuators in the existing building that created work hazards to operations staff. The station was fully rebuilt with new building, control valves, actuators, generator, and RTUs.

### Project Technical Details

- Project Type: Regulator Station Rebuild
- Project Location: Arvada, CO

#### Physical Equipment Characteristics Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): 499'
- New Piping: 7" (61') 5" CV (63') 5" Bypass (63') 4" (35')10" (66') Fire Valve Tie-In (35') Reroute Tie-In 5" (176') 1" Generator
- Existing Piping: 18" 16" 4"
- Status of Existing Piping: Impacted pipe removed and replaced
- Other: Regulator Station

### Explanation of Need

The F-808 Regulator Station Rebuild is critical for the operation of the West Fringe IP system and all distribution systems downstream. The station was deemed to be over capacity for peak days and the existing control valves, actuators, generator, and RTU were obsolete. This rebuild also addressed community complaints regarding the noise level of the station, as well as the safety hazards posed by the current building's small size, which restricted movement for operations staff around the equipment. The station was fully rebuilt with new control valves, actuators, generator, and RTUs. A new, larger building was constructed to house the new system and features security and safety updates. During this rebuild, the 4" inlet gas main to Station F-924, located adjacent to F-808, was relocated to the west side of the site.

### Project Category:

System Safety and Integrity

### Project Cost

- Project Cost (Additions 2022-2023): \$4,585,803
- Xcel Contribution: \$4,585,803
- Third Party Contribution: 0

### Project Status

- Construction Kick-Off: May 2023
- Construction Phases: 1
- Construction Completion: September 2023
- In-Service Date: September 2023

### Additional Project Details

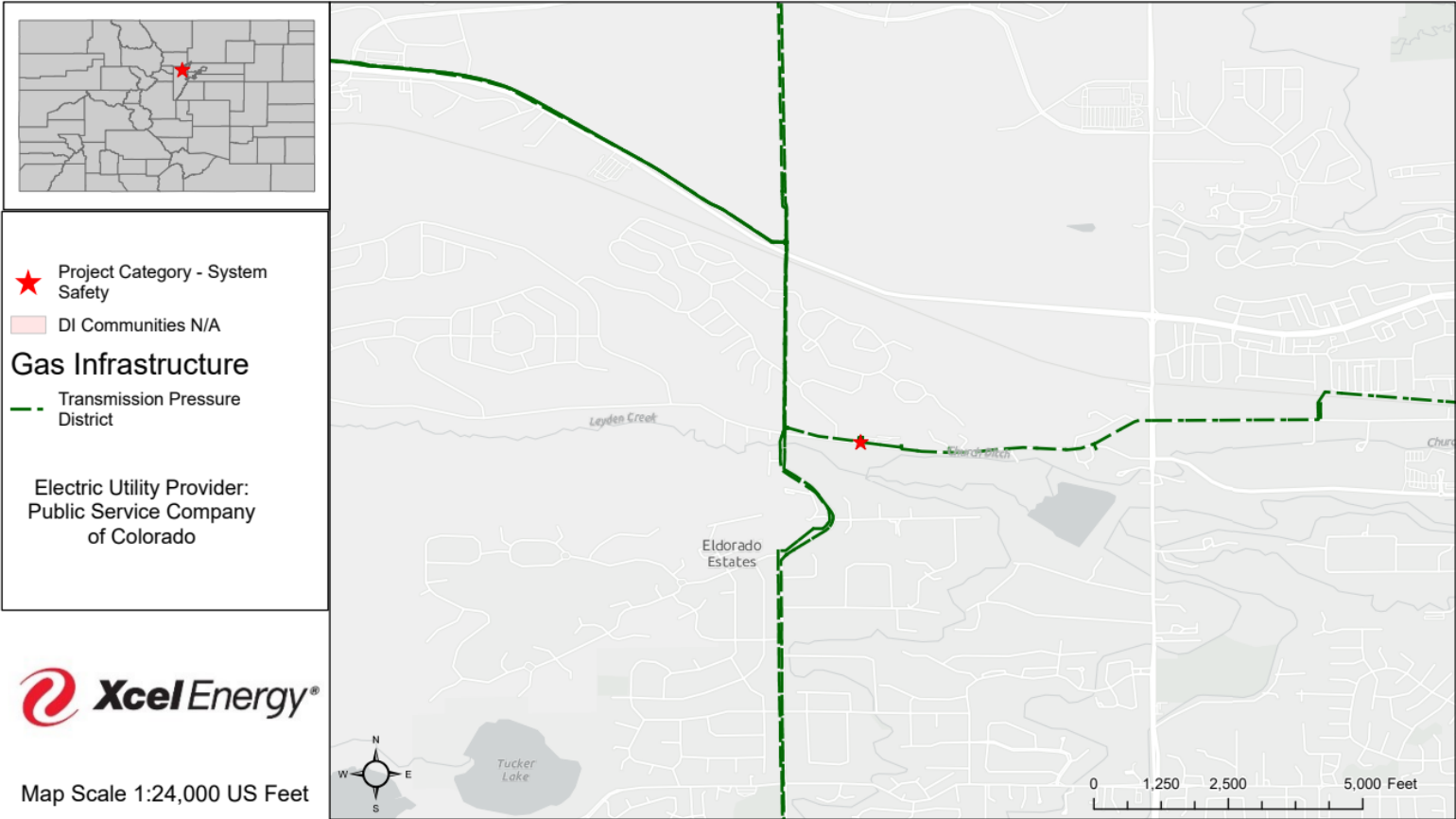
- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: No
- Xcel Electric Territory: Yes
- Included in Prior GIP: Yes
- Inter-relationship to Other Planned Projects: No

### Risk and Alternative Considerations

As F-808 is critical for the operation of the West Fringe IP system, there were no alternatives to this project. This necessary station rebuild addressed current and future capacity concerns, and upgraded obsolete equipment ensuring system safety and integrity.



# Rebuild F-808 Project Map





## Tiffany Compressor Station Upgrades

Ignacio, CO

### Project Overview

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: System Safety and Integrity
- Initiative: Obsolete Equipment Replacements
- Risk Ranking: High

This project upgraded and replaced obsolete equipment at the Tiffany compressor facility. The project replaced the dehydrator for the facility, removed the obsolete automated volume pocket controller to all three compressor units and replaced that with a manual variable volume pocket and recycle valve, and replaced discharge flow measurement and odorizer equipment for gas discharged from the facility.

### Project Technical Details

- Project Type: Obsolete Equipment for Compressor Facilities
- Project Location: 1216 COUNTY RD 330, Ignacio CO

#### Physical Equipment Characteristics of Facilities:

- System MAOP (PSI): [REDACTED]
- Length of New Pipe (ft): N/A
- New Piping: N/A
- Existing Piping: N/A
- Status of Existing Piping: N/A
- Other: Replacement/Upgrade of Obsolete Equipment

### Explanation of Need

1. Dehydrator - Unit is past its useful life and requires new reboiler, dehydrator tower and absorber tower in the existing process area to ensure pipeline gas quality related to dew point specification.
2. Vibration Remediation - Compressor vibration and discharge piping vibration has been a persistent issue throughout the facility. Peerless Dynamics assessed the site in 2018 and recommended adding supports near the cylinders. Vibration is still prevalent likely do to deteriorating pipe supports. A pulsation study was completed and recommended that new Pulsation bottles be installed on each unit. Failure to correct vibration issues could result in infrastructure damage.
3. Fuel Gas Building and Regulator Runs - The fuel gas regulators are also obsolete and the existing building foundation cannot be rectified to support a new reg run. The existing regulator runs will be replaced in a worker/monitor approach to eliminate relief valves and new pressure instrumentation will be installed to monitor the regulator setpoints. These changes are required to meet environmental mandates.
4. Compressor Upgrades - Compressor upgrades included replacing the copacs with manual screw pockets on all units, which requires a recirculation line on each unit with a PCV controlled by percentage with load shown on unit control. Upgrades reduced number of shutdowns and allow for optimal operation of facility.
6. Gas Quality - To maintain gas quality, a new analyzer building was installed with a gas chromatograph, H2S analyzer, and a H2O analyzer to ensure gas quality and improve reliability.
7. Station Metering - An Ultrasonic meter was installed given existing orifice meter does not maintain tolerance for custody transfer.

### Project Category:

### System Safety and Integrity

### Project Cost

- Project Cost (Additions 2022-2023): \$6,104,163
- Xcel Contribution: \$6,104,163
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: June 2022
- Construction Phases: 3
- Construction Completion: April 2023 and May 2024
- In-Service Date: April 2023 and May 2024

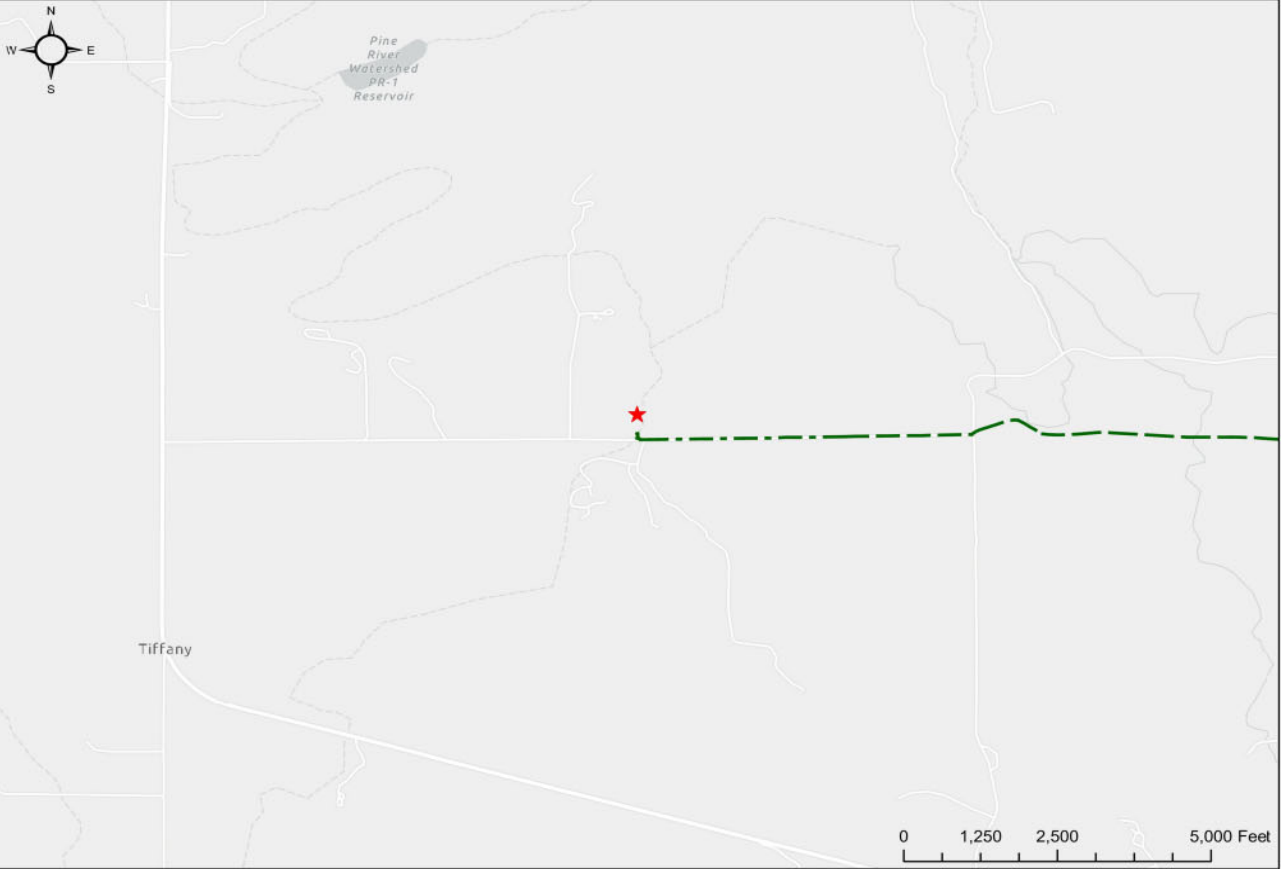
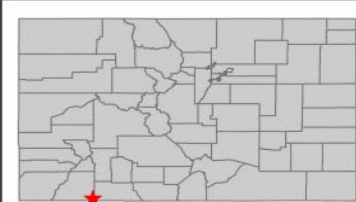
### Additional Project Details

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: No
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: Yes


### Risk and Alternative Considerations

The Tiffany Compressor Station is critical for the operation of the Southern Mountain system. Without operational improvements to the compressors or replacement of the existing dehydration units, the Tiffany station was at risk of not having the required compression to meet peak design day capacity needs during the heating season or maintain the required gas quality into the Southern Mountain System. In the event of the loss of a compressor during a peak design day, or at temperatures approaching the peak design day, the Company would risk customer outages. In the event that gas quality was not able to be maintained to the Company's standards, the Company faced the risk of damage to the downstream pipeline and the associated reliability risks. As a result, there was no reasonable alternative to replacing the obsolete equipment identified.

# Tiffany Station Upgrade Project Map



- ★ Project Category - System Safety
  - DI Communities N/A
- Gas Infrastructure**
- Transmission Pressure District
- Electric Utility Provider:  
La Plata Electric Association



Map Scale 1:24,000 US Feet





## Transmission Pipeline Marker Project

CO

### Project Overview

The existing infrastructure was identified for a system safety and/or integrity project.

- Type: Gas Tools and Equipment
- Initiative: FLEET, TOOLS & COMM
- Risk Ranking: High

The Pipeline Marker Project installs LIDAR caps on existing pipeline markers (~25,000) and replaces pipeline markers as necessary on Gas Transmission lines in Colorado (~2200 miles). This project began in 2021 and is scheduled to be completed in 2024.

### Project Technical Details

- Project Type: Gas Tools and Equipment
- Project Location: All Colorado Gas Transmission pipelines

#### Physical Equipment Characteristics of Proposed Facilities:

- System MAOP (PSI): HP
- Length of New Pipe (ft): N/A
- New Piping: N/A
- Existing Piping: N/A
- Status of Existing Piping: In Place and Flowing Gas

### Explanation of Need

High pressure gas markers are required at road crossings, streams/river crossings, within line of sight of another marker and points of inflection. This project includes replacement of any existing markers that are damaged or do not meet applicable standard and install new where required by regulation. All line markers will be surveyed with a Geo GPS Reporting device to be submitted via electronic file, whether new or existing, and data will be entered into GIS annually for each year of the project. The LIDAR caps are designed to provide for more efficient aerial survey of pipeline for benefit of leak detection surveyal.

### Project Category:

System Safety and Integrity

### Project Cost

- Project Cost (Additions 2022-2023): \$3,993,770
- Xcel Contribution: \$3,993,770
- Third Party Contribution: \$0

### Project Status

- Construction Kick-Off: June 2020
- Construction Phases: Multi-Year
- Construction Completion: December 2024
- In-Service Date: December 2024

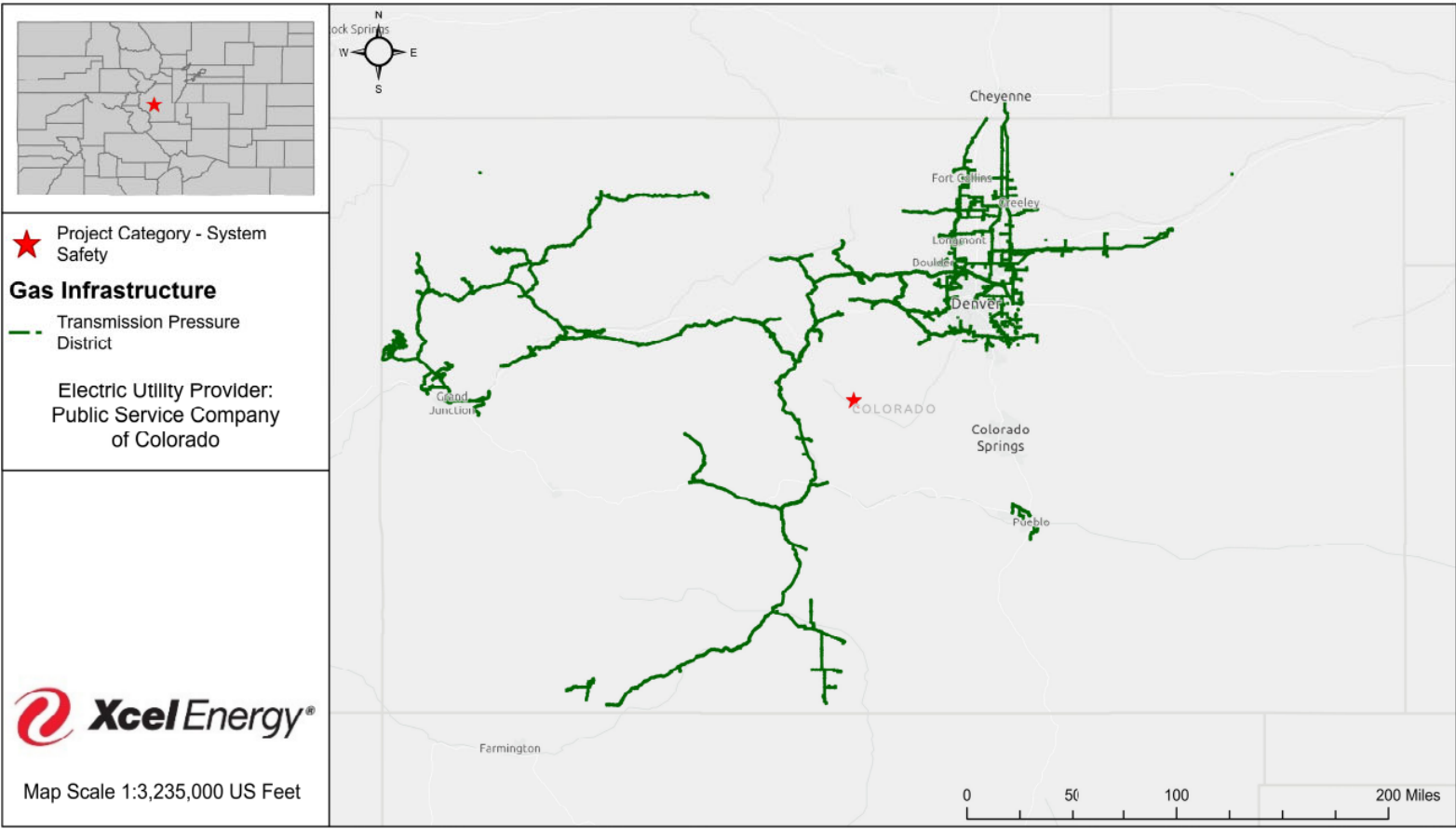
### Additional Project Details

- PHMSA Requirements: Yes
- Permitting: Yes
- Environmental: Yes
- Xcel Electric Territory: Yes
- Included in Prior GIP: No
- Inter-relationship to Other Planned Projects: No

### Risk and Alternative Considerations

The replacement of line markers is done in compliance with US Department of Transportation standards. Accordingly, there is no alternative to replacement of the markers through the course of this project. The inclusion of LIDAR caps in the project results in the capability for more frequent and more accurate leak detection surveys than otherwise could be performed.

# CO Pipeline Marker Project Map



| Project Name   | Project Scope         | Year        | Code Requirement    | Project Location (Service Area) | Expenditures (2022-2023) | Total Capital Expenditures (2022-2023) \$MM | Total Capital Additions (2022-2023) \$MM | TIMP Assessment                       |
|--|-----------------------|-------------|---------------------|---------------------------------|--------------------------|---|--|---------------------------------------|
| 6" Steamboat ILI   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Craig                           | (\$297,656)              | (\$0.30)                                    | -  | IMP Capital Related Work              |
| 6" Steamboat MP (Carryover)                                    | Make Piggable and ILI | 2022 & 2023 | 49 CFR Part 192.937 | Craig                           | \$855,451                | \$0.86                                      | -  | IMP Capital Related Work              |
| 6" Gary Western ILI (Carryover)                                | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Grand Junction                  | \$84,970                 | \$0.08                                      | -  | IMP Capital Related Work              |
| 6" Powell Park ILI   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Meeker                          | \$137,894                | \$0.14                                      | -  | IMP Capital Related Work              |
| 10" NW-Powell Park Verification Digs                           | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Meeker                          | \$15,562                 | \$0.02                                      | -  | IMP Capital Related Work              |
| 8" West Douglas ILI  | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Meeker                          | \$5,634,664              | \$5.63                                      | -  | IMP Capital Related Work              |
| 12" Rifle-Avon ILI   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Rifle                           | \$1,028,365              | \$1.03                                      | -  | IMP Capital Related Work              |
| 6" Powell Park to Craig CS Repairs (Carryover)                 | Repairs               | 2023        | 49 CFR Part 192.937 | Craig                           | \$12,888                 | \$0.01                                      | -  | IMP Capital Related Work              |
| 8" West Douglas - MP   | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Meeker                          | \$2,163,983              | \$2.16                                      | -  | IMP Capital Related Work              |
| 12" Rifle-Avon ILI (Carryover)                                 | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Rifle                           | \$7,928                  | \$0.01                                      | -  | IMP Capital Related Work              |
| <b>IMP Capital Related Work Total</b>                          |                       |             |                     |                                 | <b>\$9.6</b>             | <b>\$9.6</b>                                | <b>\$10.6</b>                            |                                       |
| 8" DIA North Lateral   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Brighton                        | \$1,650,838              | \$1.65                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 10" Sandy Hill Derate (Carryover)                              | Derate                | 2022        | 49 CFR Part 192.624 | Brighton                        | (\$1,417,780)            | (\$1.42)                                    | -  | IMP Gas Trans Pipe Capital EAST       |
| 12" Valmont PP Lateral MP & ILI                                | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Campion                         | \$527,739                | \$0.53                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 6" Kodak Plant Lateral   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Campion                         | \$976,354                | \$0.98                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 4" Hummel DA   | Assessment            | 2022        | 49 CFR Part 192.937 | Campion                         | (\$22,195)               | (\$0.02)                                    | -  | IMP Gas Trans Pipe Capital EAST       |
| TIMP_12in Ault-Ft Collins_AC Mitigation                        | AC Mitigation         | 2022        | 49 CFR Part 192.935 | Campion                         | \$541,581                | \$0.54                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| SPMS ECDA  | Repairs               | 2022        | 49 CFR Part 192.937 | SEMO                            | \$196,138                | \$0.20                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| Parker 20" ILI   | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | SEMO                            | \$921,688                | \$0.92                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 6" Idaho Springs-Central City (Carryover)                      | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Leyden                          | \$6,968                  | \$0.01                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 8" DIA North Lateral MP & ILI (Carryover)                      | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Brighton                        | \$155,768                | \$0.16                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| 6" Kodak MP & ILI  | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Campion                         | \$1,094,070              | \$1.09                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| Valmont PP Lateral ILI (Carryover)                             | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Campion                         | \$54,863                 | \$0.05                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| TIMP_12in Ault-Ft Collins_AC Mitigation (Carryover)            | AC Mitigation         | 2023        | 49 CFR Part 192.935 | Campion                         | \$784,360                | \$0.78                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| Parker 20" Fitting Replacement                                 | Make Piggable         | 2023        | 49 CFR Part 192.937 | SEMO                            | \$2,327                  | \$0.00                                      | -  | IMP Gas Trans Pipe Capital EAST       |
| SPMS ECDA - Reclass  | Repairs               | 2023        | 49 CFR Part 192.937 | SEMO                            | (\$196,138)              | (\$0.20)                                    | -  | IMP Gas Trans Pipe Capital EAST       |
| <b>IMP Gas Trans Pipe Capital EAST Total</b>                   |                       |             |                     |                                 | <b>\$5.3</b>             | <b>\$5.3</b>                                | <b>\$6.1</b>                             |                                       |
| 6" Steamboat ILI Repairs                                       | Repairs               | 2022        | 49 CFR Part 192.937 | Craig                           | \$86,709                 | \$0.09                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| 6" E Hayden to Steamboat Springs                               | Repairs               | 2022        | 49 CFR Part 192.937 | Craig                           | \$190,932                | \$0.19                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| 12" Asbury to Garmesa Repairs                                  | Repairs               | 2022 & 2023 | 49 CFR Part 192.937 | Grand Junction                  | \$83,466                 | \$0.08                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| 10" 25 Rd to Asbury ILI Repairs (Carryover)                    | Repairs               | 2022        | 49 CFR Part 192.937 | Grand Junction                  | \$146,005                | \$0.15                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| 8" West Douglas ILI Repairs                                    | Repairs               | 2022        | 49 CFR Part 192.937 | Meeker                          | \$3,214,916              | \$3.21                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| 4" Rifle Group DA Repairs                                      | Repairs               | 2022        | 49 CFR Part 192.937 | Rifle                           | \$24,595                 | \$0.02                                      | -  | CO/TIMP Assessment Sleeve Repair West |
| <b>CO/TIMP Assessment Sleeve Repair West Total</b>             |                       |             |                     |                                 | <b>\$3.7</b>             | <b>\$3.7</b>                                | <b>\$3.6</b>                             |                                       |
| TIMP_SANDY-HILL-REGULATOR-STATION                              | Derate                | 2022        | 49 CFR Part 192.624 | Brighton                        | \$1,480,947              | \$1.48                                      | -  | IMP Trans Reg Station - East Div      |
| PCGE_PMCR_HW-37-A REBUILD                                      | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Campion                         | \$993,111                | \$0.99                                      | -  | IMP Trans Reg Station - East Div      |
| PCGE_PMCR_HW-37-A REBUILD (Carryover)                          | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Campion                         | \$403,832                | \$0.40                                      | -  | IMP Trans Reg Station - East Div      |
| <b>IMP Trans Reg Station - East Div Total</b>                  |                       |             |                     |                                 | <b>\$2.9</b>             | <b>\$2.9</b>                                | <b>\$2.9</b>                             |                                       |
| 10" 25 Road-Asbury 1980 East & 10" Asbury - Garmesa - MP & ILI | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Grand Junction                  | \$2,326,691              | \$2.33                                      | -  | CO/TIMP/10" Asbury-Garmesa to 25 Rd   |
| <b>CO/TIMP/10" Asbury-Garmesa to 25 Rd Total</b>               |                       |             |                     |                                 | <b>\$2.3</b>             | <b>\$2.3</b>                                | <b>\$2.4</b>                             |                                       |
| 8" Northern San Luis Valley Line Digs                          | Repairs               | 2022 & 2023 | 49 CFR Part 192.937 | Del Norte                       | \$836,766                | \$0.84                                      | -  | CO/TIMP Assessment Sleeve RepairSouth |
| 6" Del Norte to Alamosa (Repairs)                              | Repairs               | 2022 & 2023 | 49 CFR Part 192.937 | Del Norte                       | \$223,282                | \$0.22                                      | -  | CO/TIMP Assessment Sleeve RepairSouth |
| 8" Climax to Wheeler Flats Digs                                | Repairs               | 2022 & 2023 | 49 CFR Part 192.937 | Silverthorne                    | \$529,087                | \$0.53                                      | -  | CO/TIMP Assessment Sleeve RepairSouth |
| <b>CO/TIMP Assessment Sleeve RepairSouth Total</b>             |                       |             |                     |                                 | <b>\$1.6</b>             | <b>\$1.6</b>                                | <b>\$1.8</b>                             |                                       |
| 10" Coal Creek Peak - MP & ILI                                 | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Leyden                          | \$1,426,790              | \$1.43                                      | -  | CO/TIMP/10" Coal Creek MP & ILI       |
| <b>CO/TIMP/10" Coal Creek MP &amp; ILI Total</b>               |                       |             |                     |                                 | <b>\$1.4</b>             | <b>\$1.4</b>                                | <b>\$1.4</b>                             |                                       |
| 12" Golden ILI Repairs   | Repairs               | 2022        | 49 CFR Part 192.937 | Campion                         | \$326,455                | \$0.33                                      | -  | CO/TIMP Assessment Sleeve Repair In   |
| 20" Tri-Town - CIG ILI Repairs (Carryover) - Reclass           | Repairs               | 2023        | 49 CFR Part 192.937 | Brighton                        | (\$35,463)               | (\$0.04)                                    | -  | CO/TIMP Assessment Sleeve Repair In   |
| 24" Front Range ILI  | Repairs               | 2023        | 49 CFR Part 192.937 | Campion                         | \$121,652                | \$0.12                                      | -  | CO/TIMP Assessment Sleeve Repair In   |
| 6" Kodak Sleeve Repair   | Repairs               | 2023        | 49 CFR Part 192.937 | Campion                         | \$79,497                 | \$0.08                                      | -  | CO/TIMP Assessment Sleeve Repair In   |
| 12" Valmont to N Boulder - Digs/Repairs                        | Repairs               | 2023        | 49 CFR Part 192.937 | Campion                         | \$144,814                | \$0.14                                      | -  | CO/TIMP Assessment Sleeve Repair In   |
| <b>CO/TIMP Assessment Sleeve Repair In Total</b>               |                       |             |                     |                                 | <b>\$0.6</b>             | <b>\$0.6</b>                                | <b>\$0.4</b>                             |                                       |
| 8" Ignacio (Carryover)   | Repairs               | 2022        | 49 CFR Part 192.937 | Del Norte                       | \$10,100                 | \$0.01                                      | -  | Other TIMP Assessment                 |
| 8" Fraser to Frisco ILI  | Make Piggable and ILI | 2022        | 49 CFR Part 192.937 | Silverthorne                    | \$303,332                | \$0.30                                      | -  | Other TIMP Assessment                 |
| 8" Fraser to Frisco Repair (Carryover)                         | Repairs               | 2023        | 49 CFR Part 192.937 | Silverthorne                    | \$12,488                 | \$0.01                                      | -  | Other TIMP Assessment                 |
| 6" Steamboat-Catamount - Dig/Repair                            | Repairs               | 2023        | 49 CFR Part 192.937 | Craig                           | \$463,814                | \$0.46                                      | -  | Other TIMP Assessment                 |
| 6" East Grand Junction Reinforcement A & B                     | Make Piggable and ILI | 2023        | 49 CFR Part 192.937 | Grand Junction                  | \$470,997                | \$0.47                                      | -  | Other TIMP Assessment                 |

| Project Name                             | Project Scope         | Year | Code Requirement    | Project Location (Service Area) | Expenditures (2022-2023) | Total Capital Expenditures (2022-2023) \$MM | Total Capital Additions (2022-2023) \$MM | TIMP Assessment       |
|--|-----------------------|------|---------------------|---------------------------------|--------------------------|---|--|-----------------------|
| 6" Gunnison Lat Upper Ark - MP & ILI     | Make Piggable and ILI | 2023 | 49 CFR Part 192.937 | Gunnison                        | \$161,442                | \$0.16                                      | -  | Other TIMP Assessment |
| 10" Mesa-Boulder - Digs/Repairs          | Repairs               | 2023 | 49 CFR Part 192.937 | Campion                         | \$120,759                | \$0.12                                      | -  | Other TIMP Assessment |
| 10" Plains Lateral - MP & ILI            | Make Piggable         | 2023 | 49 CFR Part 192.937 | Leyden                          | \$959,202                | \$0.96                                      | -  | Other TIMP Assessment |
| 10" Roundup-Brush - CAP Repairs          | Repairs               | 2023 | 49 CFR Part 192.937 | Roundup                         | \$128,949                | \$0.13                                      | -  | Other TIMP Assessment |
| 12" Rifle-avon (Repairs)                 | Repairs               | 2023 | 49 CFR Part 192.937 | Rifle                           | \$97,001                 | \$0.10                                      | -  | Other TIMP Assessment |
| 20" Parker ILI - CAP Repairs             | Repairs               | 2023 | 49 CFR Part 192.937 | SEMO                            | \$691,616                | \$0.69                                      | -  | Other TIMP Assessment |
| 4" Hummel Casing Replacement             | Repairs               | 2023 | 49 CFR Part 192.937 | Campion                         | \$555,628                | \$0.56                                      | -  | Other TIMP Assessment |
| 6" Frisco to Breckenridge ILI            | Repairs               | 2023 | 49 CFR Part 192.937 | Silverthorne                    | \$462,888                | \$0.46                                      | -  | Other TIMP Assessment |
| 6" Frisco to Breckenridge ILI (Repairs)  | Repairs               | 2023 | 49 CFR Part 192.937 | Silverthorne                    | \$713,113                | \$0.71                                      | -  | Other TIMP Assessment |
| Brighton Sugar Plant Derate              | Derate                | 2023 | 49 CFR Part 192.624 | Brighton                        | \$1,598,489              | \$1.60                                      | -  | Other TIMP Assessment |
| 8" Climax-Wheeler Flats T-O - Dig/Repair | Repairs               | 2023 | 49 CFR Part 192.937 | Silverthorne                    | \$195,641                | \$0.20                                      | -  | Other TIMP Assessment |
| <b>Other TIMP Assessment</b>             |                       |      |                     |                                 | <b>\$6.9</b>             | <b>\$6.9</b>                                | <b>\$5.6</b>                             |                       |

| Year(s) | RAV/EPC | Project                                       | Geographic Location (City) | Description (Mechanical)                                | Description (Communication)                    |
|---------|---------|---|----------------------------|---|--|
| 2022    | RAV     | Alamosa Turbine TO Receiver                   | Alamosa, CO                | Install Automation to Shut off Valves in South Division | Install ASV/RCV on Pipelines in South Division |
| 2022    | RAV     | Battlement Mesa VS                            | Battlement Mesa, CO        | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2022    | RAV     | Center TO VS                                  | Monte Vista, CO            | Install Automation to Shut off Valves in South Division | Install ASV/RCV on Pipelines in South Division |
| 2022    | RAV     | Crested Butte Mile 13 MNLN VS                 | Crested Butte, CO          | Install Automation to Shut off Valves in South Division | Install ASV/RCV on Pipelines in South Division |
| 2022    | RAV     | Granby TB RS Inlet Fire Valve VS              | Granby, CO                 | Install Automation to Shut off Valves in South Division | Install ASV/RCV on Pipelines in South Division |
| 2022    | RAV     | Grand Lake RS (RG6&7)                         | Grand lake, CO             | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2022    | RAV     | Jackson Mountain MNLN VS                      | Pagosa Springs, CO         | Install Automation to Shut off Valves in South Division | Install ASV/RCV on Pipelines in South Division |
| 2022    | RAV     | Loveland Sugar Boyd Lake MNLN TO VS           | Loveland, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | North Greeley MNLN TO VS                      | Greeley, CO                | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | North Rifle TO VS                             | Rifle, CO                  | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2022    | RAV     | Plains End MNLN TO VS                         | Leydon, CO                 | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | Platteville MNLN TO VS                        | Platteville, CO            | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | Rifle Compressor Station                      | Rifle, CO                  | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2022    | RAV     | Rifle TO VS                                   | Rifle, CO                  | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2022    | RAV     | South Greeley MNLN TO VS                      | Greeley, CO                | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | South Loveland TO VS                          | Loveland, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | Stapleton TO VS                               | Aurora, CO                 | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2022    | RAV     | Superior Gross Hahnwald VS                    | Parachute, CO              | Install Automation to Shut Valves West Division         | Communication Work Orders                      |
| 2023    | RAV     | 120th and Picadilly MNLN TO VS                | Commerce City, CO          | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | 68th and Powhaton TO VS                       | Aurora, CO                 | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | 68th and Picadilly Lateral TO VS              | Denver, CO                 | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | Yosemite North TO VS                          | Brighton, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | Campion TO VS                                 | Loveland, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | Little Thompson Group MNLN VS                 | Berthoud, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | Yosemite South CS NW VS (CS) (Brighton)       | Brighton, CO               | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |
| 2023    | RAV     | Chatfiled & Kendall VS (F-578) (Denver Metro) | Denver, CO                 | Install Shut off Valves on Pipelines                    | Install ASV/RCV East Division                  |



| Project Nbr Desc                    | Description  | 2022 (Actual) | 2023                |                         |       | Total Additions Since 2021 Test Year |
|-------------------------------------|--|---------------|---------------------|-------------------------|-------|--------------------------------------|
|                                     |  |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast | Total |                                      |
| CO/MNSOUTHERN/Del Norte Instrument  | Install instrument air system at the Del Norte Compressor Station in Del Norte, CO. Driven by reduction in methane emissions from unit start and reduce operating risk.  | \$0.0         | \$0.0               | \$2.8                   | \$2.8 | \$2.8                                |
| LB-34 Rebuild                       | Rebuild existing LB-5 and LB-2 regulator stations with new LB-34 regulator station in Brush, CO. Driven by obsolete equipment and capacity restrictions.   | \$0.0         | \$0.0               | \$2.2                   | \$2.2 | \$2.2                                |
| CO/Rifle Gas Plant/Glycol System Co | Rebuild ethylene glycol loop at Rifle Gas Plant in Rifle, CO. Driven by need to resolve corrosion issues in the glycol loop and reduce operational risk.   | \$1.6         | -\$0.2              | \$0.5                   | \$0.4 | \$2.0                                |
| CO/Urbint Software/GER Tix Fcst-202 | Software used to forecast Gas Emergency Response ticket volumes  | \$1.4         | \$0.0               | \$0.0                   | \$0.0 | \$1.4                                |
| CO/Chalk Bluffs Control sys upgrade | Replace obsolete HMI, RTU, and corroded and leaking conduit at Chalk Bluffs Compressor Station in Weld County, CO. Driven by reduction in operational flexibility including loss of communication and system visibility. | \$1.3         | \$0.0               | \$0.1                   | \$0.1 | \$1.4                                |
| Replace Greasewood Compressor Stati | Replace obsolete station RTU and unit PLCs at Greasewood Compressor Station in the Meeker, CO area. Driven by repair parts no longer being available and reduce operational risk from failure.                           | \$1.3         | \$0.1               | \$0.0                   | \$0.1 | \$1.4                                |
| CO/Additional Filtration at Roundup | Install filtration at the Roundup Storage Facility near Roundup, CO.   | \$1.0         | \$0.2               | \$0.0                   | \$0.2 | \$1.2                                |
| CO/CO MTN/Southern (HP)/SC-4 Climax | Rebuild the SC-4 meter station near Climax, CO. Driven by obsolete station design including the reduction in methane emissions by eliminating regulator/relief design.   | \$0.0         | \$0.9               | \$0.3                   | \$1.2 | \$1.2                                |
| CO/Yosemite/Unit 6 Overhaul         | Overhaul the Unit 6 compressor at Yosemite Compressor Station. Driven by unit usage determining need to overhaul to reduce failure risk.   | \$1.2         | \$0.0               | \$0.0                   | \$0.0 | \$1.2                                |
| CO/AH/Del Norte Compressr Controls  | Replace obsolete compressor controls at the Del Norte Compressor Station in Del Norte, CO. Driven by repair parts no longer being available and standardize with other facilities.                                       | \$0.0         | \$0.0               | \$1.1                   | \$1.1 | \$1.1                                |
| Failed Meter Lots                   | Replace failed meter lots with meter measurement issues.   | \$11.0        | \$2.8               | -\$2.4                  | \$0.4 | \$11.4                               |
| CO/Pagosa Spring/CS Controls Upgrad | Replace obsolete station controls at the Pagosa Springs Compressor Station near Pagosa Springs, CO. Driven by no repair parts available and reduce operational risk due to loss of communication and system visibility   | \$0.0         | \$0.0               | \$1.0                   | \$1.0 | \$1.0                                |
| CO/SWM/F-642 Rebuild                | Rebuild regulator station F-642. Driven by obsolete regulators, inlet valve, outlet valve, and butterfly valves.   | \$0.0         | \$0.6               | \$0.3                   | \$0.9 | \$0.9                                |
| CO/AH/LHEAT/RG-6 Line Heater Instal | Install line heater at the inlet of RG-6 near Lake Granby in Colorado. Driven by risk of mechanical freezing due to pressure drop.   | \$0.0         | \$0.8               | \$0.1                   | \$0.9 | \$0.9                                |
| Co/Urbint Software/GER Staff Fcst-2 | Software used to forecast Gas Emergency Response ticket volumes.   | \$0.0         | \$0.8               | \$0.0                   | \$0.8 | \$0.8                                |
| CO/Western/GrandJunction/North Ave  | Replace 1,025' of 2" main with 2" PE and 1,680" of 3" main with 4" PE main in Grand Junction, CO.  | \$0.8         | \$0.0               | \$0.0                   | \$0.0 | \$0.8                                |
| CO/East/Greeley/replace 8" with 12" | Replace 8" pipeline with 12" pipeline feeding the Greeley Headers station in Greeley, CO. Driven by need to ensure traceable, verifiable, and complete MAOP records.   | \$0.0         | \$0.0               | \$0.8                   | \$0.8 | \$0.8                                |
| CO/NMR/F-310 Rebuild Reg. Station   | Rebuild regulating station F-310   | \$0.7         | \$0.0               | \$0.0                   | \$0.0 | \$0.7                                |
| CO-Dist Logistics                   | Various logistical costs including storage.  | \$0.3         | \$0.1               | \$0.2                   | \$0.4 | \$0.6                                |
| CO/WA-21-A Stillwater Ranch/Line He | Line heater installation upstream of the regulating station to increase the gas temperature prior to the pressure drop. Driven by need to reduce risk downstream mechanical freezing.                                    | \$0.6         | \$0.0               | \$0.0                   | \$0.0 | \$0.6                                |

| Project Nbr Desc                               | Description   | 2022 (Actual) | 2023                |                         | Total         | Total Additions Since 2021 Test Year |
|--|---|---------------|---------------------|-------------------------|---------------|--------------------------------------|
|  |   |               | (1/1 - 9/30) Actual | (10/1 - 12/31) Forecast |               |                                      |
| CO/Relocation/Reg Station 47 (191)             | Rebuild and add redundant regulator run to existing station 47 and replace as regulator station 191.  | \$0.6         | -\$0.1              | \$0.0                   | -\$0.1        | \$0.6                                |
| CO/SEMR/AUR/RENW/Vault 132-E13th &             | Replace 80' of 6" steel IP line and 40' of steel IP line, including the installation of 6" and 8" valves to retire Vault 132 in Aurora, CO. Driven by inoperable valves and corrosion issues associate with vaults. | \$0.0         | \$0.0               | \$0.6                   | \$0.6         | \$0.6                                |
| CO/Tiffany/Unit Two Overhaul                   | Overhaul the Unit 2 at the Tiffany Compressor Station. Driven by unit usage determining need to overhaul to reduce failure risk.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| Install ERXs on D M/R Denver                   | Installation of ERX devices to better monitor gas system across Colorado.   | \$0.2         | \$0.1               | \$0.2                   | \$0.3         | \$0.5                                |
| Tiffany Unit 3 Overhaul                        | Overhaul the Unit 3 at the Tiffany Compressor Station. Driven by unit usage determining need to overhaul to reduce failure risk.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| CO/IGN/TIFFANY CS BLDG LIGHTS                  | Replace compressor station lighting to meet Class 1 Div 2 location at Tiffany Compressor Station near Durango, CO. Driven by lighting being obsolete for environment and for safe maintenance of facility.          | \$0.0         | \$0.0               | \$0.5                   | \$0.5         | \$0.5                                |
| CO/ Tiffany CS/Replace Non-Complian            | Installation of a new custody transfer meter along with a H2S probe and analyzer at the Tiffany Compressor Station new Durango, CO. Driven by out of compliance meter and need to add H2S probe.                    | \$0.0         | \$0.5               | \$0.0                   | \$0.5         | \$0.5                                |
| CO/Yosemite/Unit 8 Overhaul/Due to             | Overhaul the Unit 8 compressor at Yosemite Compressor Station. Driven by unit usage determining need to overhaul to reduce failure risk.  | \$0.5         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| Repl Oil/Water seperator unit, Yos             | Replace the existing oil/water separator with an appropriately sized unit sufficient for the present 6 compressor units at Yosemite South.  | \$0.4         | \$0.0               | \$0.0                   | \$0.0         | \$0.5                                |
| CO/NMR/3755 Dudley St/MR                       | Renew 60' of 16" IP main in Wheat Ridge, CO. Driven by crack and leak in gas main.  | \$0.4         | \$0.0               | \$0.0                   | \$0.0         | \$0.4                                |
| CO/Roundup/HMI Upgrade                         | Install new Station Human Machine Interface with up-to-date software at Roundup Storage. Replace obsolete system to replace operational risk.   | \$0.0         | \$0.4               | \$0.0                   | \$0.4         | \$0.4                                |
| CO/Del Norte Comp Security                     | Replace drive gate, upgrade access gates, and install new security building at the Del Norte Compressor Station in Del Norte, CO. Driven by the new 2022 security standards for facilities.                         | \$0.0         | \$0.0               | \$0.4                   | \$0.4         | \$0.4                                |
| CO-PlaceholderDiscrete Proj with n             | Placeholder for projects emerging with SAP Master Data Work Breakdown Structures in-process.  | \$0.0         | \$0.0               | \$0.4                   | \$0.4         | \$0.4                                |
| CO/NMR/RBLD/Marshall Compr Vib Unit            | Repair and reinforce compressor units based on vibration study at Marshall Compressor Station near Louisville, CO. Driven by high vibration issues that could impact operational readiness.                         | \$0.0         | \$0.4               | \$0.0                   | \$0.4         | \$0.4                                |
| CO/Black Hills/12" Rifle Avon Share            | PSCo share of installation of 12" RCV.  | \$0.0         | \$0.4               | \$0.0                   | \$0.4         | \$0.4                                |
| COAsbury/Injection-Withdraw System             | Replace obsolete measurement equipment and control valves at the Asbury Storage facility near Grand Junction, CO. Driven by obsolete equipment and overpressure risk.   | \$0.0         | \$0.0               | \$0.3                   | \$0.3         | \$0.3                                |
| CO/SEMR/F-572 Integration and Reg S            | Install 11' of 4" PE main to connect the F-572 system with the other systems in Parker.   | \$0.3         | \$0.0               | \$0.0                   | \$0.0         | \$0.3                                |
| Other System Safety and Integrity              | Various other small System Safety and Integrity   | \$1.2         | \$2.6               | \$1.8                   | \$4.5         | \$5.7                                |
| <b>Total System Safety and Integrity Other</b> |   | <b>\$25.7</b> | <b>\$10.8</b>       | <b>\$11.1</b>           | <b>\$21.9</b> | <b>\$47.6</b>                        |