

**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-)
GAS TARIFF TO INCREASE)
JURISDICTIONAL BASE RATE)
REVENUES, IMPLEMENT NEW BASE) PROCEEDING NO. 24AL-____G
RATES FOR ALL GAS RATE)
SCHEDULES, AND MAKE OTHER)
PROPOSED TARIFF CHANGES)
EFFECTIVE FEBRUARY 29, 2024)

DIRECT TESTIMONY AND ATTACHMENTS OF MEGAN N. SCHELLER

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

January 29, 2024

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Attachment MNS-4	Technology Investment Governance Process

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

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

3 A. My name is Megan N. Scheller. My business address is 401 Nicollet Mall,
4 Minneapolis, Minnesota 55401.

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

6 A. I am employed by Xcel Energy Services Inc. (“XES”) as Sr. Director, Product
7 Management. 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 Sr. Director, Product Management, I lead the Governance, Strategy, and
3 Performance team in Technology Services. My accountabilities in this role include
4 improving and standardizing IT processes, such as IT strategy, financial
5 management, and aligning enterprise IT plans with Company objectives. In my
6 previous role, I was responsible for planning and executing the customer
7 technology portfolio, with an emphasis on delivering technology to enhance our
8 customer's digital experience. In this Direct Testimony, I represent the Xcel Energy
9 Technology Services organization (formerly Business Systems), which performs
10 Xcel Energy's shared IT functions. A description of my qualifications, duties, and
11 responsibilities is set forth in my Statement of Qualifications at the conclusion of
12 my testimony.

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

14 A. The purpose of my Direct Testimony is to provide an overview of the Technology
15 Services area and discuss how Technology Services has continued to become a
16 more significant part of the Company's operations. In addition, I present and
17 support the Company's capital additions and operations and maintenance ("O&M")
18 expenses included in the 2023 Test Year for the Technology Services area. The
19 Company's last natural gas rate case was Proceeding No. 22AL-0046G (the "2022
20 Combined Gas Rate Case"), in which a test year ended December 31, 2021 was
21 approved as part of a combined Phase I and II rate proceeding ("2021 HTY" or
22 "2021 Test Year"). I therefore provide support for capital additions placed into
23 service since the 2021 HTY, from January 1, 2022 through September 30, 2023

1 and forecasted through the year-end 2023. However, common general plant
2 capital additions placed in service in 2022 have already been approved by the
3 Commission in the Company's most recent electric rate case (Proceeding No.
4 22AL-0530E) ("2022 Electric Rate Case"), which had a 2022 test year. I also
5 support O&M for the twelve months ended September 30, 2023.

6 Finally, I support the Company's proposal for a deferral mechanism
7 associated with IT Aging Technology and Cybersecurity capital categories, which
8 will help mitigate the ongoing under recovery of these IT investments due to their
9 relatively short lives.

10 **Q. WHAT ARE THE CAPITAL ADDITIONS AND O&M ASSOCIATED WITH**
11 **TECHNOLOGY SERVICES IN THIS CASE?**

12 A. The Company's Technology Services plant additions in the 2023 Test Year total
13 \$66.5 million (Public Service Gas Utility). For 2022, plant additions totaled \$59.7
14 million (Public Service Gas Utility). These capital additions are discussed in
15 Section III of my Direct Testimony and are also presented in Attachment MNS-1.

16 I also support the \$27.9 million (Public Service Gas Utility) in Technology
17 Services' actual O&M included in the Company's 2023 Test Year. I discuss O&M
18 in Section IV of my Direct Testimony, which are also presented in Attachments
19 MNS-2 and MNS-3. Mr. Arthur P. Freitas supports the Company's overall 2023
20 Test Year development.

1 **Q. ARE YOU SPONSORING ANY ATTACHMENTS WITH YOUR DIRECT**
2 **TESTIMONY?**

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

- 4 • Attachment MNS-1: Technology Services Capital Additions 2022-2023;
- 5 • Attachment MNS-2: October 1, 2022 through September 30, 2023
6 Technology Services O&M Expenses by Cost Element;
- 7 • Attachment MNS-3: October 1, 2022 through September 30, 2023
8 Technology Services O&M Expenses by Federal Energy Regulatory
9 Commission (“FERC”) Account; and
- 10 • Attachment MNS-4: Technology Investment Governance Process.

1 **Q. PLEASE DESCRIBE TECHNOLOGY SERVICES' KEY FUNCTIONS AND**
2 **RESPONSIBILITIES.**

3 A. The key services Technology Services provides include the following:

- 4 • *Foundational Technology Infrastructure:* Support for each employee's
5 hardware and software needs, including the provision and maintenance
6 of hardware such as computers, phones, and servers; maintaining and
7 updating operating systems; and providing sufficient data storage
8 capabilities. Technology Services also provides protection from
9 cybersecurity attacks, including but not limited to computer viruses.
- 10 • *Systems Control:* Technology support to our electric Generation,
11 Transmission, Distribution, and Gas Operations business areas to
12 enable management and operation of the electric and gas systems. One
13 of the systems that we maintain is the Outage Management System
14 ("OMS"), which tracks customer outages and dispatches repair crews to
15 restore service. Technology Services also supports the Supervisory
16 Control and Data Acquisition ("SCADA") system, which is used to
17 monitor the health of the electric and gas transmission and distribution
18 systems.
- 19 • *Customer IT Support:* Hardware and software needed to facilitate
20 interactions with Public Service customers. These activities include
21 maintaining the Xcel Energy website that provides important information
22 to customers about outages, the status of their account, safety,
23 information required by our regulators, and Public Service operations.
24 Technology Services also maintains the Customer Resource System
25 ("CRS"), which is our customer information system, and which generates
26 billing statements to Public Service retail customers on a monthly basis.
27 Technology Services also supports the Interactive Voice Response
28 software that enables interaction with customers via telephone keypad
29 or speech recognition.
- 30 • *Corporate IT Support:* Technology Services provides IT support for
31 necessary corporate functions such as Human Resources and Financial
32 Management.

33 Along with day-to-day work on the technology we have deployed,
34 Technology Services makes capital investments and incurs O&M expenses to
35 support other business areas and functions across Xcel Energy. Without ongoing

1 investment in technologies, we would lack the tools to operate reliably and
2 securely, support functional decision-making, enable communications and “smart”
3 resources, and protect such fundamentally important resources as our natural gas
4 system, our customer information, and our financial data. In this proceeding,
5 Technology Services capital additions include but are not limited to hardware (e.g.,
6 desktop and laptop computers, servers, routers, phone systems, radio systems,
7 microwave communication systems, and network equipment), software (computer
8 programs), related technology infrastructure investments, and cybersecurity
9 solutions that support the Xcel Energy operating companies’ business operations.
10 I discuss these in more detail below.

11 **Q. WHY IS TECHNOLOGY SERVICES IMPORTANT TO PUBLIC SERVICE AND**
12 **ITS CUSTOMERS?**

13 A. Technology Services provides the technologies and supporting services
14 necessary for system reliability and security, operational decision-making, and
15 improved customer support and business capabilities. Technology is constantly
16 advancing and evolving as a foundational aspect necessary to help any business
17 meet its goals and objectives. In today’s world, no large business can function in
18 a safe and reliable manner, or provide appropriate customer service levels, without
19 IT investments. For example, the integration of IT systems with operational
20 technology (“OT”) systems, called IT/OT convergence, is increasing in many
21 industries, including Utilities. IT/OT convergence includes IT systems like
22 hardware, software and applications used for the creation, storage, security,
23 sharing and processing of data while OT systems monitor events, processes and

1 devices, and make adjustments to operating assets as needed. IT and OT
2 convergence, two traditionally separate systems, merge business insights,
3 controls and processes in a single uniform environment. This convergence allows
4 utilities to reduce errors, improve efficiency, enhance workflows, and manage
5 costs. There is an increasing reliance on data enabled by technology to make
6 informed decisions on equipment status, demand load management, and other
7 critical functions in the utility business. Actionable and accurate data are
8 dependent on system integrations to ensure all relevant factors are considered
9 from multiple information sources. IT is also a critical component of effective
10 customer interactions and managing work and employees – whether from a human
11 resources (“HR”) or field workflow perspective, and to enable day-to-day functions
12 of the business, such as through the use of laptops, field devices, conference
13 rooms, and other communications equipment.

14 **Q. ARE THERE PARTICULAR CHALLENGES THAT ARE UNIQUE TO**
15 **PROVIDING TECHNOLOGY SERVICES?**

16 A. Yes. Technology changes constantly. Issues with older software or equipment may
17 require upgrades or replacement if systems begin to show signs of issues or failure
18 or no longer serve their intended purpose. For example, this shows in our annual
19 refresh work that I discuss later in my Direct Testimony where we refresh IT on
20 routine bases depending on the nature of the technology. Additionally,
21 cybersecurity threats are constantly in flux and are not always predictable and may
22 therefore result in additional investment in a given year to ensure that cybersecurity
23 tools and resources are responsive to new threats to our information systems that

1 might be created by hackers. As IT has become increasingly critical to the
2 business, the demand for IT solutions and fixes far outpaces the dollars available
3 to meet those requests.

4 Further, Public Service continues to see an upward trend in the technology
5 investments needed to keep pace with the emergence of cybersecurity issues as
6 well as refreshing aging technology, many of which can affect either gas or electric
7 service. IT investments are necessary to keep the Company operating, protect
8 important data, provide and support customer service, and help other business
9 areas effectively manage O&M.

10 **Q. HOW ARE THESE INCREASING NEEDS DRIVING TECHNOLOGY SERVICES'**
11 **IT INVESTMENT ON BEHALF OF THE COMPANY AND ITS CUSTOMERS?**

12 A. These needs are driving Technology Services' IT investments in multiple ways.
13 Technology Services is devoting significant resources to address Aging
14 Technology, Enhancing Capabilities, and Cybersecurity initiatives, as I discuss in
15 more detail below. Our aging IT network infrastructure continues to be a key driver
16 of increased investment and requires attention on an ongoing basis, which is a
17 critical operational foundation required for the Company to provide a safe and
18 reliable product. In addition, we continue to seek out areas that will enhance Public
19 Service's capabilities to provide value to our customers and make it easier for them
20 to do business with us.

1 **Q. CAN YOU PROVIDE ADDITIONAL INFORMATION ABOUT THE TYPICAL**
2 **LIFESPAN OF IT ASSETS?**

3 A. Yes, because technology advances and changes so quickly in virtually all forms,
4 technology asset lives tend to be short – three to five years for hardware and seven
5 years for most software assets. As a result, the Company’s IT assets need frequent
6 attention, especially to address unexpected technology changes that may create
7 obsolescence and therefore functional limitations, and to be constantly vigilant with
8 respect to cybersecurity threats. While Public Service works to harvest maximum
9 value from its assets wherever possible, the lifespan of IT assets is rarely decades
10 as it may be for a pipeline or power plant.

11 **Q. HOW DOES THE REGULATORY PROCESS ALIGN WITH THE SHORTER**
12 **LIVES OF IT ASSETS?**

13 A. I am not a regulatory expert, but I understand that recovery of costs associated
14 with utility investments takes quite a bit of time. Therefore, by the time we obtain
15 initial recovery of IT assets with shorter lifespans, we are often several years into
16 the investment in the asset.

17 For example, Public Service’s current natural gas rates are based on capital
18 that was placed in service on or before December 31, 2021. For IT projects that
19 were placed in service in early 2022, we are not likely to begin recovering those
20 costs until new rates go into effect in late 2024. For these projects, Public Service
21 is not recovering roughly 21 percent of the total projects’ costs in depreciation
22 expense due to their shorter lives. This is of concern to the Technology Services
23 organization, particularly given the extent of the utility’s IT needs.

1 **Q. HOW IS THE COMPANY PROPOSING TO IMPROVE RECOVERY OF THE**
2 **COSTS OF ITS INCREASING IT NEEDS?**

3 A. Later in my testimony, I support the Company's proposal to implement a deferral
4 mechanism for IT capital costs associated with Aging Technology and
5 Cybersecurity investments. As I discuss in Section V of my Direct Testimony, this
6 proposal is intended to mitigate the lag in recovery of these shorter-lived assets
7 and support the Company's need to maintain an appropriate level of IT investment
8 in today's utility landscape.

9 **B. Technology Services Investment Needs**

10 **Q. WHAT ARE THE PRIMARY DRIVERS OF TECHNOLOGY SERVICES CAPITAL**
11 **ADDITIONS?**

12 A. The four key areas that drive Technology Services investments are:

- 13 • Addressing evolving cybersecurity threats and requirements;
- 14 • Replacing aging technology;
- 15 • Enhancing capabilities of our business and our ability to serve
16 customers; and
- 17 • Advancing and modernizing the customer experience, including
18 updating systems through our Customer Experience Transformation
19 Programs.

20 **Q. PLEASE DESCRIBE CYBERSECURITY PROJECTS.**

21 A. Investments in cybersecurity ensure the availability, integrity, and confidentiality of
22 our IT systems, as well as compliance with legal and regulatory obligations. These
23 investments provide prevention, detection, containment, and repair services to
24 protect the Company from cyberattacks and to assist in recovery if such an attack

1 occurs. An example of a cybersecurity project is the Multi-factor Authentication
2 project, which implemented a multi-method, multi-level process for the
3 authentication of individuals who attempt to access Xcel Energy's network, as well
4 as ensuring that the device used is compliant from a security perspective.

5 Cybersecurity does not include physical security investments, such as
6 property security. Physical security is part of Shared Corporate Services and is
7 discussed by Company witness Mr. Adam R. Dietenberger.

8 **Q. PLEASE DESCRIBE AGING TECHNOLOGY PROJECTS.**

9 A. Information assets are subject to aging, technological obsolescence, and
10 increasing maintenance costs. Technology Services not only completes routine
11 annual refreshes of technology, like replacing computers and printers, but also
12 plans and places in service large IT projects that modernize the Company's IT and
13 address the needs and experiences of our customers and employees. A
14 reasonably up-to-date infrastructure is necessary for the Company to continue to
15 meet increasingly demanding data security, reliability, and compliance
16 requirements, as well as the service expectations of our customers. For example,
17 we must update technologies to meet more current compliance obligations, to
18 ensure functionality, or to provide current data security measures. In addition, the
19 recovery of aging technologies after an IT outage can be compromised if those
20 systems are no longer supported by their vendor. In general, while Technology
21 Services seeks to maximize the value of its investments by harvesting the value of
22 existing systems prior to replacing them, there comes a time when we must
23 upgrade our aging systems due to business, reliability, or compliance needs.

1 Aging technology projects include both routine and specific refresh projects
2 that update older IT systems, hardware, and programs. An example of a specific
3 aging technology project is the Core HR Application project, which involves
4 replacement of multiple existing core HR software systems and vendors at Xcel
5 Energy with a single, integrated software solution. I discuss this project in more
6 detail below in Section III.B. Routine projects (or what we also call life cycle
7 management projects) typically involve refreshes of smaller components of
8 technology infrastructure on regular cycles.

9 Another area of IT that must keep pace with current needs is our Company's
10 data storage capabilities. The increasing use of technology across the organization
11 is resulting in the need to store, transmit, and manage ever larger amounts of data,
12 and our systems must be able to keep up with these growing data storage needs.
13 While solutions such as routine information purging and data warehousing can
14 help reduce the impact of this data "explosion," they are not sufficient to fully
15 mitigate data growth. As a result, we need to increase our storage capacities and
16 the speed and flexibility of our networks and improve our tools to cost effectively
17 manage our data and information.

18 **Q. PLEASE DESCRIBE PROJECTS THAT ENHANCE CAPABILITIES.**

19 A. Technology can offer the opportunity to improve productivity, enhance
20 communications between systems and between people, and use data more
21 efficiently. Technology Services is constantly evaluating new technologies and
22 helping business areas examine ways to increase efficiencies and enhance
23 communications between systems that benefit the Company and our customers.

1 An example of an enhancing capabilities project is the Strategic Fiber Deployment
2 Project, where the Company will acquire fiber optic cable assets in order to better
3 support enterprise network connectivity, discussed below in more detail in Section
4 III.C.

5 **Q. HOW DOES TECHNOLOGY SERVICES DETERMINE WHICH CAPABILITY-**
6 **ENHANCING TECHNOLOGIES TO IMPLEMENT?**

7 A. Technology Services partners with business area stakeholders to identify and
8 implement technologies that are intended to contribute to improved safety,
9 increased efficiencies, employee and customer satisfaction or other
10 improvements. Technology Services works prudently with various business units
11 to evaluate new technologies to determine whether they can be used to improve
12 efficiency in the way tasks are completed, data is used, or in the way
13 communications are conducted within the organization and with external
14 stakeholders, including our customers.

15 **Q. WHAT DOES TECHNOLOGY SERVICES MEAN WHEN DISCUSSING A**
16 **“CUSTOMER EXPERIENCE”?**

17 A. The customer experience involves Xcel Energy customer’s direct interactions with
18 the Company, whether by digital platforms, through the call center, in person, or
19 otherwise. Managing that experience requires both system tools and customer
20 interfaces that work for the customer, supporting their satisfaction with their service
21 and overall experience with the Company. The Company continues to refresh
22 technology in the customer category and will invest in enhancing customer
23 capabilities as they align with corporate strategy.

1 **Q. PLEASE DESCRIBE EFFORTS BY THE COMPANY TO ENHANCE THE**
2 **CUSTOMER EXPERIENCE.**

3 A. While all of Technology Services' work puts the customer front and center, prior to
4 2019 it had been several years since we had invested significantly in primary
5 customer touch points and relationship management tools. In support of the
6 enterprise focus on enhancing customer experience, Xcel Energy launched a
7 specific Customer Experience Transformation ("CXT") program in 2019 to help
8 create smarter and simpler experiences for employees and customers and created
9 a new category called customer enhancements. This multi-year effort was
10 designed to simplify Company technology, transform customer experiences,
11 improve customer satisfaction and employee engagement, and continue to drive
12 more efficient operations. CXT was developed to work strategically on enhancing
13 digital channels, developing a data fabric model, and migrating customer and
14 business data into the model, and designing, building, testing, and deploying the
15 foundational components to allow the first two to operate. More specifically, Xcel
16 Energy is utilizing more modern technologies that customers have come to expect
17 through experiences with other companies. This includes interactive websites,
18 account management options, and smart phone applications.

19 As more modern technologies become available for customers, it will be
20 necessary to simultaneously invest in new capabilities like data science, user
21 design, and development. Employees' innovative thinking is being used to align
22 with our customers' needs and expectations.

1 **Q. HOW DOES THE TECHNOLOGY SERVICES AREA ESTABLISH ITS IT**
2 **DEPLOYMENT PLANS AND CAPITAL BUDGET FOR A GIVEN YEAR?**

3 A. The annual capital budget for Technology Services is based on guidance from
4 corporate finance and the business needs we identify. Company witness Mr.
5 Dietenberger explains how the Company establishes overall business area capital
6 spending guidelines and budgets.

7 The Technology Services area itself employs a “bottom-up” approach to
8 planning for the needs our business area addresses. Technology Services uses a
9 portfolio prioritization and balancing process to determine the needs we must
10 address and decide how to allocate limited funds according to the highest business
11 priorities, including the greatest demands our IT systems face in each year. The
12 portfolio is regularly prioritized and balanced to support established strategic
13 objectives using predefined portfolio management criteria, the organization’s
14 desired risk profile, portfolio performance metrics, and capacity constraints. These
15 projects are then rolled up to total budgeted costs by capital budget groupings.

16 **Q. HOW DOES TECHNOLOGY SERVICES SELECT AND MANAGE ITS**
17 **PLANNED PROJECTS?**

18 A. Technology Services uses the Technology Investment Governance (“TIG”)
19 process to evaluate and select proposed Technology Services investments. The
20 TIG process is the Company’s IT budget development, project prioritization, and
21 project oversight process, which helps to establish budgets that are reasonable
22 and to manage our capital expenditures accordingly. The TIG process and its
23 “Gated” approval procedures are presented in more detail in Attachment MNS-4.

1 **C. Overview of 2022-2023 Capital Additions**

2 **Q. PLEASE DESCRIBE THE PRIMARY DRIVERS OF THE COMPANY'S**
3 **INVESTMENT IN TECHNOLOGY SERVICES SINCE THE 2022 COMBINED**
4 **GAS RATE CASE.**

5 A. Since the Company's 2022 Combined Gas Rate Case, there have been multiple
6 areas driving Company investments. Investment in our aging network
7 infrastructure is a key driver of increased investment and requires attention on an
8 ongoing basis, which is shown through continued, increasing capital investments.
9 Our routine, annual refresh (or life-cycle management) work continues to be a
10 driver, in addition to specific refreshes like the Technology License and Core HR
11 Application Projects. In addition, we have continued to enhance the Company's
12 capabilities through key initiatives like the Gas Frontline Enablement and
13 Experience and Strategic Fiber Deployment projects, in addition to our work to
14 improve the customer experience and protecting the Company's cybersecurity
15 risks through projects like SailPoint. The Company must be prepared to meet our
16 customers' needs to remain a trusted provider of their energy services.

17 **Q. CAN YOU DEPICT THE TREND OF TECHNOLOGY SERVICES CAPITAL**
18 **ADDITIONS AFFECTING PUBLIC SERVICE'S RATE BASE FROM 2022-2023?**

19 A. Yes. Table MNS-D-1 and Figure MNS-D-1 below depict Public Service's
20 Technology Services capital additions (i.e., plant in service) trend from January 1,
21 2022 to December 31, 2023. Throughout my Direct Testimony, capital additions
22 data from January 1, 2022 through September 30, 2023 represents actual
23 additions, while capital additions from October 1, 2023 to December 31, 2023

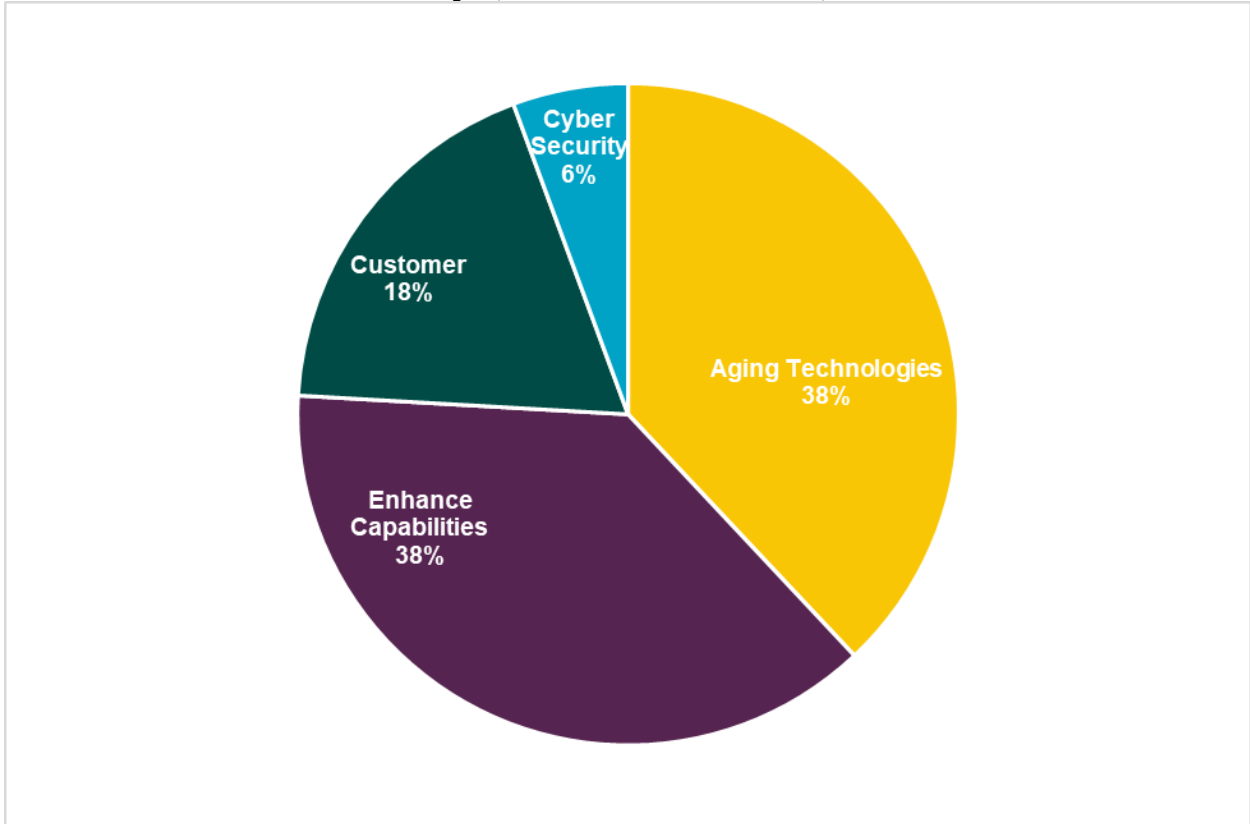
1 represent forecasted additions. Table MNS-D-1 and Figure MNS-D-1 illustrate
 2 capital additions by category, but it is important to note that many technology
 3 projects are planned, developed, and implemented (placed into service) over
 4 multiple years. As such, capital additions trend information will show larger
 5 increases when more or larger projects are placed in service, rather than when the
 6 expenditures are made.

7 **Table MNS-D-1**
 8 **Technology Services 2022-2023**
 9 **Capital Additions Public Service (Gas Utility)**
 10 **(\$ Millions)**

Budget Category	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 - 9/30 (Actual)	10/1 - 12/31 (Forecast)	Total	
Aging Technology	\$19.8	\$21.4	\$6.8	\$28.1	\$48.0
Customer	\$17.5	\$ 1.5	\$4.3	\$ 5.8	\$23.3
Cybersecurity	\$ 3.0	\$ 1.5	\$2.6	\$ 4.1	\$ 7.1
Enhance Capabilities	\$19.4	\$14.7	\$13.8	\$28.4	\$47.8
Total	\$59.7	\$39.0	\$27.6	\$66.5	\$126.2
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.					

1
2
3

Figure MNS-D-1
Technology Services Capital Additions by Category
January 1, 2022 – December 31, 2023



4 The figures in Table MNS-D-1 are stated on a Gas Utility basis, meaning that they
5 include both gas utility-specific projects and common electric/gas projects allocated to the
6 Gas Utility. Attachment MNS-1 contains Technology Services capital additions. I discuss
7 our capital additions from January 1, 2022 through end of year 2023 in the following
8 section.

1 **III. TECHNOLOGY SERVICES 2022-2023 CAPITAL ADDITIONS**

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

3 A. The purpose of this section of my Direct Testimony is to describe the Technology
4 Services capital additions since the Company's 2022 Combined Gas Rate Case
5 (which included actual capital additions through the 2021 calendar year) through
6 the 2023 Test Year. In this section, I present these 2022-2023 capital additions by
7 category for Cybersecurity, Aging Technology, Enhancing Capabilities, and
8 Customer Experience.

9 **A. Cybersecurity**

10 **Q. WHAT TYPES OF CYBERSECURITY CAPITAL PROJECTS HAS THE**
11 **COMPANY PLACED IN SERVICE SINCE THE 2021 TEST YEAR THROUGH**
12 **THE 2023 TEST YEAR?**

13 A. Since the 2021 HTY, and through the 2023 Test Year, Public Service placed \$7.1
14 million in cybersecurity-related capital additions into service. Key cybersecurity
15 projects from 2022 through 2023 are set forth in Table MNS-D-2 below.

Table MNS-D-2
Public Service 2022 - 2023 Cybersecurity Capital Additions (Gas Utility)
(\$ Millions)

Project Name	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 - 9/30 (Actual)	10/1 - 12/31 (Forecast)	Total	
SailPoint	\$1.2	\$0.1	-	\$0.1	\$1.3
OT Monitoring	\$0.1	\$0.02	\$0.6	\$0.6	\$0.7
SIEM+SOAR (defined below)	\$0.7	\$0.02	-	\$0.1	\$0.7
FireEye IDS-IPS	-	-	\$0.6	\$0.6	\$0.6
Verint Security Camera Server Replacement	-	-	\$0.5	\$0.5	\$0.5
Analog Security Camera Upgrade	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4
Endpoint Detection and Response	-	\$0.4	-	\$0.4	\$0.4
Terrain Analytics	-	\$0.2	-	\$0.2	\$0.2
Certificate & Key Management	\$0.2	-	-	-	\$0.2
PingFed to Azure SSO Migration	-	\$0.2	-	\$0.2	\$0.2
Service Account Remediation	-	-	\$0.2	\$0.2	\$0.2
Risk Assessment as a Service	\$0.2	-	-	-	\$0.2
Cybersecurity (small investments)	\$0.5	\$0.4	\$0.5	\$0.9	\$1.4
Total	\$3.0	\$1.5	\$2.6	\$4.1	\$7.1

*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.

4 **Q. PLEASE DESCRIBE KEY TECHNOLOGY SERVICES CAPITAL ADDITIONS**
 5 **PLACED IN SERVICE FROM JANUARY 1, 2022 THROUGH DECEMBER 31,**
 6 **2023 TO ADDRESS EVOLVING CYBERSECURITY THREATS AND**
 7 **REQUIREMENTS.**

8 A. Below are descriptions of projects with capital additions that were placed in service
 9 during 2022-2023 to address evolving cybersecurity threats and requirements:

- *SailPoint*: This project encompassed a major version upgrade of SailPoint, which the Company utilized to provide access security to certain applications. Specifically, SailPoint is used to provide identity and access governance to a limited number of applications and

1 associated platforms governed by North American Electric Reliability
2 Corporation Critical Infrastructure Protection (“CIP”) and SOX
3 requirements. This upgrade minimizes compliance risk and integrates
4 SailPoint with new applications.

- 5 • *OT Monitoring*: This project implemented an OT monitoring platform to
6 monitor, detect, and respond to cyber threats. This monitoring platform
7 supports and improves Xcel Energy’s threat detection, incident
8 response, vulnerability identification and case management/workflow
9 procedures by expanding the functionality of the existing infrastructure.
10 This product is specifically designed to detect network-based security
11 threats targeting industrial control systems. It upgraded the existing
12 sensors and deployed new sensors in critical locations throughout the
13 enterprise. The project scope included training the Enterprise
14 Command Center on how to respond to these new events detections.

- 15 • *SIEM+SOAR*: This project implemented and operationalized a
16 combined Security Information and Event Monitoring (“SIEM”) and
17 Security Orchestration, Automation, and Response (“SOAR”) for the
18 Enterprise Command Center. SIEM is the service that collects security
19 events from multiple systems and aggregates them for delivery to the
20 Enterprise Command Center to take action and SOAR is the automation
21 engine that reduces human interaction and accelerates the response
22 process. This project matures and expands security capabilities and will
23 provide benefits by more effectively and seamlessly protecting the
24 Company from threats to its systems and allow it to better correlate and
25 analyze a growing volume of data within the environment in a fast,
26 accurate, and efficient manner by having the various capabilities of
27 these programs in a common area.

- 28 • *FireEye IDS-IPS*: Intrusion detection system and intrusion prevention
29 system will deploy and configure network sensors to detect malicious
30 network traffic and deliver events to the Enterprise Command Center for
31 risk mitigation.

- 32 • *Verint Security Camera Server Replacement*: This project refreshed
33 security camera servers at multiple sites enterprise-wide due to the
34 previous servers running non-standard hardware that were at end of life.
35 This server replacement refresh project also involved updating the
36 servers to a new version of the Verint VMS (Video Management System)
37 software. Overall, this refresh project ensured the stability, availability,
38 and system performance for server and storage infrastructure for
39 security cameras and addresses security vulnerabilities and related
40 concerns by having up-to-date servers and software.

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- *Analog Security Camera Upgrade*: This is an ongoing multi-year project that involves replacing older, analog security cameras with digital security cameras across Company facilities. This project enhances security efforts by moving security camera assets to vendor supported technology that can be updated as patches are available, thus increasing the Company's cybersecurity capabilities.
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- *Endpoint Detection and Response*: This ongoing project is needed to ensure compliance with the Transportation Security Administration's ("TSA") cybersecurity directives for critical infrastructure. It reduces the incident response time with cyber threat activities. It also automates, when practicable, the containment and eradication of malicious code detected in our environment and leverages real-time cyber threat intelligence feeds to aid incident responders.
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- *Terrain Analytics*: Terrain Analytics is a data platform that maps the Company's complex network into a visualization tool that is easy to understand. This project built out our capabilities to gain insights, address potential risks, and anticipate cyber events by taking configuration files from XE network switches, routers, firewalls and load balancers and importing host and vulnerability data from vulnerability scanners and other sources. In doing so, we can identify, isolate, and build out logical attack paths within our environment.
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- *Certificate & Key Management*: This project replaced manual processes for certificate and key management with processes automated by a software solution. In addition, this automated system can verify that certificates are aligning with Xcel Energy defined policies for certificate ownership, modifying or reissuing them as needed.
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- *PingFed to Azure SSO Migration*: This project migrated applications from PingFederate Single Sign-on ("SSO") to Azure SSO in order to ensure secure sign-on (log-in) protections for our systems. This project built the Azure AD (Active Directory) infrastructure, integrated the Azure AD SSO platform to enable multi-factor authentication on selected app connections, migrated existing applications that utilize PingFederate to Azure AD SSO, and retired PingFederate. This was necessary because the current PingFederate solution has reached end-of-life. In addition, Azure offers 99.99 percent up time according to the service level agreement. This is significant because SSO is a critical service in that any downtime impacts all employees, contractors, and consultants.
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- *Service Account Remediation*: This project developed a new governance framework that standardizes and automates the management of service (non-user) accounts through workflows within

1 the SailPoint application. Applying consistent standards to the
2 management of non-user accounts greatly decreases the potential for
3 cybersecurity vulnerabilities and regulatory compliance failure.

- 4 • *Risk Assessment as a Service*: Risk Assessment as a Service is a
5 platform that is the primary source for managing vendor risk
6 questionnaires, assessments, reporting, and findings. This technology
7 allows vendors to be ranked on a criticality basis, ensuring assessments
8 are of a higher caliber than previously obtained. This will also bring
9 enhanced capability of security risks management through the
10 integration of data from multiple systems.

11 **Q. WHAT ARE THE CYBERSECURITY SMALL PROJECTS?**

12 A. Smaller projects are included in Attachment MNS-1 with the larger projects I
13 describe above. Like larger projects, these numerous, smaller projects are also
14 necessary for the Company to ensure the availability, integrity, and confidentiality
15 of our IT systems, compliance with legal and regulatory obligations, and otherwise
16 protect the Company from cyberattacks.

17 **B. Aging Technology**

18 **Q. PLEASE DESCRIBE KEY TECHNOLOGY SERVICES CAPITAL ADDITIONS**
19 **RELATED TO REPLACING AGING TECHNOLOGY.**

20 A. Since the 2021 HTY, through the 2023 Test Year, the Company's capital additions
21 total \$48.0 million for Aging Technology. Key aging technology projects from 2022
22 through 2023 are set forth in Table MNS-D-3 below. Within the Aging Technology
23 category, we further divide projects into routine refreshes and specific, individual
24 refresh projects.

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**Table MNS-D-3:
 Public Service 2022-2023 Aging Technology Capital Additions (Gas Utility)
 (\$MILLIONS)**

Project Name	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 – 9/30 (Actual)	10/1 – 12/31 (Forecast)	Total	
Lifecycle Management (LFCM) Projects	\$6.2	\$4.2	\$1.2	\$5.4	\$11.6
Technology License	\$1.0	\$5.3	\$0.01	\$5.3	\$6.3
Core HR Application (Payroll Benefits)	\$0.7	\$4.1	\$(0.2)	\$3.9	\$4.6
WAN PSCO	\$1.5	\$1.0	\$1.1	\$2.1	\$3.6
SW License Renewals - Infrastructure	-	\$1.8	-	\$1.8	\$1.8
Infrastructure Modernization	\$0.7	\$0.5	\$0.4	\$0.9	\$1.6
Bentley OpenUtilities Designer (BUD) Upgrade	\$1.5	\$0.01	-	\$0.01	\$1.5
IT INFS Network Refresh	\$0.9	\$0.4	\$0.1	\$0.5	\$1.4
DR Technology Refresh	\$0.7	\$0.6	-	\$0.6	\$1.3
VoIP Refresh	\$0.02	\$0.7	\$0.5	\$1.1	\$1.2
Fabric Refresh	\$0.8	\$0.1	\$0.1	\$0.2	\$0.9
OSIsoft PI Enterprise Agreement	-	-	\$0.8	\$0.8	\$0.8
ServiceNow Enhancements	\$0.5	\$0.3	-	\$0.3	\$0.8
VDI Refresh	-	\$0.7	\$0.02	\$0.8	\$0.8
SAP Continuous Improvements	\$0.3	\$0.1	\$0.3	\$0.3	\$0.6
SD-WAN Implementation	\$0.5	\$0.1	-	\$0.1	\$0.6
Gas Transmission Risk (GTR) Calc	\$0.6	-	-	-	\$0.6
Utilisphere 5 Year Enterprise License Agreement	-	\$0.6	-	\$0.6	\$0.6
Motorola LMR Core Upgrade	\$0.4	\$0.03	\$0.1	\$0.1	\$0.6
SAP Integration Service Platform	-	-	\$0.5	\$0.5	\$0.5
Aging Technology (small investments)	\$3.4	\$0.9	\$1.8	\$2.7	\$6.1
Total	\$19.8	\$21.4	\$6.8	\$28.1	\$48.0

*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.

1 **Q. PLEASE DESCRIBE THE LIFECYCLE MANAGEMENT (“LFCM”) PROJECTS.**

2 A. Given the breadth and depth of the different equipment Xcel Energy utilizes and
 3 manages, Technology Services refreshes smaller components of technology
 4 infrastructure on regular cycles. We annually budget for these replacements as
 5 routine refresh projects, which we also refer to as LFCM projects. LFCM projects
 6 refer to those projects that relate to updating or refreshing day-to-day technology
 7 on a routine basis. LFCM projects include LFCM – Data Storage, LFCM – Network
 8 Services, LFCM – OT Modernization, LFCM – End User Enablement, and LFCM
 9 Infrastructure Services. I provide capital additions for these projects for 2022 and
 10 2023 in Table MNS-D-4 below.

11 **Table MNS-D-4**
 12 **Public Service 2022 - 2023 Annual Refresh Capital Additions**
 13 **(Gas Utility)**
 14 **(\$ Millions)**

Project Name	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 - 9/30 (Actual)	10/1 - 12/31 (Forecast)	Total	
LFCM – Network Services	\$1.7	\$1.6	\$0.1	\$1.8	\$3.5
LFCM – End User Enablement	\$1.6	\$0.8	\$0.2	\$1.0	\$2.6
LFCM – OT Modernization	\$1.0	\$0.6	\$0.4	\$1.0	\$2.0
LFCM – Data Storage	\$1.7	\$0.9	\$0.04	\$0.9	\$2.6
LFCM – Infrastructure Services	\$0.2	\$0.3	\$0.5	\$0.8	\$1.0
Total	\$6.2	\$4.2	\$1.2	\$5.4	\$11.6
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.					

1 **Q. PLEASE BRIEFLY DESCRIBE THE DIFFERENT TYPES OF LIFECYCLE**
2 **MANAGEMENT PROJECTS.**

3 A. Below are descriptions of these refresh projects:

- 4 • *LFCM – Network Services:* This project work involves planned
5 replacement of network devices (switches, routers, radios, channel
6 banks and voice systems) due to aging technology, out-of-support
7 equipment, security vulnerabilities, and to enable new required
8 capabilities.
- 9 • *LFCM – End User Enablement:* This project involves replacement of
10 personal computers (“PCs”) and other end user devices, such as
11 printers, annually as they reach the end of their service life.
- 12 • *LFCM – OT Modernization:* Lifecycle management for OT (Operations
13 Technology) Modernization will help to replace and/or decommission
14 active end of life equipment. The scope of this work will include Land
15 Mobile Radio (“LMR”) replacements, Uninterrupted Power Supply
16 remediations and battery replacements. End of life devices leave our
17 network and infrastructure vulnerable; updates not installed can
18 increase security risk.
- 19 • *LFCM – Data Storage:* This project replaces data storage hardware that
20 is no longer cost-effective to support, or that presents significant risk to
21 operations due to aging components or lack of vendor support.
- 22 • *LFCM – Infrastructure Services:* This project involves replacing aging
23 servers prior to failure to support business growth and maintain
24 reliability. Lifecycle management for infrastructure services will help to
25 replace and/or decommission active end of life equipment including the
26 replacement of servers and licenses.

1 **Q. HOW DOES TECHNOLOGY SERVICES DEVELOP ITS BUDGETS FOR**
2 **REFRESH PROJECTS?**

3 A. While the budget methodology varies depending on the nature of the assets to be
4 refreshed, a refresh budget is generally determined by one or more of the following
5 factors:

- 6 • The number of devices or systems that will reach end of life during the
7 budget period. This is typically based on an established lifecycle plan.
8 For example, PCs, mobile data terminals, and portable meter reading
9 devices have a four-year life. On average, approximately 30 percent of
10 these devices are replaced per year, with the majority as a result of the
11 four-year lifecycle plan, with additional replacements due to failure rates
12 and other reasons for refresh.
- 13 • The number of devices expected to permanently fail outside warranty,
14 and in the case of portable devices, the number expected to be
15 damaged, or lost. This is based on historical trends.
- 16 • Planned incremental growth in demand (e.g., data storage, network
17 bandwidth, number of computer users, new physical sites, etc.). This is
18 based on Company and industry trends and known business plans.
- 19 • The devices or systems that must be replaced to meet new security,
20 software compatibility, or business requirements.
- 21 • The devices or systems for which vendor support will cease or become
22 prohibitively expensive.

23 Overall, these refresh efforts result in an orderly, thoughtful, and cost-
24 effective means of managing aging technology while planning the timing and
25 urgency of aging technology upgrades or replacements in order to prioritize the most
26 critical projects.

27 **Q. PLEASE DESCRIBE THE TECHNOLOGY LICENSE PROJECT.**

28 A. This project involves a 3-year renewal of Microsoft enterprise licenses and
29 subscriptions. As part of this renewal, the project also includes upgrading the

1 Windows 10 Operating System to Windows 11, which is a major software upgrade
2 for our systems. This upgrade provides users with the latest features and security
3 enhancements. The primary objective is to ensure uninterrupted access to
4 essential Microsoft software tools and maintain compliance.

5 **Q. WHAT IS THE CORE HR APPLICATION (PAYROLL BENEFITS) PROJECT?**

6 A. This project replaces the multiple existing core HR software systems and vendors
7 at Xcel Energy – PeopleSoft, TIME, myHR, Talent Management, Learning
8 Management System, Workforce Planning, and Workforce Analytics – with
9 integrated software solutions that include UKG, Workday, ServiceNow HR module,
10 and Time Card Management. These applications comprise the core human
11 resource system, providing payroll, benefits administration, workforce
12 management, experience layer, and job record tracking to employees and retirees
13 of the Company. The existing HR systems were no longer supported by the
14 vendors. For example, PeopleSoft had not been updated since 2010 and was no
15 longer supported by the vendor, creating risk from a technology and security
16 perspective. The TIME entry system also ran on the mainframe, which is targeted
17 to be retired in 2023-2024. The TIME application, PeopleSoft, and internal HR
18 processes were tightly integrated and replacing each of them separately would
19 have increased risk and costs.

20 Xcel Energy is required to maintain compliance with federal, state, local,
21 and industry regulations through reporting, audits, and process controls. Selection
22 of an integrated HR solution provided Xcel Energy with the ability to process and
23 analyze integrated workforce information from a single source. This optimized

1 data-driven workforce decisions and better supported workforce planning to meet
2 Company objectives. The integration and modernization of HR systems also
3 enhanced the employee experience through a single personalized interface;
4 provided self-service capabilities that are accessible from a desktop, laptop or
5 mobile device; optimized HR service delivery capabilities; increased and provided
6 more efficient options (chat, chatbots, incident tracking, knowledge base, etc.) for
7 employees to obtain support; and provided capabilities to be more agile in aligning
8 system functionality to evolving business processes. It also allowed the Company
9 to gain efficiencies in onboarding employees by streamlining processes and paper
10 forms and has optimized workforce decisions to better support workforce planning.

11 **Q. WHAT IS THE WAN PSCO PROJECT?**

12 A. This project includes the detailed design, planning, installation and commissioning
13 of equipment that comprises an update of the Company's corporate Wide Area
14 Network ("WAN") across its service territories. The WAN work includes network
15 infrastructure investments to support connection between the Company's various
16 locations and provides the pathway to enable critical business services.
17 Investments support communication services for our business, including SCADA
18 connectivity for monitoring and control of the gas system. In addition, enterprise
19 services are delivered to enable end users to connect to corporate applications
20 like email, SAP (the General Ledger and Work and Asset Management systems),
21 and internet access.

1 **Q. WHAT IS THE INFORMATION TECHNOLOGY INFRASTRUCTURE AND**
2 **NETWORK SERVICES (IT INFS) NETWORK REFRESH PROJECT?**

3 A. While the corporate WAN project I just discussed is focused on connecting the
4 Company's various locations, this project provides for the replacement of various
5 Network Voice and Data electronics across the Company. If these assets are not
6 replaced, there is potential risk of increasing instability, loss of reliability, and
7 increased safety and compliance risks. This project includes replacement of
8 equipment and labor related to microwave radio systems, land mobile voice radio
9 devices, local area network switches and routers, firewalls, lab testing, and
10 documentation.

11 **Q. WHAT IS THE SD-WAN IMPLEMENTATION PROJECT?**

12 A. The SD-WAN project established a new software-defined wide area network ("SD-
13 WAN") solution, which simplifies the management and operation of the WAN by
14 decoupling the networking hardware from the control system (that is, it is a virtual
15 infrastructure). SD-WAN enhanced the Company's network and security, and this
16 new capability was retrofitted into a subset of existing Company-wide WAN
17 locations.

18 **Q. WHAT IS THE SOFTWARE (SW) LICENSE RENEWALS – INFRASTRUCTURE**
19 **PROJECT?**

20 A. This project focuses on renewing various software licenses to ensure uninterrupted
21 access to essential tools and maintain compliance. The licenses renewed include
22 VMWare (virtualization software that allows multiple operating systems to run on a
23 single physical server), JAVA (a programming language and computing platform

1 for application development), eGenius (a network monitoring tool that provides
2 real-time visibility into the performance of applications and networks), Microsoft
3 InTune (a cloud-based service that provides mobile device management, mobile
4 application management, and PC management capabilities), and Broadcom (a
5 provider of semiconductor and infrastructure software solutions). The renewal of
6 the Microsoft InTune license will replace CyberArk End Point Management, which
7 has reached its end-of-life and is no longer supported.

8 **Q. WHAT IS THE INFRASTRUCTURE MODERNIZATION PROJECT?**

9 A. This is a multi-year project that is made up of multiple components that are
10 intended to support the stability, availability, and performance of our overall
11 technology infrastructure by modernizing certain outdated equipment. Some of the
12 initiatives being implemented include delivering the Xcel Energy Hybrid Cloud
13 Platform (“XHCP”) non-prod (testing) environment, building out the Emergency
14 Power Off for the Lookout Center Data Center, updating the equipment on IT
15 workstations to shorten recovery time on incidents, and replacing and upgrading
16 the disk destroyers at the Lookout Center. The project also includes server
17 operating system upgrades and the provision of capacity for the XHCP
18 environment. The goal is to provide a stable and standard hosting services
19 platform.

20 **Q. WHAT IS THE BENTLEY OPENUTILITIES DESIGNER (“BUD”) PROJECT?**

21 A. This project replaced the existing BUD, which is a distribution system design tool
22 that creates and manages distribution system assets for electric and gas systems,
23 that is at end of life. The BUD was replaced with the GE Smallworld Design

1 Manager system, which ensured that the system is completely upgraded, provided
2 users with more design capabilities, and enabled the Company to maintain vendor
3 support.

4 **Q. WHAT IS THE DR (DISASTER RECOVERY) TECHNOLOGY REFRESH**
5 **PROJECT?**

6 A. The DR Technology Refresh replaced aging disaster recovery hardware and
7 provided hardware and software solutions to ensure that the Company is fully
8 prepared to operate during a situation that could negatively impact the operation
9 of the Company's primary systems such as CRS, Geographic Information Systems
10 and meter reading applications. Specifically, this project enables the Company to
11 proactively test and implement a new methodology for system recovery during a
12 disaster, such as power outages and other system failures, that can result in lost
13 data and system issues. The project helps ensure business continuity regardless
14 of the circumstances.

15 **Q. WHAT IS THE VOIP REFRESH PROJECT?**

16 A. This project will support core day-to-day voice communication functions that are
17 crucial for business operations by upgrading Company technologies for the
18 delivery of voice communications over the internet. This refresh project represents
19 both replacing legacy communications systems and upgrading to more modern
20 VoIP (Voice over Internet Protocol) communication systems.

21 **Q. WHAT IS THE FABRIC REFRESH PROJECT?**

22 A. This project updates Xcel Energy data center fabric with Arista hardware and
23 updated VMWare software, and will also enable advanced network and hosting

1 capabilities. Data center fabric is generally a system of switches and
2 interconnections that allows for a flattened network architecture (where system
3 devices can connect to each other without going through multiple switches or
4 connectors). A flattened network architecture will better allow legacy equipment to
5 connect with other components to provide a reliant, secure platform for data
6 services that support critical business functions and communications, such as the
7 ones that will be delivered by the CRS, projects in the CXT program, AIX Unix
8 operating system, and components of Infrastructure Modernization.

9 **Q. WHAT IS OSISOFT PI ENTERPRISE AGREEMENT PROJECT?**

10 A. OSIssoft PI software is a data management infrastructure for collecting, storing,
11 managing, analyzing, and delivering operational (such as commercial operations
12 and weather information) data. The OSIssoft PI Enterprise Agreement Project
13 renews the existing Enterprise License Agreement for this solution, which was set
14 to expire in 2023, and extends licensing for existing access as well as expanding
15 PI licensing to various operations, such as Gas Operations.

16 **Q. WHAT IS THE SERVICENOW ENHANCEMENTS PROJECT?**

17 A. This project built off of the initial implementation of the current service management
18 tool, ServiceNow, by delivering new modules, such as expanding application
19 management, network automation, and mapping of towers. This resulted in
20 increased consistency and efficiency in the fulfillment of IT ticket resolutions for
21 employees.

1 **Q. WHAT IS THE VDI REFRESH PROJECT?**

2 A. The project refreshed, expanded, and improved the Company's aging VDI, or
3 Virtual Desktop Interface environment. This project supports the Company's hybrid
4 work environment by making it more efficient and stable, and adding capacity and
5 storage to support an increasing number of users.

6 **Q. WHAT IS THE SAP CONTINUOUS IMPROVEMENTS PROJECT?**

7 A. SAP is an enterprise application, and improvements and investment are needed
8 on a continued basis to fully utilize its benefits. This is a multi-year project, with
9 various components placed in service as assets are deployed. As an example, one
10 of the components for this project includes enhancements and added functionality
11 to SAP Analytics Cloud (or SAC), which provides visualization tools and
12 dashboards leveraging SAP data.

13 **Q. WHAT IS THE SAP INTEGRATION SERVICE PLATFORM PROJECT?**

14 A. This project builds upon the existing Enterprise Resource Planning (or ERP)
15 system by delivering new functionality and refreshes to specific areas of the
16 application. The SAP Integration Service Platform is a new software that consists
17 of custom-developed code that will be reused to build consistent read/write
18 integrations with SAP, becoming the new Enterprise Architecture pattern for all
19 future SAP read/write integrations. These services will provide durable, reusable
20 service-based integrations between applications and systems that require
21 read/write access to SAP, including but not limited to Work Orders, Notifications,
22 Equipment, and Functional Locations. This will replace redundant, point-to-point
23 integrations between SAP and other systems, such as Amazon Web Services, and

1 streamline the development and deployment of an SAP Integration Service
2 Platform.

3 **Q. WHAT IS THE GAS TRANSMISSION (GTR) CALC PROJECT?**

4 A. This project upgraded Xcel Energy's existing gas transmission risk model solution
5 (IRAS) with the latest version that provides for the identification and prioritization
6 of threats to gas infrastructure, as well as risk and mitigation analysis capability for
7 Xcel Energy's gas transmission assets. This work enables the Gas Integrity
8 Management Personnel team to conduct risk analysis of Company infrastructure
9 in-house with the latest risk analysis tool, while ensuring regulatory compliance
10 with Pipeline and Hazardous Materials Safety Administration regulations and
11 allowing our teams to keep up with the latest industry trends. This effort was vital
12 for the Gas business unit's regulatory compliance and cost control initiative.

13 **Q. WHAT IS THE UTILISPHERE 5 YEAR ENTERPRISE LICENSE AGREEMENT?**

14 A. This project upgraded our "call before you dig" (811) ticket management system,
15 Utilisphere, by purchasing an enterprise license, which replaced the end-of-life
16 licensing agreement. This delivers new capabilities, such as the ability to export
17 risk tickets to other systems, access new reporting and data visualization
18 dashboards, and identify and prioritize high-risk locate tickets.

19 **Q. WHAT IS THE MOTOROLA LMR CORE UPGRADE?**

20 A. When there is no cell phone coverage, the only means of communications for field
21 workers is the LMR system, or Land Mobile Radio, which is critical to the safety
22 and productivity of Xcel Energy's field personnel. This project completed all
23 software and hardware updates to the current LMR system to remain in support,

1 which allows for patching, improved support from Motorola, and proper adherence
2 to security standards.

3 **Q. WHAT ARE THE AGING TECHNOLOGIES SMALL PROJECTS?**

4 A. Overall, as with cybersecurity small projects, these smaller projects are included
5 in Attachment MNS-1 with the larger projects I describe above for aging
6 technologies. As with larger projects, these smaller projects enable the Company
7 to keep its systems reasonably upgraded to continue to meet business, reliability,
8 or compliance needs.

9 **C. Enhancing Capabilities**

10 **Q. PLEASE DESCRIBE KEY TECHNOLOGY SERVICES CAPITAL ADDITIONS**
11 **RELATED TO ENHANCING CAPABILITIES.**

12 A. Since 2021, Public Service has placed in service \$47.8 million in Enhancing
13 Capabilities capital additions. Key Enhancing Capabilities projects from 2022
14 through 2023 are set forth in Table MNS-D-5 below:

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Table MNS-D-5
Public Service 2022 - 2023 Enhancing Capabilities Capital Additions
(Gas Utility)
(\$ Millions)

Project Name	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 - 9/30 (Actual)	10/1 - 12/31 (Forecast)	Total	
Gas Frontline Enablement and Experience	\$10.8	\$5.7	-	\$5.7	\$16.5
Strategic Fiber Deployment	-	-	\$8.1	\$8.1	\$8.1
Private LTE	-	\$4.9	-	\$4.9	\$4.9
Gas Emergency Respond - EXT	\$2.9	\$1.1	\$1.7	\$2.8	\$5.7
Real Time Scheduling Engine	\$3.2	\$ 0.5	-	\$0.5	\$3.7
Cyber-Recovery Solution	-	-	\$1.6	\$1.6	\$1.6
CIP Substation Compliance Reporting Work Stream 2	-	\$1.3	-	\$1.3	\$1.3
Gas Estimation Tool (GET)	\$0.8	-	-	-	\$ 0.8
Supply Chain Procure to Pay	-	-	\$0.7	\$0.7	\$0.7
Unmanned Aircraft Systems Program	\$0.5	\$0.03	-	\$0.03	\$0.6
Enhancing Capabilities (Small Projects)	\$1.2	\$1.0	\$1.7	\$2.8	\$4.0
Total	\$19.4	\$14.7	\$13.8	\$28.4	\$47.8
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.					

5 **Q. WHAT IS THE GAS FRONTLINE ENABLEMENT AND EXPERIENCE**
 6 **PROJECT?**

7 A. The Gas Frontline Enablement and Experience project implemented a mobile
 8 solution that enables efficient, safe, and effective fieldwork by developing a single
 9 platform with data and sensors that provide crews with accurate and reliable

1 information to complete jobs. This project streamlined field documentation by
2 enabling effective frontline data collection and simplifying the documentation
3 process, which improved data accuracy; addressed visibility tracking by creating a
4 single interface for all necessary job and asset information; supported crews
5 through an accessible, reliable mobile solution that identifies the right asset for
6 inspection using geolocation, enabled offline work and knowledge about assets
7 through relevant history and comments; and addressed work order scheduling and
8 routing and optimizes such processes in real-time for location, qualifications, and
9 equipment available, which will save time and improve safety. Prior to the
10 implementation of this solution, field documentation was done manually. The
11 decision to invest in this project was made after working with field crews to
12 understand the previous process and identify inefficiencies and issues that
13 employees faced.

14 Additionally, we are required, by regulation, to inspect our assets on a
15 prescribed schedule. These compliance inspections are tracked and recorded to
16 provide auditors with required documentation that we are meeting those regulatory
17 requirements. This project enabled simpler data entry, at the time of measurement,
18 to improve accuracy and it completes compliance work flows in a simple and more
19 straightforward manner, which results in time savings from previous processes.

20 **Q. WHAT IS THE STRATEGIC FIBER DEPLOYMENT PROJECT?**

21 A. Under this project, the Company installed fiber optic cable assets to support
22 enterprise network connectivity. Fiber allows for more control over technology
23 resiliency, capacity, and architecture. The high availability design of the network

1 makes use of diversity in a couple ways: fiber cabling enters the buildings via two
2 physically separate entrances; and buildings have two fibers available to carry
3 traffic, allowing for one fiber to be cut without an impact to operations. The Strategic
4 Fiber network design is based on a dual entrance topology solution that utilizes
5 existing and new fiber optic cables to maintain operational business partner
6 requirements related to latency (speed of transmission), availability, and
7 bandwidth for transmission of information through cables. The project allows for
8 substantial network growth due to the fiber lines being wholly dedicated to Xcel
9 Energy's usage.

10 **Q. WHAT IS THE PRIVATE LTE PROJECT?**

11 A. The Private LTE project serves both electric and gas assets, with the amounts in
12 this case being the gas utility portions. The Private LTE project enhances the
13 Company's capabilities with regard to its SCADA system, which is a system used
14 by Xcel Energy to monitor and control complex gas processes and equipment in
15 real-time. Under this project, the Company is in the process of deploying its own
16 private LTE wireless network across its service area, which will supplement the
17 LTE communications network that is currently provided by a third-party
18 telecommunications company. The Private LTE project will improve the resiliency
19 and security of the gas SCADA environment by having an additional layer of
20 connectivity over the current, public communications network, which the Company
21 will continue to utilize as a backup service. Because of this redundant design, there
22 will be fewer outages and fewer instances of field workers being dispatched when
23 communications are lost.

1 One of the main benefits of having a private LTE network is the security of
2 information related to the Company's natural gas distribution system (critical to
3 ensuring safe and reliable service for our customers), which will route through the
4 Company's private LTE system rather than the third-party's public communications
5 network. There are also other primary benefits, such as the Company's ability to
6 more efficiently scale up and accommodate the future expansion of IoT devices
7 (Internet of Things devices with sensors and other applications) that are integral to
8 our natural gas operations. Once a particular geographical area is covered by
9 private LTE, adding additional devices and sensors has minimal to no additional
10 costs to the network. The Company has determined that its customers would be
11 best served by implementing the Private LTE project in 2023, where large-scale
12 deployment and management of devices necessitate a more robust and consistent
13 connectivity solution than is presently available.

14 **Q. WHAT IS THE GAS EMERGENCY RESPONSE EXT (EMPLOYEE**
15 **EXPERIENCE TRANSFORMATION) PROJECT?**

16 A. This project developed and implemented a mobile application to empower gas
17 emergency response crews with accurate information to confidently complete
18 fieldwork. This mobile application includes end-to-end processing and support for
19 Gas Emergency and repair orders. The new mobile app streamlines field
20 documentation, asset data retrieval, and work order dispatch and routing. This
21 accelerates the emergency response process and improves data accuracy during
22 an event.

1 **Q. WHAT IS THE REAL TIME SCHEDULING ENGINE PROJECT?**

2 A. This work is the second phase of a Company initiative that automates scheduling
3 processes (such as customer work orders) in Gas Operations (distribution),
4 provides efficiencies, and enhances the value that Company employees provide
5 to customers. Previously, Gas Operations utilized Microsoft Outlook for a primary
6 scheduling tool, but the Real Time Scheduling Engine project implements a real-
7 time scheduling system that allows for better prioritization of work and materials by
8 automating scheduling processes for the Company's crews.

9 **Q. WHAT IS THE CYBER RECOVERY SOLUTION PROJECT?**

10 A. The project fortifies the Company's cybersecurity defenses, minimizes downtime,
11 and enhances overall business resilience against ransomware threats by
12 deploying an improved data backup with advanced analytics capabilities. The
13 project not only enforces retention standards, but also proactively identifies data
14 anomalies, bolstering early detection efforts in the face of potential threats. The
15 initiative implemented coordinated backup data recovery processes that align with
16 industry best practices. This involves complementing existing real-time detection
17 solutions, leveraging mature and industry-proven isolated backup
18 hardware/software, and ensuring comprehensive coverage against various types
19 of ransomware.

20 **Q. WHAT IS THE CIP SUBSTATION COMPLIANCE REPORTING WORK STREAM**
21 **2 PROJECT?**

22 A. This project replaced complex, labor-intensive processes, with software
23 automation called Power Systems Center to better support the Company's

1 compliance with CIP (Critical Infrastructure Protection) standards. Specifically, it
2 provided software automation in the areas of asset management, security patch
3 management, daily management, quarterly inventory review, and annual audit
4 discovery. This is a common electric and gas project because the Company
5 determined that Power Systems Center software can be used for complying with
6 federal critical infrastructure standards applicable to gas pipelines, such as TSA's
7 Security Directive regarding oil and natural gas pipeline cybersecurity.

8 **Q. WHAT IS THE GAS ESTIMATION TOOL (GET) PROJECT?**

9 A. The Gas Estimating Tool Project improved accuracy, consistency, and efficiency
10 of the Gas Engineering team's project planning process by expanding the
11 Company's use of the InEight Estimation Software, a technology that is used in
12 other business areas such as electric Transmission. The project configured the
13 software to enable the Gas Engineering team to use it for their business processes.
14 The software also enabled more efficient catalog, database, and report definition
15 management. Prior to using InEight, Gas Engineering utilized spreadsheets to
16 perform project estimation.

17 **Q. WHAT IS THE SUPPLY CHAIN PROCURE TO PAY PROJECT?**

18 A. This multi-year project is implementing software to improve Supply Chain data
19 accuracy and transparency, providing insights into spend, supplier transactions,
20 and metrics. The goal is to automate vendor management by using data
21 management tools such as cost modeling, category analytics, spend control
22 dashboard, contract labor management, supplier management, performance

1 dashboards, and process automation. This will result in a comprehensive digital
2 infrastructure that enhances the overall management of the supply chain process.

3 **Q. WHAT IS THE UNMANNED AIRCRAFT SYSTEMS PROGRAM?**

4 A. This multi-year initiative focused on the enhancement and implementation of a
5 managed drone environment that allows the Company to operate a fleet of drones
6 across all business units. The unmanned aircraft helps the Company comply with
7 applicable regulations by being able to better monitor assets. For Public Service,
8 drones have been instrumental in identifying challenges related to a gas line
9 exposed by riverbank erosion. They provide a unique vantage point for assessing
10 the pipeline's condition and monitoring the erosion's speed and location.

11 **Q. WHAT ARE ENHANCING CAPABILITIES SMALL PROJECTS?**

12 A. As in the cybersecurity and aging technologies categories, these smaller projects
13 are also included in Attachment MNS-1 with the larger projects I describe above.
14 These smaller projects, like large projects, also enable the Company to improve
15 productivity, enhance communications between systems and between people, and
16 use data more efficiently. By implementing these smaller projects, the Company
17 can achieve greater efficiency and effectiveness in its operations.

D. Customer Experience

Q. PLEASE DESCRIBE KEY TECHNOLOGY SERVICES CAPITAL ADDITIONS RELATED TO CUSTOMER EXPERIENCE SINCE THE COMPANY'S 2022 COMBINED GAS RATE CASE THROUGH THE 2023 TEST YEAR.

A. Since the 2021 HTY, through the 2023 Test Year, Public Service placed in service \$23.3 million in Customer Experience capital additions. Key Customer Experience projects from 2022 through 2023 are set forth in Table MNS-D-6 below:

**Table MNS-D-6
 Public Service 2022 - 2023 Customer Experience Capital Additions
 (Gas Utility)
 (\$ Millions)**

Project Name	2022 (Actual)	2023			Total Additions Since 2021 Test Year
		1/1 - 9/30 (Actual)	10/1 - 12/31 (Forecast)	Total	
Digital Channel Platform	\$8.3	\$0.01	-	\$0.01	\$8.3
Data Analytics and Automation	\$3.0	-	-	-	\$3.0
CRS Tech Stack Upgrade	\$2.7	\$0.1	-	\$0.1	\$2.8
Mobile App	\$2.7	\$(0.01)	-	\$(0.01)	\$2.7
Energy and Utilities Cloud	-	-	\$1.9	\$1.9	\$1.9
Agent Console	-	-	\$1.9	\$1.9	\$1.9
MyAccount and Mobile App Enhancements	\$0.5	\$1.4	\$(0.1)	\$1.4	\$1.9
Customer (Small Projects)	\$0.3	-	\$0.6	\$0.6	\$0.9
Total	\$17.5	\$1.5	\$4.3	\$5.8	\$23.3

*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.

1 **Q. WHAT IS THE DIGITAL CHANNEL PLATFORM PROJECT?**

2 A. This project built out, enhanced, and redesigned several components of our
3 customers' digital interactions with the Company. This work included enhancing
4 and modernizing Xcel Energy's customer-facing online digital platforms and
5 underlying technologies, MyAccount, our mobile application, and website,
6 www.xcelenergy.com.

7 **Q. PLEASE DESCRIBE THE DATA ANALYTICS AND AUTOMATION PROJECT.**

8 A. Work under the Data Analytics and Automation project area added a Customer
9 Data Platform layer to the architecture, which acts as a central repository of
10 customer data from the Company's core systems and third-party vendors. It also
11 provides expedited consumption of data by other systems and eliminated legacy
12 point-to-point interfaces. For customers, the data layer is where data is stored in
13 one location to be used on all channels. The data will be accessible from all
14 channels to eliminate the need for redundant input.

15 This work also enabled querying and running analysis and reporting on
16 information outside of our core applications, such as core ordering and billing
17 systems, which allows core applications to conduct only the transactions they were
18 designed to complete.

19 **Q. PLEASE DESCRIBE THE CRS (CUSTOMER RESOURCE SYSTEM) TECH
20 STACK UPGRADE.**

21 A. Xcel Energy's customer system technological architecture has become
22 increasingly intertwined, with customer facing core systems running at maximum
23 capacity to support the need for emerging capabilities. To relieve the pressure from

1 the critical core systems, these projects added new data layers to aggregate key
2 information and manage extra capabilities, while providing flexibility and added
3 capacity. To accomplish this, we developed an Application Programming Interface
4 (“API”), which is a set of routines, protocols, and tools for building software
5 applications to ensure software components can “talk” to each other. This
6 infrastructure also includes operations model connectivity and security, and data
7 architecture and governance.

8 This work allows the legacy applications to function in the manner they were
9 designed, eliminating significant current customization that is very costly to
10 maintain. API work was conducted in two phases. Phase 1 of the API work
11 addressed the data and integrations that enable and provide functionality for
12 www.xcelenergy.com and other applications specific to the Builders and
13 Remodelers Portal and core www.xcelenergy.com experiences, including
14 functionality regarding automation and the cloud. This data work specifically
15 provides a new platform and set of tools that supports the management and quality
16 of customer data under new quality processes and data governance mechanisms.
17 Phase 2 continued the work of Phase 1 and brought additional data and
18 integrations to www.xcelenergy.com, MyAccount, mobile app, and other
19 experiences. Improved data aggregation and storage allows for more customer
20 functionality across digital channels. Functionality includes billing and payment,
21 product sign-ups, and general customer service.

22 Data analytics capabilities will improve because of API layer improvements,
23 enabling a new customer data grid that will serve as a single source of customer

1 information. Analytics teams will have access to more timely, accurate, and
2 actionable data to uncover deeper insights and trends, to make improved
3 recommendations and deliver better customer service.

4 **Q. CAN YOU DESCRIBE THE MOBILE APP PROJECT?**

5 A. Yes. The Mobile App allows customers to download an application onto their Apple
6 or Google devices that gives them access to their MyAccount experience.
7 Features and functionality included in the mobile app include viewing and paying
8 your bill, reporting outages and receiving restoration status updates, changing
9 preferences, and finding additional information about service and program
10 enrollments.

11 **Q. PLEASE DESCRIBE THE ENERGY AND UTILITIES CLOUD PROJECT.**

12 A. The Energy and Utilities Cloud (“EUC”) is a core component of the Customer
13 Relationship Management Platform (or CRM), which is a tool that creates a simple
14 user interface for a collection of data that will help Xcel Energy recognize and
15 communicate with customers in a scalable way. The EUC module to the
16 Salesforce CRM adds functionality, processes and data model additions specific
17 to utilities customers. Functionality that will be enabled in EUC include improved
18 start/stop/transfer processes for utility service, new interconnection processes and
19 better customer contact information. It is what the new agent console was built on.
20 The Core CRM implementation will serve as the foundation for the enterprise as it
21 relates to customer data. This implementation will transition from legacy CRS to a
22 new Salesforce platform, creating a new system of record for customer data. Part
23 of this implementation involves foundational data and integrations work that will

1 allow for transition and future scalability. The existing multiple data stores today
2 are not scalable, costly to maintain, and limit our ability to report efficiently. Core
3 CRM will support our employees and customers through efficient processes and
4 improved self-service capabilities.

5 **Q. CAN YOU DESCRIBE THE AGENT CONSOLE PROJECT?**

6 A. Yes, this project created a unified agent experience and enabled consistent
7 information, automated processes, and immediate information by creating a single
8 view of the customer across the organization, recording all interactions, and easily
9 reporting on activity and cases. This initiative lays the foundation for future
10 customer engagement strategies, including our ability to provide product and
11 service offerings that best match customer needs.

12 **Q. PLEASE DESCRIBE THE MYACCOUNT AND MOBILE APP ENHANCEMENTS**
13 **PROJECT.**

14 A. The MyAccount and Mobile app projects are core to the digital customer
15 experience and will feed information into our CRM tool. This project implements
16 additional channel enhancements, such as Americans with Disabilities Act
17 compliance activities, continued design enhancements, new features for
18 customers with multiple billing accounts, easier auto-pay enrollments and reduced
19 errors and exceptions.

20 **Q. WHAT ARE THE CUSTOMER EXPERIENCE SMALL PROJECTS?**

21 A. Smaller projects are also included in Attachment MNS-1 with larger projects I
22 describe above. These smaller projects generally include continued, incremental
23 upgrades.

1 **IV. TECHNOLOGY SERVICES O&M**

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

3 A. This section of my Direct Testimony discusses Technology Services O&M
4 expenses for October 1, 2022 to September 30, 2023, which the Company
5 proposes to utilize as the primary basis for establishing Technology Services O&M
6 levels included in the 2023 Test Year. I also describe how overall O&M costs have
7 decreased since the 2022 Combined Gas Rate Case, which used an HTY based
8 on O&M expenses for the 12 months ended December 31, 2021.

9 **Q. WHAT WERE TECHNOLOGY SERVICES ACTUAL O&M COSTS FOR THE 12-**
10 **MONTH PERIOD ENDED SEPTEMBER 30, 2023?**

11 A. The Company's actual Technology Services O&M expenses for the 12-month
12 period ended September 30, 2023 totaled \$27.9 million. Table MNS-D-7 below
13 breaks down the amount of overall O&M costs by category. Attachments MNS-2
14 and MNS-3 provide an accounting of these expenses by Cost Element and FERC
15 account, respectively.

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**Table MNS-D-7:
 Technology Services O&M
 Public Service Gas
 (\$ Millions)**

Category	2021 HTY	12 Months Ended 9/30/23	Adjustments	Test Year
Application Development and Maintenance	\$6.4	\$2.7	-	\$2.7
Software License and Maintenance	\$10.0	\$9.2	-	\$9.2
Company Labor	\$3.8	\$4.2	-	\$4.2
Contract and Consulting	\$1.2	\$1.6	-	\$1.6
Network Services	\$2.2	\$2.5	-	\$2.5
Other	\$1.7	\$1.2	-	\$1.2
Shared Assets	\$6.4	\$6.5	-	\$6.5
Total	\$31.6	\$27.9	\$0.0	\$27.9
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.				

5 **Q. PLEASE PROVIDE MORE DETAIL REGARDING THE O&M COSTS**
 6 **TECHNOLOGY SERVICES INCURS.**

7 A. I described above the various work that is performed by Technology Services. To
 8 perform this work, Technology Services generally incurs O&M costs in seven
 9 overall categories:

- 10 • *Application Development and Maintenance*: Costs associated with the
 11 development, enhancement, maintenance, and consultation on new or
 12 existing IT systems.
- 13 • *Software License and Maintenance*: Includes costs for maintenance
 14 payments to software vendors pursuant to license agreements
 15 associated with various software applications and desktop tools. These
 16 fees must be paid to secure vendor support for troubleshooting,
 17 enabling access to vendor patches, fixes, and version upgrades.

- 1 • *Labor*: Costs associated with all employees in the Technology Services
2 department.
- 3 • *Contract Labor/Consulting*: Consists of fees and expenses for
4 consultants or knowledge base experts that are not employees of Xcel
5 Energy.
- 6 • *Hardware Maintenance and Purchase*: Includes costs for maintenance
7 payments to hardware vendors pursuant to license agreements
8 associated with various storage, server and miscellaneous hardware.
9 These fees must be paid to secure vendor support for troubleshooting,
10 fixes and minor purchases.
- 11 • *Network Services*: Costs related to the maintenance of existing circuits,
12 phones, microwave and radio systems, and other IT communication
13 assets. Network activities provide operations and management of the
14 Company's internal and external data transmission requirements.
- 15 • *Other Categories*: Includes employee expenses; mainframe;
16 donations, dues, and fees; shared asset allocation, outsourcing
17 services not included in the other categories, and other small
18 purchases.

19 **Q. ARE THE \$27.9 MILLION IN 2023 TEST YEAR O&M COSTS FOR**
20 **TECHNOLOGY SERVICES YOU DESCRIBE ABOVE REFLECTED IN THE**
21 **COST OF SERVICE PRESENTED BY COMPANY WITNESS MR. FREITAS?**

22 A. Yes, as I discuss in more detail below. As shown in Table MNS-D-7, there are no
23 known and measurable adjustments for the 2023 Test Year.

24 **Q. WHAT ARE THE MAJOR DRIVERS OF THE DIFFERENCES IN COSTS**
25 **BETWEEN THE 2022 COMBINED GAS RATE CASE AND THE 2023 TEST**
26 **YEAR?**

27 A. The major drivers are shown in Table MNS-D-8 below. The largest difference
28 between the two periods is a decrease in Application Development and

1 Maintenance expense. Overall, there is a reduction of \$3.7 million for the Test Year
 2 compared to the 12-month period ended December 31, 2021.

3 **Table MNS-D-8:**
 4 **Technology Services O&M Drivers from 2021 HTY to 2022-2023 HTY**
 5 **Public Service Gas**
 6 **(\$ Millions)**

Driver	2021 HTY Actuals	Driver Amount	2022-2023 HTY Actuals
Total O&M (Adjusted)	\$31.6		
Application Development and Maintenance		(\$3.7)	
Labor		\$0.3	
Contract and Consulting		\$0.5	
Software License and Maintenance		(\$0.8)	
All Other		(\$0.1)	
Total Company Gas	\$31.6	(\$3.7)	\$27.9
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.			

7 **Q. CAN YOU PROVIDE MORE INFORMATION REGARDING THE SPECIFIC**
 8 **DRIVERS SHOWN IN TABLE MNS-D-8?**

9 A. Yes. There were several drivers that explain the overall \$3.7 million O&M decrease
 10 from the 2021 HTY to the 2023 Test Year. First, the primary driver reflects a sizable
 11 decrease in Application Development and Maintenance costs compared to
 12 previous years. The decrease is the result of the Company's major initiative of
 13 entering into new Shared Services Agreements at lower cost while retaining a
 14 similar level of support, which resulted in a reduction of \$3.7 million for the Test
 15 Year. Second, Labor for employees in the Technology Services area increased by
 16 \$0.3 million due to headcount changes and merit increases. Third, Contract and

1 Consulting labor increased by \$0.5 million due to expansion of the overall
2 technology footprint to respond to IT needs throughout the Company. Finally, the
3 Company has also been closely managing software expenses by managing
4 contracts with the Company's Sourcing organization, proactively managing license
5 lifecycles, and cancelling agreements where appropriate, which has resulted in a
6 \$0.8 million decrease in these costs for the Test Year.

7 **Q. IS THE COMPANY'S 2022-2023 TECHNOLOGY SERVICES O&M A**
8 **REASONABLE BASIS ON WHICH TO ESTABLISH TECHNOLOGY SERVICES**
9 **O&M COSTS FOR THE 2023 TEST YEAR?**

10 A. Yes. The Company's 2022-2023 Technology Services' O&M costs are reasonably
11 representative of the Company's O&M costs for establishing the 2023 Test Year.
12 The O&M expense reflects the reasonableness of the previously-approved year-
13 ending December 31, 2021 O&M expense adjusted to reflect key drivers the
14 Company has been implementing to ensure safe and reliable service for our
15 customers while ensuring Technology Services supports utility operations and
16 responds to ever-changing technological needs.

1 **V. IT DEFERRAL PROPOSAL**

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

3 A. In this section, I provide support for the Company's request for a deferral
4 mechanism associated with the Technology Services Aging Technology and
5 Cybersecurity capital categories (the "IT Deferral").

6 **Q. PLEASE EXPLAIN THE COMPANY'S REQUEST FOR AN IT DEFERRAL
7 MECHANISM.**

8 A. The Company respectfully requests the Commission authorize Public Service to
9 defer and track incremental capital costs associated with the Technology Services
10 Aging Technology and Cybersecurity project categories, for review and potential
11 recovery in a future rate case. Company witness Mr. Jason J. Peuquet describes
12 in more detail the mechanics of the Company's proposed IT Deferral.

13 **Q. WHY IS THE COMPANY PROPOSING A DEFERRAL MECHANISM FOR
14 TECHNOLOGY SERVICES CAPITAL ADDITIONS?**

15 A. In general, the Company's investment evolution continues to see an upward trend
16 in the technology investments needed to keep pace with the emergence of
17 cybersecurity issues as well as to refresh aging technology, which also tend to vary
18 year to year as I previously discussed. This variability (or unpredictability) in IT
19 investment levels, coupled with the shorter lifespan of IT assets and how such
20 costs have been increasing, further underscores the need for an IT Deferral.

21 More particularly, our aging network infrastructure has continued to be a
22 key driver of increased investment in 2022 and 2023 and requires attention on an
23 ongoing basis. Updating this aging technology is critical to our operations and is

1 required for the Company to provide a safe and reliable product for our customers.
2 Regarding cybersecurity, as the number of cyber threats, attacks, and regulatory
3 requirements continues to increase in volume and complexity, it is imperative that
4 the Company establish and maintain the proper tools to protect the integrity and
5 confidentiality of our data and our systems. The Company has limited choices
6 when it comes to replacing aging systems that are no longer supported by the
7 vendor, unable to be updated due to lack of parts or technology changes, or
8 otherwise out-of-date for utility use. The Company also must be proactive to
9 protect against and respond to cybersecurity threats and is subject to compliance
10 obligations to protect utility systems, employee data, and customer data. Further,
11 given the unpredictability of these threats, it is important that these tools and
12 resources continue to change in response to new threats to our information
13 systems. As costs continue to rise but cost recovery is on a one- to two-year lag,
14 significant portions of project costs are never recovered.

15 **Q. IS THERE CONCERN ABOUT THE IMPACTS OF DELAYED COST RECOVERY**
16 **ON SHORT-LIVED IT ASSETS?**

17 A. Yes, and the Company has experienced lost cost recovery on such IT assets.
18 While Company witness Mr. Freitas provides underlying calculations that
19 demonstrate how the Company's lost cost recovery of IT costs may be due to the
20 Company's inability to update rate base and depreciation expense on previously
21 existing IT assets outside of rate cases, I can briefly discuss how increases in IT
22 investments in recent years are impacting the Company. As costs needed to keep
23 up with aging technology and to address cybersecurity threats have risen in recent

1 years, cost recovery has been on a one- to two-year lag due to the outcome of rate
2 case filings, causing significant portions of project costs to be never recovered. As
3 illustrated below in Table MNS-D-9, none of our incremental Aging Technology or
4 Cybersecurity assets for 2022 and 2023 have planned lives longer than 10 years.
5 For 2022 and 2023, the vast majority have lives of 6-7 years, and with rates not
6 expected to become effective in this case until late 2024, we will have lost one to
7 two years of their already short lives before cost recovery can commence. This
8 result has persisted when looking at the historical cadence of base rate cases, and
9 is expected to be a continued ongoing pattern.

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Table MNS-D-9
Aging Technology and Cybersecurity Additions by Depreciable Lives
Public Service (Gas Utility) (\$ Millions)

Public Service			1/1/22 - 12/31/22	1/1/23 - 9/30/23	10/1/23 - 12/31/23	2023 TY
Category	Depreciation Group	Depreciable Life (years)	Actual Additions	Actual Additions	Forecasted Additions	Total Additions
Aging Technology	PSC-Common General Network Equipment	6	\$12.2	\$8.3	\$4.2	\$12.5
	PSC-Common Software- Foundational	3	\$0.7	\$5.3	-	\$5.3
	PSC-Common Software-General	7	\$5.1	\$3.3	\$2.5	\$5.8
	PSC-Common Software-Long Term	10	\$1.2	\$4.3	\$0.01	\$4.3
	PSC-Gas General Network Equipment	6	-	-	\$0.1	\$0.1
	PSC-Gas Software- Foundational	3	-	-	-	-
	PSC-Gas Software-General	7	\$0.6	\$0.1	-	\$0.1
	Total Aging Technology			\$19.8	\$21.4	\$6.8
Cybersecurity	PSC-Common General Network Equipment	6	\$0.2	\$0.2	\$1.3	\$1.5
	PSC-Common Software- Foundational	3	-	-	\$0.1	\$0.1
	PSC-Common Software-General	7	\$2.8	\$1.3	\$1.2	\$2.5
	PSC-Common Software-Long Term	10	-	-	-	-
	PSC-Gas General Network Equipment	6	-	-	-	-
	Total Cybersecurity			\$3.0	\$1.5	\$2.6
Grand Total			\$22.8	\$22.8	\$9.4	\$32.3

*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.

1 **Q. ARE IT CAPITAL ADDITIONS IN AGING TECHNOLOGY AND**
 2 **CYBERSECURITY CONSISTENT IN AMOUNT YEAR-OVER YEAR?**

3 A. No. Despite the long-term planning that the Company undertakes, IT investment
 4 levels vary year over year depending on the needs of existing technology systems
 5 and when particular capital projects are placed in service, which in turn impacts
 6 the Company’s ability to control and manage these kinds of costs. Table MNS-D-
 7 10 below illustrates this variability at a high level, before allocations to individual
 8 operating companies:

9 **TABLE MNS-D-10**
 10 **Technology Services 2019 to 2023 Capital Additions**
 11 **Public Service (Gas Utility)**
 12 **(\$ millions)**

Category	2019	2020	2021	2022	2023
Aging Technology	\$18.8	\$13.0	\$18.5	\$19.8	\$28.1
Cybersecurity	\$0.9	\$1.7	\$1.5	\$3.0	\$4.1
Total Additions	\$19.7	\$14.7	\$20.0	\$22.8	\$32.3
*There may be differences between the sum of the individual category amounts and Total amounts due to rounding.					

13 This table illustrates the variability of IT capital additions over time. For
 14 example, the Company is placing certain large projects in service, including the
 15 Company’s Core HR Application Project and a major refresh of annual Microsoft
 16 software licenses to reflect the update to the Windows 11 operating system. The
 17 variability of Company and customer needs and of project completion, particularly
 18 for discrete large projects, in turn causes variability in annual capital additions.

19 **Q. HOW DOES THE COMPANY PROPOSE TO DEFER AND TRACK IT COSTS?**

20 A. The Company proposes to track and defer recovery of depreciation expense and
 21 interest at the Company’s weighted average cost of capital associated with

1 incremental Aging Technology and Cybersecurity gas capital additions placed in
2 service between January 1, 2024 (immediately following the end of the Test Year
3 proposed by the Company), and the implementation of final rates in our next Phase
4 I gas rate case. These costs would then be available for examination of their
5 reasonableness in the Company's follow-on case, at which time the appropriate
6 recovery period could also be determined.

7 **Q. DOES THE COMPANY STILL HAVE INCENTIVES TO MANAGE IT COSTS IF**
8 **THE COMMISSION APPROVES THE PROPOSED IT DEFERRAL?**

9 A. Yes. First, the Company always maintains incentives to control costs to maintain
10 the overall financial health of the business, and these goals are shared by the
11 Technology Services organization. Second, the IT Deferral does not impact the
12 Company's burden to show the prudence and reasonableness of IT costs for cost
13 recovery purposes. Third, the Company is only asking for a capital deferral, even
14 though implementing new cybersecurity and aging technology assets can increase
15 certain O&M costs, such as new user licenses, which also are subject to the same
16 lag in cost recovery.

17 **Q. IS THE COMPANY ABLE TO WHOLLY CONTAIN IT DEMAND OR COSTS?**

18 A. The Company continually seeks to control IT costs by leveraging our budgeting
19 processes, such as by leveraging the TIG process and by ensuring that projects
20 are competitively sourced. IT vendor costs are managed through the Company's
21 Sourcing organization in order to ensure that project costs are competitive.
22 However, demand for IT solutions and fixes within the Company far outpaces funds
23 available for IT spend as IT has become increasingly critical to the business.

1 Therefore, the Company must continue to prioritize capital additions in the face of
2 increasing demand and importance of IT in order to effectively manage the
3 business and to provide safe and reliable service for our customers.

4 Further, despite the Company's efforts to manage and control IT costs and
5 prioritize which capital additions to implement, the nature of IT assets impacts the
6 Company's ability to recover costs in a timely manner due to their shorter lifespan
7 and increasing IT needs. That is, the pace and timing of IT demand within the
8 Company to provide safe and reliable service cannot entirely be ensured through
9 cost control measures the Company employs. This is why the Company is
10 proposing the IT Deferral to help the Company manage the costs of increasing IT
11 needs, which will ultimately be reviewed in a later proceeding for reasonableness
12 and prudence. The IT Deferral will simply help the Company manage the costs of
13 increasing IT needs by addressing the misalignment of the regulatory process in
14 light of the unique nature of shorter-lived IT assets, ensuring full cost recovery (no
15 more and no less).

16 **Q. PLEASE SUMMARIZE WHY IT WOULD BE REASONABLE FOR THE**
17 **COMMISSION TO APPROVE THE PROPOSED IT DEFERRAL.**

18 A. The Company's proposed IT Deferral would provide a reasonable way to track
19 Technology Services' costs associated with Aging Technology and Cybersecurity
20 capital needed to ensure safe and reliable service for our customers, reducing lag
21 in recovery while enabling review of actual costs in a future case. Costs associated
22 with these capital investments tend to have shorter lifespans, have increased, and
23 are often not readily predictable. A deferral will reduce regulatory lag associated

1 with these critical assets, while allowing parties to evaluate actual investments for
2 potential recovery, if prudent, in a future rate case.

3 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

4 **A.** Yes, it does.

Statement of Qualifications

Megan N. Scheller

Megan Scheller recently became the Sr. Director, Product Management, overseeing the Governance, Strategy, and Performance team for Technology Services. Megan's accountabilities in this role include improving and standardizing IT processes, such as IT strategy, financial management, and aligning enterprise IT plans with Company objectives. In her previous role, Megan was responsible for planning and executing the customer technology portfolio, with an emphasis on delivering technology to enhance our customer's digital experience. Megan has 17 years of experience in the field of Customer Experience and Strategy, with 12 of those years in a leadership role. She joined Xcel Energy in October 2006 where she began her career developing and marketing Energy Efficiency programs. In 2013 Megan launched the Customer Experience organization, which quickly evolved into driving new digital experiences to meet evolving customer expectations. In 2016, Megan added the development of the voice of the customer insights program along with our brand and advertising strategy and execution to her scope. In 2019, Megan used her expertise to lead the Customer Experience Transformation in the simplification of our technology and the development of new channels and experiences for our customers.

Megan graduated from the University of St. Cloud, Minnesota, where she earned a bachelor's degree in Advertising and Marketing. She earned a Master of Business Administration degree from Capella University.

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-) 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

AFFIDAVIT OF MEGAN N. SCHELLER
ON BEHALF OF
PUBLIC SERVICE COMPANY OF COLORADO

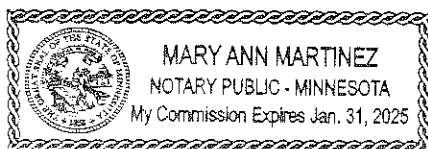
I, Megan N. Scheller, being duly sworn, state that the Direct Testimony and attachments were prepared by me or under my supervision, control, and direction; that the Direct Testimony and attachments are true and correct to the best of my information, knowledge and belief; and that I would give the same testimony orally and would present the same attachments if asked under oath.

Dated at Minneapolis, Minnesota, this 25 day of January, 2024.



Megan N. Scheller
Sr. Director, Product Management

Subscribed and sworn to before me this 25 day of January, 2024





Notary Public

My Commission
expires JANUARY 31, 2025

Schedule 2
Capital Investment Additions

MN Gas Witness (see note) Scheller
Item Desc CWIP Closings

Major category (see note)	Project ID	Testimony Name	Activity Year			2023 TY Total Additions
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	
Aging Technology	D.0001726.057	Work and Asset Ph 1	(264)	-	3,181	3,181
	D.0001744.018	IrthNet Damage Prevention Project		152	(586)	(434)
	D.0001792.151	Enhanced Customer Outage Experience(aka XE.com Remediation)		221	-	221
	D.0001796.013	Smallworld LNI-PNI		63	-	63
	D.0001804.295	eSOMS Project		-	(109)	(109)
	D.0001804.392	eSOMS Project	611	(280)	-	(280)
	D.0001805.003	Next Generation Desktop	(451)	-	3,513	3,513
	D.0001805.015	Next Generation Desktop	428	313	-	313
	D.0001826.190	Demand Response Management System Replacement PROJECT	7	(15)	-	(15)
	D.0001826.365	Microsoft Core Server Licensing	(66)	-	-	-
	D.0001850.003	Network Security Orchestrator	(449,370)	(16,975)	-	(16,975)
	D.0001977.005	Automation Capability Enablement (ACE)	(40,369)	(2,557)	-	(2,557)
	D.0001988.005	Archer Enhancements	(58,001)	(24,670)	(16,583)	(41,254)
	D.0002003.003	2017 Oracle Licenses	(3,593)	-	-	-
	D.0002003.009	2018 Oracle License	(5,004)	-	-	-
	D.0002013.004	WAN PSCO	(1,504,743)	(1,012,651)	(1,072,201)	(2,084,851)
	D.0002020.027	SAP Continuous Improvements	(8,913)	-	-	-
	D.0002020.033	SAP Continuous Improvements	(26,491)	-	-	-
	D.0002020.041	SAP Continuous Improvements	(278)	-	-	-
	D.0002020.045	SAP Continuous Improvements	(32,536)	(113)	-	(113)
	D.0002020.050	SAP Continuous Improvements	(36,918)	-	-	-
	D.0002020.053	SAP Continuous Improvements	(211,435)	(58,233)	-	(58,233)
	D.0002020.059	SAP Continuous Improvements	-	-	(15,888)	(15,888)
	D.0002021.003	Facility IT Investments	(222,789)	(801)	-	(801)
	D.0002032.008	Cash Management System Replacement	(285,394)	-	-	-
	D.0002041.003	eGRC Phase IV - SOx and Corp Compliance	(808)	-	-	-
	D.0002041.015	eGRC Phase IV - SOx and Corp Compliance	(39)	-	-	-
	D.0002072.003	Replace Meeting Planner	(2)	-	-	-
	D.0002082.017	Video Conferencing Enablement	(7,659)	-	-	-
	D.0002082.021	Video Conferencing Enablement	(141,031)	(24,750)	(2,225)	(26,974)
	D.0002085.007	2017 Landworks Refresh	(89,431)	(1,769)	-	(1,769)
	D.0002088.001	1800 Larimer Juniper Switches Refresh	43	(28)	-	(28)
	D.0002106.006	VoIP Refresh	(22,114)	-	-	-
	D.0002109.007	Rugged Tablets Refresh	(182,412)	(157,797)	(6,598)	(164,395)
	D.0002124.007	Gas Transmission Risk (GTR) Calc	(612,615)	-	-	-
	D.0002125.006	DR Technology Refresh	(8,059)	-	-	-
	D.0002125.010	DR Technology Refresh	(0)	-	-	-
	D.0002125.014	DR Technology Refresh	(29,231)	-	-	-
	D.0002125.018	DR Technology Refresh	(20,469)	-	-	-
	D.0002125.027	DR Technology Refresh	-	(364,758)	-	(364,758)
	D.0002125.031	DR Technology Refresh	-	(128,931)	-	(128,931)
	D.0002125.036	DR Technology Refresh	(640,903)	(100,082)	-	(100,082)
	D.0002133.008	Business Objects - Refresh	(4,128)	-	-	-
	D.0002143.003	Technology License 2019	(1,212)	-	-	-
	D.0002153.007	Technology License	(7,146)	-	-	-
	D.0002153.013	Technology License	(266,091)	(37,888)	-	(37,888)
	D.0002153.019	Technology License	(730,817)	(773)	-	(773)
	D.0002225.010	Data Center Refresh	(2,009)	-	-	-
	D.0002240.004	Core HR Application (Payroll Benefits)	-	(616,359)	-	(616,359)
	D.0002240.008	Core HR Application (Payroll Benefits)	-	(3,384,171)	231,734	(3,152,437)
	D.0002240.016	Core HR Application (Payroll Benefits)	(679,447)	(142,160)	-	(142,160)
	D.0002262.002	Real Property Asset Management Upgrade or Replace	-	-	(192,446)	(192,446)
	D.0002265.003	2020 Oracle Licenses	(5,028)	-	-	-
	D.0002282.009	Mainframe Modernization	(25,230)	-	-	-
	D.0002286.022	PI For DCS Electric	-	-	(68,768)	(68,768)
	D.0002300.011	Enterprise Purge Archive	(177,110)	1,550	-	1,550
	D.0002308.003	Bentley OpenUtilities Designer (BUD) Upgrade	(1,508,098)	(10,905)	-	(10,905)
	D.0002308.007	Bentley OpenUtilities Designer (BUD) Upgrade	(29,182)	-	-	-
	D.0002320.014	VDI Refresh	-	(159,910)	(20,284)	(180,193)
	D.0002320.020	VDI Refresh	-	(581,164)	-	(581,164)

Major category (see note)	Project ID	Testimony Name	Activity Year			
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	2023 TY Total Additions
	D.0002324.001	Western Slope Backhaul	(1,828)			
	D.0002329.005	Upgrade Corporate Financial Model (CFM)	(3,604)			
	D.0002340.003	Oracle Exadata Refresh	(356,802)			
	D.0002340.009	Oracle Exadata Refresh	(1,690)			
	D.0002354.003	Lifecycle Management (LFCM) Projects	(964,603)	(494,876)	(32,325)	(527,201)
	D.0002355.003	Lifecycle Management (LFCM) Projects	(201,401)	(72,937)	(36,921)	(109,858)
	D.0002356.003	IT INFS Network Refresh	(914,866)	(369,537)	(137,822)	(507,359)
	D.0002366.005	ServiceNow	(4,705)			
	D.0002367.003	Kafka Data Streaming	(5,539)			
	D.0002370.004	F5 Renewal	(2,665)			
	D.0002373.003	Motorola LMR Core Upgrade	(438,047)	(26,395)	-	(26,395)
	D.0002373.017	Motorola LMR Core Upgrade		-	(112,192)	(112,192)
	D.0002376.002	Infrastructure Modernization	(8,714)			
	D.0002376.003	Infrastructure Modernization	(539,529)	(14,922)	-	(14,922)
	D.0002376.013	Infrastructure Modernization	(24,217)			
	D.0002376.017	Infrastructure Modernization	(14,928)			
	D.0002376.028	Infrastructure Modernization		(467,089)	(14,342)	(481,430)
	D.0002376.029	Infrastructure Modernization	(27,238)	(15,679)	-	(15,679)
	D.0002376.033	Infrastructure Modernization	(10)			
	D.0002376.039	Infrastructure Modernization	(10)			
	D.0002376.046	Infrastructure Modernization	(66,084)	(3,997)	(178)	(4,175)
	D.0002378.005	O365 Email Legal Hold	(100,013)	(4,187)	-	(4,187)
	D.0002386.009	Ansible Automation and Licensing	(270,351)			
	D.0002401.002	Aclara Upgrade	(54,282)			
	D.0002402.005	iSeries Software Functionality	(232,688)	(6,981)	-	(6,981)
	D.0002409.005	Integration Resiliency	(108,066)			
	D.0002409.009	Integration Resiliency	(95,604)	(9,023)	-	(9,023)
	D.0002438.009	Unified Data Platform		(43,601)	-	(43,601)
	D.0002445.003	Powerplan Upgrade		(252,643)	(2,580)	(255,223)
	D.0002454.003	FARR replacement	-		(257,391)	(257,391)
	D.0002456.003	Distribution and Gas Capital Planning			(2,697)	(2,697)
	D.0002469.005	BI Environment refresh	(9,522)	(134)	-	(134)
	D.0002482.007	Lifecycle Management (LFCM) Projects	(427,464)	(223,689)	(115,663)	(339,352)
	D.0002485.007	Lifecycle Management (LFCM) Projects	(1,003,531)	(1,529,843)	-	(1,529,843)
	D.0002485.013	Lifecycle Management (LFCM) Projects	(52,765)	(30,462)	-	(30,462)
	D.0002485.017	Lifecycle Management (LFCM) Projects	(31,246)	(6,276)	-	(6,276)
	D.0002485.023	Lifecycle Management (LFCM) Projects	(634,108)	(54,700)	-	(54,700)
	D.0002488.007	Lifecycle Management (LFCM) Projects	(1,015,615)	(590,309)	(361,472)	(951,781)
	D.0002489.007	Lifecycle Management (LFCM) Projects	(201,662)	(291,426)	(470,021)	(761,448)
	D.0002492.009	Employee Digital Experience Intranet Platform		-	(175,996)	(175,996)
	D.0002500.003	Fabric Refresh	(760,186)	(88,156)	-	(88,156)
	D.0002501.007	Data Loss Prevention		(88,871)	-	(88,871)
	D.0002512.003	ServiceNow Enhancements	(518,143)	(191,426)	-	(191,426)
	D.0002512.021	ServiceNow Enhancements		(25,081)	-	(25,081)
	D.0002517.003	SD-WAN Implementation	(298,553)	(50,742)	-	(50,742)
	D.0002517.007	SD-WAN Implementation	(237,743)	(30,160)	-	(30,160)
	D.0002518.003	Lifecycle Management (LFCM) Projects	(1,671,622)	(895,506)	(39,771)	(935,276)
	D.0002520.007	Energy Demand and Load Forecasting		-	(14,812)	(14,812)
	D.0002532.005	Geospatial Data Lake		54,992	-	54,992
	D.0001801.003	Gas SCADA Replacement Project	(463,183)	-	1,415	1,415
	D.0001804.305	Distribution Records Mgmt aka Fed Records Mgmt		-	1,404	1,404

Major category (see note)	Project ID	Testimony Name	Activity Year			
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	2023 TY Total Additions
	D.0001815.049	MAOP Calculations for Gas System Project	-	-	623	623
	D.0001826.160	Verint Workforce Management upgrade or replacement PROJECT	-	-	13,764	13,764
	D.0001935.005	Fleet Asset Upgrade	-	-	(34,807)	(34,807)
	D.0001938.005	Enterprise Gas SCADA Upgrade Project	-	-	(101,621)	(101,621)
	D.0001943.005	BlueBeam Upgrade	(31,806)	-	-	(31,806)
	D.0001944.003	Handheld Mobile Collector Refresh	(156,461)	(3,891)	(3,891)	(160,352)
	D.0001965.005	HANA Sidecar Reporting	-	-	(32,551)	(32,551)
	D.0001988.011	Archer Enhancements	-	-	(77,437)	(77,437)
	D.0001994.065	SW License Renewals - Infrastructure	(1,833,523)	-	-	(1,833,523)
	D.0002020.073	SAP Continuous Improvements	-	-	(132,063)	(132,063)
	D.0002020.079	SAP Continuous Improvements	-	-	(104,857)	(104,857)
	D.0002021.025	Facility IT Investments	-	-	(34)	(34)
	D.0002044.010	Enterprise Metadata Management	-	-	(96,637)	(96,637)
	D.0002066.003	Business Objects Refresh	-	-	961	961
	D.0002082.029	Video Conferencing Enablement	-	-	(101,174)	(101,174)
	D.0002086.003	2022 Remittance Software Refresh	-	-	(26,477)	(26,477)
	D.0002106.003	VoIP Refresh	-	-	(220,590)	(220,590)
	D.0002106.028	VoIP Refresh	-	-	(243,115)	(243,115)
	D.0002106.030	VoIP Refresh	(676,534)	-	-	(676,534)
	D.0002153.003	Technology License	-	-	(8,814)	(8,814)
	D.0002153.025	Technology License	(5,263,260)	-	-	(5,263,260)
	D.0002161.003	OSI Soft PI Enterprise Agreement	-	-	(839,495)	(839,495)
	D.0002376.050	Infrastructure Modernization	-	-	(103,811)	(103,811)
	D.0002376.056	Infrastructure Modernization	-	-	(246,238)	(246,238)
	D.0002376.062	Infrastructure Modernization	-	-	(74,413)	(74,413)
	D.0002402.009	iSeries Software Functionality	-	-	(135,669)	(135,669)
	D.0002450.005	Multi-State Customer Refund Engine	-	-	(50)	(50)
	D.0002485.003	Lifecycle Management (LFCM) Projects	-	-	(146,073)	(146,073)
	D.0002500.017	Fabric Refresh	-	-	(62,064)	(62,064)
	D.0002500.021	Fabric Refresh	-	-	(6,960)	(6,960)
	D.0002512.013	ServiceNow Enhancements	(44,118)	-	-	(44,118)
	D.0002537.005	SAP Integration Service Platform	-	-	(539,167)	(539,167)
	D.0002541.003	AMI Headend-Exadata Storage	-	-	(496,227)	(496,227)
	D.0002545.003	Software Asset Management Phase 2	-	-	(0)	(0)
	D.0002545.007	Software Asset Management Phase 2	-	-	(22,564)	(22,564)
	D.0002547.005	Aspen HYSYS Modeling Software	(124,273)	-	-	(124,273)
	D.0002557.004	Utilisphere 5 Year Enterprise License Agreement	(582,407)	-	-	(582,407)
Aging Technology Total			(19,838,620)	(21,361,475)	(6,770,073)	(28,131,548)

Major category (see note)	Project ID	Testimony Name	Activity Year			2023 TY Total Additions
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	
CUSTOMER	D.0001924.019	Energy and Utilities Cloud		-	(1,923,634)	(1,923,634)
	D.0002137.008	CRS Tech Stack Upgrade	(824,768)			
	D.0002137.012	CRS Tech Stack Upgrade	(1,825,697)	(50,668)	-	(50,668)
	D.0002199.005	Voice Agent Project Idea	(208)			
	D.0002209.011	2020 Handheld Mobile Collector Refresh	(113,731)	(0)	-	(0)
	D.0002209.016	2020 Handheld Mobile Collector Refresh	(27,498)	(106)	-	(106)
	D.0002223.013	Customer Care IVR Upgrades	-		(276)	(276)
	D.0002247.005	Digital Channel Platform	(4,074,962)	676	-	676
	D.0002247.011	MyAccount and Mobile App Enhancements	(487,281)	(1,423,769)	60,268	(1,363,501)
	D.0002248.005	Digital Channel Platform	(2,084,178)	2,293	-	2,293
	D.0002249.005	Mobile App	(2,697,154)	5,833	-	5,833
	D.0002249.015	Text To Pay	-		(20,098)	(20,098)
	D.0002250.005	Customer API	(153,323)	2,399	-	2,399
	D.0002250.013	Digital Channel Platform	(1,973,864)	(13,569)	-	(13,569)
	D.0002251.005	Customer Data	(24,892)	2,260	-	2,260
	D.0002251.009	Data Analytics and Automation	(1,633,419)	86	-	86
	D.0002253.005	Data Analytics and Automation	(1,381,813)			
	D.0002253.009	Customer Identity Access Management		103	-	103
	D.0002255.005	Digital Channel Platform	7			
	D.0002256.005	Digital Channel Platform	7			
	D.0002273.005	Digital Channel Platform	(42,220)			
	D.0002273.009	Digital Channel Platform	(171,977)			
	D.0002322.005	Outage Employee Experience	48,616	83	-	83
	D.0002389.005	Agent Console	-		(1,894,277)	(1,894,277)
	D.0002390.003	Digital Channel Platform	-		(0)	(0)
	D.0002391.003	Digital Channel Platform	-	(0)	-	(0)
	D.0002393.003	Digital Channel Platform	-		(11)	(11)
	D.0002522.005	Business Portal	-		(9,371)	(9,371)
	D.0001924.015	Customer Experience Transformation Phase 3	-		(501,935)	(501,935)
	D.0002037.024	Customer Service Console - Single Screen	-		(40,347)	(40,347)
	D.0002209.007	2020 Handheld Mobile Collector Refresh	-		(14,097)	(14,097)
	D.0002392.003	Digital Channel Platform	-	(5)		(5)
CUSTOMER Total			(17,468,356)	(1,474,385)	(4,343,778)	(5,818,163)

Major category (see note)	Project ID	Testimony Name	Activity Year			2023 TY Total Additions
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	
CYBER SECURITY	D.0002371.005	Vulnerability and Patch Management		-	(165,142)	(165,142)
	D.0001771.006	Certificate & Key Management		6,006	-	6,006
	D.0001771.016	Certificate & Key Management	(240,701)	(2,870)	-	(2,870)
	D.0001845.005	PingFed to Azure SSO Migration		(202,088)	-	(202,088)
	D.0001896.003	FireEye IDS-IPS		-	(545,584)	(545,584)
	D.0001896.010	FireEye IDS-IPS		-	(102,012)	(102,012)
	D.0001897.003	Red Team Program Development		-	(100,372)	(100,372)
	D.0001898.003	Endpoint Detection and Response		(367,731)	(3,060)	(370,791)
	D.0001914.005	Tanium Enforce and PWC Accelerators	(119,749)	18,219	-	18,219
	D.0001940.009	End User Services Enhancements	(67,092)	(84,802)	-	(84,802)
	D.0002008.021	Enterprise Database Security Phase II	387			
	D.0002098.003	Cyber Ark (Support and Services Account)	37	(24)	-	(24)
	D.0002098.016	Cyber Ark (Support and Services Account)	4,457			
	D.0002206.005	Security Services Upgrade		(129,047)	-	(129,047)
	D.0002269.019	OT Shared Services	(5,975)			
	D.0002276.003	Documentum 16.4 Upgrade	(172,889)	(1,757)	-	(1,757)
	D.0002312.003	SailPoint Phase 5	(84)			
	D.0002347.005	Risk Assessment as a Service	(182,964)	532	-	532
	D.0002382.005	Axio Risk Dashboards PSCo		-	(139,466)	(139,466)
	D.0002384.005	Analog Security Camera Upgrade	(81,050)	(170,444)	(179,796)	(350,240)
	D.0002410.005	Terrain Analytics		(244,199)	-	(244,199)
	D.0002411.005	Deception Servers	(173,966)			
	D.0002413.005	SailPoint 2021	(937,767)	(3,890)	-	(3,890)
	D.0002413.010	SailPoint 2021	(196,006)	(98,676)	-	(98,676)
	D.0002413.016	SailPoint 2021	(34,081)	(152)	-	(152)
	D.0002414.009	Multi-Factor Authentication - Maturation Phase 2	(1,687)			
	D.0002415.009	Socially-Engineered Attack Prevention	(4,972)			
	D.0002416.003	Verint Security Camera Server Replacement		-	(456,716)	(456,716)
	D.0002417.003	Reprivata monitoring sensors	-	(167,183)	(1,135)	(168,318)
	D.0002417.008	Reprivata monitoring sensors	-	-	(8,226)	(8,226)
	D.0002418.003	SIEM+SOAR	(644,733)			
	D.0002418.009	SIEM+SOAR	(22,787)	(21,075)	-	(21,075)
	D.0002419.003	Risk and Compliance Tool Buildout		-	(19,248)	(19,248)
	D.0002486.003	Service Account Remediation		-	(191,816)	(191,816)
	D.0002515.005	OT Monitoring		-	(614,468)	(614,468)
	D.0002515.013	OT Monitoring	(109,563)	(17,148)	-	(17,148)
	D.0001818.089	SIEM Extension		-	2,684	2,684
	D.0002418.017	SIEM+SOAR		-	(48,990)	(48,990)
	D.0002554.003	CyberArk Hardware Upgrade		-	(11,919)	(11,919)
	D.0002556.003	SailPoint Onboard Applications		-	(1,341)	(1,341)
D.0002556.011	SailPoint Onboard Applications		-	(60,798)	(60,798)	
CYBER SECURITY Total			(2,991,184)	(1,486,330)	(2,647,406)	(4,133,736)

Major category (see note)	Project ID	Testimony Name	Activity Year			2023 TY Total Additions
			1/1/22 - 12/31/22 Actual Additions	1/1/23 - 9/30/23 Actual Additions	10/1/23 - 12/31/23 Forecasted Additions	
ENHANCE CAPABILITIES	D.0001796.033	Network Inventory and Planning Solution	(1)	24	-	24
	D.0001804.357	CIP Substation Compliance Reporting Work Stream 2		(1,284,756)	(2,949)	(1,287,705)
	D.0001839.185	Mobile Computing Infrastructure	(74)	-	60	60
	D.0001839.627	ESB Environment Refresh		221	-	221
	D.0001895.007	SAP ADR to Capital		(12,952)	-	(12,952)
	D.0001895.011	SAP ADR to Capital	(13,630)	(8,376)	-	(8,376)
	D.0001895.015	SAP ADR to Capital	(48,329)	(33,931)	-	(33,931)
	D.0001895.021	SAP ADR to Capital	(40,879)	(27,935)	-	(27,935)
	D.0001895.025	SAP ADR to Capital		(49,996)	-	(49,996)
	D.0001916.021	Private LTE		(4,900,461)	-	(4,900,461)
	D.0001919.005	Gas Emergency Respond - EXT	(2,859,052)	(1,149,232)	-	(1,149,232)
	D.0001946.007	Network App Services Enhancements		(8,273)	-	(8,273)
	D.0001948.007	Route and Switch Enhancements	(91,026)	(12,567)	-	(12,567)
	D.0001968.009	Network Transport Enhancements	(2,678)	(5,684)	-	(5,684)
	D.0002045.014	Enterprise Operational Monitoring	(3,788)	-	-	(3,788)
	D.0002073.008	Safety Observations & Predictive Analytics	(289)	-	-	(289)
	D.0002074.008	Enterprise Data Management Tool		(577,954)	-	(577,954)
	D.0002100.013	Basic Private Cloud Services		1,080	-	1,080
	D.0002113.008	Purchase Power Agreement Contract Management	(4,913)	-	-	(4,913)
	D.0002181.006	Strategic Fiber Deployment		-	(8,090,385)	(8,090,385)
	D.0002185.005	Network Automation Platform Implementation	613	(401)	-	(401)
	D.0002254.020	RPA	(15,070)	-	-	(15,070)
	D.0002254.025	RPA	(283,792)	(6,051)	-	(289,843)
	D.0002277.005	Crew Time Entry	(311)	(129)	-	(440)
	D.0002277.011	Gas Emergency Respond - EXT		-	(1,686,898)	(1,686,898)
	D.0002277.015	EXT Mobile Application		(10,757)	-	(10,757)
	D.0002283.003	Avaya Cloud Voice Deployment	(3,979)	-	-	(3,979)
	D.0002283.011	Avaya Cloud Voice Deployment	(6,355)	-	-	(6,355)
	D.0002298.012	Unmanned Aircraft Systems Program	(297,132)	(34,784)	-	(331,916)
	D.0002298.018	Unmanned Aircraft Systems Program	(249,570)	-	-	(249,570)
	D.0002363.008	Data Science Models	(50,655)	-	-	(50,655)
	D.0002363.015	Data Science Models	(43,626)	-	-	(43,626)
	D.0002363.031	Data Science Models		-	(43,200)	(43,200)
	D.0002363.034	Data Science Models		(147,681)	-	(147,681)
	D.0002364.005	Business Systems Resiliency Project	(325)	(1)	-	(326)
	D.0002379.005	Gas Estimation Tool (GET)	(801,134)	-	-	(801,134)
	D.0002380.005	Fleet Capital Asset Management (CAM)	(96,978)	-	-	(96,978)
	D.0002395.009	Digital Ops Factory	(414,553)	-	2,141	(412,412)
	D.0002396.055	FERC Cost Traceability Process Improvement	140,647	-	-	140,647
	D.0002399.021	QR Code		(1,898)	-	(1,898)
	D.0002409.017	Integration Resiliency	(14,570)	-	-	(14,570)
	D.0002429.003	Return to Office Remediation	(52,651)	-	-	(52,651)
	D.0002429.017	Return to Office Remediation	(5,314)	-	-	(5,314)
	D.0002429.023	Return to Office Remediation	(503)	-	-	(503)
	D.0002430.005	Real Time Scheduling Engine	(3,206,573)	(535,137)	-	(3,741,710)
	D.0002443.005	Gas Frontline Enablement and Experience	(10,775,254)	(5,710,354)	-	(16,485,608)
	D.0002446.007	Supply Chain Procure to Pay		-	(691,717)	(691,717)
	D.0002465.001	Field Modem Management		-	(251,036)	(251,036)
	D.0002465.005	Field Modem Management		-	(124,887)	(124,887)
	D.0002466.003	eSOMS Upgrade	(130,714)	(9,909)	-	(140,623)
	D.0002469.009	BI Environment refresh		(14,097)	-	(14,097)
	D.0002469.013	BI Environment refresh	(13,083)	(1)	-	(13,084)
	D.0002521.005	Application Maturity Model		(113,718)	-	(113,718)
	D.0002535.003	Cyber-Recovery Solution		-	(1,309,671)	(1,309,671)
	D.0002535.007	Cyber-Recovery Solution		-	(273,473)	(273,473)
	D.0000018.009	Data Mart Builds		-	(38,796)	(38,796)
	D.0001833.005	SAP Solution Manager		-	0	0
	D.0001839.390	SharePoint 2013 Phase II Project		-	443	443
	D.0001895.037	SAP ADR to Capital		-	(39,615)	(39,615)
	D.0001955.011	HCM Enhancements		-	(388,111)	(388,111)
	D.0002181.008	Strategic Fiber Deployment		-	(0)	(0)
	D.0002254.030	RPA		-	(187,987)	(187,987)
	D.0002363.038	Data Science Models		-	(4,998)	(4,998)
	D.0002427.018	Energy Supply APM Phase 2		-	(224,535)	(224,535)
	D.0002500.011	Fabric Refresh		-	(89)	(89)
	D.0002546.005	Strategic Portfolio Management (SPM) in ServiceNow		-	(262,059)	(262,059)
	D.0002549.013	Smallworld ADR to Capital		-	(117,810)	(117,810)
	D.0002551.009	ESRI ADR to Capital		-	(55,565)	(55,565)
ENHANCE CAPABILITIES Total			(19,398,105)	(14,655,712)	(13,791,140)	(28,446,851)
Grand Total			(59,696,265)	(38,977,901)	(27,552,397)	(66,530,297)

Technology Services 2022-2023 O&M Budget by Category				
PSCo Gas				
(\$ in Millions)				
O&M Categories	2021 Approved Test Year	12 Months Ended 9/30/23	Adjustments	Test Year
Application Development and Maintenance	\$6,401,905	\$2,711,174	\$0	\$2,711,174
Software License and Maintenance	\$10,022,560	\$9,236,722	\$0	\$9,236,722
Company Labor	\$3,830,119	\$4,163,082	\$0	\$4,163,082
Contract and Consulting	\$1,156,489	\$1,607,104	\$0	\$1,607,104
Network Services	\$2,173,850	\$2,453,516	\$0	\$2,453,516
Other	\$1,659,457	\$1,158,078	\$0	\$1,158,078
Shared Assets	\$6,404,290	\$6,539,865	\$0	\$6,539,865
Total	\$31,648,670	\$27,869,541	\$0	\$27,869,541

Technology Services O&M Costs by FERC Account				
PSCo-Gas				
(\$s in millions)				
FERC Acct	2021 HTY	10/1/2022 - 9/30/2023 Actuals	Adjustments	Test Year
942.61	-	488	-	488
942.65	-	3,356	-	3,356
981.3	225,058	256,693	-	256,693
985	-	24,349	-	24,349
985.1	687,756	340,904	-	340,904
986.6	22,822	3,024	-	3,024
987	-	30,550	-	30,550
987.1	1,919,826	907,767	-	907,767
987.8	-	(12)	-	(12)
988	5,226,485	1,045,403	-	1,045,403
990.2	2,182,208	723,285	-	723,285
990.3	1,910,149	3,285,794	-	3,285,794
990.9	12,770	(99)	-	(99)
991.2	41,983	46,823	-	46,823
992	2,700,351	2,944,353	-	2,944,353
992.1	9,356,953	10,661,130	-	10,661,130
992.2	(9,266,956)	(11,297,312)	-	(11,297,312)
992.3	791,424	961,287	-	961,287
992.5	1,260	-	-	-
993.1	15,835,535	17,931,657	-	17,931,657
993.1	438	6	-	6
993.2	16	94	-	94
993.5	592	3	-	3
Total	31,648,670	27,869,541	-	27,869,541

Project Budgeting and Development: the Technology Investment Governance Process

A. Initial project budget development

Technology Services' budget development, project prioritization, and project management is facilitated through the Technology Investment Governance (TIG) process. TIG leadership is comprised of senior business area and IT leaders. As part of the TIG process, business and IT leaders are accountable for managing demand intake, prioritization, and business outcomes of the IT projects in their portfolios as they move from project inception towards in-service, thereby ensuring that projects comply with IT portfolio and project management requirements. IT works with each business area to determine its specific IT needs, and then these needs are prioritized based on a particular set of factors. Specifically, each Technology Services area is responsible for partnering with a specific business area within the organization to determine that area's long-term strategic objectives and determine if an IT investment is needed to enable achievement of those objectives. Once a technology need is confirmed, an idea is developed to further refine the scope, associated costs and timeline. Ideas from across the business are gathered and prioritized by TIG leaders, with consideration for expected business outcomes along with budget and resource constraints. The output of these prioritization efforts is the Technology Services budget. The TIG process also oversees and approves any changes in project scope or budget based on overall Company priorities and spending levels.

B. Converting project ideas into the Technology Services budget

From the idea stage, project ideas are grouped and evaluated, ranked, and selected based on a common set of filters. This process weighs a multitude of criteria including: (1) the financial and non-financial benefits of a project; (2) the potential for other existing technologies to address the business need; and (3) the degree to which the project is needed to meet regulatory requirements or to ensure system reliability and security. This categorization process allows Technology Services to evaluate the benefits and risks associated with each project idea, and results in a list of ranked project ideas.

C. The next step after the project ideas are ranked

TIG Leaders review the ranked project ideas to determine which projects should be implemented and included in the Technology Services budget. This process requires further refinement of the budget figures for each project, and prioritization of possible projects until a final budget is set.

D. How projects are governed once approved for inclusion in the budget

Technology Services employs a “gated” approval process called the “Governance Gates Process” to oversee IT projects throughout their lifecycle. Projects move through specific gates or approvals under the TIG process. The Governance Gates Process enables regular review of project metrics (schedule, scope, deliverables), and institutes corrective action plans or modifications as appropriate.

E. The different gates or approvals that are part of the Governance Gates Process

The five gates that each capital project must complete before it is initiated and ultimately

placed in service are as follows: (1) Approval to Initiate; (2) Alignment to Design; (3) Alignment to Build; (4) Alignment to Launch; and (5) and Project Closure.

Gate 1: Approval to Initiate

Once a project is approved into the budget by TIG leaders, project teams complete a set of deliverables to gain “Approval to Initiate”, the first governance gate that represents the official start of the capital project. Deliverables at “Approval to Initiate” include a delivery checklist, a stakeholder identification and analysis, an official project plan, risk logs, and cost/schedule estimates.

Gate 2: Alignment to Design

The next gate is “Alignment to Design”. The purpose of this gate is to validate project requirements, review refined budget and schedule estimates and begin development of technical plans. The “Alignment to Design” gate includes a technical review by the Architecture and Security teams to confirm that established design standards are followed.

Deliverables needed at the “Alignment to Design” gate include validated project requirements, a security risk assessment, documented Architecture Decisions, and refined project cost/schedule estimates.

Gate 3: Alignment to Build

The next gate is “Alignment to Build.” The purpose of this gate is to review the project plan before construction begins to ensure that the proposed design meets the identified needs, known technical problems are resolved and the project is on track to meet its intended purpose.

At this gate, TIG and IT leaders confirm that the project remains on track to meet its stated objectives. Also, an architectural review is performed to ensure that the project technical design meets established standards and to confirm that known technical issues have been resolved. Additionally, a security risk assessment is conducted to ensure design plans meet cyber security standards. Once all requirements are completed at the “Alignment to Build.” Gate, the project team can begin to build and deploy the project.

Gate 4: Alignment to Launch

The next gate is “Alignment to Launch”. This gate includes an architectural review to ensure the technology solution is ready to be placed in service. The business unit sponsoring the solution must also approve the project at this stage by confirming that that it meets the project objectives, and that the operational procedures and tools (such as user training) are in place to ensure its successful and secure operation in the production environment.

Gate 5: Project Closure

The final gate is “project closure.” This gate is the formal close out of the project verifying the solution has been transitioned to operational steady state, decommissioning of any obsolete technologies and confirmation that project objectives were achieved. .