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Direct Testimony and Schedules
Joni H. Zich

Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of the Application of Northern States Power Company
for Authority to Increase Rates for Natural Gas Service in Minnesota

Docket No. G002/GR-21-678
Exhibit___(JHZ-1)

Gas Operations

November 1, 2021

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Schedules

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND OCCUPATION.

A. My name is Joni H. Zich. I am the Senior Director, Strategy, Governance and Planning for Xcel Energy Services Inc. (XES), the service company affiliate of Northern States Power Company, a Minnesota corporation (NSPM) and an operating company of Xcel Energy Inc. (Xcel Energy).

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I have both a Bachelor of Business Administration and a Master of Business Administration from the University of Wisconsin–Eau Claire. I have been employed by Xcel Energy or one of its operating companies for over 30 years. Throughout my career, I have worked in the areas of energy conservation, account management, gas scheduling, trading, and management of upstream interstate transportation and storage services. In 2012, I was promoted to Director, Business Operations and System Strategy Planning. In this role, I was responsible for the strategy and long-term planning of Xcel Energy's gas system. My duties include strategic planning for Xcel Energy's gas operations business unit, managing gas cost recovery mechanisms for integrity management riders, directing all aspects of Public Service Company's gas transportation services, and leading long-term capacity planning for the Company's high-pressure gas systems. In January 2021, I also began directing the Company's gas governance organization, which includes gas standards, compliance, contractor inspections, quality assurance, and the Pipeline Safety Management System (PSMS), where I was promoted to Senior Director,

Strategy, Governance and Planning. A description of my qualifications, duties, and responsibilities is provided as Exhibit___(JHZ-1), Schedule 1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my Direct Testimony is to present an operational perspective of NSPM's natural gas business and detail the major drivers of change in the Company's Gas Operations business and costs to support the Company's rate requests in this proceeding. I provide my testimony in the following sections:

In Section II, I provide an overview of the Company's Gas Operations and the work NSPM has undertaken over the last several years, as well as progress made with respect to a number of key safety and reliability metrics. I outline some of the changes within NSPM's Gas business since the Company's last Minnesota gas rate case. Finally, I introduce the core areas of capital and O&M investment undertaken by the Gas Operations area, which include: **Safety**, **Reliability**, connecting **New Customers**, undertaking **Mandated Relocations** of Gas infrastructure, and providing peaking natural gas supply from the Company's **Plants.**

In Section III, I discuss the Company's Gas Operations capital investments, including budget development, capital investment trends, and recent major planned investments. I also discuss the Company's key capital additions that will be placed in service in 2022, including both routine work to manage the gas system and larger discrete projects.

In Section IV, I support the Company's Gas Operations O&M expenses. I provide an overview of the Gas Operations O&M levels over the last several years as compared to the current year and our 2022. I walk through the O&M budget in detail, describing how Gas Operations incurs O&M expense and manages these costs over time.

In Section V, I address certain compliance matters from the Company's last gas rate case and any interim orders implementing requirements for our next rate case.

Q. PLEASE PROVIDE A SUMMARY OF YOUR TESTIMONY.

A. In my Direct Testimony, I provide support for the Company's capital and O&M investments included in the Company's test year in this case. Overall, I discuss how the NSPM natural gas system provides safe and reliable service to our Minnesota customers. I also discuss how we are addressing the evolution of the system, changes in natural gas regulation, and cost management efforts the Company is undertaking. Many of our capital investments in the gas system are "routine" in nature, in the sense that they involve small investments to connect new customers, ensure system safety and integrity, relocate facilities where necessary, and ensure sufficient pipeline capacity to serve our customers. I illustrate that the Gas Operations drivers of the need for this rate increase are largely increasing O&M due to the passage of time since our last rate case was filed in 2009, as well as certain discrete capital investments in programmatic reliability and safety investments, and in our gas peaking plants. I also explain how certain cost increases, such as those related to increased labor and underground Gopher State One Call "locates"

associated with our Damage Prevention program, are driven by increasing customer and system demands. Overall, I demonstrate that the Gas Operations capital and O&M requests in this rate case are reasonable and support the public's interest in a safe, reliable, sound gas system.

Q. HOW HAVE YOU ORGANIZED YOUR TESTIMONY?

A. My testimony is organized into the following sections:

- *Section I* – Introduction
- *Section II* – Gas Operations Overview
- *Section III* – Capital Investments
- *Section IV* – O&M Budget
- *Section V* – Compliance Issues
- *Section IV* – Conclusion

II. GAS OPERATIONS OVERVIEW

A. Gas Operations System and Gas Business

Q. PLEASE PROVIDE AN OVERVIEW OF NSPM'S GAS OPERATIONS.

A. NSPM provides gas sales and transportation service to customers in several communities across the state of Minnesota. We operate facilities in 29 of the 87 counties within the state. A map of our gas service area is provided as Exhibit___(JHZ-1), Schedule 2. The Company provides natural gas service to approximately 470,000 residential, commercial, and industrial customers in Minnesota, as well as to gas-fired electric generation facilities.

Q. WHAT TYPES OF INFRASTRUCTURE ARE INCLUDED WITHIN NSPM'S GAS SYSTEM?

A. Our gas system in Minnesota includes approximately 9,500 miles of distribution mains and 66 miles of transmission pipeline, and over 475,000 meters, as well as regulator stations, and other supporting infrastructure. We also maintain one liquified natural gas (LNG) plant and two Propane Air plants to provide gas to our firm customers on a peaking basis. Unlike our electric system, our gas system serves primarily as a local distribution company.

Q. WHAT ARE THE MAIN FUNCTIONS PERFORMED BY THE GAS OPERATIONS BUSINESS UNIT?

A. The Gas Operations business unit provides all the major functions to deliver natural gas from upstream interstate pipelines (Northern Natural Gas (NNG) and Viking Gas Transmission (VGT)) to the customer's meter and ensures public safety through compliance with state and federal pipeline safety regulations. These functions include: planning, engineering, design, metering, compliance, responding to gas emergencies, locating underground gas facilities, construction and maintenance on the system, coordinating with communities to relocate our facilities when necessary for municipal projects like water and sewer projects, complying with all state and federal regulations, and operating and maintaining gas peaking facilities, just to name a few.

Q. WHAT IS THE BASIC MISSION OF NSPM'S GAS BUSINESS?

A. Our mission is to provide safe, reliable, affordable, and environmentally-responsible service to our Minnesota customers. We understand that natural

gas service is critical to the State of Minnesota and its residents. When firm customers need natural gas for home heating, critical industrial processes, and other end uses, we must be ready to provide that service on demand. Moreover, we must design and operate our system to ensure the safety of our customers, our employees and contractors, and the public. To do this, the Company follows federal and state codes and regulations and relies on best practices obtained from peer benchmarking. The individual characteristics of infrastructure within NSPM's natural gas system further drive the Company's planning and operation.

In addition, as leaders in clean energy and carbon emissions reduction, NSPM is committed to work to reduce natural gas emissions from (1) our upstream producers and interstate pipelines; (2) the operation of our local distribution system; and (3) our customers at their homes and businesses. Company witness Mr. Jeff R. Lyng discusses these efforts in more detail.

Q. WHAT ARE THE MAIN FUNCTIONS PERFORMED BY THE GAS OPERATIONS BUSINESS UNIT?

A. The Gas Operations business unit provides all the major functions to deliver natural gas from upstream interstate pipelines (NNG and VGT) to the customer's meter and ensures public safety through compliance with state and federal pipeline safety regulations. These functions include: planning, engineering, design, metering, compliance, responding to gas emergencies, locating underground gas facilities, construction and maintenance on the system, coordinating with communities to relocate our facilities when necessary for municipal projects like water and sewer projects, complying with

all state and federal regulations, and operating and maintaining gas peaking facilities, just to name a few.

Q. WHAT ARE THE MAJOR PRINCIPLES, RULES, AND REGULATIONS THAT GUIDE NSPM'S INVESTMENTS IN ITS GAS SYSTEM ON BEHALF OF CUSTOMERS?

A. At a high level, the basic principle is to ensure that the natural gas (a combustible substance) we deliver to customers remains safely in our transmission and distribution pipelines until the point of use. This principle is put into practice through a complex set of rules and regulations that govern our work at the federal, state, and local levels.

At the federal level, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is the primary federal administration responsible for ensuring that pipelines are safe, reliable, and environmentally sound. PHMSA oversees the development and implementation of regulations concerning pipeline construction, maintenance, and operations. As discussed below, these responsibilities are shared with the State of Minnesota.

There are several federal regulations that pertain to NSPM's Gas Operations, including:

- 49 Code of Federal Regulations (CFR) Part 191 – requirements of natural gas pipeline operators to report incidents, safety-related conditions, and annual summary data.
- 49 CFR Part 192 – minimum safety requirements for gas pipeline design and operations. The Distribution Integrity Management Program (DIMP) and Transmission Integrity Management Program

(TIMP) rules are contained in this part, as well as rules governing the minimum safety standards for underground natural gas storage facilities (UNGSFs).

- 49 CFR Part 193 – prescribes safety standards for liquefied natural gas (LNG) facilities.
- 49 CFR Part 196 – regulations for the protection of underground pipelines from excavation activity.
- 49 CFR Part 199 – programs for preventing alcohol misuse and to test gas employees for the presence of alcohol and prohibited drugs.

Historically, the State of Minnesota, Department of Public Safety, Office of Pipeline Safety (MNOPS), has adopted the federal regulations outlined above and further regulates one-call excavation rules and ensures consumers receive safe service.

Federal, state, and local (e.g., city and county) governments are also responsible for overseeing the construction of new distribution infrastructure, including permitting. In addition, some of these local governments provide the Company with franchise agreements that enable us to install our natural gas infrastructure within road rights-of-way through the communities that we serve.

Q. HOW DO THESE RULES AND REGULATIONS ALIGN WITH THE WORK OF THE COMPANY'S GAS OPERATIONS?

A. These rules and regulations play a large role in how we do business, particularly with respect to the safety of NSPM's Gas Operations. Additionally, PHMSA

and American Petroleum Institute (API) rules and regulations, as well as other state and local requirements, often drive specific investment needs for our system, for both capital and O&M. Throughout my Direct Testimony, I will be describing how these rules drive specific investments the Company is undertaking.

1. NSPM Gas System Evolution

Q. HOW HAS NSPM'S GAS SYSTEM EVOLVED SINCE THE COMPANY'S LAST MINNESOTA GAS RATE CASE?

A. NSPM's last Minnesota gas rate case was filed on November 12, 2009, in Docket No. G002/GR-09-1153, with the Commission's Findings of Fact, Conclusions of Law, and Order in that docket issued on December 6, 2010. Since that time, the Company's natural gas system has evolved due to both changes in the industry and changes to the Company's gas system and business.

Q. WHAT ARE SOME OF THE CHANGES IN THE INDUSTRY THAT HAVE OCCURRED?

A. We have seen significant changes in industry rules, requirements, and best practices since 2010. Some of these result from an evolution in the industry that began prior to our last case. For example, in 2009, PHMSA published the final DIMP rule establishing integrity management requirements for gas distribution pipeline systems. Under DIMP, all gas distribution operations were required to develop programs that include a written plan with procedures for developing and implementing the following seven elements: (1) know how the distribution system is operated and maintained; (2) identify threats, both existing and potential; (3) evaluate and prioritize risks; (4) identify and

implement appropriate measures to mitigate risks; (5) measure performance, monitor results, and evaluate performance effectiveness; (6) conduct periodic evaluation and improvement; and (7) report performance to federal and state agencies. The Company complied with DIMP requirements by implementing a program and plan by August 2, 2011.

During this same period, there were several natural gas incidents around the country that caused significant loss of life and property. One occurred in San Bruno, California, in September of 2010; another occurred in Allentown, Pennsylvania in 2011. Incidents such as these caused Congress, PHMSA, and system operators around the country to take new steps to help ensure the safety and integrity of natural gas systems, particularly with respect to older construction materials and practices that are no longer considered best practice.

Subsequently, the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 (2011 Pipeline Safety Act) was signed into law on January 3, 2012, leading to significant additional requirements and industry best practices to protect the safety and integrity of natural gas infrastructure. During this same timeframe, and also as a result of the San Bruno and Allentown incidents, the Company, in 2012, established a separate gas operations organization to increase focus on public safety and enhanced expectations for the gas distribution and transmission systems. Rules, regulations, and industry standards governing safety in the industry continue to evolve, and we work to maintain alignment with applicable regulatory requirements and industry best practices.

Q. WHAT ARE SOME OF THE CHANGES TO THE COMPANY'S GAS SYSTEM AND BUSINESS SINCE THE LAST GAS RATE CASE?

A. We have experienced a number of changes, including:

1. <u>The size of our system has grown.</u>
   - Since 2010, the Company has expanded its natural gas service to five new Minnesota communities – Ulen (approved new gas service under Extension Surcharge (ES) rider in Docket No. G002/M-16-40); Hitterdal (approved new gas service under ES rider in Docket No. G002/M-16-40); Pillager (approved new area surcharge in Docket No. G002/M-14-583); Barnesville (approved new gas service under ES rider in Docket No. G002/M-15-195); and Holdingford (approved new gas service under the ES rider in Docket No. G002/M-15-195).
   - From 2010-2020, the Company added 44,486 new gas services.
   - Since 2010, the Company has added 830.8 miles of new distribution main.

2. <u>We have improved the natural gas system, supporting safer, more reliable, and cleaner energy services to our customers</u>:
   - The Company converted its Black Dog Generating Plant from a coal-fired plant to natural gas-fired, with conversion completed in 2018.
   - The Company has removed and replaced all known cast iron pipe, which has been identified throughout the industry as a poor performing type of pipe.
   - We continue to invest in routine system management and maintenance, while responding to increasing customer locate requests and gas emergency calls.

3. With Commission support, we have implemented the Gas Utility Infrastructure Cost (GUIC) Rider to support the safety and integrity needs of our system.
   - The Company has requested, and received approval for, recovery of GUIC costs through the GUIC Rider each year since 2014.
   - Overall, we have completed a number of projects through the GUIC Rider, with the largest being the 11.5-mile East Metro gas transmission line in the cities of St. Paul and Roseville that now serves around 100,000 homes and business.

Q. CAN YOU PROVIDE ADDITIONAL INFORMATION REGARDING HOW THE GUIC RIDER ALIGNS WITH THIS RATE CASE?

A. Yes. The GUIC Rider allows the Company to recover through a rider, integrity management costs that are consistent with the eligibility requirements set forth in Minnesota Statutes § 216B.1635 (GUIC Statute). These costs are incurred to continue important infrastructure work that promotes the safety of the Company's natural gas system.

The vast majority of costs that flow through the GUIC Rider are for the renewal of problematic mains and services. Since NSPM's GUIC Rider's 2015 inception, the Company has completed the replacement of over 320 miles of high- and medium-risk, aging, corroded, and otherwise damaged gas distribution pipeline, as well as the replacement of approximately 15,400 aging distribution service lines.

Q. WHAT TYPES OF PROJECTS OR COSTS ARE ELIGIBLE FOR GUIC RECOVERY?

A. Costs that qualify for recovery under the GUIC Statute are those that are not already reflected in the utility's rates and that are incurred in projects involving (1) natural gas facilities that must be replaced due to road construction or other public works projects, and (2) the replacement or modification of existing facilities required by a federal or state agencies.

The Commission has consistently recognized that the Company's Transmission Integrity Management Program (TIMP) projects and DIMP projects are reasonable and in the public interest by allowing for efficient rider recovery of costs since the Company's inaugural GUIC petition filed in Docket No. G002/M-14-336. Generally, NSPM's TIMP projects include transmission pipeline assessments of the health and condition of the Company's gas transmission lines; the installation of automatic shutoff and remote-controlled valves; and the Company's Programmatic Replacement and Maximum Allowable Operating Pressure (MAOP) Remediation Program. The Company's DIMP initiatives include replacement of poor performing main and service lines and the inspection and replacement of high- and medium-risk segments of pipelines to meet PHMSA pipeline safety regulations.

Q. HOW DOES THE GUIC RIDER FIT WITH THE COMPANY'S TOTAL GAS OPERATIONS INVESTMENTS?

A. The GUIC Rider facilitates construction and assessment activities that help keep the gas system operating safely and reliably. However, like other riders, the GUIC Rider does not allow for recovery of all necessary utility costs and

investments to operate the system; as a result, rate cases are still required from time to time. Further, as part of updating base rates, the Company is proposing to roll in-serviced capital GUIC projects into base rates in this case.

Later in my Direct Testimony, I describe the 2020 and 2021 projects and costs that the Company proposes to include in base rates in this proceeding. Company witness Mr. Benjamin C. Halama describes the roll-in of past and current capital GUIC projects to base rates in his Direct Testimony.

2. Gas Operations Areas of Service

Q. PLEASE DESCRIBE THE GAS OPERATIONS BUSINESS UNIT'S KEY AREAS OF SERVICE IN MORE DETAIL.

A. There are five primary areas of operation for the Gas Operations business area. First and foremost, **Safety** and **Reliability** are the key areas of focus for Gas Operations. In addition, we address **New Business** resulting from new customers and customer growth, undertake infrastructure **Relocations** mandated by city, state, or federal authorities, and provide peaking natural gas supply from our **Plants**. These efforts are not only designed to meet our service obligations from a PHMSA and state law perspective, but also to serve our customers effectively and efficiently.

Q. CAN YOU PROVIDE ADDITIONAL DISCUSSION OF THESE FIVE CORE AREAS?

A. Yes. I will discuss each in turn:

1. **Safety** rules and regulations require the Company to establish TIMP and DIMP plans. At a high level, TIMP and DIMP rules require operators to

(1) know their assets; (2) identify risks and threats to those assets; and (3) proactively mitigate those risks/threats. For NSPM, the costs to comply with TIMP and DIMP are recovered through either base rates or the GUIC Rider.

For public safety, the Company is also required to locate its underground gas infrastructure free-of-charge, in compliance with Minnesota Statutes § 216D.04, subdivision 3, for anyone who calls Minnesota 8-1-1 and requests a locate. Almost 90 percent of NSPM's locate costs are incurred on behalf of others, and only about 10 percent are related to NSPM's own construction projects. Additionally, every gas operator within the United States is obligated to respond to customer calls when they think they smell natural gas or have any gas emergency.

2. Our customers need **reliable** service. Customers depend upon natural gas to heat their homes and water, cook their meals, dry their clothes, and support commercial and industrial activities within the state. Consistent with our tariff, NSPM must stand ready to provide our customers with safe and reliable natural gas service. In order to do so, NSPM must adequately maintain, renew, and operate its regulator stations, meters, and every other aspect of the system. When our assets are no longer adequate to meet customers' safety and reliability needs, the Company must replace, reinforce, or rebuild those parts of our system. Additionally, when safety and service reliability demand exceeds the capacity of the Company's human resources available to operate the system, we must adjust our staffing models accordingly.

3. As a general matter, the Company will extend service to any **new customer** who requests gas service within its service territory under the rules of its tariff, subject to the availability of gas. This includes not only laying the service line and setting the meter to a customer's facility, but also installing the gas main to which the service line connects. NSPM also operates an integrated system of distribution and transmission assets. Customer growth on the distribution system can cause a capacity shortage on upstream distribution and transmission pipelines and regulating facilities. To ensure gas service to each firm customer during a cold peak hour or design day, the Company must have adequate capacity across its entire integrated system.

4. NSPM is also required by state, county, and local government bodies to **relocate** our gas infrastructure that resides in road rights-of-way when a relevant entity's work conflicts with our facilities. NSPM's franchise agreements with the communities it serves require the Company to move or relocate our infrastructure when requested by a government body. This includes, but is not limited to, infrastructure work on water, sewer, transportation, and other major infrastructure. The costs associated with relocating our natural gas infrastructure are borne by NSPM and ultimately impact our customers through cost-of-service ratemaking.

5. As I previously noted, the Company has one LNG and two propane air **plants** on its system to provide gas supply to its firm customers during cold weather and emergency conditions. Just like traditional gas supply that the Company procures on the open market and transports to the State

of Minnesota on NNG and VGT pipelines, the Company relies on peaking supply from its LNG and propane facilities to meet design day requirements for firm customers.

Q. DOES NSPM PROVIDE SAFE AND RELIABLE SERVICE TO ITS CUSTOMERS?

A. Yes, through ongoing efforts. There are continually emerging risks that need to be mitigated as any gas system ages, and we must make ongoing assessments of and investments in our assets, our performance, and our customer service. Like the rest of the gas industry in the United States, NSPM continues to focus on removing operational and safety risks from its system by operating in a proactive manner, while maintaining affordability. This includes replacement of aging assets, responding to emergencies faster, and regularly performing leak surveys of the Company's system.

B. Operational Enhancements Since Last NSPM Gas Case

Q. WHAT IS THE PURPOSE OF THIS SEGMENT OF YOUR TESTIMONY?

A. In this section of my testimony, I build on the discussion earlier in my testimony regarding our investments in serving our customers since our last Minnesota gas rate case. In particular, I illustrate how the Company has enhanced its performance in several areas that underscore the value of our investments in the NSPM Gas System, bringing us to the current rate case.

Q. CAN YOU PROVIDE AN OVERVIEW OF HOW THE COMPANY HAS ENHANCED THE SYSTEM AND CUSTOMER SERVICE SINCE THE 2010 GAS RATE CASE?

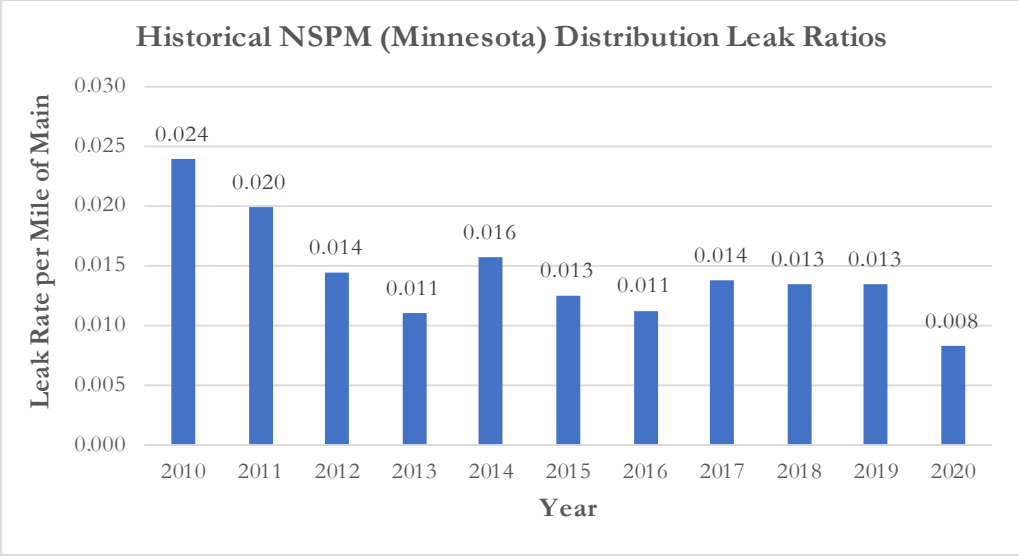
A. Yes. NSPM investments that are being rolled into base rates in this rate case, plus investments for which it receives recovery through the GUIC Rider,

enable us to continue providing safe and reliable customer service, while also continually improving in various metrics that are indicators of the health and safety of our system. Such key metrics include leak ratios, quantity of pipeline renewals, number of transmission pipeline assessments, the quality of our transmission pipeline records, and damages per 1,000 locates. Overall, improvements in these metrics in recent years help demonstrate the Company's proactive and prudent investment in its gas system.

Q. WHAT PROGRESS HAS NSPM MADE ON LEAK RATIOS?

A. NSPM has reduced its distribution leak ratio (that is, the ratio of distribution main leaks per mile of main excluding excavation damages) by over 60 percent since 2010. This progress is a result of the Company's successful efforts and investments to target renewal of the highest-risk main pipelines through its capital pipeline replacement programs. Figure 1 below provides annual NSPM distribution main leak ratios from 2010 through 2020, on a Minnesota-only basis.

Figure 1



Q. WHY IS THERE VARIABILITY IN DISTRIBUTION LEAK RATIOS?

A. The Code of Federal Regulations, Part 192, Subpart M requires operators to conduct periodic leak surveys of their pipeline systems. Generally, the Company conducts leak surveys over the same stretches of pipe every three years. However, depending on scheduled work activities, the Company does shift leak surveys of stretches of pipe to different years to improve work efficiency. In addition to the periodic leak survey process, leaks are also identified by other means (customer calls, etc.) that are not related to the three-year survey cycle. As such, some variation of leak rates from year to year is expected.

Q. HOW DOES A DECLINING LEAK RATE BENEFIT CUSTOMERS?

A. Overall, a declining leak ratio indicates that more gas is staying in the pipeline where it belongs. This provides a safety benefit to customers and the communities we serve, as it reduces the risk of catastrophic incidents. Improved pipe integrity and reduced leaks also provides environmental benefits, as these efforts also reduce and avoid methane emissions from the natural gas system.

Q. WHAT PROGRESS HAS BEEN MADE ON PIPELINE RENEWALS?

A. Between 2015 and 2020, NSPM has renewed over 320 miles of main and almost 15,400 services through its pipeline replacement program (with recovery through the GUIC). This progress reflects investments in both larger and smaller projects (in terms of scope, pipe diameter, etc.). Overall these investments drive down leak rates and provide a higher level of safety to our customers, as well as lower methane emissions.

Q. PLEASE DISCUSS THE COMPANY'S PROGRESS ON TRANSMISSION PIPELINE ASSESSMENTS.

A. Transmission pipeline assessments are necessary to detect safety and reliability issues, and are accomplished through a variety of methods, including in-line inspections, external corrosion direct assessment, internal corrosion direct assessment, and pressure testing. NSPM has assessed 93 percent of its transmission pipelines through 2020, and 100 percent completion is forecasted in 2026 via all assessment methods. Capital and O&M costs associated with performing transmission assessments are recovered through the GUIC until they are rolled into base rates.

Q. WHAT IS THE SIGNIFICANCE TO CUSTOMERS OF THE PROGRESS ACHIEVED AND ANTICIPATED ON TRANSMISSION PIPELINE ASSESSMENTS?

A. Transmission pipeline assessments provide valuable information about the health and condition of our high-pressure (HP) transmission lines. Knowing this information allows us to remediate any anomalies discovered, providing a safer environment for our communities and customers that live, work, and recreate around our transmission pipelines.

Q. WHAT IMPROVEMENTS HAVE BEEN MADE TO THE COMPANY'S TRANSMISSION PIPELINE RECORDS?

A. The Company has completed the review of all pressure test records on its transmission lines for traceability, verifiability, and completeness. Efforts are ongoing to evaluate material records. Having complete, traceable, and verifiable pressure test records ensures that our transmission pipelines not only meet PHMSA requirements but also ensure that they are operating at or

beneath their MAOP, providing a safer environment for our customers and communities.

Q. WHAT OVERALL CONCLUSIONS CAN BE DRAWN FROM THESE IMPROVEMENT EFFORTS?

A. The prior discussion illustrates that the Company's investments in safety, reliability, and system integrity are enhancing our overall system health and customer service capabilities. It also supports our plan to continue these investments into the future, as our safety and reliability work is not yet done. In fact, we anticipate additional system needs going forward, as described later in my Direct Testimony.

III. CAPITAL INVESTMENTS

A. Overview of Capital Investments

Q. WHAT KEY STRATEGIC GOALS AND FOCUS DRIVE GAS OPERATIONS' CAPITAL INVESTMENTS?

A. The focus of our capital investments has been and remains our mission to provide safe and reliable service to our customers – by both connecting and serving new customers and ensuring continued safety and reliability to our existing customers. This requires compliance with federal and state pipeline safety standards and industry best practices, as well as investments to move existing gas infrastructure to relocate facilities that are in direct conflict with street expansions within public rights-of-way and safety-related work required by the governing authority.

Q. HOW DO GAS OPERATIONS' CAPITAL INVESTMENTS BREAK INTO CAPITAL BUDGET GROUPINGS THAT REFLECT THOSE GOALS?

A. Our capital projects fall into five capital budget groupings, depending on the primary purpose of the project. These groupings are based on our core work, described above: Safety, Reliability, New Customer Business, Mandated Relocations, and Plants.

Q. CAN YOU PROVIDE ADDITIONAL INFORMATION REGARDING THE TYPES OF CAPITAL INVESTMENT NEEDED IN EACH OF THESE CATEGORIES?

A. Yes. I will discuss each in turn:

Safety: Maintaining safety requires a multi-faceted work and capital investment approach that considers the complex nature of the system and the multiple risks that face any natural gas system. Much of the safety work is focused on maintaining the integrity of the Company's gas system assets so they can function as intended and provide safe and reliable service to customers. This includes work on our infrastructure to reduce leaks, improve safety (such as our Inside Meter Move Out program, discussed later in my testimony), renew service mains and pipes, and the like.

Reliability: Maintaining a reliable system, in a proactive manner, requires identifying the capacity needs of the system and responding when a capacity need is identified. In addition, the Company has projects and programs for routine asset health and capacity investments to maintain day-to-day system reliability.

New Customer Business: The Company will extend service to any new customer that requests gas service within its service territory under the rules of its tariff, subject to the availability of gas. When there is no existing connection to the customer's property, the Company must make capital investments to install new service lines, meters, and other infrastructure to extend service to the residential, commercial, or industrial property.

Mandated Relocations: The Company is required to move existing infrastructure to meet federal, state, or local requirements. This includes relocating facilities that are in direct conflict with street expansions within public rights-of-way and safety-related work required by a governing authority. The Company must invest capital to achieve these relocations and establishment of service via infrastructure at a different location.

Plants: The Company has three gas supply peaking plants – one LNG plant (Wescott), and two propane plants (Sibley and Maplewood). These plants are used to ensure we can meet our firm customers' demand for natural gas as we approach Design Day conditions and also to assist in intra-day balancing. Although such conditions do not regularly occur, the peaking plants are important to design day plans. Because these plants generally are available to provide gas to firm customers during peak conditions, the Company is able to avoid incremental pipeline capacity purchases to meet the same need. The peaking plants provide diversity to the Company's capacity portfolio in addition to third-party interstate pipeline capacity.

B. Capital Budget Development and Management

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

A. In this section, I will provide an overview of Gas Operations' capital budgeting process and management, which is utilized to develop the capital budget for each of the capital budget groupings that form the basis for our test year. I offer this information as additional support for the forecasted capital included in the Company's rate request.

Q. HOW DOES NSPM BUDGET FOR CAPITAL SPENDING FOR ITS GAS OPERATIONS BUSINESS?

A. We have a well-defined process for identifying, ranking, and budgeting gas capital projects. This process involves the identification of potential system risks and mitigations (associated solutions), review of mitigation for accuracy, completeness, and reasonableness, and prioritization of projects. The specific projects to be completed are based on these prioritizations in combination with assessment of overall budget dollars available. Projects that are funded may then be classified as either "discrete" or "routine" and assigned in-service dates or closing patterns based on the attributes of the work, and receive oversight throughout work deployment.

Q. YOU REFER TO "RISKS," "SOLUTIONS," "MITIGATIONS," AND "PROJECTS." CAN YOU EXPLAIN WHAT YOU MEAN BY THESE TERMS IN THE CONTEXT OF DEVELOPING A CAPITAL BUDGET?

A. "Risks" are potential detrimental impacts or threats to safety, the quality/reliability of our service, environmental quality, our ability to meet our legal obligations, or our financial standing. These identified risks result in

initiatives that address the risks. These initiatives, in turn, often require capital expenditures. In the capital budgeting process, potential "solutions" or "mitigations" are essentially "projects" (i.e., work to be performed that will mitigate a certain risk or set of risks). These projects are the focus of the capital budget process. Projects are evaluated against each other based on their costs, how effectively they address certain risks, and how critical the risks are.

Q. PLEASE EXPLAIN THE PROCESS OF MANAGING CAPITAL COSTS AFTER THE CAPITAL BUDGET IS DEVELOPED.

A. The System Strategy and Business Operations organization within Gas Operations along with the corporate Finance organization monitors all distribution and capital dollars to ensure that authorized projects align with the established budget. Detailed monthly reports are produced that compare actual capital expenditures and plant in-service to budgeted levels for routine and specific projects. I meet monthly with this group and key stakeholders within the organization to review program and specific project capital expenditures and variances. Adjustments and corrective measures are implemented as needed.

Q. WHAT INCENTIVES ARE IN PLACE TO PROMOTE THE ACCURACY OF THE CAPITAL BUDGET?

A. Management employees that have job responsibilities with a direct impact to capital budget expenditures and plant in-service (e.g., project management, engineering, investment delivery, etc.) have specific budgetary goals that are incorporated into their performance evaluations. Performance is measured

monthly to ensure adherence to these goals and to address variances. This metric is aimed at developing accurate budgets and managing to the budgeted levels.

Q. WHAT ARE THE "ROUTINE" PROJECT TYPES YOU MENTIONED EARLIER?

A. Routines or blankets are budgets used to fund routine small projects that are typically less than $300,000. The Company has four Routine budgets: Asset Health (Reliability), New Business, Mandatory Relocations, and Capacity (Reliability).

Q. CAN YOU DESCRIBE HOW THE COMPANY BUDGETS FOR ROUTINES?

A. Yes. Because the routine projects are generally not defined until the current year, the budget is determined based largely on historical actuals. More specifically, routine budgets are based on historical spend and forward-looking growth projections by category, while also taking cost escalations into account. More individual routine projects, such as for new business growth, reinforcements, or relocations, are budgeted based on a two-year historical average with future corporate defined escalators. This routine grouping of projects serves to allocate funding for performing core business functions, such as connecting new customers, reconstructing facilities, and purchasing new meters, regulators, and fleet.

Q. WHAT ARE DISCRETE PROJECTS?

A. Discrete projects are typically large multi-year projects, greater than $300,000, in which the Company sets up a discrete work order to track the specific cost of the project. Discrete projects are identified through the Company's

Builders Call Line (new business), requests from municipal or government agencies (mandatory relocations), or through the Company's planning process (asset health and capacity).

Q. HOW DOES THE COMPANY BUDGET FOR DISCRETE PROJECTS?

A. As mentioned earlier, discrete projects are typically multi-year projects greater than $300,000. During the Company's annual budget cycle, we follow a rigorous budgeting process that identifies the optimal mix of projects and expenditures for a given year. If a discrete multi-year project is known and of high enough priority to be included in the annual budget, it is added to the budget during the regular budget cycle.

Q. IN GENERAL, HOW DOES THE COMPANY DETERMINE COST ESTIMATES FOR INDIVIDUAL DISCRETE PROJECTS?

A. Given the nature of our business, the Company must estimate the costs of large multi-year projects that contain unknown variables that may impact the final cost of the project. The project development process is a tiered approach with prescribed planning requirements at each gate within a project's lifecycle. This requires project managers to develop a registry of project risks including material availability, contractor resourcing strategy, operational schedules, and public impact. To the extent a budget contains a level of contingency to account for unanticipated variables to minimize the impacts of the overall budget, such contingencies are refined as a project goes through the process.

Finally, once a project is under way, the project manager meets regularly with key staff (i.e., siting and land rights, sourcing, construction/operations, etc.) where issues and concerns are identified, and solution are developed. The overall goal is to achieve safe and timely completion of the project at no more than the budgeted cost.

C. Gas Operations Budgeting Trends

1. Gas Operations' Recent Capital Investment Trends

Q. PLEASE SUMMARIZE THE CAPITAL ADDITIONS IN SAFETY, RELIABILITY, NEW BUSINESS, MANDATED RELOCATIONS, AND PLANTS THAT ARE INCLUDED IN THIS RATE CASE.

A. Table 1 below summarizes the Company's capital additions in these five areas included in the test year, 2021 forecasted additions, and a three-year trend of capital additions from 2018 to 2020 (the most recent three years of actual data):

Table 1

Gas Operations Capital Additions 2018-2022

MN Gas Additions	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Safety	$2.4	$1.4	$1.3	$2.9	$4.8
Reliability	$5.3	$15.7	$13.7	$39.6	$32.0
New Business	$37.1	$24.4	$24.6	$21.1	$23.4
Relocations	$9.1	$18.9	$19.4	$15.8	$10.3
Plants	$0.4	$0.7	$3.9	$36.9	$21.4
Total	**$54.3**	**$61.1**	**$62.8**	**$116.3**	**$91.9**

Q. CAN YOU ALSO SUMMARIZE THE CAPITAL EXPENDITURES THAT ARE INCLUDED IN THIS RATE CASE?

A. Yes. Table 2 below summarizes the Company's capital investments in these five areas included in the test year and 2021 forecasted expenditures, along with a three-year trend of capital expenditures from 2018 to 2020.

Table 2

Gas Operations Capital Expenditures 2018-2022

MN Gas Expenditures	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Safety	$1.5	$1.5	$2.5	$2.0	$5.1
Reliability	$8.3	$16.2	$12.3	$40.3	$32.2
New Business	$29.8	$22.6	$21.7	$23.5	$23.7
Relocations	$13.8	$18.4	$17.2	$15.6	$11.3
Plants	$3.9	-$8.5	$6.6	$42.2	$21.8
Total	**$57.3**	**$50.2**	**$60.3**	**$123.6**	**$94.1**

Q. WHAT WERE THE PRIMARY DRIVERS OF GAS OPERATIONS' CAPITAL ADDITIONS FROM 2018 THROUGH 2020?

A. Most of the Gas Operations capital budget includes routine investments in asset health, new customer connections, smaller safety and capacity projects, small pipeline relocations, and the like. There were also three large discrete projects that were the primary drivers of capital additions from 2018 to 2020. First, in late January 2019, a severe cold wave hit Minnesota known as the Arctic polar vortex. As a result of the polar vortex, the Company experienced areas of low pressure on its system and identified specific areas where it was necessary to improve the reliability and eliminate these areas of low pressure.

To this end, the Company constructed six projects totaling approximately $7 million. This accounts for the increase in Reliability capital costs in 2019 as compared to 2018. Additionally, this experience further prompted assessments in other parts of the system, driving other routine capacity projects in subsequent years.

Second, in 2018, the Company converted its last remaining coal unit at the Black Dog generating facility over to natural gas. A high-pressure gas transmission line was in-serviced to provide natural gas to run the new combined cycle combustion turbine. This event accounts for $14.3 million in the New Business budget category.

Finally, in 2019 and 2020, we had an increased volume of relocation projects, which accounts for the increase in Relocation capital costs as compared to 2018.

Q. WHY DO CAPITAL ADDITIONS TOTALS DIFFER FROM CAPITAL EXPENDITURE TOTALS?

A. While the capital addition trend is directly affected by our capital expenditures, the capital additions trend may not mirror the capital expenditure trend and may fluctuate more depending on the length of time individual projects require to complete. The capital expenditure trend reflects the progress of the project over time, whereas the capital addition trend reflects the total at the conclusion of the construction or implementation process when the asset is placed in service. For example, the credit in the 2019 Plants capital expenditures is specific to the Commission-approved sale of the Company's

propane tanks to Flint Hills in 2019 in that year. I provide an overview of both capital expenditures and capital additions to show the Company's spending patterns and also its in-service amounts over this time.

Q. WHAT DO TABLES 1 AND 2 INDICATE REGARDING GAS OPERATIONS' CAPITAL INVESTMENT TRENDS?

A. Both Tables 1 and 2 illustrate that capital investments can vary on a year-to-year basis depending on the specific work that is necessary to meet the needs of both our customers and our business. In certain years, Gas Operations' capital investments may be lower due to customer new business requests or municipality requests to relocate our gas infrastructure in public right-of-way. At the same time, Gas Operations' capital investment levels may increase in years when we are working on major initiatives, and capital additions necessarily increase when those initiatives are placed in service. Overall, our capital additions increased over the three years from $54.3 million in 2018 to $62.8 in 2020.

Q. WHAT ARE THE PRIMARY DRIVERS OF GAS OPERATIONS' CAPITAL ADDITIONS IN 2021 SO FAR?

A. The 2021 forecasted capital additions are estimated at $116.3 million, a material increase over 2020 costs. The primary drivers for this variance in plant additions are in the areas of Reliability and investments in our Wescott LNG and Sibley and Maplewood Propane Air facilities. First, in 2021 the Company is forecasting $39.6 million in capital additions for reliability compared $13.7 million in 2020. Several large discrete reliability projects comprise this total increase, including St. Cloud/Sartell System Capacity

Reinforcement ($11.3 million), Delano Reinforcement ($3.7 million), and Becker Big Lake Entitlement Reinforcement ($2.7 million). Second, the Company is making major routine and discrete investments at the Wescott, Sibley, and Maplewood gas peaking plants. I discuss these investments in more detail later in my Direct Testimony, with Company witness Ms. Mary P. Palkovich providing additional support for the vaporization investments at Wescott and associated costs at Sibley and Maplewood.

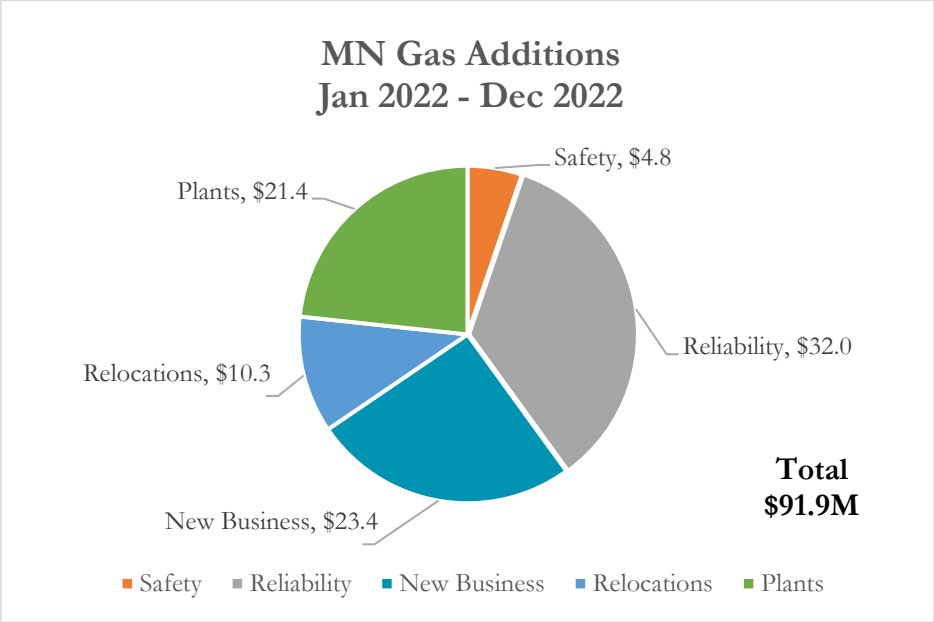
2. Overview of Gas Operations' 2022 Capital Investments

Q. WHAT ARE GAS OPERATIONS' CAPITAL FORECASTS FOR 2022 BY CAPITAL BUDGET GROUPING?

A. In addition to Table 1 on page 28, Figure 2, below, illustrates the Company's forecasted Gas Operations 2022 additions.

Figure 2

Gas Operations 2022 Capital Additions (Millions)



Q. HOW DO GAS OPERATIONS' CAPITAL ADDITIONS FOR 2022 COMPARE TO HISTORIC TRENDS?

A. Capital additions for 2022 are estimated at $91.9 million, which is 21 percent less than the 2021 forecast. The primary reasons for this decrease are a reduction in the new capital additions related to the peaking plants in 2022, and an anticipated reduction in mandatory relocations. However, in addition to our ongoing work and projects, there are several large discrete projects in 2022, sometimes referred to as major capital investments, that result in increased capital additions in certain categories compared to prior years.

Q. WHAT ARE THE MAJOR CAPITAL INVESTMENTS IN THE COMPANY'S 2022 TEST YEAR?

A. These major capital investments include replacing existing meter modules for drive-by meter reading, moving insider customer meters outside, and certain discrete capacity projects to ensure firm customers are served during design day conditions. These individual projects and the associated capital additions for each are summarized in Table 3 below:

Table 3

2022 Gas Operations Major Capital Projects ($ millions)

MN Capital Category	Project Name	Jan 2022 - Dec 2022
Reliability	Module Replacement	$7.2
Reliability	Delano Reinforcement	$6.5
Reliability	Langdon Line Project	$2.8
Reliability	County Road B Project	$1.2
Safety	Inside Meter Move Out	$2.8

I will discuss these additions, as well as our overall test year budgets, in more detail in the next section of my Direct Testimony.

D. Key Capital Additions for 2022

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

A. The purpose of this section is to describe the key capital additions for discrete and routine projects for Gas Operations during the 2022 test year. For purposes of testimony, we sought to describe capital investments totaling at least 80 percent of the capital additions being placed in service in 2022. These projects are described in detail below. Unless otherwise stated, all capital dollar figures are at the State of Minnesota Gas jurisdictional level. The capital amounts are also included in Exhibit___(JHZ-1), Schedule 3.

1. Safety of the Gas System

Q. PLEASE PROVIDE AN OVERVIEW OF THE SAFETY CAPITAL ADDITIONS BETWEEN ROUTINE AND DISCRETE PROJECTS.

A. While many of our capital investments in safety remain in the GUIC Rider, Table 4 below identifies the Safety plant additions that the Company will invest in, outside of the GUIC Rider. All capital safety projects are discrete projects – there are no routine safety projects. Table 5 below provides a breakdown of the discrete Safety plant additions by category.

Table 4

Gas Operations Safety Capital Additions Discrete Projects ($ millions)

Project Name	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Discrete	$2.4	$1.4	$1.3	$2.9	$4.8
Total	**$2.4**	**$1.4**	**$1.3**	**$2.9**	**$4.8**

Table 5

Discrete Safety Capital Additions ($ millions)

Project Name	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Capitalized Locating Costs - Gas	$0.8	$0.5	$0.8	$0.7	$0.8
Tools	$0.9	$0.8	$0.5	$2.2	$1.2
Inside Meter Move-Out	$0.0	$0.0	$0.0	$0.0	$2.8
Safety - Other	$0.7	$0.0	$0.0	$0.0	$0.0
Total	**$2.4**	**$1.4**	**$1.3**	**$2.9**	**$4.8**

a. Locating Costs

Q. WHAT ARE CAPITALIZED LOCATE COSTS?

A. The Company has a Damage Prevention Program, through which we incur costs to identify and locate/mark where existing gas infrastructure exists underground in order to ensure that digging or construction work does not interfere with gas pipelines and create public safety risks. While most of our Damage Prevention costs are O&M, a portion of locate requests each year are performed for NSPM capital projects for new business, main renewals, and capacity projects. The costs for these locate requests are capitalized locate

costs. In 2022, the Company forecasts incurring approximately $0.8 million of capitalized locate costs, which is the same amount the Company incurred in 2020.

b. Tools and Equipment

Q. WHAT TYPES OF PROJECTS ARE PLANNED IN TOOLS AND EQUIPMENT?

A. The Company plans for tool and equipment replacements in future years in anticipation of replacing existing items due to damage, obsolescence, or other needs. In addition, the Company forecasts additions for programs of replacements. For 2022, the Company is forecasting $1.2 million in tools and equipment investments. This forecast is based on historical spend plus escalation. The 2021 forecast is $1.0 million higher than the 2022 forecast due to the specific replacement of gas leak detection equipment in 2020 that was placed in service in early 2021.

Q. WHY IS THE COMPANY REPLACING GAS DETECTION EQUIPMENT?

A. The replacement of gas detection tools is critical to providing safe and reliable natural gas service to our customers. The Company determined that some of its gas detection equipment, used for leak surveys, was obsolete due to the inability to obtain parts to repair these older units.

The existing gas detection equipment will be used for the remainder of its useful life so long as the tool performs safely and can do the task it was designed for. Replacement of the detection equipment will be limited to a list of standardized equipment utilized across NSPM. This will ensure

consistency relative to equipment maintenance and calibration, employee training, and safety standards.

Overall, the new leak detection tools will provide greater accuracy, and the ability to electronically trace when and where readings are taken or take readings at a remote distance allowing for leaks to be detected on pipes that the Company cannot physically access safely. These are important investments designed to improve employee and public safety through standardization of new tools and equipment.

c. Inside Meter Move Out

Q. WHAT IS THE INSIDE METER MOVE OUT PROGRAM?

A. Through the Inside Meter Move Out program, we plan to move a significant portion of our gas meters still located inside of customer premises to outside locations and to replace the existing facilities with new meters, connections, and regulators. The relocation of meters outside of a customer's premises allows the Company to more efficiently perform routine required inspection and maintenance of these meters without having to coordinate access or inconvenience the customer. Additionally, moving the meters to outside locations where possible reduces the risk of gas accumulating in a confined space, where there are more sources of potential ignition.

Q. HOW OFTEN IS NSPM REQUIRED TO INSPECT METERS?

A. The requirements regarding the inspection of meters are set forth in the Code of Federal Regulations (CFR). Pursuant to 49 CFR Part 192.723(b)(2), NSPM is required to conduct leak surveys once every five years at intervals not

exceeding 63 months for facilities outside of business districts. Pursuant to 49 CFR Part 192.723(b)(1), facilities within business districts must be surveyed at intervals not to exceed every 15 months, but at least once each calendar year. Furthermore, pursuant to 49 CFR Part 192.481(a), NSPM is required to conduct atmospheric corrosion inspections once every three years at intervals not exceeding 39 months.

Q. WHAT ARE LEAK SURVEYS AND ATMOSPHERIC CORROSION INSPECTIONS?

A. A leak survey is a systematic method to locate leaks in a gas piping system. Atmospheric corrosion inspections inspect all above-ground piping and assets that are exposed to the atmosphere. Facilities are inspected for coating damage and are evaluated to determine the areas and extent of atmospheric corrosion.

Q. WHY ARE THE LEAK SURVEYS AND ATMOSPHERIC CORROSION INSPECTIONS IMPORTANT?

A. Regular leak surveys and atmospheric corrosion inspections on meters and services are required in order to prevent and/or detect gas leaks, which if not addressed, could result in personal injury and/or property damage. Thus, it is important to have access to customer meters to conduct these surveys and inspections to ensure not only the safety and integrity of our gas system, but the safety of our customers.

Q. GENERALLY, DO INDUSTRY REGULATIONS SPECIFY THE LOCATION OF METERS ON CUSTOMER PREMISES?

A. Yes. The current Code of Federal Regulations (specifically, 49 CFR Part 192.353) permits inside meters on customer premises; however, each meter and service regulator, whether inside or outside a building, must be installed in a readily accessible location. In addition, the Uniform Plumbing Code (UPC) and the National Fuel Gas Code (NFPA 54) both require that gas meters be located in ventilated spaces that are readily accessible for examination, reading, replacement, or necessary maintenance. The preferred industry practice is to have meters located on the outside of buildings.

Q. CAN YOU ELABORATE FURTHER ON WHY NSPM PREFERS TO LOCATE METERS OUTSIDE THE CUSTOMER'S PREMISES?

A. Yes. NSPM prefers to locate meters outside the customer's premises for three reasons: cost, customer convenience, and customer safety. Inside meters, especially for locations outside of business districts, often present a challenge in completing the required leak surveys, atmospheric corrosion inspections, and maintenance because they cannot be easily accessed. Meters inside the business districts are generally more accessible than residential meters due to the nature of business hours and the availability of people to grant on-site access. In the case of the meters located inside residential homes, NSPM has to make arrangements with customers in order to access the equipment to perform the required inspections or maintenance. This is inconvenient for our customers and inefficient for NSPM's operations, as it may result in multiple trips to customer locations. It also requires our personnel to enter the customer home, which may not be comfortable for them.

Additionally, if a leak occurs on a meter set located inside a customer's basement, there is a higher likelihood of gas accumulating inside the structure where there are more sources of ignition, such as a customer's furnace, water heater, dryer, or electrical switches. By moving inside meters outside, it reduces the inherent risks of an inside gas leak and improves customer safety.

Q. HOW MANY METERS IN THE COMPANY'S MINNESOTA SERVICE TERRITORY ARE LOCATED INSIDE CUSTOMER PREMISES?

A. There are over 20,700 meters located inside customers' premises both within and outside of business districts.

Q. ARE THERE REASONS WHY SOME METERS SHOULD REMAIN LOCATED INSIDE A CUSTOMER'S PREMISES?

A. Yes. There are situations where the preferred meter location for NSPM and the customer is inside. An apartment complex, for example, may have dozens of meters in a special section of the building that is protected from vehicle traffic and is specifically built to house meters. Some meters may remain inside of customer locations due to space constraints and design – primarily in commercial settings.

Q. WHAT IS NSPM'S PLAN FOR INSIDE METERS WITHIN ITS SYSTEM?

A. NSPM is planning to undertake the Inside Meter Move Out project. The project would move approximately 7,300 meters and connections that are currently located inside of customer premises and that can be moved to outside locations. Using a combination of internal and contract resources, NSPM would replace the old meters and connections with new meters,

connections, and regulators with over-pressure protection and relief. Further, in many instances, the service line from the main to the meter will also be replaced, as the service lines are of older materials that carry a risk of failure under DIMP. In a manner consistent with our DIMP, NSPM will base the determination as to whether a service line will be replaced on its age, condition, and material type.

Q. HOW LONG WILL IT TAKE TO COMPLETE THE INSIDE METER MOVE OUT PROJECT?

A. NSPM plans to renew and replace approximately 800 meters in 2022. NSPM anticipates an additional 6,500 meters will be moved out in future years, and it is projected to take approximately five years to complete the program.

Q. WHAT ARE THE FORECASTED CAPITAL ADDITIONS FOR THIS PROJECT?

A. The forecasted capital additions for 2022 are approximately $2.8 million. The capital cost associated with replacing each meter and service is approximately $3,500 and is comprised of an estimated $2,975 for the service renewal and $525 estimated for the meter, regulator, and customer piping work. This includes the cost for materials and labor (e.g. meters, service lines, regulators, labor, and restoration). This cost per meter replacement, multiplied by approximately 800 meters, equates to our 2022 capital expenditure budget of $2.8 million (excluding Allowance for Funds Used During Construction (AFUDC)).

Q. WHAT DO YOU CONCLUDE REGARDING THE INSIDE METER MOVE OUT PROJECT?

A. The costs of this program should be approved, as the program reduces the risk of a catastrophic events from occurring in the event of a gas leak on an inside meter within a customer's premises. In addition, the development of a systematic, deliberate program to remove inside meters is a more cost-effective approach to enhance customer safety. The project will also enhance customer service and the reliability of NSPM's gas system and bring the meter locations into conformance with industry standards. It will provide NSPM with more efficient and direct access to the meters and connections in order to perform necessary inspections and surveys. Finally, the related investment is prudent, reasonable in cost, and the assets will be used and useful in providing safe and reliable customer service.

2. Reliability of the Gas System

Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN THE RELIABILITY CATEGORY?

A. Table 6 below identifies the 2022 reliability capital costs, split between routine and discrete projects, to be incurred by the Company and proposed for inclusion in base rates:

Table 6

Gas Operations Reliability Capital Additions

Routines vs. Discrete Projects ($ millions)

Project Name	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Routine	$3.2	$6.1	$4.1	$10.4	$12.4
Discrete	$2.1	$9.6	$9.6	$29.2	$19.5
Total	**$5.3**	**$15.7**	**$13.7**	**$39.6**	**$32.0**

Q. PLEASE DESCRIBE THE DISCRETE RELIABILITY PROJECTS THAT WILL BE ADDED IN 2022.

A. Table 7 below lists the key discrete reliability projects that will be in-serviced in 2022. In addition, Table 7 contains a brief description of each reliability project.

Table 7

Discrete Reliability Plant Additions ($ millions)

Project Name	Description	2022 Test Year
Module Replacement	Replacement of current automated meter reading (AMR) technology.	$7.2
Delano Reinforcement	Reinforcement to serve the Brainerd, Delano, Montrose, Waverly, Madison Lakes and Red Wing areas.	$6.5
Langdon Line Project	Reconstruct six miles of 6-inch, 8-inch, and 12-inch HP steel pipeline with standardized 12-inch pipe in Cottage Grove and St. Paul Park, MN.	$2.8
County Road B Project	Reconstruct four miles of 12-inch and 16-inch HP steel pipeline with standardized 16-inch pipe in Roseville, MN.	$1.2
MN/R&R/Distribution Isolation Valve	Add isolation valves to improve public safety during a gas emergency on the system.	$0.3
Reliability - Other	Various projects in support of system reliability.	$1.5
Total		**$19.5**

Q. HOW IS THE SYSTEM MODELING PERFORMED TO REFLECT BOTH THE COMPANY'S CAPACITY NEEDS AND SYSTEM AVAILABILITY?

A. Computer-aided system modeling allows for accurate simulation of the Company's system from the numerous supply interconnects, through the pipeline networks, to customer delivery points. The Company's Geospatial Information Systems (GIS) contains the most current records of pipe and facilities, with important system attributes that include pipe material, pipe diameter, date of installation, and operating pressure. Through the use of GIS, Supervisory Control and Data Acquisition (SCADA) data, and user input information, the Company is able to create system models with hydraulic modeling software called Synergi®. The modeling software then simulates transmission and local distribution systems to represent pressure and flow conditions based on design day temperatures and firm customer growth. The software therefore identifies, predicts, and helps address the system's operational challenges, enabling day-to-day efficiency of gas distribution and transmission networks.

Q. IS THE COMPANY'S SYSTEM PEAK DAY TEMPERATURE METHODOLOGY IN ALIGNMENT WITH OTHER GAS UTILITIES ACROSS THE U.S.?

A. Yes. The Company uses the industry standard probabilistic modeling approach to determine the coincidence of a 1-in-30-year cold weather event (i.e., peak-day) occurring in each operational areas on the Company's system. A "1-in-30" event is based on the likelihood of the extreme weather event that will occur within 30 years of weather occurrence. The peak-hour analysis, which is a subset of the peak day, is used for the NSPM system modeling. The

peak hour load forecast is the goal for system design planning that must be met by the capacity of the Company's piping network.

Q. WHAT ARE THE 1-IN-30 PEAK DAY TEMPERATURES FOR EACH REGION IN THE COMPANY'S SYSTEM?

A. Table 8 below provides the peak hour temperatures by operational area that occur once every 30 years on the Company's gas system. The Company designs its natural gas system to serve firm customers at these peak hour temperatures.

Table 8

Peak Hour Temperatures by Operational Area

Operational Area	Peak Hour
Brainerd	-48°F
Faribault	-37°F
St. Cloud	-41°F
St. Paul	-33°F

Q. HAVE RECENT COLD WEATHER EVENTS IMPACTED THE COMPANY'S SYSTEM MODELING AND PLANNED CAPACITY PROJECTS?

A. Yes. As described above, in the normal course of business, the Company reviews the operations of its gas system after each winter and based on system pressures and flow data combined with customer demand during cold weather, capacity projects are scoped to ensure reliable gas service to firm customers during design hour temperatures.

In January 2019, the region experienced severe cold weather over a sustained period that stressed the Company's ability to maintain reliable service for our firm natural gas customers. After reviewing the weather data from the 2019 cold weather event, NSPM incorporated new peak hour temperatures into its gas capacity modeling throughout its service territory. These updated temperatures are reflected in Table 8 above and are factored into our current peak day and design day analyses. These revised peak hour temperatures, along with load growth projections and prior winter system perform are included in the engineering modeling to determine capacity needs, which drive the need for the discrete reliability projects discussed below.

a. Discrete Reliability Projects

i. Module Replacement

Q. WHAT IS THE MODULE REPLACEMENT PROGRAM?

A. The Module Replacement program will address replacement of current automated meter reading (AMR) technology. This work is necessary because the agreement with the Company's meter reading provider will expire December 31, 2025, and the current technology will no longer be supported. The Company will replace the existing meter communications equipment with modules that enable drive-by meter reading. In some cases, the meter will need to be replaced rather than the module only. The new communications modules will be owned by the Company, and once installed, drive-by meter reading will be performed by the Company, phasing out meter reading done by the current AMR provider. The module replacement program will begin in 2022 and conclude in 2025.

Q. WHY DID THE COMPANY ELECT TO IMPLEMENT DRIVE-BY METER READING?

A. The Company determined that the inclusion of drive-by meter reading is a cost-effective option, and in this case, provides benefits relative to maintaining flexibility rather than reliance on third-party equipment and service. The Company will continue to assess ways to reduce emissions, and the fleet vehicles for drive-by meter reading will be considered in the Company's overall assessment of its fleet and potential conversion to electric vehicles.

ii. Delano Reinforcement

Q. WHAT IS THE DELANO REINFORCEMENT PROJECT?

A. The Delano Reinforcement project entails the Company reimbursing NNG to reinforce their system assets. NNG is the upstream interstate pipeline delivering gas supply to the area. While we refer to this as the "Delano Reinforcement," reinforcing NNG's assets will more broadly serve demand and future growth in the Brainerd, Delano/Montrose/Waverly, Madison Lakes, and Red Wing areas.

Q. WHY IS THIS PROJECT NEEDED?

A. The average annual firm customer count increased 21 percent between 2010 and 2020, including several large commercial and industrial loads for customers served off of NNG's Wilmar lateral. Additionally, the projected Design Day for the area has increased from 12,021 Dth/day in 2010-2011 to 15,470 Dth/day projected for 2021-2022, or a 28 percent increase. Due to this growth, the Company has forecasted a shortfall in NNG capacity to deliver firm gas to our customers on a design day. When the Company approached NNG to acquire incremental pipeline capacity on their system,

they indicated that they would need to construct facilities in order to increase firm pipeline capacity to the area. Exhibit___(JHZ-1), Schedule 4 contains a map and overview of this project.

Q. HOW DID THE COMPANY ARRIVE AT THE $6.5 MILLION ESTIMATE TO COMPLETE THIS PROJECT?

A. The project estimate of $6.5 million represents the costs the Company must pay NNG to reinforce their system to provide incremental firm contractual entitlements to the Delano area. NNG plans to have construction completed in late 2021, with the Company's payment for the project due to NNG in 2022.

iii. Langdon Line Project

Q. WHAT IS THE NSPM LANGDON LINE PROJECT?

A. The Langdon Pipeline parallels Highway 61 from 100th Street South in Cottage Grove, Minnesota to 1st Street in St. Paul Park, Minnesota. The pipeline needs replacement due to age and historical construction techniques that do not make it suitable for conducting in-line inspections, and the project includes replacement of two regulating stations. Refer to Exhibit___(JHZ-1), Schedule 5 for a map and overview of this project.

Q. HAS THE COMPANY IDENTIFIED THE LANGDON LINE PROJECT IN OTHER PROCEEDINGS BEFORE THE COMMISSION?

A. Yes. The project has been addressed in the Company's Annual GUIC Rider filings in 2019, 2020, and 2021.[1] The project is to be completed over three years, with Design and Engineering in 2020 and construction in 2021 and

[1] *See* Docket Nos. G002/M-19-664, G002/M-20-799, and pending 2021 GUIC docket.

2022. The total capital additions of $24.7 million include $2.8 million of non-GUIC recoverable costs in 2022 due to pipe size increases to be recovered in base rates, as infrastructure "betterment" is not allowed to be recovered through the GUIC.

Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN COMPLETING THE LANGDON LINE PROJECT.

A. The project includes approximately six miles of high-pressure pipeline consisting of 6-inch, 8-inch, and 12-inch steel installed in 1958 that will be replaced over two years with a standardized 12-inch steel pipe to make it suitable for in-line inspection. Increasing pipe size will also support continued development in Cottage Grove, Minnesota, and surrounding areas.

iv. County Road B Project

Q. WHAT IS THE COUNTY ROAD B PROJECT?

A. The County Road B project is along County Road B from the Rice Street regulator station to Hamline Ave in Roseville, Minnesota. This pipeline was originally installed in the 1950s and consists of multi-diameter piping and mechanical couplings. Replacement with a new single diameter pipeline will make the line capable of being inspected with in-line inspection tools. Refer to Exhibit___(JHZ-1), Schedule 6 for a map and overview of this project.

Q. HAS THE COMPANY IDENTIFIED THE COUNTY ROAD B PROJECT IN OTHER PROCEEDINGS BEFORE THE COMMISSION?

A. Yes. The project has been addressed in the Company's Annual GUIC Rider filings in 2019, 2020, and 2021.[2] The project is to be completed over three years with Design and Engineering in 2020 and construction in 2021 and 2022. The total capital additions of $32.7 million includes $1.2 million of non-GUIC recoverable costs in 2022 due to pipe size increases to be recovered in base rates, as betterment is not allowed to be recovered through the GUIC.

Q. PLEASE PROVIDE AN OVERVIEW OF THE WORK INVOLVED IN COMPLETING THE COUNTY ROAD B PROJECT.

A. The project includes approximately three miles of high-pressure pipeline consisting of 12-inch and 16-inch steel installed in the 1950s that will be replaced over two years with a standardized 16-inch steel pipe to make it suitable for in-line inspection. Increasing pipe size will also support continued development in Roseville, Minnesota, and surrounding areas.

v. MN/R&R /Distribution Isolation Valve

Q. WHAT IS THE MN/R&R/DISTRIBUTION ISOLATION VALVE PROJECT?

A. The MN/R&R/Distribution Isolation Valve project is discussed later in the Compliance Issues section later in my testimony.

vi. Reliability - Other

Q. DESCRIBE THE RELIABILITY – OTHER PROJECTS.

A. In addition to the discrete reliability projects mentioned previously the Company will also perform other projects to help ensure system infrastructure reliability to serve Minnesota customers. These projects include a

[2] *See* Docket Nos. G002/M-19-664, G002/M-20-799, and pending 2021 GUIC docket.

reinforcement project, as well as filter separator, regulator station, and odorizer installs.

b. Routine Reliability Projects

Q. PLEASE DESCRIBE THE INVESTMENTS IN ROUTINE RELIABILITY OF APPROXIMATELY $12.4 MILLION THAT THE COMPANY ANTICIPATES IN 2022.

A. There are several items that are included in the reliability routine for 2022. First, $7.9 million was budgeted in the reliability routine to fund emerging main and/or service replacements, leak repairs, removal of service due to structure removal, replacement/removal of services in support of main reinforcements or main relocations, and customer-requested relocation of service due to building modifications. Second, $1.0 million was budgeted in the reliability routine for infrastructure work related to increasing gas main capacity to mitigate low-pressure, customer-outage related risks based on design day modeling driven by increased load from either existing or new firm customers. Third, $3.5 million was budgeted in reliability routine for projects that the Company expects to implement through ongoing reliability exchanges and to reflect the likely emergence of related work. The Company budgets these routines to provide some flexibility with respect to necessary capital projects that may be identified in the coming year.

Q. WHAT FACTORS HAVE IMPACTED THE COMPANY'S FORECASTED RELIABILITY ROUTINE ADDITIONS FOR THE TEST YEAR?

A. Projects that are funded under routines are generally not defined until the current year; the budget is determined based largely on historical actuals. More specifically, routine budgets are based on historical spend and forward-looking

growth projections by category, while also taking cost escalations into account. As previously discussed, after the cold weather event in 2019, the Company updated 1-in-30-year design day temperatures across all gas engineering models. Additionally, the Company implemented an automated process where requests for new business are routed to the area engineer to ensure there is adequate pressure on the system before the customer is connected to natural gas. Lastly, the Company has installed over 20 new pressure monitoring devices in Minnesota, specifically monitoring system delivery pressures and the pressure at the tail-ends of our system to ensure customer reliability. All of these factors have impacted the Company's capacity analyses, which resulted in an increase in routine reinforcement projects on the system beginning in 2021 compared to the most recent three-average investment amount. These impacts continue and are reflected in the routine reliability budget for the 2022 test year.

Q. WHY IS THE BUDGET FOR RELIABILITY ROUTINES FOR THE TEST YEAR REASONABLE?

A. First, the work to maintain asset health and capacity is necessary to the reliability of NSPM gas system. Second, the budget levels for the test year are prudent. As referenced previously, reliability routines are impacted by new business demand due to service and infrastructure work that support new business activities, as well as by increased capacity needs.

3. New Customer Business

Q. HOW DOES NSPM RECEIVE REQUESTS FOR NEW BUSINESS?

A. The Company receives requests from individuals and developers for new gas service through the Company's Builders Call Line. The Builders Call Line is the customer's first point of contact when requesting new gas and electric service from the Company and is intended to be a single-call department to simplify the customer's experience. The Company supports new business customers through five key phases of installing and connecting new service through the Builders Call line: 1) Application, 2) Design, 3) Payment, 4) Scheduling and 5) Construction and meter set. The Builders Call Line delineates which tasks within the five phases are the customer's responsibility, the Company's responsibility, and joint responsibility between the customer and the Company.

Q. WHAT DOES NSPM DO UPON RECEIPT OF REQUESTS FOR SERVICE FROM NEW CUSTOMERS WITHIN THE COMPANY'S SERVICE TERRITORY?

A. The Company, as a general matter will extend natural gas service to new customers under the rules of its tariff, subject to the availability of gas.

Q. HOW DOES NSPM DESIGN, ENGINEER, AND OBTAIN A COST ESTIMATE FOR A NEW BUSINESS PROJECT ONCE IT OBTAINS A REQUEST FROM THE CUSTOMER?

A. The design phase begins when a customer submits building plans and a request for service to the Company's Builders Call Line. During that initial call, information such as address, customer contact information, building type, and any available load data is collected by the Company and compiled into a standardized form. That data is then assigned to a designer, who will contact

the customer and arrange a meeting to cover any specifics related to the project.

After that initial meeting, the designer uses a program called Bentley Expert Designer (Bentley) to start outlining the project scale, route, and required materials to meet the customer's needs. Bentley allows the designer to determine the pipeline route, select the required materials, and factor in installation and restoration costs. If the request for new gas service is large in nature, and served from our HP system, the request for new business is transferred from the designer to a gas engineer. That list of materials and labor is then populated into the Company's Work and Asset Management (SAP) system and sent to local design and engineering management for review and approval before a quote is issued. From that point, the system-generated cost estimates are valid for 90 days before a refresh is required. If the customer accepts the quote by signing the service agreement, payment is collected, and the project is moved to construction.

Since Bentley is built into the Company's GIS, all location and material information is captured and added to the Company's mapping system and serves as the Company's asset system of record. The design process is the same for both gas and electric, and a customer can start the process for both gas and electric services concurrently, with one application.

Q. HOW DOES THE COMPANY DETERMINE IF THE PARTY REQUESTING NEW SERVICE NEEDS TO BE CHARGED CONTRIBUTION IN AID OF CONSTRUCTION (CIAC)?

A. New business customers are subject to the Gas Extension Policy process as outlined in the Company's Service's Gas Tariff. That policy determines customer versus Company contributions to new gas line extensions.

Q. HOW ARE NEW BUSINESS PROJECTS ACCOUNTED FOR?

A. All costs associated with new business are capital, including labor and materials net of customer contributions. As with other parts of the Gas Operations projects, there are two types of capital project funding types: (1) discrete projects, and (2) routines. Discrete projects typically are more complex projects in excess of $300,000 that may include transmission mains, larger diameter distribution mains, regulator stations, and land or easement purchases. New business discrete projects are tracked individually under separate work orders and have a high likelihood of having expenditures in more than one budget year.

New business projects that are funded under routines are generally simpler in nature, like a new service or new meter, and not defined until the current year, because the Company will receive many requests for new service in any given year but cannot necessarily predict exactly when those calls will be received.

Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN THE NEW BUSINESS CATEGORY FOR 2022?

A. For 2022, all new business plant additions are routines, totaling $23.4 million (as compared to $24.4 million in 2019, $24.5 million in 2020, and $20.4 million in 2021).

Q. HOW ARE CONSTRUCTION COSTS TYPICALLY DETERMINED FOR NEW BUSINESS WORK AT NSPM?

A. New business projects are primarily installed by qualified contractors where the Company has a negotiated Master Service Agreement (MSA) with each contractor. These MSAs have per-unit pricing. For example, within the negotiated MSA, the cost per service and the cost to install gas mains is set based on pipe diameter and the required installation technique (e.g., trench, bore, etc.).

Q. WHAT METHODOLOGY DID NSPM USE TO FORECAST NEW BUSINESS ROUTINE ADDITIONS FOR THE TEST YEAR?

A. The 2022 test year new business routines forecast is based on the average of historical actuals from 2019 and 2020 escalated by the corporate inflation rate (approximately three percent). Further, inputs and assumptions regarding inflation factors are used to determine the assumed cost increases or decreases. These inflation factors include but are not limited to labor, non-labor, contractor, materials, equipment and fleet inflation rates, and bargaining labor increases.

Q. WHY IS THE NEW BUSINESS ROUTINE BUDGET FOR THE TEST YEAR REASONABLE?

A. As with the Company's other routine budgets, the work covered by these budgets is necessary to serve customers, and the budgeted amounts for the test year are reasonable. For the test year, the Company has budgeted $23.4 million in plant additions or $1.9 million per month. From January 1, 2019 through December 31, 2020, the Company's actual plant additions for the new

business routines was $47.0 million or $1.9 million per month. Therefore, the forecasted additions for new business routines are level with the average actual amount per customer in-serviced from January 1, 2019, through December 31, 2020. In summary, the Company has conservatively forecasted capital additions for the new business routines in the test year.

4. Mandated Relocations

Q. WHAT ARE MANDATORY RELOCATION PROJECTS?

A. Mandated relocations are capital projects that require NSPM to move existing infrastructure in order to meet federal, state, or local requirements. This includes relocating facilities that are in direct conflict with street expansions within public rights-of-way and safety-related work required by a governing authority.

Q. WHAT WERE THE RESULTING PLANT ADDITIONS TO SUPPORT THE MANDATORY RELOCATIONS?

A. Table 9 below identifies the mandatory relocations plant additions between discrete and routine projects.

Table 9

Mandatory Relocation Plant Additions

Routines vs. Discrete Projects ($ millions)

Project Name	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Routine	$8.2	$7.0	$8.0	$6.9	$9.0
Discrete	$0.8	$11.9	$11.4	$8.9	$1.3
Total	**$9.1**	**$18.9**	**$19.4**	**$15.8**	**$10.3**

a. Discrete Mandated Relocations

Q. WHAT ARE THE FORECASTED PLANT ADDITIONS FOR MANDATORY RELOCATION PROJECTS FOR THE 2022 TEST YEAR?

A. The Company forecasts $1.3 million of discrete mandatory relocation plant additions from January 1, 2022, through December 31, 2022. The total is the result of two, individual projects, as shown in Table 10 below. Table 10 also provides a description of each project.

Table 10

Gas Operations Discrete Mandatory Relocation

Plant Additions ($ millions)

Project Name	Description	2022 Test Year
County Rd 115 Main Relocation	Relocation of 26,000 feet of 4-inch PE main as requested by Crow County.	$0.8
Forest Lake N Shore Cir	Relocation of 4,700 feet of 4-inch and 24,000 feet of 2-inch gas main in support of Forest Lake reconstruction project.	$0.4
Total		**$1.3**

Q. PLEASE DESCRIBE THE COUNTY ROAD 115 RELOCATION PROJECT.

A. This project involves relocating 26,000 feet of 4-inch Polyethylene (PE) along County Road 115 near Nisswa, Minnesota. This relocation is required by Crow Wing County due to road reconstruction. The total cost of this project is $0.8 million.

Q. PLEASE DESCRIBE THE FOREST LAKE RELOCATION PROJECT.

A. This project is a relocation of 4,700 feet of 4-inch and 24,000 feet of 2-inch

gas main which conflicts with a City of Forest Lake reconstruction project. The total cost of this project is $0.4 million.

Q. DOES THE COMPANY REQUEST PAYMENT OR REIMBURSEMENT FOR MANDATORY RELOCATIONS FROM PARTIES WHO MAKE THE REQUEST?

A. Yes, whenever we can. The Company seeks reimbursement from entities for relocations where the Company holds the appropriate land rights (fee or easement) for assets. An example of this is the Quarry Road Extension project in Eagan, Minnesota where the Company relocated 150 feet of 12-inch transmission pipeline in conflict with the City's planned road extension. The Company held land rights to the location in conflict, so the City reimbursed the Company the entire cost of the $112,000 project.

In other instances, the Company's infrastructure exists in a particular location as the result of an easement. In those cases, the entity that owns the land may have authority to direct the Company to move its infrastructure without having to reimburse NSPM for the relocation.

b. Routine Relocations

Q. WHAT ARE ROUTINE RELOCATIONS?

A. As explained earlier in my testimony, routine relocation projects are mandated to meet federal, state, or local requirements and are typically less than $300,000. This includes relocating pipelines that are in direct conflict with street expansions within public rights-of-way and safety-related work required by a governing authority.

Q. HOW DOES THE COMPANY BUDGET FOR ROUTINE RELOCATIONS?

A. Because the Company generally does not receive information about small relocations ahead of any given calendar year, the 2022 test year budget for main relocation routines is based on the average of 2019 and 2020 actuals escalated by the corporate inflation rate (approximately three percent). Further, inputs and assumptions regarding inflation factors are used to determine the assumed cost increases or decreases. These inflation factors include but are not limited to labor, non-labor, contractor, materials, equipment and fleet inflation rates, and bargaining labor increases. The Company can only budget for known discrete relocation projects if they are identified ahead of budget creation; emerging discrete relocation projects that come up after budget creation utilize funding from the relocation routines.

Q. WHAT TYPES OF PROJECTS ARE COVERED BY RELOCATION ROUTINES IN THE TEST YEAR?

A. Relocation routines are comprised of smaller (typically less than $300,000) projects involving the renewal of mains due to relocations. The test year budget of $9.0 million is based on historical data and anticipated costs as described above, as we most often do not receive information about small relocations ahead of any given calendar year.

Q. WHY IS THE BUDGET FOR THE TEST YEAR REASONABLE?

A. As I previously discussed, and because the Company does not control when a mandated relocation will be required, the Company's budgets for routine mandatory relocations are based largely on historical data for projects that require NSPM to move existing infrastructure in order to meet federal, state,

or local requirements. From January 1, 2019 through December 31, 2020, the Company's plant additions for mandatory relocations were $15.0 million or $0.6 million per month. The budget for 2022 routine mandated relocations is $9.0 million or $0.8 million per month. The Company has forecasted plant additions for the mandated routines in the test year based on historical spend as well as corporate escalators.

5. Plants

Q. PLEASE DESCRIBE THE COMPANY'S GAS PEAKING PLANTS.

A. The Company owns and operates three above-ground peaking facilities, including the Wescott LNG plant and the Sibley and Maplewood Propane Air plants. These plants essentially store liquefied natural gas or propane that can be vaporized and injected into the system to help meet firm customer requirements on the coldest winter days. These plants support service to our customers by reducing the need for additional pipeline capacity. These peaking plants are largely capacity resources and are designed to be utilized on a limited basis to meet demand for our firm customers when needed.

Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN THE PLANTS CATEGORY?

A. Capital projects included in this category include projects to maintain the Company's Wescott, Sibley, and Maplewood peak-shaving plants to ensure reliability and compliance with state and federal codes. The capital costs in the Plants category are divided between routine work and discrete projects. Routine projects, typically totaling less than $300,000 each, are budgeted to perform routine capital maintenance. Discrete projects include larger investments related to equipment refurbishment or replacement costs.

Q. What are the Plants capital additions for 2018 through the 2022 test year?

A. Table 11 below shows the total Plants investments, divided between routine and discrete projects.

Table 11

Gas Operations Plants Capital Additions

Routines vs. Discrete Projects ($ millions)

Project Name	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Routine	$0.4	$0.5	$0.3	$3.0	$1.2
Discrete	$0.0	$0.2	$3.6	$33.9	$20.2
Total	**$0.4**	**$0.7**	**$3.9**	**$36.9**	**$21.4**

Q. HOW IS THE COMPANY SUPPORTING COSTS IN THE PLANTS CATEGORY IN THIS CASE?

A. In this case, I provide support for the peaking plant investments that have been planned during the course of the Gas Operations annual budgeting process. These include both routine maintenance and refurbishment as well as discrete projects necessary to maintain operational reliability and compliance with state and federal codes. In addition, the Company is undertaking discrete projects at the plants in 2021 and 2022 to refurbish and replace certain equipment. The need for these projects was initially identified during annual plant testing in late 2020 in preparation for winter operations. Ms. Palkovich provides support for those 2021 and 2022 discrete projects. Table 12 below, shows the breakdown of projects between my testimony and Ms. Palkovich's testimony.

Table 12

Gas Operations Plants Capital Additions

By Witness ($ millions)

Witness	Project Type	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Zich	Routine	$0.4	$0.5	$0.3	$3.0	$1.2
	Discrete	$0.0	$0.2	$3.6	$2.8	$2.4
Palkovich	Discrete	–	–	–	$31.1	$17.8
Total		**$0.4**	**$0.7**	**$3.9**	**$36.9**	**$21.4**

Below, I provide background information on the peaking plants, discuss routine testing procedures, and describe the historical operations as well as operations of the peaking plants in recent years. I also discuss the testing in 2020 that identified the need for the larger plant investments in 2021 and 2022.

a. Peaking Plant Descriptions

Q. PLEASE DESCRIBE THE WESCOTT PLANT.

A. The Wescott LNG plant, built in the 1970s, is located in Inver Grove Heights, Minnesota, and consists of two storage vessels capable of storing approximately 26 million gallons of LNG. During non-winter months, the Company purchases natural gas which is delivered to the plant. The Company cools down the natural gas to approximately -260 F until it turns into a liquid form where it is stored in the tank. This process is known as liquefaction. The gas is then stored in a liquefied state until it is needed during the heating season, when it is vaporized and injected back into the distribution system.

During winter months, Wescott is utilized as a peak-shaving resource to supplement pipeline capacity during peak demand conditions. When the plant is dispatched, the reverse process, known as vaporization, occurs, where the LNG is heated until it turns back to its original gaseous form and is injected into the Company's distribution system, where it is delivered to our customers.

Q. PLEASE DESCRIBE THE SIBLEY AND MAPLEWOOD PROPANE PLANTS.

A. The Sibley Propane Air peaking plant is located in Mendota Heights, and the Maplewood Propane Air peaking plant is located in Maplewood. Both plants were built in the 1950s. Propane is delivered in its liquid state via truck to Sibley and Maplewood, and is stored at the plants until needed. These two facilities combined store 2.6 million gallons of propane. When dispatched during winter months, the Company blends the propane with air and injects the gas into the distribution system where it is blended with natural gas and ultimately delivered to our customers. Like Wescott, the Sibley and Maplewood peaking plants are primarily used to support gas supply requirements during peak demand conditions.

Q. WHY ARE THESE PEAKING PLANTS IMPORTANT TO THE SYSTEM?

A. These three peak-shaving plants ensure we can meet our firm customers' needs as we approach Design Day conditions. Although these conditions do not regularly occur, the peaking plants are still important to design day plans. Wescott can deliver 156,000 dekatherms per day (Dth/d) and Sibley and Maplewood, combined, are capable of delivering an additional 90,000 Dth/d. The ability of these plants to provide gas to customers during peak demand

conditions, enables the Company to avoid incremental pipeline capacity purchases to meet the same need.

Q. AT A HIGH LEVEL, WHAT RULES, REGULATIONS, AND OUTSIDE AGENCIES PROVIDE OVERSIGHT OF THESE FACILITIES?

A. The Minnesota Office of Pipeline Safety (MNOPS) provides oversight of U.S. Department of Transportation (DOT) pipeline safety regulations such as 49 CFR 191, 192, and 193, and NFPA 59 and 59A. MNOPS annually inspects LNG facilities and triennially inspects propane peak shaving plants. This includes reviewing procedures, records, and making field observations. The Minnesota Department of Labor and Industry (DLI) provides oversight of safety regulations such as Occupational Safety Health Administration (OSHA) standards as well as licenses the plant boilers and operators. Their Division of Boiler Inspection inspects all boilers meeting certain criteria at least once each year. The Minnesota Pollution Control Agency (MPCA) provides oversight of environmental regulations, including those issued by the U.S. Environmental Protection Agency (EPA). This includes environmental permits for the gas compressors and turbines.

Q. HAS THE COMPANY MADE INVESTMENTS IN THE PLANTS SINCE ITS LAST MINNESOTA GAS RATE CASE?

A. Yes. Capital projects that support our peaking plants include investments to ensure reliability and compliance with state and federal codes. Investments may be related to routine plant maintenance or discrete projects necessary to maintain operational reliability and compliance with state and federal codes.

We have regularly undertaken routine maintenance and investments for the peaking plants.

We have also undertaken discrete projects as needed. For example, in 2013 we replaced the liquefaction compressor at the Wescott peaking plant because the engine had reached the end of its useful life. The compressor is the main component of the liquefaction process. This project increased the reliability of the plant. In 2016, a new air compressor system was installed at the Sibley peaking plant. The project replaced compressors and corresponding equipment that impact the process of mixing the propane with air before it is injected into the system, and also improved the reliability of the plant.

b. Peaking Plant Operations in Recent Years

Q. HAVE THE PEAKING PLANTS BEEN ABLE TO INJECT GAS INTO THE SYSTEM WHEN THEY HAVE BEEN CALLED UPON?

A. As I will describe in more detail below, the peaking plants were unavailable during the 2020-2021 heating season. I will address this more fully below.

Q. WHEN WERE THE PEAKING PLANTS LAST CALLED UPON TO INJECT NATURAL GAS INTO THE SYSTEM?

A. The last time the plants were called upon to inject gas into the system was during the 2018-2019 heating season. Wescott was last dispatched in March 2019, and the propane plants were last dispatched in February 2019. All three plants vaporized and injected gas into the system when called upon in 2019.

Q. WHY WEREN'T THE PEAKING PLANTS CALLED UPON TO INJECT GAS INTO THE SYSTEM DURING THE 2019-2020 HEATING SEASON?

A. The 2019-2020 heating season was warmer than the heating season that preceded it (2018-2019) and the one that followed (2020-2021). Stated simply, the peaking plants weren't needed, which is consistent with their role in the gas system, as a resource primarily to be called upon as the weather nears Design Day conditions.

Although the peaking plants were not dispatched during the 2019-2020 heating season, all three were tested and prepared for vaporization in late fall of 2019, consistent with the Company's annual testing processes for the peaking plants.

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S ANNUAL TESTING PROCESSES FOR THE PEAKING PLANTS.

A. NSPM performs routine maintenance throughout the year and conducts operational testing of the plants and equipment at key points during the year:

- Throughout the year, planned maintenance and testing is performed on valves, relief devices, meters, and other equipment to help ensure reliability of its gas plant assets in accordance with applicable codes and equipment manufacturers' recommendations. In addition, MNOPS inspects equipment, procedures, personnel, and records to ensure compliance with applicable codes.
- Prior to the heating season, vaporization testing is performed at all three plants to ready the plants to vaporize liquid gas or propane for injection into the distribution system.

- During the heating season, the plants undergo testing, as needed, in advance of forecasted cold weather to prepare the plants in the event they will be dispatched.
- After the heating season, liquefaction testing is performed at the Wescott plant prior to start-up of the liquefaction process (convert natural gas to LNG) that occurs during the non-heating season.

Below, I describe these maintenance and testing processes and provide details relative to plant performance over the last several years.

Q. WHAT REQUIREMENTS GOVERN THE PLANNED MAINTENANCE PROCESSES AT THE PEAKING PLANTS?

A. The planned maintenance process is governed by manufacturers' equipment manuals, industry best practices, state and federal regulations, and plant maintenance procedures. Regulations require propane plant maintenance manuals to be reviewed annually not to exceed 15 months and LNG maintenance manuals to be reviewed every two years not to exceed 27 months.

Q. WHAT RULES AND REGULATIONS APPLY TO PLANT OPERATIONS, TESTING PROTOCOLS, AND REPORTING?

A. U.S. DOT pipeline safety regulations, such as 49 CFR 191, 192, & 193, and NFPA 59 and 59A, outline the federal requirements to design, operate and maintain a plant. These regulations require prescriptive and performance-based operations and maintenance for both LNG and propane plants. There are numerous requirements for operation, maintenance, testing and calibration.

Additionally, 49 CFR 191 outlines the requirements for reporting "incidents," "safety related conditions," and "annual reports." Finally, Minnesota Statutes 299J requires reporting for certain accidental releases of natural gas or LNG.

Q. PLEASE DESCRIBE THE ROUTINE TESTING PROCEDURES AT THE PEAKING PLANTS IN MORE DETAIL.

A. As previously noted, in addition to ongoing maintenance and testing, the Company conducts vaporization testing to confirm the plants will be able to vaporize propane or LNG if called upon to do so; cold weather testing to confirm the plants will be able to function if called upon during extreme cold weather; and liquefaction testing at Wescott to confirm the plant will be able to convert gas to a liquid state at the end of a heating season.

Specifically, vaporization testing usually occurs late in the fall or in December. Testing includes initially lining up the system, testing opening and closing of individual valves that will allow LNG or propane to flow from the storage tanks, to the vaporizer, and ultimately inject supply into the gas distribution system. The control room tests remote operation of all valves, including opening and closing, and opening and closing to certain percentages as may be required when the plants are operational. Finally, the entire system is tested to confirm that all pumps, vaporizers, and other equipment functions as designed and the plant is able to deliver supply to the gas distribution system. Cold weather testing occurs during the heating season, prior to a forecasted severe cold weather event. This includes a series of tests to ensure the plants are ready in case called upon to vaporize. Generally, two days before the forecasted cold weather, the plant operates for a one-hour test run. Then one

day prior, the plant operates again for a one-hour test run. This testing ensures that the plants are warm and that there has been recent flow through the equipment to ensure the plants are ready when called.

Finally, after the heating season, generally late in the spring, the Wescott plant is turned over to prepare for the liquefaction of natural gas that will occur during the non-heating season. Prior to beginning liquefaction, testing is completed on equipment and the function of the overall plant. This includes initially lining up the system, testing opening and closing of individual valves that will allow natural gas to flow from the distribution system to the cold box for liquefaction and ultimately to the LNG storage tanks. The control room tests remote operation of all valves as described for the vaporization testing above.

Q. DURING THE ROUTINE PLANNED MAINTENANCE ACTIVITIES THAT WERE PERFORMED AT THE PLANTS SINCE THEY WERE LAST CALLED UPON IN 2019, DID THE COMPANY NOTE ANY MATERIAL CONCERNS?

A. No. Any issues or equipment refurbishment/replacement were handled at the time, and nothing was identified that, over the longer term, might affect equipment functionality or plant operations.

Q. WERE ANY ISSUES IDENTIFIED AS A RESULT OF REGULATORY INSPECTIONS OR REPORTING SINCE THE 2018-2019 HEATING SEASON?

A. Yes. During its annual review in December of 2019, MNOPS did not find current documentation of review of plans and procedures, for an elevation survey at Wescott for 2018, or inspection tags on the Wescott fire water pump

to show it had been tested in 2018 (although it did have tags for 2017 and prior year and for 2019). Total fines for these issues were $4,000. During the Propane Air Plants inspection in November 2019, MNOPS noted it could not identify a record showing coordination of fire control measures with local fire and police (no fine). In addition, certain tanks appeared to be filled above the density levels allowed for by NFPA 59 (fine of $47,600). The Company rectified these issues, and the matters were closed to MNOPS satisfaction.

Q. IS IT COMMON FOR THE COMPANY TO GET FINES LIKE THIS FROM MNOPS FOR ITS PEAKING PLANTS?

A. No. Wescott was inspected in 2013, 2015 (in two different instances), 2016, 2017 and 2018. While we received a warning letter in 2013, none of these previous inspections resulted in a fine like the 2019 inspection. Similarly, Sibley and Maplewood were inspected in 2010, 2012, 2015 and 2016. While the Company received warning letters in 2010 and 2016, none of these previous inspections resulted in a penalty.

Q. HOW FREQUENTLY DOES MNOPS CONDUCT ENFORCEMENT ACTIONS AND ISSUE PENALTIES?

A. Very frequently. Since 1994, MNOPS has conducted over 13,000 enforcement actions and issued more than 2,300 penalties to approximately 800 entities. The size of MNOPS penalties has significantly increased in recent years. Of the 23 penalties greater than $10,000 that MNOPS has imposed to various entities since 1994, 21 were issued in the last ten

years. Similarly, of the 343 penalties greater than $1,000 imposed since 1994, 231 were issued in the last ten years.[3]

c. Peaking Plant Refurbishment Projects

Q. WHEN DID THE COMPANY BEGIN TO OBSERVE THE NEED FOR ADDITIONAL INVESTMENT IN THE PEAKING PLANTS, OUTSIDE OF ROUTINE MAINTENANCE AND TYPICAL DISCRETE PROJECTS?

A. In late 2020, the Company began testing components of the vaporization equipment at Wescott in preparation for winter operations.[4] The Wescott peaking plant completed liquefaction and was "turned over" to the vaporization process in late December 2020. During planned tests of the vaporization process on both December 31, 2020 and again on January 4, 2021, some vaporization equipment exceeded design pressure, causing safety relief valves to lift and resulting in an unplanned release of natural gas to the atmosphere.

Q. WHAT INITIAL STEPS DID THE COMPANY TAKE AFTER OBSERVING THE WESCOTT TESTING RESULTS?

A. To ensure the safety of our employees and the community, we ceased operations at Wescott until we could determine the cause of the releases and identify remedies. We also reported the releases to the National Response Center (NRC) and MNOPS. Given the discovery of safety issues at Wescott,

[3] https://dps.mn.gov/divisions/ops/reports-and-statistics/Pages/pipeline-safety-enforcementinspection.aspx.

[4] The Company did not have a need to vaporize LNG at Wescott in November and December 2020 because the weather was generally warm and the supply requirements of our customers were provided through upstream interstate pipelines.

we also ceased operations at Sibley and Maplewood so that we could review the vaporization processes at those plants as well.

Q. WHAT STEPS DID THE COMPANY TAKE NEXT?

A. Beginning on January 6, 2021, the Company investigated the December 31 and January 4 events with internal operations personnel, and also engaged third-party engineering consultants to conduct a thorough and independent review of the plants, ensuring the identification and resolution of any then-existing issues. Internally, we consulted with not only our gas plants personnel, but also drew upon expertise across the Company to maximize use of internal resources.

Q. WHAT WERE THE INITIAL RESULTS OF THOSE INVESTIGATIONS?

A. Our initial investigation indicated the need for plant investments necessary to resume vaporization during the 2021-2022 heating season, with Xcel Energy personnel contracting directly for procurement of materials and construction at each plant. These projects included control system overhauls, valve replacements, relief system modifications, and life safety system upgrades at all the plants, as well as vaporization equipment and associated system refurbishments at the propane plants. However, we also determined that additional investigation in the form of deeper engineering design and risk analysis was warranted to ensure the ongoing safety and reliability of the peaking plants. We therefore commissioned full studies at Wescott, Sibley, and Maplewood intended to fully evaluate all potential issues and systems.

Q. WHO DID THE COMPANY ENGAGE TO HELP UNDERTAKE THE INVESTIGATIVE WORK?

A. The investigations were conducted by Company personnel in conjunction with outside experts Campos EPC and Quest Consultants.

Quest Consultants is an industry expert in process safety analysis and served as facilitator of the investigation efforts. We engaged Quest based on the complexity of the work needed to safely vaporize for the 2021-2022 heating season. Quest's role was to facilitate the investigation and to ensure the process was understood and adhered to, leading to a risk ranked and prioritized list of actions to ensure safety and reliability at the plants.

Campos has been an engineering design contractor providing services for the Company under a Master Service Agreement since 2015. The Company has previously engaged Campos in a variety of projects, including gas distribution and transmission engineering and construction. In this instance, considering the critical project timelines to bring the plants back online, we engaged Campos to also participate in the investigation. Ultimately, we engaged Campos to work with NSPM personnel to complete the plant renewal projects, as described in more detail by Ms. Palkovich.

Q. PLEASE DESCRIBE THE DETAILED INVESTIGATIONS.

A. The investigation consisted of a comprehensive Hazard and Operability and Layer of Protection Analysis (Hazop Study) for each process at the Wescott plant (vaporization and liquefaction), as well as a Hazop Study for each of the propane plants. The Hazop Study is a detailed review of the operational history

of the plant and the condition of the vaporization system. The purpose of a Hazop Study is to "review the design in order to find design, operability, and engineering issues that may otherwise not have been found"[5] and identify potential resolutions. In short, it is a comprehensive review of all the components of the plant to complete a thorough assessment of risks and mitigations. Copies of the Wescott Hazop Studies are provided with my Direct Testimony as Confidential Exhibit___(JHZ-1), Schedule 7 and Confidential Exhibit___(JHZ-1), Schedule 8. They involve qualitative assessments of risk, based on information from a variety of stakeholders involved in plant functioning, as well as review of documents such as piping and instrumentation drawings, plant layouts, and process documents.

Similarly, we also investigated the vaporization processes at both Sibley and Maplewood, likewise engaging Quest to assist with those reviews and developing additional Hazop Studies. The consultant performed an asset health and safety assessment to review the status of each system and identify asset integrity and operability of the fundamental systems at Sibley and Maplewood. Copies of these studies are provided with my Direct Testimony as Confidential Exhibit___(JHZ-1), Schedule 9 and Confidential Exhibit___(JHZ-1), Schedule 10.

Q. WHAT WERE THE OUTCOMES OF THE HAZOP STUDIES AT EACH PLANT?

A. Internal and external personnel ultimately determined the primary root cause of the releases at Wescott and the necessary remediation work. Other safety related findings were also noted, identifying opportunities to bring the plant up

[5] Maplewood Propane Plant – Xcel Energy Process Hazards and Operability Analysis, page 1.

to current operational safety status. We similarly determined that additional investments needed to be made at Sibley and Maplewood before we can safely operate them, as the vaporization systems at both plants are at the end of their life expectancy. All told, we anticipate capital expenditures of $74.5 million over approximately three years (2021-2023), with the first objective being a return to vaporization at all plants under safe operating conditions for the upcoming winter.

Q. WHAT DID THE HAZOP STUDY CONCLUDE WERE THE PRIMARY FACTORS CONTRIBUTING TO THE RELEASES AT WESCOTT?

A. The investigation reviewed the operational history of the Wescott plant, including the vaporization system conditions on the dates of the unplanned gas releases, and determined the primary root cause of the safety issues was attributed to a design modification made around 2000 where larger LNG pumps were installed with a capacity greater than the design basis of the downstream piping.[6] As a result of the review, in February, the Company determined that the plant could not be operated safely until investments were made to appropriately modify the vaporization process to permit safe operation.

Q. HOW IS THE WORK AT THE THREE PEAKING PLANTS BEING CARRIED OUT?

A. We engaged Campos as our primary contractor on the remediation work, based on their expertise in this space, knowledge and experience with the

[6] MNOPS initiated inspections at all three peaking plants in 2020. While MNOPS' 2020 inspections of Sibley and Maplewood were closed with no findings or fines, MNOPS' 2020 and 2021 inspections of Wescott resulted in findings. Accordingly, we are working with MNOPS on the work being undertaken at all three peaking plants, including testing and their return to service. Because these recent inspections are ongoing, the details are confidential at this time.

Company, ability to complete the work for the upcoming winter season, and knowledge of the plants and of the associated issues identified in the Hazop Studies. Ms. Palkovich discusses the scope of the Gas Plant Remediation Project in more detail, including projects the Company elected to defer to 2022 or 2023 in an effort to ensure appropriate scope and costs for our customers.

Q. DID THE COMPANY TAKE STEPS TO ENSURE THE GAS PLANT REMEDIATION PROJECT WORK WOULD BE UNDERTAKEN IN A COST-EFFECTIVE, AS WELL AS PRUDENT AND SAFE, MANNER?

A. Yes, we undertook several steps. First, we developed an internal NSPM Plants Operating Model to enhance plant operations, oversight, and planning for the future. Second, we carefully identified an appropriate work scope for the refurbishment projects, as discussed by Ms. Palkovich. Third, we also worked to negotiate protective and cost-effective terms with Campos that also seek to achieve our target plant operation dates (late November 2021 for Wescott and late December 2021 for Sibley and Maplewood). Finally, we instituted specific project controls, including regular cost forecast reviews, real-time scheduling management and coordination, ongoing risk monitoring, and continuous variance reporting with respect to scope, schedule, and cost performance.

Q. HOW DID YOUR NEGOTIATIONS WITH CAMPOS RESULT IN FAIR AND REASONABLE TERMS?

A. We worked with our Supply Chain department at the Company to negotiate appropriate rates, costs, and other terms overall. Further, our contract with Campos includes defined operational goals, and protects the Company and

consumer via both performance guarantees (based on performance testing for flow and pressure capabilities, plant cold start-up time, and availability through warranty period) and penalties (liquidated damages) if Campos does not achieve substantial completion dates and overall contract objectives.

Q. DID THE COMPANY ALSO INVESTIGATE OVERALL ALTERNATIVES TO REFURBISHING AND CONTINUING TO OPERATE THE GAS PEAKING PLANTS?

A. Yes. As previously noted, the purpose of these plants is to ensure adequate capacity when other supplies are not available. The only reasonable alternative to investing in the gas plants is to acquire an additional 246,000 Dth of firm upstream capacity on NNG pipeline. However, NNG would need to construct substantial facilities over a three-year period to make the capacity available. The Company estimates that it would have to pay an additional $60 to $70 million *per year* in pipeline demand charges for the new capacity. Given the extended delay in service and the large costs involved, NNG construction is not a reasonable alternative.

Q. WILL THESE INVESTMENTS IN THE PEAKING PLANTS AFFECT THEIR OPERATIONAL LIVES?

A. Yes. The investments at the plants will extend their operational life expectancy, enabling them to serve customers beyond their current lives. Company witness Ms. Laurie J. Wold discusses the proposed changes affecting depreciation expense for the plants and lengthening the service lives of all three gas peaking plants to December 2041 as a result of the planned capital investments.

Q. HOW DID THE COMPANY ENSURE SAFE AND RELIABLE SERVICE TO CUSTOMERS DURING THE WINTER OF 2020-2021 WHILE THE PLANTS WERE OFFLINE?

A. While these plants were unavailable during the winter of 2020-2021, this did not impact our ability to provide reliable service because the Company had adequate other resources to meet its pipeline capacity needs. These plants are used to ensure we can meet our firm customers' needs as we approach Design Day conditions, which does not occur regularly and did not occur during the winter of 2020-2021.

d. Other Peaking Plant Capital Projects

Q. WHAT CAPITAL COSTS DO YOU SUPPORT IN THIS SECTION OF YOUR TESTIMONY?

A. As discussed earlier, I support the routine and discrete Plants capital additions shown in Table 13 below, which do not include the plant refurbishment projects discussed by Ms. Palkovich. As such, the projects discussed in this section of my testimony consist of more standard discrete and routine projects related to the ongoing operations of the peaking plants.

Table 13

Route and Discrete Plants Capital Additions ($ millions)

Project Type	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Routine	$0.4	$0.5	$0.3	$3.0	$1.2
Discrete	$0.0	$0.2	$3.6	$2.8	$2.4

Q. PLEASE DESCRIBE THE DISCRETE CAPITAL INVESTMENTS IN 2020, NOTED IN TABLE 14.

A. In 2020, the Company replaced a series of heat exchangers at the Wescott plant, known as the Cold Box, central to the LNG process. These heat exchangers cool and liquefy the natural gas through heat transfer with a mixed refrigerant stream. It was determined that the internal passages of the heat exchangers were leaking, which caused natural gas to leak into the refrigerant and decrease the plants operability. The Company initially repaired these leaks; however, eventually the leakage impaired the Company's ability to liquefy and produce LNG. Therefore, it was determined that replacement of the Cold Box was necessary. The majority of the 2020 plant in service was associated with the replacement of the Cold Box. Additionally, there were other smaller discrete projects at Wescott that the Company in-serviced in 2020, including the replacement of valves and a compressor overhaul.

Q. PLEASE DESCRIBE THE DISCRETE PLANT PROJECTS THE COMPANY IS UNDERTAKING IN THE 2021 AND 2022 TEST YEAR.

A. Table 14 below lists the individual discrete Plants projects that will be in-service in 2021 and 2022, apart from the overall refurbishment discussed by Ms. Palkovich.

Table 14

Gas Operations 2021 and 2022 Plants Discrete Capital Additions ($ millions)

Project Name	2021 Forecast	2022 Test Year
MN/Sibley Valve Replacement	$1.7	$0.0
MN/Inver Grove Heights/Wescott Flow Meter	$0.5	$0.0
MN/Wescott/E108-E109 HE Replacement	$0.0	$2.3
MN/Wescott/Other	$0.4	$0.1
MN/Maplewood/Other	$0.1	$0.0
Total	**$2.8**	**$2.4**

Additional information regarding these discrete plant projects is provided below.

i. Sibley Valve Replacement

Q. PLEASE DESCRIBE THE SIBLEY VALVE REPLACEMENT PROJECT.

A. The Sibley Valve Replacement project entails replacing valves in the plant that are either leaking past the closure or leaking past the seal to atmosphere. These valves were identified by Operations during valve leak tests. A list of the valves with the most severe problems was developed for replacement in 2021. These valves are critical to isolate any given system inside the plant as necessary, and critical to operating all the systems in a safe manner.

ii. Wescott Flow Meter

Q. PLEASE DESCRIBE THE WESCOTT FLOW METER PROJECT.

A. The Wescott Flow Meter project will replace three sections of pipe and a 12-inch flow meter that is no longer working. The old meter did not allow for

metering discharge on the 12-inch line. This meter is used to track the amount of gas used and distributed at the Wescott LNG plant and is therefore critical to the reliable operation of the plant. The new meter installed is a multi-directional meter that allows for more versatility and greater efficiency by more accurately measuring gas usage in either direction.

iii. Wescott/E108-E109 HE Replacement

Q. PLEASE DESCRIBE THE WESCOTT/E108-E109 HE REPLACEMENT PROJECT.

A. The Wescott/E108-E109 Heat Exchanger (HE) Replacement project is needed to improve the efficiency of air transfer through the coolers during warm summer days. This project entails installing new air coolers, modifying piping and electrical connections. Relocating and increasing the size of the air coolers will allow the plant to operate consistently in warm summer weather. This project is part of ongoing efforts to increase the efficiency of the liquefaction system at the Wescott LNG plant.

Q. PLEASE PROVIDE AN OVERVIEW OF THE TYPES OF PROJECTS THAT CONSTITUTE ROUTINES AT THE PLANTS.

A. Plant routines are work typically totaling less than $300,000, budgeted to perform routine capital maintenance at the three peak shaving plants. Examples of routine capital plant maintenance include compressor overhauls, replacement of inoperable valves, and motor replacements. As with other Gas Operations routines, the budget for plant routines is based on a combination of historical spend and interviews with plant leadership to forecast for additional annual capital maintenance routine projects to ensure plant safety and reliability. Further, inputs and assumptions regarding inflation factors are

used to determine the assumed cost increases or decreases. These inflation factors include but are not limited to labor, non-labor, contractor, materials, equipment and fleet inflation rates, and bargaining labor increases.

Q. PLEASE DESCRIBE THE PLANTS ROUTINE PLANT PROJECTS FOR 2021 AND 2022.

A. Table 15 below provides a breakdown by plant of the routine plant projects for 2021 and 2022.

Table 15

Routine Projects by Plant ($ millions)

Project Name	2021 Forecast	2022 Test Year
MN/Wescott Gas Production-LNG	$1.2	$0.5
Sibley Gas Production/Manufacturing	$1.5	$0.6
Maplewood Gas Production/Manufacturing	$0.3	$0.0
Total	**$3.0**	**$1.2**

Q. WHAT TYPES OF ROUTINE PROJECTS ARE INCLUDED IN THE 2021 FORECAST AND 2022 TEST YEAR BUDGET?

A. At the Wescott LNG plant, the routine projects in 2021 and 2022 are used to focus on inoperable components of the plant. This work includes replacing level switches, which are instruments that monitor liquid level and control valves. The planned routine work will also include replacing various valves throughout the plant, including relief, check, and control valves. These valves are critical to the safe and reliable operation of the vaporization system.

In 2021 the planned routine work at the Sibley propane plant will focus on updating various components of the combustion air system, fuel gas system, and programmable logic controller (PLC) systems. This work will update the current 1963 vintage combustion equipment at the plant with modern equipment and controls.

Q. PLEASE SUMMARIZE THE COMPANY'S OVERALL CAPITAL BUDGET FOR THE 2022 TEST YEAR.

A. NSPM's capital budgets for the 2022 test year are intended to provide for a reasonable level of capital investment that supports our NSPM gas infrastructure and our ability to provide safe and reliable service to our customers.

IV. O&M BUDGET

A. O&M Overview and Trends

Q. WHAT IS INCLUDED IN THE COMPANY'S GAS OPERATIONS O&M BUDGET?

A. The Company incurs O&M expenses across various areas within Gas Operations, including the transmission and distribution business functions, that are related to numerous activities that support the gas system. Federal and State codes require significant inspection and maintenance programs for gas utilities, the majority of which result in O&M expenditures. We must perform emergency response and requests to locate our underground gas infrastructure to ensure public safety. Other types of O&M expense include internal labor, contract labor, materials, transportation, and other expenses.

Portions of O&M are approved for recovery in the GUIC Rider, and therefore are not part of our base rate request in this proceeding.

Q. WHAT ARE THE BASIC CATEGORIES OF GAS OPERATIONS' O&M BUDGET?

A. Gas Operations' O&M budget can be broken down into the following seven categories:

1. *Damage Prevention*: a program of O&M work that includes internal labor, contract labor, materials, etc. to perform locates of Company-owned underground gas infrastructure as required by state and federal agencies;
2. *Labor:* Internal labor (excluding damage prevention) to operate and maintain the Company's natural gas system;
3. *Outside Services:* Consulting and staff augmentation services to supplement internal labor to operate and maintain the company's natural gas system;
4. *Materials:* Costs related to consumables, hardware, and refurbished materials used in maintenance and repair operations, as well as tools and small equipment;
5. *Manufactured Gas Plant (MGP):* O&M costs associated with remediating former MGP sites;
6. *Transportation:* Costs of trucks, cars, and other fleet vehicles to transport our people and equipment as needed to provide gas service;
7. *Other:* Employee expenses, facility fees, and licenses.

Q. CAN YOU SUMMARIZE THE COMPANY'S BASE RATE O&M EXPENSE TRENDS IN RECENT YEARS?

A. Yes. Table 16 below summarizes the Company's base rate actual O&M expenses for 2018 through 2020, the 2021 forecast, and the budget for the 2022 test year. The O&M amounts by cost category are included in Exhibit___(JHZ-1), Schedule 11, and the O&M amounts by FERC account are included in Exhibit___(JHZ-1), Schedule 12.

Table 16

Gas Operations O&M Budget by Category - 2018 through 2022

Total Company - NSPM ($ millions)

O&M Categories	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Damage Prevention	5.1	5.4	8.7	9.0	9.9
Labor	23.8	24.7	23.6	23.6	27.1
Outside Services	4.8	4.5	5.6	5.5	6.3
Materials	4.7	4.8	4.9	4.4	4.6
MGP	3.9	0.2	(0.1)	0.4	1.0
Transportation	2.6	2.5	2.7	2.6	2.4
Other	(1.6)	(2.7)	(4.0)	(2.6)	(3.3)
Grand Total	**43.2**	**39.5**	**41.4**	**42.9**	**48.1**

Q. WHAT ANNUAL GUIC RIDER EXPENSES WERE INCURRED FROM 2018 AND FORECASTED THROUGH 2022?

A. Table 17 below summarizes the Company's expenses that have been recovered through the GUIC Rider from 2018 to 2020 and forecasted in 2021 and 2022. In addition, in Docket No. G002/M-10-422 the Commission approved the amortization of sewer mitigation costs that were incurred prior to the implementation of the GUIC Rider; the amortization of these costs

concluded in 2019. Those amortization costs are shown separately in Table 17 below and illustrate that the GUIC O&M levels declined beginning in 2020, offsetting the base rate increase we are requesting in this case.

Table 17

GUIC Rider O&M, 2018 through 2022 ($ millions)

MN O&M Categories	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
GUIC	$ 3.8	$ 3.1	$ 1.9	$ 2.3	$ 0.9
Sewer Amortization	$ 4.6	$ 4.6	$ -	$ -	$ -
Grand Total	**$ 8.4**	**$ 7.7**	**$ 1.9**	**$ 2.3**	**$ 0.9**

Q. PLEASE DESCRIBE THE OVERALL TRENDS FOR GAS OPERATIONS' O&M EXPENSES THROUGH 2020.

A. Over the three years from 2018 to 2020, Gas Operations O&M remained fairly flat, with increases in 2020 due to higher Damage Prevention costs, offset by lower employee expenses during the pandemic. During this same timeframe, our GUIC costs likewise decreased as certain projects were completed.

Q. WHAT IS THE COMPANY'S GAS OPERATIONS O&M BUDGET FOR THE 2022 TEST YEAR?

A. The Gas Operations base rate O&M budget for the 2022 test year is $48.1 million as described in Table 16 above. The basis for this budget is set forth in detail below.

Q. AT A HIGH LEVEL, WHAT ARE THE MAJOR COST DRIVERS OF THE 2022 GAS OPERATIONS O&M BUDGET?

A. Of the categories listed above, I would describe three primary drivers of our Gas Operations O&M budget: (1) Company Labor; (2) Outside Services; and (3) Damage Prevention. I describe each of the budget categories and the reasons for anticipated cost increases later in my testimony.

Q. CAN YOU PROVIDE MORE DETAIL EXPLAINING WHY THESE ARE THE DRIVERS OF THE 2022 O&M INCREASES COMPARED TO PRIOR YEARS?

A. Yes. As shown in Table 16 above, the 2022 Gas Operations non-GUIC O&M budget has increased as compared to the 2020 actual O&M costs. These increases are driven by the three factors I noted above:

First, the Company's labor costs are increasing for the test year due to the increase in the number of gas emergency calls, and our efforts to significantly enhance the speed of our responses to gas emergencies, as well as merit increases and the addition of headcount to enhance the efficiency, oversight, and safety of our work. Each of these efforts will improve overall customer service and system safety, as I describe in more detail later in my testimony.

Second, the Company's O&M costs for Damage Prevention (mandated locates for gas facilities through the Gopher State One Call program) are increasing significantly, due both to efforts to improve the accuracy and other metrics associated with our Damage Prevention Program, and to increasing costs associated with our expiring outside service contract for Damage Prevention work.

Lastly, the Company's costs are increasing due to outside services driven by NSPM Gas Transmission Mega Rule compliance work. As part of PHMSA's phased implementation of the Mega Rule, the "Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments" (Transmission Rule #1) was published on October 1, 2019. The focus of the rule is records retention, material verification, MAOP reconfirmation, and integrity assessments outside of High Consequence Areas (HCAs). The Company has forecasted increased costs in 2022 for material testing supporting material verification requirements as well as records research activities associated with MAOP reconfirmation work.

At the same time, we are experiencing increasing costs associated with Gas Operations programs that drive our base rate O&M, our GUIC Rider costs have declined significantly. Specifically, in 2019 we concluded our sewer conflict program, as well as the five-year amortization of costs associated with the sewer conflict program. Additional information regarding the sewer conflict amortization can be found in the Sewer Conflict Deferred Accounting Docket No. G002/M-10-422 filed January 30, 2015. Therefore, while the Company's base Gas Operations O&M is increasing in 2022, those increases are expected to be partially offset by reductions in GUIC costs.

B. Gas Operations' O&M Budget Development and Management

Q. HOW DOES THE COMPANY SET THE O&M BUDGET FOR GAS OPERATIONS?

A. The approach in setting the O&M budget for Gas Operations is similar to the Company's capital budgeting process. Both processes are based on a partnership between the corporate management of overall finances and

identified business needs. More specifically, our O&M budgeting process considers our most recent historical spend across the various areas of Gas and applies known changes to labor rates and non-inflationary factors that would be applicable to the upcoming budget years. We also "normalize" our historical spend for any activities embedded in our most recent history that we would not expect to be repeated in the upcoming budget years (e.g., one-time O&M projects). We then couple that normalized historical spend with a review of the anticipated work volumes for the various O&M programs and activities we perform, factoring in any known and measurable changes expected to take effect in the upcoming budget year.

I note that we also factor in any expected efficiency gains we believe would be captured by operational improvement efforts we are continuously working on within our processes and procedures, along with productivity improvements we would expect to achieve via the implementation or wider application of new technologies. These improvements are already factored into our O&M budgets.

Company witness Ms. Melissa L. Ostrom further details how the Company establishes business area O&M spending guidelines and budgets based on financing availability, the specific needs of business areas, and the overall needs of the Company. The goal is to establish a reasonable annual O&M level that allows Gas Operations to complete priorities that ensure a reasonable level of services to the Company and our customers.

Q. PLEASE EXPLAIN HOW GAS OPERATIONS MONITORS O&M EXPENDITURES AND THE STEPS TAKEN TO MINIMIZE THESE COSTS.

A. We monitor our O&M expenditures on a monthly basis. In partnership with our Finance Area, we report out on our monthly and year-to-date actual expenditures versus budgets/forecasts, including deviation explanations for various categories of expenditures. Monthly review meetings are then conducted at various levels to determine any pressure points and remediation plans needed to manage our overall O&M expenditures and ensure proper prioritization of those expenditures.

Further, NSPM takes numerous steps to help minimize the growth in annual O&M expenditures related to Gas Operations. The Company is continuously looking for ways to leverage productivity gains and new technology to improve efficiency. NSPM is in the process of reviewing many of the current work processes in Gas Operations in a concerted effort to streamline these processes while simultaneously enhancing the customer experience.

C. O&M Budget Detail

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

A. In this section of my Direct Testimony, I walk through each of the categories of O&M costs included in our 2022 test year, explaining the costs that are incurred and the drivers of cost changes from prior years in order to demonstrate that our 2022 Gas Operations O&M budget is reasonable.

1. Damage Prevention Program

Q. WHAT DO YOU DISCUSS IN THIS SECTION OF YOUR TESTIMONY RELATED TO DAMAGE PREVENTION?

A. In this section of my testimony, I discuss NSPM's damage prevention efforts, the costs associated with the location of underground facilities and performing other damage prevention activities, and the Company's proposal for recovery of damage prevention costs.

Q. WHAT IS THE DAMAGE PREVENTION PROGRAM?

A. The Damage Prevention program helps excavators and customers locate underground infrastructure to avoid accidental damage and safety incidents. NSPM relies on a combination of internal labor and contractors for the Company's Damage Prevention program.

The primary purpose of this program is to reduce damage to Company-owned buried facilities caused by excavation. Excavation-related damage has the potential to impact public safety and service reliability. This requirement is further supplemented by state law in Minnesota. This program has been designed to ensure compliance with these state and federal regulations, and NSPM relies heavily on contractors to perform this work.

Q. ARE UNDERGROUND DAMAGES A SIGNIFICANT RISK TO NSPM'S GAS DISTRIBUTION SYSTEM?

A. Yes. Whenever excavation and related construction occurs, damage to NSPM's underground facilities continues to be a significant risk to our gas distribution system. As a result, NSPM continues to institute a variety of

outreach efforts to excavators regarding the importance of using Gopher State One Call (811) for best excavation practices.

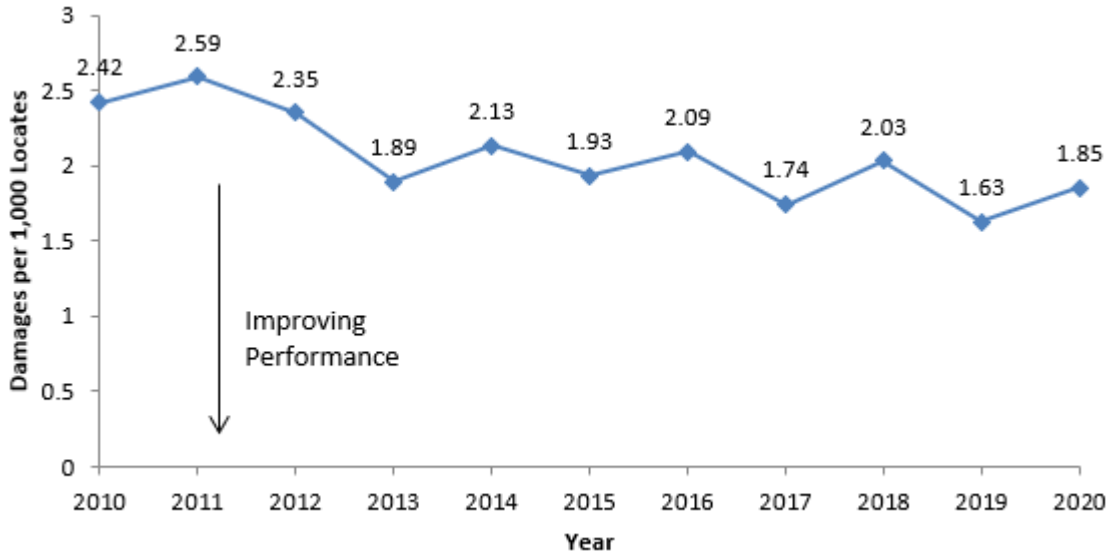
Specifically, it is critical that the Company's mains and services are located accurately before excavating to ensure safety for the workers, as well as the public, around the work site. To that end, NSPM continually re-evaluates its damage prevention programs to increase their effectiveness. The Company also provides leadership in several industry organizations where it obtains and shares information about best practices for reducing public damage. We also include best practices and performance requirements in our vendor contracts, in an effort to continually improve and enhance our performance.

Q. HOW IS NSPM PERFORMING WITH RESPECT TO DAMAGE PREVENTION?

A. As a result of continuing efforts described in more detail below, NSPM's damage prevention program has a second quartile position within the industry and continues to improve. Figure 3 below illustrates the number of gas damages per 1,000 locates from 2010 to 2020. As indicated by Figure 3, the Company has seen a reduction of more than 23 percent in damages per 1,000 locates on our system since 2010.

Figure 3

NSPM Gas Damages per 1,000 Locates



Q. HOW ARE LOCATES PERFORMED BY NSPM?

The Company is required by law to locate underground facilities when requested. To meet this requirement, the Company is in good standing with Gopher State One Call and utilizes both contracted outside vendors and internal labor to perform locate requests.

Gopher State One Call, formed in response to the legislature's adoption of Minnesota Statutes Chapter 216D, provides a centralized phone center for customers to call to request locates. The cost for this service is free to customers; however, the Company pays Gopher State One Call a cost per ticket.

To respond to tickets resulting from calls to the centralized phone center, the Company utilizes both internal employees and contracts with external contractors to perform locates and provide field support and audit services. This work is bid out as part of a competitive bid process, and the Company selects the best contractor in terms of quality and cost.

Q. HOW DOES THE COMPANY BUDGET FOR DAMAGE PREVENTION?

A. The budget for Damage Prevention is based on several factors, including our most recent historical annual locate request volume trends, regional economic growth factors, including new housing starts, and the contract pricing of our Damage Prevention service providers (vendor contracts) estimated to be in effect for the given budget year.

Q. WHAT IS THE CURRENT STATUS OF NSPM'S VENDOR CONTRACTS FOR DAMAGE PREVENTION WORK?

A. NSPM is currently under contract with four vendors from February 1, 2021 to January 31, 2024. In 2020, when the Company's then-current contracts were about to expire, NSPM issued a request for proposal (RFP) to obtain damage prevention services effective February 1, 2021. Vendors provided responses, resulting in three rounds of pricing improvements and increased competition. The Company implemented new contracts after the final RFP round, resulting in the contracts presently in effect.

Q. WHY DOES THE COMPANY UTILIZE CONTRACTORS TO PERFORM UNDERGROUND LOCATES?

A. The Company receives a significant amount of locate requests during the construction season when the ground is free of frost. The Company staffs internal employees to sustain year-round requests and utilizes contractors to supplement locate requests during peak construction periods. During 2020, the Company performed more than 245,000 gas locates, and approximately 180,000 or 73 percent of those locates were performed by contractors.

It is important to strike the right balance between using contractors and our internal bargaining unit employees; this calculus changes over time depending on levels of seasonal work, collective bargaining agreement provisions, risk assessments, contractor costs, workforce availability, and the like. Therefore, it is an ongoing effort to achieve a reasonable balance of internal employees versus contractors attending to damage prevention work.

Q. WHAT WERE THE ACTUAL COSTS ASSOCIATED WITH DAMAGE PREVENTION FROM 2018-2020?

A. Table 18 below shows the actual O&M costs associated with Damage Prevention in 2018, 2019, and 2020. Table 18 also contains forecasted Damage Prevention costs for 2021 and the 2022 test year.

Table 18

NSPM Gas Damage Prevention O&M Expenses ($ millions)

Damage Prevention O&M Cost Elements	2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Test Year
Outside Services	4.0	4.3	7.6	7.9	8.0
Labor	0.9	0.9	0.8	0.8	1.3
Materials	0.0	0.0	0.0	0.0	0.3
Other	0.1	0.2	0.2	0.2	0.4
Total	5.1	5.4	8.7	9.0	9.9

Q. PLEASE EXPLAIN THE INCREASE FROM 2020 ACTUALS TO THE 2022 BUDGET FOR DAMAGE PREVENTION.

A. The $9.9 million Damage Prevention 2022 TY budget includes a $1.2 million increase in Damage Prevention costs compared to 2020. This increase is attributable to both an increase in the volume of underground locate requests and a higher contract cost per locate due to the cost increase that went into effect on February 1, 2020. The vendor costs increased due to the tight labor market prior to the COVID-19 pandemic. Additionally, the insurance premiums to protect the vendor from damages caused by inaccurate locates performed by their employees increased. The Company's prior vendor contract, ending January 31, 2021, reflected these cost pressures.

Q. CAN YOU EXPLAIN WHY YOU ARE FORECASTING A FOUR PERCENT INCREASE IN THE VOLUME OF TICKETS FROM 2020 TO 2022?

A. In 2022, we are forecasting a four percent increase in the number of locates compared to 2020. The increase in the volume of underground locate requests

is partly due to more individuals spending time at home and performing more outside work around residences, as well as increased industry construction activities. As shown in Table 19 below, between 2019 and 2020, we saw a significant increase of more than 21,500 locates or ten percent. While we do not expect the same rate of increase in number of locates for 2021-2022 as compared to 2019-2020, we do expect a continuing upward trend in the number of locates overall.

Table 19

NSPM Volume of Gas Locates

2018 Actuals	2019 Actuals	2020 Actuals	2021 Forecast	2022 Budget
220,538	224,234	245,741	247,021	254,432

Q. HOW PREDICTABLE ARE DAMAGE PREVENTION COSTS?

A. The costs associated with Damage Prevention are volatile and outside the Company's control. The number of locate requests the Company receives are driven by the actions of customers and contractors, rather than NSPM, and the Company's response to requests for Damage Prevention locates is mandated by law as discussed above.

Additionally, the costs are volatile, for a few reasons. First, the periodic renegotiation of our vendor contracts at times results in step changes in cost. Second, the number and complexity of locates required in any given year is not within the Company's control, and can vary widely depending on the economy, the housing and commercial building or renovation markets, and

amount of work performed by municipalities. We do not have many opportunities to moderate these costs given our statutory obligations and the limited means of providing these services.

2. Labor

Q. WHAT ARE LABOR O&M COSTS?

A. Labor costs for O&M include a portion of salaries, straight time labor, overtime, and premium time for internal employees who provide natural gas services to our customers.

Q. WHAT AREAS OF THE COMPANY'S GAS BUSINESS INCUR LABOR COSTS?

A. Labor costs incurred by the Gas business are spread across several functional areas:

- **Gas Engineering**: provides engineering technical support to ensure safe and compliant operations and maintenance of distribution, transmission, and storage assets;
- **Gas Governance**: provides risk management advocacy, interaction with state and federal agencies, and compliance with codes and standards;
- **Gas Operations**: comprised of the gas emergency response organization, statewide operation and maintenance of the high-pressure gas systems, gas control, corrosion services, technical services, and the management of contractors working on certain gas assets;
- **Gas System Strategy and Business Operations**: responsible for strategic direction of the overall gas organization, planning, and budgeting of short-term and long-term projects;

- **Geospatial Asset Data**: accountable for advancing the integrity, quality, and function of business unit-related processes, asset data, and applications to meet/surpass industry standards; and
- **Gas Continuous Improvement**: streamlines functions from various areas of the Gas organization to ensure continued success and improvement in key business processes, systems, and support.

These functional areas are focused on the reliability, safety, customer service, operational efficiency, and fiscal oversight necessary to construct, operate, and maintain the gas transmission and gas distribution systems in Minnesota.

Q. WHAT TYPES OF JOBS DOES THE GAS OPERATIONS BUSINESS AREA PROVIDE?

A. Our budget covers quality jobs for a variety of employees across the functional areas described above. A large portion of our work force are bargaining unit employees whose compensation and benefits are collectively bargained with International Brotherhood of Electrical Workers (IBEW) locals. The largest portion of the overall business area jobs reside in the Gas Operations functional area.

Q. PLEASE DISCUSS THE TRENDS ASSOCIATED WITH LABOR O&M COSTS FOR GAS OPERATIONS.

A. Overall, our Labor O&M cost has been flat over the last several years, despite merit increases as well as increased demand in certain areas, as I have described throughout my testimony. To drive increased consistency in our operations and depth in the gas organization, headcount is being added in 2021 and 2022, which accounts for the increase in Labor O&M. The Company is working to

reduce field span of control to better position NSPM to operate even more safely and in compliance with federal and state codes. We are in the process of hiring additional employees for critical gas infrastructure initiatives in Gas Plants, IMMO, and the meter module replacement program. The IMMO and module replacement bargaining unit employees will be hired into a gas apprenticeship training program. The gas apprenticeship training program is a two-year program where employees are trained to perform these critical gas infrastructure initiatives safely.

Q. WHAT PORTION OF THE $3.5 MILLION INCREASE BETWEEN 2021 AND 2022 IS ATTRIBUTABLE TO THIS CHANGE?

A. We anticipate adding approximately 33 jobs net of Damage Prevention headcount additions (which are accounted for in that O&M category). This totals approximately $2.7 million annualized. The remaining increase relates to anticipated merit increases. These merit increases allow the Company to remain competitive in the labor market in order to attract and retain the skills and talent needed to run a successful gas organization, as explained by Company witness Ms. Ruth K. Lowenthal. Additionally, these new positions also create opportunities to transition employees between departments or plants, as skilled workers may be available from other areas of the Company. For example, two employees have recently moved from the Company's King electric generating facility to the Wescott gas plant.

Q. WHY IS THE O&M LEVEL FOR LABOR REASONABLE FOR THE 2022 TEST YEAR?

A. The Company works diligently each year to minimize increases in our O&M costs related to labor, but in certain years we may experience cost fluctuations

for labor due to a number of factors. These fluctuations are due to the need to add headcount to enhance oversight and serve our customers accordingly. Our Labor O&M cost levels demonstrate a balance between reasonable and prudent management while also responding to internal and external changes.

3. Outside Services

Q. WHAT ARE OUTSIDE SERVICES?

A. Outside Services are costs related to the use of contract labor and consultants.

Q. WHAT IS THE BENEFIT TO USING OUTSIDE SERVICES AS OPPOSED TO RELYING SOLELY ON INTERNAL LABOR?

A. Outside Services allows NSPM to increase and decrease staffing levels as workloads require rather than bringing on more full-time staff, and to retain the services of experts as needed for specific tasks or project efforts.

The Company has a negotiated Master Service Agreement with each contractor. These MSAs have per-unit pricing. For example, within the negotiated MSA, the cost per service and the cost to install gas mains is set based on pipe diameter and the required installation technique (e.g., trench, bore, etc.).

Q. WHAT COST CHANGES ARE YOU ANTICIPATING IN THIS AREA FOR THE TEST YEAR?

A. Over time, our need for outside services work has increased as the needs of our system have increased. While our 2021 forecast is relatively flat as compared to 2020, this is due primarily to COVID-19 and the reduced use of

outside contractors responding to routine gas emergency calls and maintenance work, and the Company does not anticipate this trend to continue. As previously discussed, the mandated Gas Transmission Mega Rule compliance work has created an increase to Outside Services in 2022. As such, our 2022 budget is a reasonable, if not conservative, estimate of likely Gas Operations Outside Services work in 2022.

4. Materials

Q. PLEASE DESCRIBE THE MATERIALS AND COMMODITIES CATEGORY OF O&M COSTS.

A. Gas Operations materials are costs related to consumables, hardware, and refurbished materials used in maintenance and repair operations, as well as tools and small equipment.

Q. WHAT O&M COSTS FOR MATERIALS WILL BE INCURRED IN 2022?

A. Table 20 below identifies the Materials O&M costs to be incurred in 2022. As Table 20 also illustrates, the Company's budget for 2022 is relatively flat to 2021 and slightly below 2020. As a result, our Materials budget is a reasonable and conservative estimate for the test year.

Table 20

NSPM Gas Materials O&M Expenses ($ millions)

	2018 Actuals	2019 Actuals	2020 Actuals	2018 – 2020 (3 Year Avg)	2021 Forecast	2022 Test Year
Materials	4.7	4.8	4.9	4.8	4.4	4.6

5. Manufactured Gas Plant (MGP)

Q. CAN YOU PLEASE EXPLAIN BRIEFLY WHAT A MANUFACTURED GAS PLANT SITE IS?

A. Manufactured Gas Plants (MGPs) used large brick ovens to heat coal and other ingredients. As the fuels were heated, they produced gases that were distributed and used by customers for heating, lighting and cooking, much like natural gas is used today. MGPs generally had both a manufacturing process plant and one or more gas holders. From the plant, the gas was piped to other holders for storage and distribution or directly to communities and customers for their use. Before it was distributed, the gas was purified, and byproducts were removed. The recovery and sale of MGP byproducts were important to plant economics, and byproducts were sometimes stored at the plant site. These plants typically began operations in the late 1800s or early 1900s. By the 1950s, the production of manufactured gas declined as natural gas became available. MGPs were closed and usually dismantled, sometimes leaving behind remnants, including piping and other infrastructure, as well as the byproducts on site. The MGP sites provided valuable benefits to prior customers of our gas services. MGP sites were sometimes owned, operated, or acquired by NSPM. The Company owned and operated MGPs in accordance with industry standards for the times.

Q. CAN YOU EXPLAIN WHY NSPM HAS COSTS RELATED TO THESE SITES?

A. Most MGPs were decommissioned by the 1950s. The environmental conditions related to these historic MGP sites are often discovered today during redevelopment activities. New environmental laws (that typically were first enacted in the 1970s and 1980s) were passed, and they created retroactive liability for investigating and remediating the MGP sites, if formerly owned,

operated, or acquired by NSPM. Current environmental laws and regulations today often require utilities to investigate and clean up contaminated MGP sites (and areas downgradient of the MGP sites that may now be impacted by pollution) on a strict liability basis (i.e., where there was no wrongdoing or negligence in how the MGP was originally operated). The costs of resolving these environmental claims are necessary costs of doing business today and are necessary to utilities providing current service to customers today. It is also in the public interest to investigate and remediate MGP sites to ensure protection of human health and the environment.

Q. IS INSURANCE AVAILABLE TO OFFSET COSTS TO INVESTIGATE AND REMEDIATE MGP SITES?

A. Sometimes partial recovery of costs from historic insurers is possible. Environmental insurance for these types of liabilities was generally only available from approximately the 1940s-1980s. Before the 1940s, there was no Comprehensive General Liability coverage for environmental property damage. Beginning in the 1980s, pollution exclusions were added to insurance policies to exclude coverage for these types of liabilities. Many insurers from that era have also now been dissolved. NSPM has litigated with its historic insurers over what coverage may still exist for these types of liabilities. As a result of that litigation and its settlement efforts, NSPM is sometimes able to obtain partial insurance recoveries for MGP sites. In those instances, any insurance recoveries are used to offset the costs of the investigation and cleanup.

Q. PLEASE DISCUSS THE MGP COSTS FOR WHICH NSPM IS RESPONSIBLE.

A. NSPM is responsible for investigation, remediation, monitoring, and restoration costs at the following four active MGP sites:

- **Fargo MGP Site:** Investigation of this site began in 2015 after MGP materials were encountered in City streets adjacent to the former MGP plant property in Fargo, North Dakota. Significant remedial work was completed at the site in 2018, followed by groundwater monitoring through 2020. Additional remedial work was performed in 2021 during street reconstruction activities adjacent to the site. Additional work is now underway to prepare a portion of the site for sale. Insurance recovery efforts were also completed in 2021. Insurance recoveries have offset the costs of the project, and any future sale proceeds will also be used to offset the costs of the project.

- **St. Cloud MGP:**. During decommissioning of a substation in 2015 in St. Cloud, Minnesota, stained soil and odors were observed. In early 2016, soil sampling was performed, which identified elevated concentrations of contaminants related to a historic MGP that was present at the site, prior to the construction and operation of the substation. The clean-up and remediation work at the St. Cloud MGP site began in 2018 and included the excavation of impacted soils, followed by groundwater monitoring. Discussions are underway in 2021 with the Minnesota Pollution Control Agency regarding whether additional monitoring will continue to be required or whether the investigation, remediation, and monitoring of the site should be

determined to be complete. Insurance recovery efforts are complete for this site. Insurance recoveries have offset the costs of the project.

- **Faribault MGP:** This site was previously remediated in the 1990s. However, in 2019 erosion was observed along the shoreline of the Straight River, where historic underground MGP infrastructure continues to be present. This observation triggered additional evaluation of the site and the need to perform shoreline restoration work at the site. That restoration work was completed in 2021. In addition, because clean-up practice and science have evolved in recent times, further assessment was needed of potential vapor conditions at and adjacent to the site. In the 1990s, vapor intrusion was not yet understood. From 2019-2021, vapor assessments were performed and reported at commercial and residential properties at and near the site. Discussions are ongoing with the Minnesota Pollution Control Agency regarding the results from that assessment and any appropriate next steps.

- **Oxford/St. Paul MGP:** The Minnesota Pollution Control Agency inspected the former Oxford manufactured gas holder site located in St. Paul in the 1990s. The State confirmed at the time that no further investigation or action was needed, but the science around these sites has recently evolved. Earlier this year, the Minnesota Pollution Control Agency changed its soil gas screening levels for benzene. Because of this change, and because of the presence of known benzene in the area, the Company is assessing the site for potential soil gas/vapors.

Mr. Halama discusses the treatment of the costs associated with these MGPs further in his Direct Testimony.

Q. PLEASE IDENTIFY THE MGP O&M COST LEVEL THAT IS INCLUDED IN THE 2022 TEST YEAR.

A. We have included approximately $1.0 million for MGP cost in our 2022 test year. However, because the requirements of these sites vary substantially, this amount is based on historical amounts rather than certainty around 2022 costs. In particular, the Company anticipates more work will be needed at not only the sites mentioned above but potentially other MGP sites as they are identified. And while remediation work is largely complete at the Fargo and St. Cloud sites, costs to complete closure activities at these sites will continue to be incurred. Additional details regarding these projects and costs were provided in Docket No. G002/M-17-894.

Q. HOW DOES THE 2022 MGP O&M COST LEVEL COMPARE WITH PREVIOUS YEARS?

A. As demonstrated in Table 16 above, MGP costs over the last few years vary over the years from a high of $3.9 million in 2018 to a credit of $0.1 million in 2020. Further, we anticipate more work will be needed at existing and new sites, including closure activities and emerging work as the science evolves or new facts at any given site. Thus, we anticipate increasing costs going forward.

Q. WHAT IS THE COMPANY'S REQUEST WITH RESPECT TO MGP O&M COSTS?

A. Because of this variation in spend over time and because of the importance of cleaning up these sites as they are discovered, the Company requests approval

to defer these costs in a tracker account for later recovery. This would be consistent with how the Commission has supported cost recovery through trackers for other gas utilities in Minnesota. Any amounts recovered from insurers for MGP liabilities would also be credited back to the tracker. If the tracker is approved, the Company proposes to provide an annual report to update the Commission on costs and any insurance recoveries, and would request recovery of the costs in a future rate case proceeding.

6. Transportation

Q. WHAT IS INCLUDED IN THE TRANSPORTATION COST CATEGORY?

A. Transportation costs are incurred in relation to internal fleet assets as directed to O&M accounts on an hourly basis, including cars, trucks, construction equipment and trailers that help us move our people and equipment where they need to be to provide gas service.

Q. PLEASE IDENTIFY THE TRANSPORTATION O&M COSTS THAT WILL BE INCURRED IN 2022.

A. The Transportation O&M costs to be incurred in 2022 total approximately $2.4 million, which is in line with annual year-over-year fleet costs to support our business. Company witness Mr. W. Kile Husen describes the Company's fleet procurement and management in more detail in his Direct Testimony.

7. Other O&M

Q. WHAT IS INCLUDED IN THE OTHER CATEGORY OF O&M COSTS?

A. Other O&M costs incurred by the Gas Operations area are related to employee expenses, facility costs, licensing fees, and first set meter credits.

Q. PLEASE DESCRIBE TRENDS ASSOCIATED WITH OTHER O&M.

A. Most of the expenses in Other O&M are typically smaller amounts, such as for employee travel, that are relatively stable year over year. We also include first set meter credits in Other O&M, which consists of O&M labor, transportation, and miscellaneous material credits associated with the installation of meters. Because the way meters are accounted for (fully installed costs are capitalized upon purchase instead of installation), the labor, transportation and miscellaneous materials used to install this equipment is expensed to O&M to avoid accounting for these expenses twice. An equal and opposite credit is then applied upon purchase to offset these actual installation costs that are expensed to O&M. As such, first set meter credits largely offset our other employee costs each year. This was particularly true in 2020, due to reduced travel during the pandemic. However, on a year-over-year basis, our employee expenses, facility costs, first set meter credits, and licensing fees are relatively stable.

Q. WHAT DO YOU CONCLUDE REGARDING O&M COSTS FOR THE TEST YEAR?

A. After holding our O&M costs fairly flat and avoiding rate increases for many years, we are experiencing increased costs associated primarily with the demands on our system and workforce and increasing costs associated with vendor contracts. We are managing those costs to maintain a reasonable balance between internal labor and contractor work, while necessarily addressing cost increases. Overall, our O&M projections represent reasonable forecasts, based on the need to provide reliable and safe service to customers.

V. COMPLIANCE ISSUES

Q. WHAT DO YOU DISCUSS IN THIS SECTION OF YOUR DIRECT TESTIMONY?

A. Here, I discuss the compliance issues that have arisen since the Company's last rate case specific to Gas Operations and the Company's fulfillment of its compliance obligations in conjunction with these requirements. In particular, I address a Commission Order Point requiring specific support for the separation of GUIC Rider and base rate recovery in this rate case. I also address a question about Damage Prevention cost allocation that was raised in the Company's last rate case. Finally, consistent with the Commission's March 12, 2021 Order in our COVID-19 Relief & Recovery docket,[7] I provide information on spending related to the Company's COVID-19 Relief & Recovery projects.

Q. WHAT RELEVANT COMMISSION ORDER POINT FOR THIS RATE CASE AROSE FROM THE COMMISSION'S JANUARY 27, 2015, ORDER APPROVING RIDER WITH MODIFICATIONS IN DOCKET NO. G002/M-14-336?

A. In Order Point 4 from the referenced Order, the Commission required that: "In the initial filing in its next natural-gas rate case, Xcel shall submit detailed schedules, any necessary supporting documentation, and an explanation of all O&M costs that were being recovered in the rider and are now included in the test year for recovery in base rates."

[7] *In the Matter of an Inquiry into Utility Investments that May Assist in Minnesota's Economic Recovery from the COVID-19 Pandemic*, Docket No. E,G999/CI-20-492, ORDER DETERMINING THAT PROPOSALS HAVE THE POTENTIAL TO BE CONSISTENT WITH COVID-19 ECONOMIC RECOVERY, (March 12, 2021).

Q. IS THE COMPANY SUBMITTING DETAILED SCHEDULES AND SUPPORTING DOCUMENTATION ADDRESSING THESE COSTS IN THIS RATE CASE?

A. Yes. Mr. Halama provides this detail in his Direct Testimony.

Q. WHAT QUESTIONS WERE RAISED WITH RESPECT TO DAMAGE PREVENTION COST ALLOCATION IN THE COMPANY'S LAST NATURAL GAS RATE CASE?

A. In Surrebuttal Testimony in Docket No. G002/GR-09-1153 (the Company's last Minnesota gas rate case), the Minnesota Office of Attorney General – Residential and Small Utilities Division (OAG), took issue with NSPM's tracking of total locating and marking tickets. Specifically, the OAG stated that NSPM did not track the number of tickets for its three customer types: (1) gas-only customers; (2) electric-only customers; and (3) combined gas/electric customers. The Company instead assigned 29 percent of the total costs to gas customers to develop the 2010 test year O&M budget, based on the ratio of historic gas locate expenses assigned to NSPM gas. The OAG proposed that the Company be required to track the actual number of tickets by customer type to ensure that Damage Prevention expenses were assigned to the responsible operating division in future rate cases.

In response, the Company stated that it could not agree to the OAG's recommendation at the time, as we did not then have the capability to track locates based on the type of service involved. The Company was investigating implementing changes that would provide that capability, but stated that even if that capability was implemented, historical information would not be available to establish projected budgets. Moreover, once the historical information was available, it would still be necessary to determine an

appropriate assignment of costs for combined customers. Therefore, the Company proposed that rather than providing direction on how to implement a change that was not then possible and which may not improve the budgeting process, it would be more appropriate to have the Company investigate the matter further and report on its actions and recommendations in the next natural gas rate case.

Q. HAS NSPM SINCE CHANGED THE WAY IT TRACKS LOCATE TICKETS AND ASSIGNS COSTS TO THE RESPONSIBLE OPERATING DIVISION?

A. Yes. The Company is now able to track locates based on the type of service involved and assigns costs accordingly. More specifically, when the Company receives a ticket from Gopher State One Call, the ticket identifies the service as either gas or electric. If the ticket addresses combined gas and electric customers and the work was completed by contracted labor, then the Company's contractor charges a per-unit charge for the particular type of service (i.e., gas or electric). If the work is completed internally, then individuals that provide both gas and electric services assign their time based on how much time the individual spent on gas service and how much time was spent on electric service. As a result, the Damage Prevention costs described above appropriately reflect our NSPM gas costs.

Q. DOES GAS OPERATIONS' BUDGET FOR 2021 AND 2022 INCLUDE ANY ACCELERATED WORK ASSOCIATED WITH THE COVID-19 RELIEF & RECOVERY DOCKET?[8]

[8] *In the Matter of an Inquiry into Utility Investments that May Assist in Minnesota's Economic Recovery from the COVID-19 Pandemic*, Docket No. E,G999/CI-20-492, REPORT--COVID-19 RELIEF & RECOVERY, (June 17, 2020).

A. Yes. Table 21 below outlines the reliability projects that will be accelerated and in-serviced in 2021 and 2022. This portfolio of accelerated gas infrastructure projects will provide system benefits by improving system reliability and public safety. These infrastructure projects include replacing copper risers and services and installing additional isolation valves. Consistent with the Commission's March 12, 2021 Order,[9] the Company has been tracking its spending related to these COVID-19 Relief & Recovery projects, and the Company has been providing this information to the Commission as part of its quarterly compliance filings in that docket.[10]

Table 21

Gas Operations Reliability COVID-19 Relief & Recovery

Capital Additions ($ millions)

Project Name	Project Description	2021 Forecast	2022 Test Year
Replacement of Copper Risers and Services	Replacing copper risers and services improves public safety by completing needed aged infrastructure replacements.	$2.6	$0.0
Distribution Isolation Valves	Isolation valves can be used to cut the flow of gas in the event of a pipeline emergency, which ensures public safety and speeds up required repair work.	$0.3	$0.3
Total		**$2.9**	**$0.3**

[9] *In the Matter of an Inquiry into Utility Investments that May Assist in Minnesota's Economic Recovery from the COVID-19 Pandemic*, Docket No. E,G999/CI-20-492, ORDER DETERMINING THAT PROPOSALS HAVE THE POTENTIAL TO BE CONSISTENT WITH COVID-19 ECONOMIC RECOVERY, (March 12, 2021).
[10] *In the Matter of an Inquiry into Utility Investments that May Assist in Minnesota's Economic Recovery from the COVID-19 Pandemic*, Docket No. E,G999/CI-20-492 2021 SECOND QUARTER REPORT COVID-19 RELIEF & RECOVERY, (July 30, 2021),.

Q. HOW DO CUSTOMERS BENEFIT FROM THE ACCELERATION OF THESE PROJECTS?

A. The intent of the COVID-19 Relief & Recovery docket was to investigate investments utilities could make that would assist in Minnesota's economic recovery from the COVID-19 Pandemic. These projects are appropriate for acceleration because they improve both system reliability and public safety while creating jobs. These jobs will also include criteria to consider businesses owned by women, veterans, or minorities.

VI. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. I recommend that the Commission approve Gas Operations' capital and O&M budgets presented in this rate case. Our planned capital investments are managed appropriately and are established to continue to support the safety and reliability of our system, including our peaking plants, and to serve new customers and relocate existing infrastructure in order to meet federal, state, or local requirements. The budgets we propose are a reasonable representation of the activities we will undertake to continue to serve our customers through 2022 and beyond.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Statement of Qualifications
Joni H. Zich

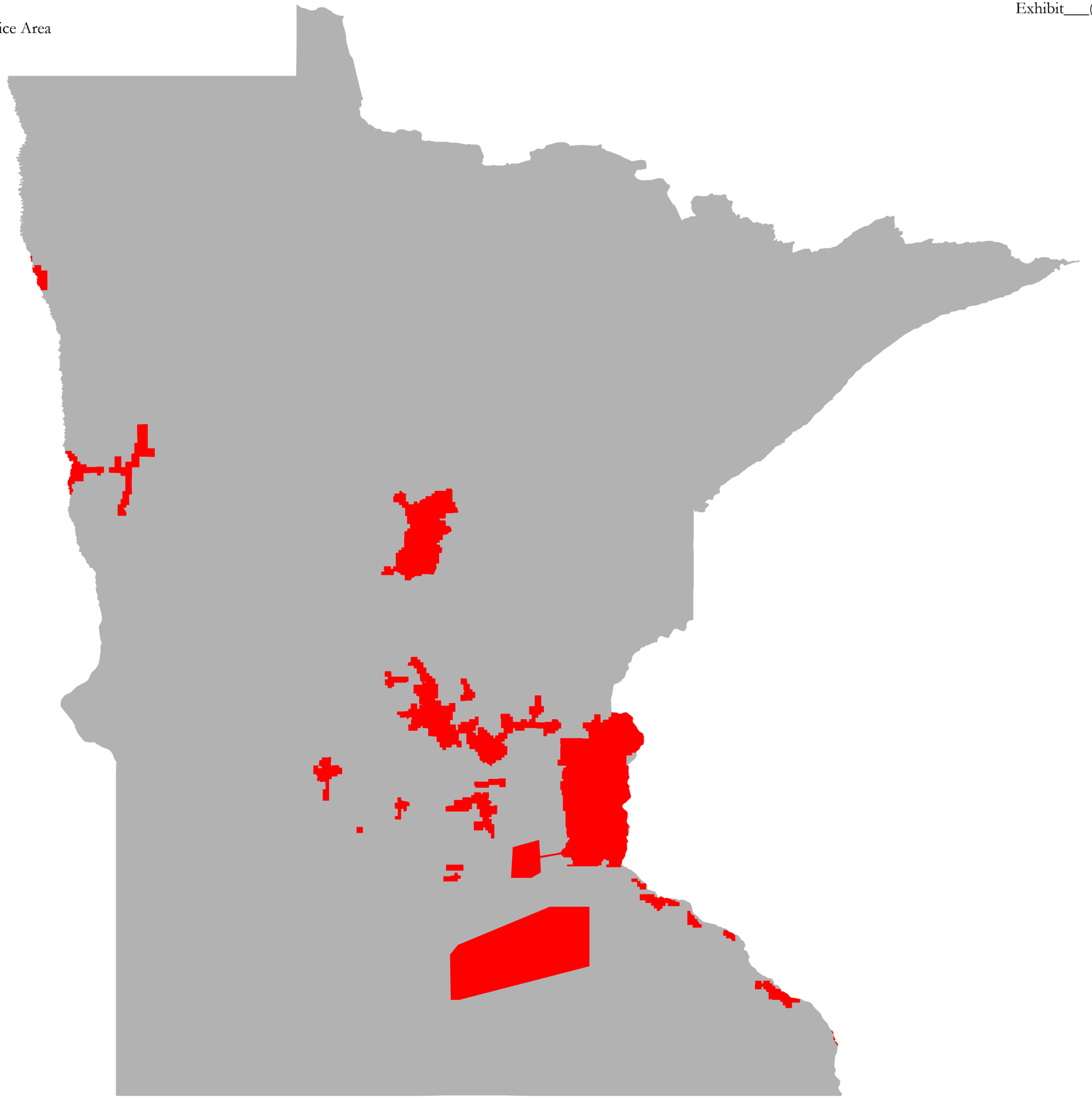
I received a Bachelor of Business Administration degree in Management Information Systems from the University of Wisconsin–Eau Claire in 1987. I received a Master of Business Administration from the University of Wisconsin–Eau Claire in 2000. I was hired by Northern States Power Company–Wisconsin (NSPW) as an Information Specialist in the Marketing Department in 1988, progressing to an Analyst during my tenure in the Department. My experience in Marketing included the development of demand side management programs.

In 1994, I transferred to the Gas Supply and Planning department, where I was responsible for scheduling gas on several interstate pipelines to ensure system load requirements were balanced. After 15 months, I was promoted to a trading position where I was responsible for the purchase and sale of natural gas supply for NSPW including the acquisition of physical supply agreements and the use of financial derivatives. I later managed the gas purchasing and sales activities, transportation scheduling, accounting operations, and NSPW's non-traditional wholesale gas sales programs.

In 1999, I transferred to Gas Resource Planning. In this role I was responsible for the development and implementation of dynamic strategic system planning for NSPW, Northern States Power–Minnesota (NSPM), and Northern States Power

Company's gas fired generation for their respective upstream gas transportation and storage assets, ensuring reliable and cost effective delivery. As the Manager of Gas Resource Planning, I managed several regulatory proceedings regarding the cost recovery of upstream gas assets where I testified before several state regulatory commissions and at the Federal Energy Regulatory Commission (FERC).

In April 2012, I was promoted to Director of System Strategy and Business Operations for Xcel Energy Services Inc. (XES) the "service company" subsidiary of Xcel Energy, Inc. (Xcel Energy), a registered holding company. In this capacity, I am responsible for the long-term gas capacity planning for the Company's high-pressure and intermediate-pressure gas system, the overall financial governance of the gas operations including capital investments, management and administration of integrity management riders (including the PSIA), and the development of gas emission reduction strategies. In addition, I direct the Natural Gas Services team, which manages all aspects of Public Service's gas transportation services. In addition to these responsibilities, in January 2021, I also began directing the Company's gas governance organization, which includes gas standards, compliance, contractor inspections, quality assurance, and the Pipeline Safety Management System (PSMS) when I was promoted to Senior Director, Strategy, Governance and Strategy.



										($ Millions)				
										Actual Additions			Forecasted Additions	
Line #	MN Gas Witness	Major category	Function Class Description	Project ID	Project Nbr Desc	Expenditure Type	Project Type	Rate Review Category	Major Project	2018	2019	2020	2021	2022
1	Zich	New Business	Gas Distribution Plant	D.0005014.012	Minnesota-Gas Meter Blanket	Purch Gas Meters	Routine	New Business	New Meter	$8.2	$9.4	$11.4	$9.4	$8.6
2	Zich	New Business	Gas Distribution Plant	E.0010001.002	MN - Gas New Services Blanket	New Services	Routine	New Business	New Services Routine	$7.2	$7.3	$7.7	$7.3	$7.7
3	Zich	New Business	Gas Distribution Plant	E.0010001.001	MN - Gas New Mains Blanket	New Mains	Routine	New Business	New Mains Routine	$6.7	$6.1	$5.3	$5.2	$5.5
4	Zich	New Business	Gas Distribution Plant	E.0010033.007	MN/NW/Sartell/Sartell High School	New Mains	Discrete	New Business		$0.0	$2.1	$0.0	$0.0	$0.0
5	Zich	New Business	Gas Distribution Plant	E.0010033.026	MN/STP/STP/Highland Bridge Backbone	New Mains	Discrete	New Business		$0.0	$0.0	$0.0	$0.7	$0.0
6	Zich	New Business	Gas Distribution Plant	E.0000039.003	New Dist Mains Hitterdal Gas Expansion	New Mains	Discrete	New Business		$0.7	($0.0)	$0.0	$0.0	$0.0
7	Zich	New Business	Gas Distribution Plant	E.0000009.022	St Paul-Syst Reg & Mtr Station Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.2	$0.0	$0.1	$0.2	$0.1
8	Zich	New Business	Gas Distribution Plant	E.0010001.003	MN - Gas New Business WCF	WCF-Gas New Service	Routine	New Business - Other		$0.0	$0.0	$0.0	($1.3)	$1.7
9	Zich	New Business	Gas Distribution Plant	E.0000004.084	MN - Service Retro Fit AG Prot	New Services	Routine	New Business - Other		$0.0	$0.1	$0.1	$0.0	$0.0
10	Zich	New Business	Gas Distribution Plant	E.0010033.005	MN/STP/District Energy Reinforce	New Mains	Discrete	New Business		$0.2	$0.0	$0.0	$0.0	$0.0
11	Zich	New Business	Gas Distribution Plant	E.0000039.008	New Services Ulen Gas Expansion	New Services	Discrete	New Business		$0.0	$0.2	$0.0	$0.0	$0.0
12	Zich	New Business	Gas Distribution Plant	E.0000009.006	Newport-Reg/Meter Station Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.0	$0.0	$0.1	$0.0	$0.0
13	Zich	New Business	Gas Distribution Plant	E.0010033.014	MN/NPT/MEH/R406 Retirement	New Mains	Discrete	New Business		$0.0	$0.0	$0.1	$0.0	$0.0
14	Zich	New Business	Gas Distribution Plant	E.0000004.081	NW/Pipe Barnesville MN	New Services	Discrete	New Business		$0.1	$0.0	$0.0	$0.0	$0.0
15	Zich	New Business	Gas Distribution Plant	E.0010033.021	NPT/MPW/M024/ Main Install	New Mains	Discrete	New Business		$0.0	$0.0	$0.0	$0.1	$0.0
16	Zich	New Business	Gas Distribution Plant	E.0000004.016	Southeast- New Gas Mains	New Mains	Routine	New Business	New Mains Routine	$0.0	$0.1	$0.0	$0.0	$0.0
17	Zich	New Business	Gas Distribution Plant	E.0000009.027	Southeast-Sys Reg & Mtr Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
18	Zich	New Business	Gas Distribution Plant	E.0010075.035	MN/NPT/MPW/ M024 Retirement	Rebuild Non-Trans Reg/Mtr Stat	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
19	Zich	New Business	Gas Distribution Plant	E.0000004.003	MNGD New Mains-MN	New Mains	Routine	New Business	New Mains Routine	($0.0)	$0.0	$0.0	$0.1	$0.0
20	Zich	New Business	Gas Distribution Plant	E.0000039.004	New Services Hitterdal Gas Expansion	New Services	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
21	Zich	New Business	Gas Distribution Plant	E.0000009.048	Northwest-Sys Reg & Mtr Station Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.0	$0.0	($0.0)	$0.0	$0.0
22	Zich	New Business	Gas Distribution Plant	E.0000009.040	White Bear-Sys Reg & Mtr Station Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
23	Zich	New Business	Gas Distribution Plant	E.0000005.023	Newport-Gas New Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
24	Zich	New Business	Gas Distribution Plant	E.0000005.020	Northwest-New Gas Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
25	Zich	New Business	Gas Distribution Plant	E.0000039.007	New Dist Mains Ulen Gas Expansion	New Mains	Discrete	New Business		$0.1	($0.0)	$0.0	$0.0	$0.0
26	Zich	New Business	Gas Distribution Plant	E.0000004.086	NSM Gas Service Conversion Program	New Services	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
27	Zich	New Business	Gas Distribution Plant	E.0000004.079	NSPM/NW/Pipe Barnesville MN	New Mains	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
28	Zich	New Business	Gas Distribution Plant	E.0000005.002	MNGD New Services-MN	New Services	Routine	New Business	New Services Routine	($0.0)	$0.0	$0.0	$0.0	$0.0
29	Zich	New Business	Gas Distribution Plant	E.0000005.025	St Paul-Gas New Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
30	Zich	New Business	Gas Distribution Plant	E.0000004.041	Faribault Foods Install Dist Main	New Mains	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
31	Zich	New Business	Gas Distribution Plant	E.0000005.019	Wyoming - Gas New Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
32	Zich	New Business	Gas Distribution Plant	E.0000005.024	Southeast-Gas New Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
33	Zich	New Business	Gas Distribution Plant	E.0000009.025	Northwest-Reg/Meter Sta Install	Install Non-Trans Reg/Mtr Stat	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
34	Zich	New Business	Gas Distribution Plant	E.0000005.041	MN - Service Retro Fit AG Prot	New Services	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
35	Zich	New Business	Gas Distribution Plant	E.0000005.034	NSM Gas Service Conversion Program	New Services	Routine	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
36	Zich	New Business	Gas Distribution Plant	E.0000005.038	BRD/Pillager Gas Install	New Services	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
37	Zich	New Business	Gas Distribution Plant	E.0000004.068	NW/Holdingford Pipe	New Mains	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
38	Zich	New Business	Gas Distribution Plant	E.0000004.012	Northwest-New Gas Mains	New Mains	Routine	New Business	New Mains Routine	$0.0	$0.0	$0.0	$0.0	$0.0
39	Zich	New Business	Gas Distribution Plant	E.0000004.015	Newport-Gas New Mains	New Mains	Routine	New Business	New Mains Routine	$0.0	$0.0	$0.0	$0.0	$0.0
40	Zich	New Business	Gas Distribution Plant	E.0000005.018	White Bear-Gas New Services	New Services	Routine	New Business	New Services Routine	$0.0	$0.0	$0.0	$0.0	$0.0
41	Zich	New Business	Gas Distribution Plant	A.0006062.017	Gas Cling Wo_s- Credits for CRS	New Const CIAC-Gas	Discrete	New Business - CIAC		$0.0	$0.0	$0.0	$0.0	$0.0
42	Zich	New Business	Gas Distribution Plant	E.0000009.099	NW/Gas/Barnesville Regulator S	Install Non-Trans Reg/Mtr Stat	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
43	Zich	New Business	Gas Distribution Plant	E.0000005.037	NW/Pipe Barnesville MN	New Services	Discrete	New Business		$0.0	$0.0	$0.0	$0.0	$0.0
44	Zich	New Business	Gas Distribution Plant	E.0000004.071	BRD/Pillager Gas Install	New Services	Discrete	New Business		$0.0	$0.0	($0.0)	$0.0	$0.0
45	Zich	New Business	Gas Distribution Plant	A.0006062.002	Distribution CIAC MN Gas	New Const CIAC-Gas	Routine	New Business - CIAC		($0.4)	($0.5)	($0.1)	($0.4)	($0.3)
46	Zich	New Business	Gas Transmission Plant	E.0000011.001	BLACK DOG PIPELINE PROJECT	Gas Trans New Main	Discrete	New Business	Black Dog Pipeline	$13.9	($0.8)	$0.0	$0.0	$0.0
47	Zich	New Business	Gas Transmission Plant	E.0000011.002	Tran Reg Stat at Black Dog	Install Gas Trans Reg/Mtr Stat	Discrete	New Business	Black Dog Pipeline	$0.0	$0.9	$0.0	$0.0	$0.0
48	Zich	New Business	Gas Transmission Plant	E.0000018.008	Black Dog Pipeline	Gas Trans New Main	Discrete	New Business	Black Dog Pipeline	$0.3	$0.0	$0.0	$0.0	$0.0
49	Zich	New Business	Gas Transmission Plant	E.0000018.007	NSM Trans Line Install	Gas Trans New Main	Discrete	New Business		$0.1	$0.0	$0.0	$0.0	$0.0
50	Zich	New Business	Gas Transmission Plant	E.0000009.032	MN-Transmission Reg and Meter	Install Gas Trans Reg/Mtr Stat	Discrete	New Business - Other		$0.0	$0.0	$0.0	$0.0	$0.0
51	Zich	New Business	Gas Transmission Plant	E.0010075.030	MN/Pine Bend RNG Interconnect/Reg	Install Gas Trans Reg/Mtr Stat	Discrete	New Business		$0.0	$0.0	$0.0	($0.0)	$0.0
52	Zich	New Business	Gas Transmission Plant	E.0010073.008	MN/Pine Bend RNG Interconnect Pipe	Gas Trans New Main	Discrete	New Business		$0.0	$0.0	$0.0	($0.1)	$0.0
53	Zich	New Business	Gas Transmission Plant	E.0000009.065	Faribault Foods TBS Reg Station	Install Gas Trans Reg/Mtr Stat	Discrete	New Business		$0.0	($0.3)	$0.0	$0.0	$0.0
54	Zich	Peaking Plants	Gas Manufactured Production Plant	E.0010080.031	MN/Propane Plant/Sibley/vaporization	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$12.6	$6.8
55	Zich	Peaking Plants	Gas Manufactured Production Plant	E.0010080.032	MN/Propane Plant/Maplewood/vaporization	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$12.2	$5.5
56	Zich	Peaking Plants	Gas Manufactured Production Plant	E.0010080.017	MN/Maplewood Truck Unloading Station	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.5	$0.0
57	Zich	Peaking Plants	Gas Manufactured Production Plant	E.0000021.050	Sibley Resurfacing project	Other-Gas	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.2
58	Zich	Peaking Plants	Gas Manufactured Production Plant	E.0010080.029	MN/Maplewood/Upgrade Fire Protection	Other-Gas	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.0
59	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.036	MN/Wescott/Thermal Relief Upgrades	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$4.1	$0.0
60	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.025	MN/Wescott/Install VFD on motors	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$1.3	$0.0
61	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.013	MN/Wescott LNG/Cold Box Replacement	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$1.3
62	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.024	MN/Wescott/GT101/C101 compressor co	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$1.0
63	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.022	MN/Wescott/Adsorber Sieve Changeout	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$1.0
64	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.020	MN/Wescott/C101 compressor overhaul	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.6
65	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.035	MN/Wescott/Upgrade Fire Protection	Other-Gas	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.5
66	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.014	MN/Wescott/Integrity Assessments	Gas Processing Equipment	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.4
67	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.038	MN/Wescott/GT101 Turbine overhaul	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.4
68	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.021	MN/Wescott/Replace C107 Boil Off Co	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.0	$0.3
69	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.033	MN/Wescott/Leaking Valve Replacement	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.2	$0.0
70	Zich	Peaking Plants	Gas Other Storage Plant	E.0010080.034	MN/Wescott/Process Relief Upgrades	Gas Storage Facilities	Discrete	Peaking Plants		$0.0	$0.0	$0.0	$0.2	$0.0
71	Zich	Reliability	Gas Distribution Plant	E.0010011.002	MN - Gas Service Renewal Blanket	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$1.9	$2.3	$2.5	$2.6	$2.2
72	Zich	Reliability	Gas Distribution Plant	E.0010011.001	MN - Gas Main Renewal Blanket	Main Renewal	Routine	Reliability	Main Renewal Routine	$0.9	$1.0	$1.5	$2.3	$2.3
73	Zich	Reliability	Gas Distribution Plant	E.0010033.016	MN/St Cloud/Sartell Sys Cap HP Pipe	Non-Trans New Main	Discrete	Reliability - Capacity	MN/St Cloud/Sartell System Capacity Reinforcement	$0.0	$0.0	$0.0	$6.2	$0.0

										Actual Additions			Forecasted Additions	
Line #	MN Gas Witness	Major category	Function Class Description	Project ID	Project Nbr Desc	Expenditure Type	Project Type	Rate Review Category	Major Project	2018	2019	2020	2021	2022
74	Zich	Reliability	Gas Distribution Plant	E.0010048.014	MN/St Cloud/Sartell Sys Cap Pipe	Main Reinforcement	Discrete	Reliability - Capacity	MN/St Cloud/Sartell System Capacity Reinforcement	$0.0	$0.0	$0.0	$5.1	$0.0
75	Zich	Reliability	Gas Distribution Plant	E.0010011.006	MN - Gas Asset Health WCF	WCF-Gas Asset Health	Routine	Reliability - Other		$0.0	$0.0	$0.0	$2.0	$3.0
76	Zich	Reliability	Gas Distribution Plant	E.0010043.001	STP/STP/Lafayette Bridge Xing	Main Renewal	Discrete	Reliability - Other		$0.0	$0.0	$3.1	$1.4	$0.0
77	Zich	Reliability	Gas Distribution Plant	E.0000012.025	MN - Reliability Exchanges	Other-Gas	Routine	Reliability		$0.0	$0.0	$0.0	$0.5	$3.5
78	Zich	Reliability	Gas Distribution Plant	E.0010016.001	MN - Gas Main Reinforcements Blanket	Main Reinforcement	Routine	Reliability - Capacity	Main Reinforcement Routine	$0.4	$2.7	$0.1	$0.3	$0.2
79	Zich	Reliability	Gas Distribution Plant	E.0010048.002	MN/WBL/HGO/Forest Blvd S008 system	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$3.1	$0.1	$0.0	$0.0
80	Zich	Reliability	Gas Distribution Plant	E.0010016.002	MN - Gas Capacity WCF	WCF-Gas Capacity	Routine	Reliability - Other		$0.0	$0.0	$0.0	$1.9	$0.8
81	Zich	Reliability	Gas Distribution Plant	E.0010033.018	MN/Becker / Big Lake Entitlement	Non-Trans New Main	Discrete	Reliability - Capacity	MN/Becker/Big Lake Entitlement Reinforcement	$0.0	$0.0	$0.0	$2.7	$0.0
82	Zich	Reliability	Gas Distribution Plant	E.0010075.033	MN/Delano Convert Inst TBS-Reg Stat	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Capacity	Delano Reinforcement	$0.0	$0.0	$0.0	$2.7	$0.0
83	Zich	Reliability	Gas Distribution Plant	E.0010011.014	MN/R&R/Copper Service Renewal	Service RenwlCutoff	Discrete	Reliability - Other	MN PUC R&R	$0.0	$0.0	$0.0	$2.3	$0.0
84	Zich	Reliability	Gas Distribution Plant	E.0010033.004	NSPM - Newport- HWY 149 Renewal - 1	Main Renewal	Discrete	Reliability - Other		$1.7	$0.0	$0.0	$0.0	$0.0
85	Zich	Reliability	Gas Distribution Plant	E.0000008.007	NW\Howard Lake Reinforcemnt	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$1.7	$0.0	$0.0	$0.0
86	Zich	Reliability	Gas Distribution Plant	E.0010048.003	MN/WYO/HML/Bunker Lake Blvd 8" main	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$1.7	($0.0)	$0.0	$0.0
87	Zich	Reliability	Gas Distribution Plant	E.0010043.004	MN/Ham Lake/Anoka Line Road Recon	Main Renewal	Discrete	Reliability - Other		$0.0	$1.2	$0.0	$0.0	$0.0
88	Zich	Reliability	Gas Distribution Plant	E.0000007.008	Replace Main Under Hwy 10	Main Renewal	Discrete	Reliability - Other		$0.0	$0.0	$1.1	$0.0	$0.0
89	Zich	Reliability	Gas Distribution Plant	E.0010033.019	MN/NW/Saukview Dr Reinforcement Pro	New Mains	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$1.0	$0.0
90	Zich	Reliability	Gas Distribution Plant	E.0010043.005	MN/WBL/LT CANADA/Rice St Bridge X	Main Renewal	Discrete	Reliability - Other		$0.0	$0.0	$1.0	($0.0)	$0.0
91	Zich	Reliability	Gas Distribution Plant	E.0010033.020	MN/Delano Convert Install TBS Mains	New Mains	Discrete	Reliability - Capacity	Delano Reinforcement	$0.0	$0.0	$0.0	$0.9	$0.0
92	Zich	Reliability	Gas Distribution Plant	E.0010033.009	MN\STC\2019 Jefferson Blvd Reinf	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.3	$0.6	($0.0)	$0.0
93	Zich	Reliability	Gas Distribution Plant	E.0010075.029	MN/NW/Delano & Watertown MAOP Split	Install Non-Trans Reg/Mtr Stat	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$0.7	$0.0
94	Zich	Reliability	Gas Distribution Plant	E.0010011.016	MN Gas Cathodic Protection Blanket	Main Renewal	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.7	$0.0
95	Zich	Reliability	Gas Distribution Plant	E.0010048.012	MN/WBL/NB/285th Ave-15000 of 4 PE m	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.0	$0.7	$0.0	$0.0
96	Zich	Reliability	Gas Distribution Plant	E.0010043.008	MN/STC/Royalton 6"Poly Reinforceme	New Mains	Discrete	Reliability - Capacity		$0.0	$0.0	$0.7	$0.0	$0.0
97	Zich	Reliability	Gas Distribution Plant	E.0010048.007	MN/NW/Baxter -Inglewood Dr, Baxter	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.0	$0.6	$0.0	$0.0
98	Zich	Reliability	Gas Distribution Plant	E.0010033.023	MN/NW/Inglewood Dr Phase 2 Reinforc	New Mains	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$0.0	$0.6
99	Zich	Reliability	Gas Distribution Plant	E.0010043.020	MN/STP/FLH/M007 System Replacement	Main Renewal	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.6	$0.0
100	Zich	Reliability	Gas Distribution Plant	E.0000009.091	Replace obsolete regulators -	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.2	$0.4	$0.1	$0.0
101	Zich	Reliability	Gas Distribution Plant	E.0010011.013	MN/R&R/Distribution Isolation Valve	Main Renewal	Discrete	Reliability - Other	MN PUC R&R	$0.0	$0.0	$0.0	$0.3	$0.3
102	Zich	Reliability	Gas Distribution Plant	E.0010033.025	MN/NW/Kandiyohi Farmtap Retirement	New Mains	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.4	$0.0
103	Zich	Reliability	Gas Distribution Plant	E.0010075.002	MN/STP/Plato and Water Regulator Re	Install Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.4	$0.0	$0.0
104	Zich	Reliability	Gas Distribution Plant	E.0010011.018	MN - Gas Service Cutoff Blanket	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.4
105	Zich	Reliability	Gas Distribution Plant	E.0010048.004	MN/WYO/Lindstrom/280th St Reinf	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.4	$0.0	$0.0	$0.0
106	Zich	Reliability	Gas Distribution Plant	E.0010048.005	MN/Princeton/2019 Reinforcement	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.4	$0.0	$0.0	$0.0
107	Zich	Reliability	Gas Distribution Plant	E.0010048.006	MN/NW/Becker/Hwy 10 - Industrial BL	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$0.4	$0.0
108	Zich	Reliability	Gas Distribution Plant	E.0010043.010	MN\BRD\ Filter Separator Installation	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.4
109	Zich	Reliability	Gas Distribution Plant	E.0000008.033	MN/WYO/Frst Lk/Reinforce S060 PH 1	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.4	$0.0	$0.0	$0.0
110	Zich	Reliability	Gas Distribution Plant	E.0010075.032	MN/STP/ RSV/ R059 Reg Station Rebuild	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.3	$0.0
111	Zich	Reliability	Gas Distribution Plant	E.0010048.013	MN/St Cloud/Sartell Sys Cap HP Reg	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Capacity	MN/St Cloud/Sartell System Capacity Reinforcement	$0.0	$0.0	$0.0	$0.0	$0.3
112	Zich	Reliability	Gas Distribution Plant	E.0010011.017	MN/R&R/Dist Main End Caps	Main Renewal	Discrete	Reliability - Other	MN PUC R&R	$0.0	$0.0	$0.0	$0.3	$0.0
113	Zich	Reliability	Gas Distribution Plant	E.0010048.008	MN/SE/St.Clair/607th Ave TBS Odorizer	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.3	$0.0	$0.0
114	Zich	Reliability	Gas Distribution Plant	E.0000007.024	MN Mixed Work Adjustment	Main Renewal	Discrete	Reliability - Other		$0.2	$0.0	$0.0	$0.0	$0.0
115	Zich	Reliability	Gas Distribution Plant	E.0010048.010	MN/SCL/East St Cloud Odorizer Project	Main Reinforcement	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.2
116	Zich	Reliability	Gas Distribution Plant	E.0010048.009	MN/SE/ML/490th St TBS Odorizer Repl	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.2	$0.0	$0.0
117	Zich	Reliability	Gas Distribution Plant	E.0010075.006	MN/NW-STCloud/Montrose/Upgrading R1	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.2	$0.0	$0.0	$0.0
118	Zich	Reliability	Gas Distribution Plant	E.0010075.028	MN/Delano/Convert/ Install TBS-Reg	Other-Gas	Discrete	Reliability - Capacity	Delano Reinforcement	$0.0	$0.0	$0.0	$0.1	$0.0
119	Zich	Reliability	Gas Distribution Plant	E.0010075.025	MN/STP/ STP/ R172 Reg Station Rebui	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.1	$0.0	$0.0
120	Zich	Reliability	Gas Distribution Plant	E.0010075.027	MN/Filter Separator Installation Pr	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
121	Zich	Reliability	Gas Distribution Plant	E.0010075.026	MN\BRD\Filter Separator Installation	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
122	Zich	Reliability	Gas Distribution Plant	E.0010075.016	MN/STP/RSV/ Wewers Rd	Install Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
123	Zich	Reliability	Gas Distribution Plant	E.0010075.004	Moorhead Underpass-Reg Station	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.1	$0.0	$0.0
124	Zich	Reliability	Gas Distribution Plant	E.0010043.009	MN\ BRD \Filter Separator Installation	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
125	Zich	Reliability	Gas Distribution Plant	E.0010075.003	MN/STP/Filter Separatr Instl on R10	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.1	$0.0	$0.0	$0.0	$0.0
126	Zich	Reliability	Gas Distribution Plant	E.0010011.007	MN - Quarantine Pipe Replacement 2019	Main Renewal	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
127	Zich	Reliability	Gas Distribution Plant	E.0010075.023	MN/Mendota Heights/Mendota Station	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
128	Zich	Reliability	Gas Distribution Plant	E.0010048.017	MN/NPT/CTG/M030 System Replacement	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$0.0	$0.0
129	Zich	Reliability	Gas Distribution Plant	E.0000008.002	MNGM Main Reinforcement-MN	Main Reinforcement	Routine	Reliability - Capacity	Main Reinforcement Routine	$0.0	$0.0	$0.0	$0.0	$0.0
130	Zich	Reliability	Gas Distribution Plant	E.0010075.008	MN/Mendota Heights/R359 Controller	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
131	Zich	Reliability	Gas Distribution Plant	E.0000007.002	MNGD Main Renewal-MN	Main Renewal	Routine	Reliability	Main Renewal Routine	$0.0	$0.0	$0.0	$0.0	$0.0
132	Zich	Reliability	Gas Distribution Plant	E.0000002.023	Northwest-Service Renew/Cutoff	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.0
133	Zich	Reliability	Gas Distribution Plant	E.0000002.026	Newport-Svc Renewal/Cutoff	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.0
134	Zich	Reliability	Gas Distribution Plant	E.0010075.022	MN/NPT/MEH/R406 Retirement	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
135	Zich	Reliability	Gas Distribution Plant	E.0000007.007	Newport-Gas Main Renewal	Main Renewal	Routine	Reliability	Main Renewal Routine	$0.0	$0.0	$0.0	$0.0	$0.0
136	Zich	Reliability	Gas Distribution Plant	E.0000002.027	Southeast-Svc Renewal/Cutoff	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.0
137	Zich	Reliability	Gas Distribution Plant	E.0000008.044	NW/St Augusta Steel Reinforcement	Main Reinforcement	Discrete	Reliability - Capacity		$0.0	$0.0	$0.0	$0.0	$0.0
138	Zich	Reliability	Gas Distribution Plant	E.0000002.021	White Bear- Svc Renewal/Cutoff	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.0
139	Zich	Reliability	Gas Distribution Plant	E.0000008.006	Northwest-Main Reinforcement	Main Reinforcement	Routine	Reliability - Capacity	Main Reinforcement Routine	$0.0	$0.0	$0.0	$0.0	$0.0
140	Zich	Reliability	Gas Distribution Plant	11738147	E&S Gas Distribution MN	E and S Pool-Gas	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
141	Zich	Reliability	Gas Distribution Plant	E.0000002.025	Lakes Area-Svc Renewal/Cutoff	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	$0.0	$0.0	$0.0	$0.0	$0.0
142	Zich	Reliability	Gas Distribution Plant	E.0000002.003	MNGD Service RenwlCutoff-MN	Service RenwlCutoff	Routine	Reliability	Service Renewal/Cuttoff Routine	($0.0)	$0.0	$0.0	$0.0	$0.0
143	Zich	Reliability	Gas General Plant	E.0010023.002	MN/Meter Module Replacement	Gas Comm Equip	Discrete	Reliability	Module Replacement	$0.0	$0.0	$0.0	$0.0	$6.2
144	Zich	Reliability	Gas General Plant	E.0010024.002	ND/Meter Module Replacement	Gas Comm Equip	Discrete	Reliability	Module Replacement	$0.0	$0.0	$0.0	$0.0	$1.1
145	Zich	Reliability	Gas General Plant	E.0010053.006	NSPM/GDIST/PRESSURE MONITOR ERXs MN	Gas Comm Equip	Discrete	Reliability		$0.0	$0.0	$0.2	$0.1	$0.0
146	Zich	Reliability	Gas General Plant	E.0000024.014	NSPM Comm Equip - Dist Meter/R	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
147	Zich	Reliability	Gas General Plant	E.0010053.001	MN/CP/ GAS Rectifier Compliance Rea	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.1	$0.0	$0.0	$0.0

										Actual Additions			Forecasted Additions	
Line #	MN Gas Witness	Major category	Function Class Description	Project ID	Project Nbr Desc	Expenditure Type	Project Type	Rate Review Category	Major Project	2018	2019	2020	2021	2022
148	Zich	Reliability	Gas General Plant	E.0010054.002	NSPM/GDIST/PRESSURE MONITOR ERXs ND	Gas Comm Equip	Discrete	Reliability		$0.0	$0.0	$0.1	$0.0	$0.0
149	Zich	Reliability	Gas General Plant	E.0010053.011	NSPM-Gas Security Monitoring & Logg	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.1
150	Zich	Reliability	Gas General Plant	E.0010023.001	MN - Gas Communication Equip. Blanket	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
151	Zich	Reliability	Gas General Plant	E.0010053.007	NSPM/GDIST/PRESSURE MONITOR ERXs Ma	Gas Comm Equip	Discrete	Reliability		$0.0	$0.0	$0.0	$0.0	$0.0
152	Zich	Reliability	Gas General Plant	E.0000024.041	ND Gas Comm Equip on Dist M/R Stat	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
153	Zich	Reliability	Gas General Plant	E.0010053.003	MN/CP/GAS Rectifier Compli Rea Tran	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
154	Zich	Reliability	Gas General Plant	E.0000024.017	NSPM Comm Equip - Trans Meter/	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
155	Zich	Reliability	Gas General Plant	A.0006059.516	NSPM-Gas OT Cyber Security	Gas Tools And Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
156	Zich	Reliability	Gas General Plant	A.0006059.149	MN Install Gas Communication Equip	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
157	Zich	Reliability	Gas General Plant	E.0010054.001	MN/CP/ GAS Rectifier Compliance ND	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
158	Zich	Reliability	Gas General Plant	E.0010053.005	MN/CP/ GAS Rectifier Compliance Rea	Gas Comm Equip	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
159	Zich	Reliability	Gas General Plant	E.0000024.016	ND Install Gas Communication Equip	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
160	Zich	Reliability	Gas General Plant	A.0006059.461	MN Install Gas Communication Equip	Gas Comm Equip	Routine	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
161	Zich	Reliability	Gas Transmission Plant	E.0010073.007	MN/Delano Supply Request Install	New Services	Discrete	Reliability - Capacity	Delano Reinforcement	$0.0	$0.0	$0.0	$0.0	$6.5
162	Zich	Reliability	Gas Transmission Plant	E.0000018.102	Langdon Line Project	Gas Trans New Main	Discrete	Reliability		$0.0	$0.0	$0.0	$1.6	$2.8
163	Zich	Reliability	Gas Transmission Plant	E.0000018.102	County Road B Project	Gas Trans New Main	Discrete	Reliability		$0.0	$0.0	$0.0	$0.3	$1.2
164	Zich	Reliability	Gas Transmission Plant	E.0010075.021	MN/MHD/Replace Line Heater at MHD T	Upgrade Gas Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.8	$0.0
165	Zich	Reliability	Gas Transmission Plant	E.0010075.019	MN/EGF/Gas/Replace Original Odorizer	Rebuild Gas Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.2	$0.0
166	Zich	Reliability	Gas Transmission Plant	E.0010076.011	MN/EGF/Replace Line Heater at EGF T	Upgrade Gas Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.2	$0.0
167	Zich	Reliability	Gas Transmission Plant	E.0000009.072	Mendota/Sendout Instrumentation Upgrade	Gas Processing Equipment	Discrete	Reliability - Other		$0.1	$0.1	$0.0	$0.0	$0.0
168	Zich	Reliability	Gas Transmission Plant	E.0010073.009	MN/NW/MN/NW/Granite City Retirement	Gas Trans Renewal	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.1	$0.0
169	Zich	Reliability	Gas Transmission Plant	E.0010073.005	MN/NPT/IGH/CP/BLACKBERRY TRL RECTIF	Gas Trans Renewal	Discrete	Reliability - Other		$0.0	$0.0	$0.1	$0.0	$0.0
170	Zich	Reliability	Gas Transmission Plant	E.0000009.015	MN/Replace obsolete regulators	Upgrade Non-Trans Reg/Mtr Stat	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
171	Zich	Reliability	Gas Transmission Plant	E.0010073.010	NSPM/IGH/Rich Valley Sta/ R506 Inlet	Gas Trans Reinforce	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
172	Zich	Reliability	Gas Transmission Plant	E.0000018.059	E&S Gas Transmission MN	E and S Pool-Gas	Discrete	Reliability - Other		$0.0	$0.0	$0.0	$0.0	$0.0
173	Zich	Reliability	Gas Transmission Plant	E.0010073.004	MN/STP/ECL Replace-Maplewood to NSP	Gas Trans Renewal	Discrete	Reliability - Other		$0.0	($0.0)	$0.0	$0.0	$0.0
174	Zich	Relocation	Gas Distribution Plant	E.0010006.001	MN - Gas Main Relocations Blanket	Main Relocation	Routine	Relocation	Main Relocation Routine	$8.5	$7.0	$8.0	$7.3	$7.6
175	Zich	Relocation	Gas Distribution Plant	E.0010038.035	MN/BRD/County Rd 13 Relo Phase 2	Main Relocation	Discrete	Relocation	MN/Nisswa/County Rd 13 Relocation Ph 2	$0.0	$0.0	$0.0	$3.3	$0.0
176	Zich	Relocation	Gas Distribution Plant	E.0010038.032	MN/Nisswa/2019 County Rd 13 Reconst	Gas Trans Relocation	Discrete	Relocation	MN/Nisswa/County Rd 13 Relocation	$0.0	$0.0	$3.0	$0.2	$0.0
177	Zich	Relocation	Gas Distribution Plant	E.0010033.015	MN/SE/ML/CSAH 27 Madison Lake Recon	Main Relocation	Discrete	Relocation		$0.0	$0.0	$2.1	($0.0)	$0.0
178	Zich	Relocation	Gas Distribution Plant	E.0010038.014	MN/WBL/Cty Rd 12 Relocate 12" steel	Main Relocation	Discrete	Relocation		$0.0	$1.8	($0.0)	($0.0)	$0.0
179	Zich	Relocation	Gas Distribution Plant	E.0010038.023	MN/NPT/CTG/Hwy 95 Recon	Main Relocation	Discrete	Relocation		$0.0	$1.6	$0.0	$0.0	$0.0
180	Zich	Relocation	Gas Distribution Plant	E.0010006.002	MN - Gas Mandates WCF	WCF-Gas Mandates	Routine	Relocation - Other		$0.0	$0.0	$0.0	($0.4)	$1.5
181	Zich	Relocation	Gas Distribution Plant	E.0010075.031	MN/Nisswa/2019 County Rd 13 Reconst	Rebuild Non-Trans Reg/Mtr Stat	Discrete	Relocation	MN/Nisswa/County Rd 13 Relocation	$0.0	$0.0	$0.0	$1.0	$0.0
182	Zich	Relocation	Gas Distribution Plant	E.0010033.027	MN/NPT/WBD/Woodbury Dr Recon	New Mains	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$1.0	$0.0
183	Zich	Relocation	Gas Distribution Plant	E.0010038.024	MN/STC/Isanti/Green Lake Relocation	Main Relocation	Discrete	Relocation		$0.0	$0.0	$0.9	$0.0	$0.0
184	Zich	Relocation	Gas Distribution Plant	E.0000006.105	CR 115 Main Relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.8
185	Zich	Relocation	Gas Distribution Plant	E.0010033.008	MN/Lake Elmo/H008-Hudson Blvd Reloc	Non-Trans New Main	Discrete	Relocation - Other		$0.0	$0.0	$0.8	$0.0	$0.0
186	Zich	Relocation	Gas Distribution Plant	E.0010043.017	MN/SE/LC/LAKESHORE DR (HWY61) 2020	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.7	$0.0	$0.0
187	Zich	Relocation	Gas Distribution Plant	E.0010038.025	MN/WBL/Shvw/Hillview Dr relocate 2	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.7	$0.0
188	Zich	Relocation	Gas Distribution Plant	E.0000006.101	Main Relocation due to Neighborhood	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.6	$0.0	$0.0
189	Zich	Relocation	Gas Distribution Plant	E.0000006.014	Main relocate Hillview & Jackson	Main Relocation	Discrete	Relocation - Other		$0.0	$0.6	$0.0	$0.0	$0.0
190	Zich	Relocation	Gas Distribution Plant	E.0010038.036	MN/WBL/New Brighton/Sunnyside gas m	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.6	$0.0
191	Zich	Relocation	Gas Distribution Plant	E.0010038.016	MN/STC/Rahr Pipeline Relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.6	$0.0	$0.0
192	Zich	Relocation	Gas Distribution Plant	E.0010038.006	MN/WBL/NB/Pike Lake Dr relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.6	$0.0	$0.0	$0.0
193	Zich	Relocation	Gas Distribution Plant	E.0010038.002	WBL/Shoreview/ Owasso Blvd N relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.5	$0.0	$0.0	$0.0
194	Zich	Relocation	Gas Distribution Plant	E.0010038.007	MN/CSAH 29/Sartell Relocation Project	Gas Trans Relocation	Discrete	Relocation - Other		$0.0	$0.5	$0.0	$0.0	$0.0
195	Zich	Relocation	Gas Distribution Plant	E.0010038.034	MN/STP/Old Ford Site 12" Relo	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.5	$0.0	$0.0
196	Zich	Relocation	Gas Distribution Plant	E.0010038.012	MN/Nisswa/2019 County Rd 13 Recon	Gas Trans Relocation	Discrete	Relocation	MN/Nisswa/County Rd 13 Relocation	$0.0	$0.0	$0.4	$0.1	$0.0
197	Zich	Relocation	Gas Distribution Plant	E.0010038.001	Install 2 inch pe main Saint Paul	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.5	$0.0
198	Zich	Relocation	Gas Distribution Plant	E.0010038.043	MN/WYO/Fiori gas main relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.5	$0.0
199	Zich	Relocation	Gas Distribution Plant	E.0010038.046	MN/STP/Recon/Cleveland Ave	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.5	$0.0
200	Zich	Relocation	Gas Distribution Plant	E.0010038.033	MN/NPT/MPW/Mayer, Mayhill & Dennis	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.5	$0.0	$0.0
201	Zich	Relocation	Gas Distribution Plant	E.0010038.008	WBL/Maplwood/Fremont-Ferndale recon	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.5	$0.0	$0.0
202	Zich	Relocation	Gas Distribution Plant	E.0010038.004	MN/Cottage Grove/2018 TH95 Relocation	Main Relocation	Discrete	Relocation - Other		$0.0	$0.4	$0.0	$0.0	$0.0
203	Zich	Relocation	Gas Distribution Plant	E.0010038.045	MN/NW/Pleasantwood Project	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.4	$0.0
204	Zich	Relocation	Gas Distribution Plant	E.0010038.015	WBL/NwB/Continental Dr Recon	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.4	$0.0	$0.0
205	Zich	Relocation	Gas Distribution Plant	E.0010038.026	MN/WBL/FRL/N Shore Cir 8700 of new	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.4
206	Zich	Relocation	Gas Distribution Plant	E.0010038.018	MN/StCloud/2019 31st St N, St Cloud	Main Relocation	Discrete	Relocation - Other		$0.0	$0.4	$0.0	$0.0	$0.0
207	Zich	Relocation	Gas Distribution Plant	E.0010033.006	MN/NW\Sartell/Pine Cone Rd Recon	Non-Trans New Main	Discrete	Relocation - Other		$0.4	$0.0	$0.0	$0.0	$0.0
208	Zich	Relocation	Gas Distribution Plant	E.0010038.010	MN/SE/NFLD/Co Rd 1 Recon	Main Relocation	Discrete	Relocation - Other		$0.4	$0.0	$0.0	$0.0	$0.0
209	Zich	Relocation	Gas Distribution Plant	E.0010038.044	MN/NPT/WDB/Hudson & Settlers Ridge	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.3	$0.0
210	Zich	Relocation	Gas Distribution Plant	E.0010038.021	MN/NPT/WBY/Bailey Rd (Pioneer to Wd	Main Relocation	Discrete	Relocation - Other		$0.0	$0.3	$0.0	$0.0	$0.0
211	Zich	Relocation	Gas Distribution Plant	E.0010038.017	WBL/WBL/Banning Ave recon	Main Relocation	Discrete	Relocation - Other		$0.0	$0.3	$0.0	$0.0	$0.0
212	Zich	Relocation	Gas Distribution Plant	E.0010038.020	MN/SE/Co Rd 129 Winona Recon 2019	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.3	$0.0	$0.0
213	Zich	Relocation	Gas Distribution Plant	E.0000006.040	BRD: TH 371 Gas Main Relocate	Main Relocation	Discrete	Relocation - Other		$0.1	$0.0	$0.1	$0.0	$0.0
214	Zich	Relocation	Gas Distribution Plant	E.0010075.024	MN/SE/ML/CSAH 27 Madison Lake Recon	Install Non-Trans Reg/Mtr Stat	Discrete	Relocation		$0.0	$0.0	$0.0	$0.0	$0.0
215	Zich	Relocation	Gas Distribution Plant	E.0000006.078	CSAH 77 Reconstruction	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.0
216	Zich	Relocation	Gas Distribution Plant	E.0000009.068	Wyoming-Meter & Reg Relocation	Meter & Reg Reloc	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.0
217	Zich	Relocation	Gas Distribution Plant	E.0000006.033	Southeast-Gas Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
218	Zich	Relocation	Gas Distribution Plant	E.0000006.034	St Paul- Gas Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
219	Zich	Relocation	Gas Distribution Plant	E.0000006.075	NW/STC/Raymond Ave Neighborhood	Main Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.0
220	Zich	Relocation	Gas Distribution Plant	E.0000006.038	Lakes Area-Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
221	Zich	Relocation	Gas Distribution Plant	E.0000006.030	Northwest-Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0

										Actual Additions			Forecasted Additions	
Line #	MN Gas Witness	Major category	Function Class Description	Project ID	Project Nbr Desc	Expenditure Type	Project Type	Rate Review Category	Major Project	2018	2019	2020	2021	2022
222	Zich	Relocation	Gas Distribution Plant	E.0000006.028	Wyoming - Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
223	Zich	Relocation	Gas Distribution Plant	E.0000006.032	Newport-Gas Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
224	Zich	Relocation	Gas Distribution Plant	E.0000006.027	White Bear-Main Relocation	Main Relocation	Routine	Relocation	Main Relocation Routine	$0.0	$0.0	$0.0	$0.0	$0.0
225	Zich	Relocation	Gas Distribution Plant	E.0000004.064	Repl 12in Upper55 to SStPaul R	Non-Trans New Main	Discrete	Relocation		$0.0	($0.2)	$0.0	$0.0	$0.0
226	Zich	Relocation	Gas Distribution Plant	E.0000006.003	MNGD Main Relocation-MN	Main Relocation	Routine	Relocation	Main Relocation Routine	($0.3)	$0.0	$0.0	$0.0	$0.0
227	Zich	Relocation	Gas Transmission Plant	E.0010073.003	Repl 12in Upper55 to SStPaul R	Main Relocation	Discrete	Relocation		$0.0	$5.1	$0.1	$0.0	$0.0
228	Zich	Relocation	Gas Transmission Plant	E.0010038.005	MN/Eagan/TL0204/Quarry Road Ext	Gas Trans Relocation	Discrete	Relocation - Other		$0.0	$0.0	$0.0	$0.0	$0.0
229	Zich	Safety	Common General Plant	A.0006059.072	Gas Leak Training Center	Gas Tools And Equip	Discrete	Safety		$0.0	$0.0	$0.0	$0.0	$0.0
230	Zich	Safety	Gas Distribution Plant	E.0000006.039	Capitalized Locating Costs-Gas	Facility Locates-Gas	Discrete	Safety		$0.8	$0.5	$0.8	$0.7	$0.8
231	Zich	Safety	Gas Distribution Plant	E.0010011.009	MN/Inside Meter Move-out Svc Renewal	Service RenwlCutoff	Discrete	Safety	Inside Meter Move-Out	$0.0	$0.0	$0.0	$0.0	$2.3
232	Zich	Safety	Gas Distribution Plant	E.0010011.008	MN/Inside Meter Move-out Purchase	Purch Gas Meters	Discrete	Safety	Inside Meter Move-Out	$0.0	$0.0	$0.0	$0.0	$0.4
233	Zich	Safety	Gas General Plant	A.0006059.009	MN-Dist Gas Tools and Equip	Gas Tools And Equip	Discrete	Safety		$0.8	$0.8	$0.4	$2.1	$0.5
234	Zich	Safety	Gas General Plant	A.0006059.523	MN-Gas Tools & Equip	Gas Tools And Equip	Discrete	Safety		$0.0	$0.0	$0.0	$0.0	$0.6
235	Zich	Safety	Gas General Plant	A.0006059.010	ND-Dist Dist Tools and Equip	Gas Tools And Equip	Discrete	Safety		$0.1	$0.0	$0.1	$0.1	$0.1
236	Zich	Safety	Gas General Plant	A.0005014.082	NSPM Gas Dist General Office Equip	Other-Gas	Discrete	Safety		$0.0	$0.0	$0.0	$0.0	$0.0
237	Zich	Safety	Gas Intangible Plant	E.0000027.001	NSPM/PIPES Valve Data Project	Gas Tools And Equip	Discrete	Safety		$0.6	$0.0	$0.0	$0.0	$0.0
238	Zich	Safety	Gas Intangible Plant	E.0000012.019	Pipeline Data Project-NSPM	Gas Tools And Equip	Discrete	Safety		$0.1	$0.0	$0.0	$0.0	$0.0
239	Zich	Safety - Plants	Gas Distribution Plant	E.0000041.012	MN/Wescott LPG Plant Dist Mains	Main Relocation	Discrete	Safety - Plants	Wescott LPG	$0.0	$0.0	$0.0	$0.0	$0.0
240	Zich	Safety - Plants	Gas General Plant	E.0010080.010	MN/Wescott/LNG Boil-off compressors	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
241	Zich	Safety - Plants	Gas General Plant	E.0010080.005	MN/Wescott/Maintenance AC	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
242	Zich	Safety - Plants	Gas General Plant	E.0010080.008	MN/Wescott/Door and Window Replacement	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
243	Zich	Safety - Plants	Gas General Plant	E.0010080.006	MN/Maplewood/Outdoor Lighting Upgrade	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
244	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000021.008	Sibley Gas Production/Manufacturing	Gas Processing Equipment	Routine	Safety - Plants		$0.0	$0.1	$0.0	$1.5	$0.6
245	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0010080.015	MN/Sibley Valve Replacement	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$1.7	$0.0
246	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000021.006	Maplewood Gas Production/Manuf	Gas Processing Equipment	Routine	Safety - Plants		$0.1	$0.0	$0.0	$0.3	$0.0
247	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000021.004	Wescott Gas Production/Manufac	Gas Processing Equipment	Routine	Safety - Plants		$0.2	$0.0	$0.0	$0.0	$0.0
248	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000041.006	MN/Sibley Truck Loading	Gas Storage Facilities	Discrete	Safety - Plants	Wescott LPG	$0.0	$0.0	$0.1	$0.0	$0.0
249	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0010080.027	MN/Maplewood/Maplewood Lightning Pr	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.1	$0.0
250	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0010080.030	MN/Sibley/Inadequate Fire Protection	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
251	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000021.016	MN/Sibley pipeline abandonment	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.0
252	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000041.005	MN/6" Wescott to Sibley Propane Line	Gas Processing Equipment	Discrete	Safety - Plants	Wescott LPG	$0.0	$0.0	$0.0	$0.0	$0.0
253	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000041.003	MN/Wescott LPG Plant Prod	Gas Processing Equipment	Discrete	Safety - Plants	Wescott LPG	$0.0	($0.0)	$0.0	$0.0	$0.0
254	Zich	Safety - Plants	Gas Manufactured Production Plant	E.0000021.003	Sibley - Replace Obsolete Compressors	Gas Storage Facilities	Discrete	Safety - Plants		($0.0)	$0.0	$0.0	$0.0	$0.0
255	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.013	MN/Wescott LNG/Cold Box Replacement	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$3.1	$0.1	$0.0
256	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.018	MN/Wescott/E108-E109 HE Replacement	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$2.3
257	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.014	MN/Wescott Gas Production-LNG	Gas Processing Equipment	Routine	Safety - Plants		$0.0	$0.0	$0.0	$1.0	$0.4
258	Zich	Safety - Plants	Gas Other Storage Plant	E.0000016.001	Gas Plants & Holders-Small	Gas Storage Facilities	Routine	Safety - Plants		$0.2	$0.1	$0.1	$0.2	$0.2
259	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.019	MN/Inver Grove Heights/Wescott Flow	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.6	$0.0
260	Zich	Safety - Plants	Gas Other Storage Plant	E.0000021.004	Wescott Gas Production/Manufac	Gas Processing Equipment	Routine	Safety - Plants		$0.0	$0.3	$0.2	$0.0	$0.0
261	Zich	Safety - Plants	Gas Other Storage Plant	E.0000041.009	MN/Wescott LNG Plant Project Security	Other-Gas	Discrete	Safety - Plants	Wescott LPG	$0.0	$0.0	$0.4	$0.0	$0.0
262	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.016	MN/Wescott C201 Compressor Overhaul	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.3	$0.0
263	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.002	MN/LNG Dike System Replacement	Gas Storage Facilities	Discrete	Safety - Plants		$0.0	$0.2	$0.0	$0.0	$0.0
264	Zich	Safety - Plants	Gas Other Storage Plant	E.0010080.037	MN/Inver Grove Heights/Wescott Ligh	Other-Gas	Discrete	Safety - Plants		$0.0	$0.0	$0.0	$0.0	$0.1
265	Zich	Safety - Plants	Gas Other Storage Plant	E.0000041.003	MN/Wescott LPG Plant Prod	Gas Processing Equipment	Discrete	Safety - Plants	Wescott LPG	$0.0	$0.0	$0.0	$0.0	$0.0
										$54.3	**$61.1**	**$62.8**	**$116.3**	**$91.9**

Delano Reinforcement

Brainerd, Delano/Montrose/Waverly, Madison Lakes, and Red Wing Minnesota

Project Overview

Scope: This project entails the Company reimbursing Northern Natural Gas (NNG) to reinforce their system assets. NNG is the upstream pipeline delivering gas supply to the area. Reinforcing NNG's assets will serve demand and future growth in the Brainerd, Delano/Montrose/Waverly, Madison Lakes, and Red Wing areas.

Pressure System: High Pressure (850 psig)

Project Status

Estimate: Complete
Design: Complete
Construction: In Progress
In Service Date: March 2022

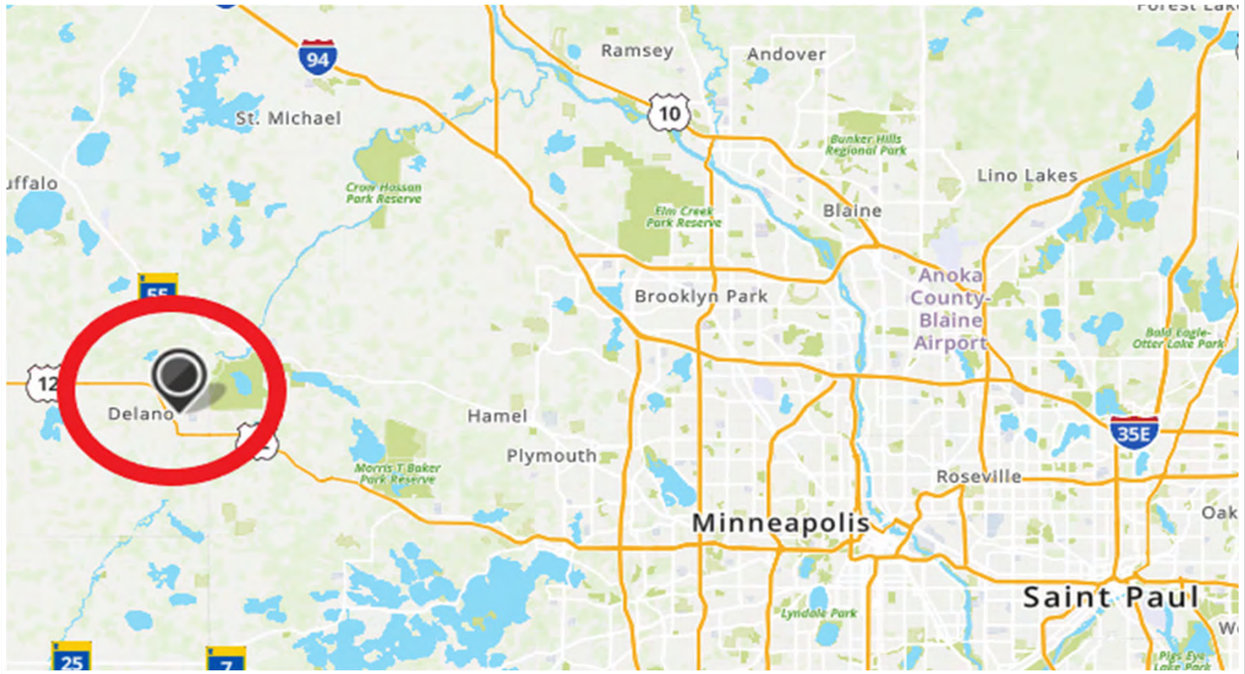
Project Details

Project Need: The average annual firm customer count increased 21 percent between 2010 and 2020, including several large commercial and industrial loads for customers served off NNG's Wilmar lateral. Additionally, the projected Design Day for the area has increased from 12,021 Dth/day in 2010-2011 to 15,470 Dth/day projected for 2021-2022, or a 28 percent increase. Due to this growth, the Company has forecasted a shortfall in NNG capacity to deliver firm gas to our customers on a design day. When the Company approached NNG to acquire incremental pipeline capacity on their system, they indicated that they would need to construct facilities in order to increase firm pipeline capacity to the area.

Cost

Project Cost: $6.5 Million

Project Location



Langdon Line Project
Cottage Grove & St. Paul Park, Minnesota

Project Overview

Scope: The project includes approximately six miles of high-pressure pipeline consisting of 6-inch, 8-inch, and 12-inch steel installed in 1958 and will be replaced over two years with a standardized 12-inch steel pipe to make it suitable for in-line inspection.

Pressure System: High Pressure (220 psig)

Project Status

Estimate: Complete
Design: Complete
Construction: In Progress
In Service Date: December 2022

Project Details

Project Need: The pipeline needs replacement due to age and construction techniques used during original construction and throughout the life of the pipe that do not make it suitable for conducting in-line inspections.

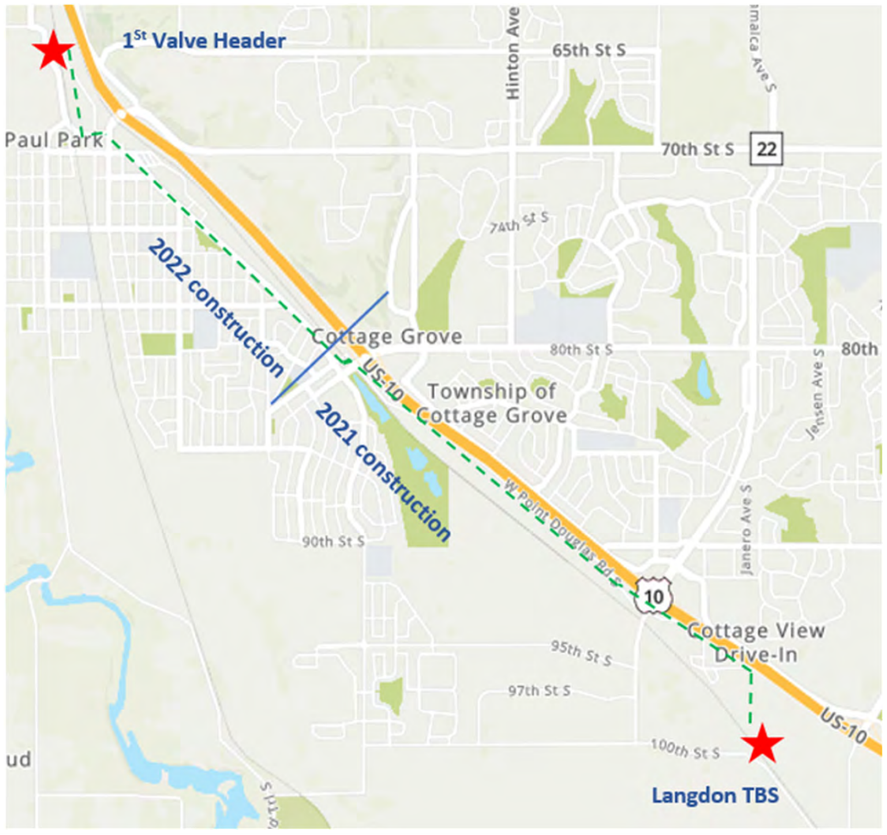
Cost

Project Cost: $24.7 Million total; $2.8 Million base

Project Capital Expenditure Estimate: Project was estimated by a project manager and a project engineer. The estimate takes into account, route, materials, and known utilities. Projects are either bid outright for a lump sum contract or utilize unit pricing that was bid under a master service level agreement. The method used depends on the scale of the project.

Review Process: This project scope and costs were reviewed by engineering leadership to verify that the route, materials, and scope match with the needs of the system and that best engineering practices were followed.

Project Location



County Road B Project
Roseville, Minnesota

Project Overview

Scope: The project is within the Right of Way (ROW) of County Road B from Rice Street to Hamline Ave and North on Hamline to within the ROW of County Road C in Roseville, MN. Replaces 3.4 miles of 16-inch and 12-inch installed in 1950's with a standardized 16-inch pipe. Also, includes (5) regulator stations and (2) remote-controlled valve (RCV).

Pressure System: High Pressure (175 psig)

Project Status

Estimate: Complete
Design: Complete
Construction: In Progress
In Service Date: December 2022

Project Details

Project Need: The pipeline needs replacement due to age and construction techniques used during original construction and throughout the life of the pipe that do not make it suitable for conducting in-line inspections.

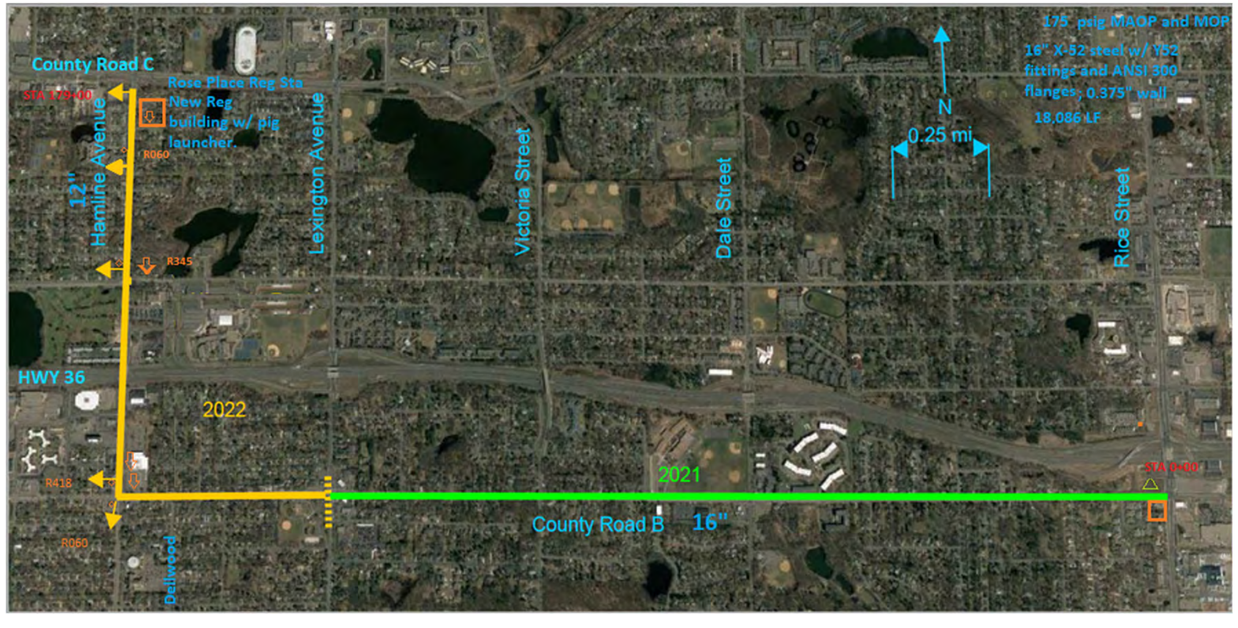
Cost

Project Cost: $32.7 Million total; $1.2 Million base

Project Capital Expenditure Estimate: Project was estimated by a project manager and a project engineer. The estimate takes into account, route, materials, and known utilities. Projects are either bid outright for a lump sum contract or utilize unit pricing that was bid under a master service level agreement. The method used depends on the scale of the project.

Review Process: This project scope and costs were reviewed by engineering leadership to verify that the route, materials, and scope match with the needs of the system and that best engineering practices were followed.

Project Location



PUBLIC DOCUMENT
NOT-PUBLIC DATA HAS BEEN EXCISED

The following Schedules are considered Not-Public in their entirety and contain Security Information.

- **Schedule 7**
  Wescott Vaporization Hazard and Operability and Layer of Protection Analysis

- **Schedule 8**
  Wescott Liquefaction Hazard and Operability and Layer of Protection Analysis

- **Schedule 9**
  Sibley Hazard and Operability Analysis

- **Schedule 10**
  Maplewood Hazard and Operability Analysis

The above-noted Schedules included with the Not-Public version of testimony are each marked as "Not-Public Document in Entirety" because they contain Trade Secret Information and Security Information pursuant to Minn. Stat. § 13.37, subd. 1(b) and (a) respectively. The information is Trade Secret Information because it derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use. Additionally, certain portions of the Schedules are considered Security Information because the disclosure of the information is likely to substantially jeopardize the security of the discussed peaking plants against tampering, illegal disclosure or physical injury.

Because the Schedules are marked Not-Public in their entirety, we provide the following additional information pursuant to Minn. Rule 7829.0500, subp. 3:

PUBLIC DOCUMENT
NOT-PUBLIC DATA HAS BEEN EXCISED

Schedule 7

1. **Nature of the Material:** HAZOP and LOPA Study Report for LNG Vaporizers Process at the Wescott LNG Peak Shaving Facility
2. **Author:** Quest Consultants on behalf of Campos EPC
3. **Importance:** Contains not-public, proprietary and security information
4. **Date the Information was Prepared:** March 4, 2021

Schedule 8

1. **Nature of the Material:** HAZOP and LOPA Study Report for LNG Liquefaction Process at the Wescott LNG Peak Shaving Facility
2. **Author:** Quest Consultants on behalf of Campos EPC
3. **Importance:** Contains not-public, proprietary and security information
4. **Date the Information was Prepared:** May 5, 2021

Schedule 9

1. **Nature of the Material:** HAZOP Study Report for Sibley Propane Plant
2. **Author:** Quest Consultants on behalf of Campos EPC
3. **Importance:** Contains not-public, proprietary and security information
4. **Date the Information was Prepared:** September 10, 2021

Schedule 10

1. **Nature of the Material:** HAZOP Study Report for Maplewood Propane Plant
2. **Author:** Quest Consultants on behalf of Campos EPC
3. **Importance:** Contains not-public, proprietary and security information
4. **Date the Information was Prepared:** September 13, 2021

Gas Systems O&M Costs by Category NSPM-Gas ($s millions)					
Cost Category	**2018 Actuals**	**2019 Actuals**	**2020 Actuals**	**2021 Forecast**	**2022 Budget**
Contract/COV	$16.6	$17.0	$15.7	$15.7	$15.1
Employee Expenses	$1.1	$1.2	$0.7	$0.7	$0.8
Facility Costs	$1.1	$1.0	$0.8	$0.9	$0.8
Labor	$24.8	$25.6	$24.3	$24.5	$28.4
Materials	$4.9	$4.9	$4.9	$4.7	$4.8
Misc Other	$5.5	$0.5	$0.3	$0.8	$1.4
Operational Credits	($5.2)	($5.8)	($6.7)	($5.5)	($5.5)
Regulatory & Other Fees	$0.3	$0.3	$0.4	$0.8	$0.4
Transportation	$2.6	$2.5	$2.7	$2.7	$2.6
Total	**$51.6**	**$47.2**	**$43.2**	**$45.1**	**$49.0**

Gas Systems O&M Costs by FERC Account NSPM-Gas ($s)					
FERC Account	**2018 Actuals**	**2019 Actuals**	**2020 Actuals**	**2021 Forecast**	**2022 Budget**
421.1	(80,837)	-	-	-	-
421.2	642,208	-	-	-	-
426.1	4,015	10,017	33,343	500	-
426.3	8,000	-	93,600	500,000	-
426.4	740	-	-	2,500	-
426.5	7,461	9,269	880	31	-
583	1,368	-	-	-	-
584	-	340	805	-	-
594	-	-	495	2,108	-
598	1,136	-	-	-	-
733	90,884	59,674	61,107	(5,507)	-
735	3,912,250	197,533	(113,121)	405,000	1,000,000
736	-	1	-	-	-
742	(767)	-	-	-	-
759	135,558	165,655	59,007	14,739	-
760	-	1	-	-	-
813	-	0	1	1	-
834	13,831	111,218	19,614	18,007	-
841	1,793,164	1,559,283	1,264,476	1,159,574	1,304,178
842	-	23	-	-	-
843.1	62,433	33,347	-	-	-
843.2	191,213	134,432	80,574	47,959	-
843.3	127,608	45,289	(2,077)	2,785	-
843.4	3,012	-	-	-	-
843.5	36	115	-	-	-
843.6	33,957	114,804	152,578	96,572	-
843.7	252	7,801	4,524	1,184	-
843.8	2,046	-	528	-	-
843.9	14,760	64,548	36,434	36,614	-
844.3	1,218,906	1,625,074	668,120	940,405	1,174,125
844.5	-	4,809	-	1,209	-
846.2	31,983	56,955	21,004	14,285	-
847.2	245,455	349,625	269,797	247,556	-
847.3	551,185	708,932	1,474,368	1,966,162	2,101,701
847.5	184	791	512	339	-
847.6	11,325	-	-	-	-
850	494,014	445,380	482,273	515,324	840,740
851	183,142	138,815	69,614	51,851	72,361
853	-	638	-	-	-
856	1,611,711	1,663,408	1,871,079	1,935,701	1,531,371
857	-	5,025	19,715	2,720	-
859	4,439	98	198	8	-
860	-	6	-	-	-
863	282,985	266,341	71,033	53,505	22,942
865	96	2,621	10,621	3,151	-
870	3,690,462	4,444,841	4,521,306	4,991,372	5,944,858
871	2,543,245	2,716,925	2,923,842	2,961,106	2,991,013
874	11,111,553	11,404,563	11,348,898	12,224,897	14,072,796
875	497,925	485,719	563,888	259,164	290,007