414 Nicollet Mall
Minneapolis, MN 55401

October 25, 2019

Daniel P. Wolf **—Via Electronic Filing—**
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101

RE: GAS UTILITY INFRASTRUCTURE COST RIDER
TRUE-UP REPORT FOR 2019, REVENUE REQUIREMENTS FOR 2020,
AND REVISED ADJUSTMENT FACTORS
DOCKET NO. G002/M-19-____

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits the enclosed Annual Report and Petition for approval of recovery of updated gas utility infrastructure costs (GUIC) through the GUIC Rider for 2020.

Pursuant to Minn. Stat. § 216.17, subd. 3, we have electronically filed this document with the Commission, which also constitutes service on the Department of Commerce and the Office of the Attorney General – Residential Utilities and Antitrust Division. A copy of this filing has been served on all parties on the attached service lists.

If you have any questions regarding this filing, please contact Brandon Kirschner at (612) 215-5361 or brandon.m.kirschner@xcelenergy.com or Mary Martinka at (612) 330-6737 or mary.a.martinka@xcelenergy.com.

SINCERELY,

/s/

LISA R. PETERSON
MANAGER, REGULATORY ANALYSIS

Enclosures
c: Service Lists

State of Minnesota
before the
Minnesota Public Utilities Commission

Katie J. Sieben	Chair
Dan Lipschultz	Vice-Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE PETITION OF NORTHERN STATES POWER COMPANY FOR APPROVAL OF A GAS UTILITY INFRASTRUCTURE COST RIDER TRUE-UP REPORT FOR 2019, REVENUE REQUIREMENTS FOR 2020, AND REVISED ADJUSTMENT FACTORS	DOCKET NO. G002/M-19-____ PETITION, COMPLIANCE FILING, AND ANNUAL REPORT

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits this Petition, Compliance Filing, and Annual Report to the Minnesota Public Utilities Commission (Commission) to request recovery of our 2020 Gas Utility Infrastructure Cost (GUIC) Rider revenue requirement.

For 2020, we request recovery of a GUIC Rider revenue requirement of approximately $21.3 million. Our request includes integrity management project costs that are consistent with the eligibility requirements set forth in the GUIC statute.[1] These costs are incurred to continue important infrastructure work that promotes the safety of our natural gas system.

We are dedicated to operating a safe and reliable gas system for our customers. With aging gas infrastructure that runs primarily through high-density urban and suburban areas, it is of critical importance that the Company invests in assessing the integrity of our system and repairing and replacing problematic equipment. Integrity management projects address our gas infrastructure's structural integrity, facilitating efficient assessments going forward, and ensuring a safer gas system that will reduce the likelihood of incidents within the community.

[1] Minn. Stat. § 216B.1635.

From the inception of the GUIC Rider in 2015 to the close of 2018, the Company has completed the replacement of over 210 miles of high- and medium-risk, aging, corroded, and otherwise damaged gas distribution pipeline as well as the replacement of over 10,200 aging distribution service lines. The Company will continue working proactively to identify high- and medium-risk pipelines in order to help ensure the safety of our distribution system and reduce the number distribution pipeline leaks. In addition to main and service replacements, by the end of 2019 the Company expects to have performed over 250,000 inspections and identified and cleared about 150 conflicts as a part of the sewer and gas line conflict remediation program. As with our other Transmission and Integrity Management Programs (TIMP) and Distribution Integrity Management Programs (DIMP) projects, the end result is a gas infrastructure system that is safer and more reliable.

Upcoming major renewal and replacement projects include replacing the Langdon Line in the Cottage Grove/Saint Paul Park area and replacing a segment of the County Road "B" Line – from Rice Street to Hamline. These replacement projects address several risk factors including external corrosion, legacy manufacturing techniques, legacy construction techniques, and third party damage. These types of renewal and replacement projects will deliver an enhanced level of safety to our gas system.

Beyond major renewal and replacement projects, upcoming TIMP work will include continued in-line inspections (ILI), direct and pressure test assessments of transmission pipe, valve replacements, and programmatic replacements and maximum allowable operating pressure (MAOP) remediation. Upcoming DIMP work will include poor performing main and service replacements and distribution pipeline inspections.

During its October 10, 2019 agenda meeting, the Commission voted to approve the Company's 2019 request (with certain modifications), and the Commission's Order is pending as of the filing of this petition. In alignment with the Commission's vote, we have incorporated into our revenue requirement calculation a return on equity (ROE) of 9.04 percent and an overall rate of return (ROR) of 7.00 percent, and we have removed from our revenue requirement expenditures for low-risk infrastructure work completed in previous years.[2]

The balance of this Petition is organized as follows:

- *Section I* – identification of the parties and state agencies that are being served with the filing

[2] A small amount of low-risk work is expected in 2019. The actual amount of low-risk work completed in 2019 and 2020 will be removed from our final revenue requirement.

- *Section II* – general information that is required under the Commission's rules
- *Section III* – background of our GUIC Rider, including the applicable Minnesota State Statute, the applicable standard of review, and GUIC Rider recovery as a part of our overall natural gas recovery
- *Section IV* – a summary of the planned 2020 TIMP projects
- *Section V* – a summary of the planned 2020 DIMP projects
- *Section VI* – demonstration that our request to recover costs through the GUIC Rider complies with the applicable standard of review and complies with previous Commission orders
- *Section VII* – discussion of our proposed revenue requirement and 2020 factor calculations including our true-up report, along with a discussion of our proposed rate implementation timeline
- *Section VIII* – support for our proposed capital structure and return on equity (ROE)
- *Section IX* – an update on the progress of developing performance metrics

To aid the review of this filing, we provide, as Attachment A, a compliance matrix which sets forth the requirements of the enabling GUIC statute and relevant Commission Orders and directs readers to the part of the filing which addresses each requirement. We also provide an index of the included attachments as Attachment B to this filing.

I. SERVICE ON OTHER PARTIES

Pursuant to Minn. R. 7829.1300, subp. 2, the Company has served a copy of this filing on the appropriate general service list, the Department of Commerce (Department), and the Residential Utilities and Antitrust Division of the Office of the Attorney General.

II. GENERAL FILING INFORMATION

Pursuant to Minn. R. 7829.1300, subp. 3, the Company provides the following information.

A. Name, Address, and Telephone Number of Utility

Northern States Power Company, doing business as:
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401
(612) 330-5500

B. Name, Address, and Telephone Number of Utility Attorney

Ryan J. Long
Lead Assistant General Counsel
Xcel Energy
414 Nicollet Mall (401-8th Floor)
Minneapolis, MN 55401
(612) 215-4659
ryan.j.long@xcelenergy.com

C. Date of Filing and Proposed Effective Date

The date of this filing is October 25, 2019. The proposed effective date for the 2020 GUIC Rider factors is March 1, 2021. A one-paragraph summary is attached to this filing pursuant to Minn. R. 7829.1300, subp. 1.

D. Statutes Controlling Schedule for Processing the Filing

Minn. Stat. § 216B.1635 governs the Company's submission of a petition to recover gas infrastructure costs. The provision does not establish an explicit timing requirement for Commission action.

E. Utility Employee Responsible for Filing

Lisa R. Peterson
Manager, Regulatory Analysis
Xcel Energy
414 Nicollet Mall (401-7th Floor)
Minneapolis, MN 55401
(612) 330-7681
lisa.r.peterson@xcelenergy.com

F. Miscellaneous Information

Pursuant to Minn. R. 7829.0700, the Company requests that the following persons be placed on the Commission's official service list for this proceeding:

Ryan J. Long
Lead Assistant General Counsel
Xcel Energy
414 Nicollet Mall (401-8th Floor)
Minneapolis, MN 55401
ryan.j.long@xcelenergy.com

Lynnette Sweet
Regulatory Records
Xcel Energy
414 Nicollet Mall (401-7th Floor)
Minneapolis, MN 55401
regulatory.records@xcelenergy.com

Any information requests in this proceeding should be submitted to the Regulatory Records email address above.

III. GUIC RIDER BACKGROUND

The Commission has recognized that our TIMP and DIMP work is reasonable and in the public interest, noting:

> *The Commission concurs with the Department that the investments proposed for rider recovery […] meet the statutory requirements for rider recovery as gas utility infrastructure costs. These costs were incurred in the replacement or modification of existing facilities required by federal and state agencies. They were not included in Xcel's last rate case. And the costs are reasonable and prudent in view of the public safety purpose served by the TIMP and DIMP initiatives.*[3]

Recovery of costs through the GUIC Rider continues to be in the public interest, as it provides annual regulatory review of the Company's natural gas safety investments. The Commission signals continued regulatory support for investing in the safety of our natural gas system by allowing for efficient rider recovery of costs.

A. Applicable Minnesota Statues

The Recovery of GUIC statute[4] explicitly authorizes the timely recovery of expenditures through a rider mechanism. As stated in the statute, the legal standard of review for this petition is:

> *Upon receiving a gas utility report and petition for cost recovery under subdivision 2 and assessment and verification under subdivision 4, the commission may approve the annual GUIC rate adjustments provided that, after notice and comment, the costs included for recovery through the rate schedule are prudently incurred and achieve gas facility improvements at the lowest reasonable and prudent cost to ratepayers.*[5]

The importance of safety related cost recovery is also specifically mentioned in Minnesota's pipeline safety statutes.

> *All costs of a public utility that are necessary to comply with state pipeline safety programs under sections 216D.01 to 216D.07, 299F.56 to 299F.64, or 299J.01 to 299J.17 must*

[3] *See* Order Requiring Updated Report, Approving Rider Recovery, and Requiring Metrics to Evaluate GUIC Expenditures, Docket No. G002/M-15-808 (August 18, 2016) at page 6.
[4] Minn. Stat. § 216B.1635.
[5] Minn. Stat. § 216B.1635 Subd. 5.

> *be recognized and included by the commission in the determination of just and reasonable rates as if the costs were directly incurred by the utility in furnishing utility service.*

Beyond costs, the standard of review for the return on investment for expenditures is:

> *The return on investment for the rate adjustment shall be at the level approved by the commission in the public utility's last general rate case, unless the commission determines that a different rate of return is in the public interest.*[6]

As the Commission has previously recognized, the Company's TIMP and DIMP activities are precisely the type of expenditures for which Minn. Stat. § 216B.1635 authorizes recovery. With this request, the Company asks the Commission allow continued recovery of our projected TIMP and DIMP expenses for 2020. The Company's revenue requirement reflects the impact of ongoing integrity management projects already approved by the Commission in previous GUIC Rider filings. Our TIMP and DIMP plans do not include any new projects for 2020.

The text of the Recovery of GUIC statute is provided as Attachment E.

B. GUIC Rider as a Part of Overall Gas Utility Cost Recovery

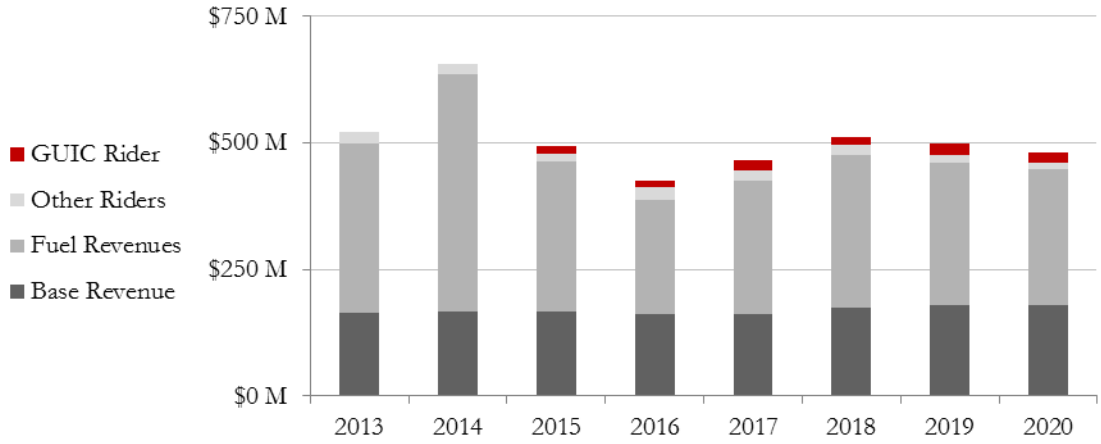
The recovery of GUIC Rider revenue requirements is a critical component in the Company's gas utility business and facilitates construction and assessment activities that help keep the gas system operating safely and efficiently. However, the total GUIC Rider revenue requirement related to integrity management project work represents only a portion of the overall gas utility recovery. At a high level, the Company's gas utility recovery can be broken down into four components. These components are:

- Base rates recovery, stemming from the approved revenue requirement from the last general gas rate case
- Fuel revenues
- GUIC Rider annual revenue requirement
- Other riders

To provide context as to how the GUIC Rider fits into the Company's total gas utility recovery, Figure 1 below shows the total gas utility revenue collections by recovery mechanism.

[6] Minn. Stat. § 216B.1635 Subd. 6.

Figure 1
Annual Revenue Collections by Recovery Mechanism



GUIC % of total	0.0%	0.0%	2.8%	3.0%	4.6%	3.8 %	4.8%	4.4%
Earned ROE[7]	9.76%	9.08%	9.71%	8.12%	9.16%	9.81%		

The GUIC Rider represents 4.4 percent of total bill collections forecasted in 2020. We also provide the earned ROE as reported in our jurisdictional annual reports. The reported earned ROEs include the costs and revenues across all of the shown recovery methods. Purchased gas costs peaked in 2014 and therefore total customer bills are down significantly from that peak. We further note that though recovery through the GUIC Rider has been increasing due to gas safety program implementation, the Company has a remaining deficiency that is unrecovered and we have continued to earn at a level below our authorized gas rate of return on equity.[8]

IV. TIMP PROJECTS

We established our TIMP to assess and improve the safety and reliability of our gas transmission system, which includes about 75 miles of transmission pipeline in Minnesota. Our TIMP complies with federal regulations by identifying risks, systematically performing health and condition assessments, and evaluating and prioritizing preventative or corrective actions to mitigate identified risks and threats.[9] Our TIMP focuses on giving the Company a comprehensive understanding of the health and condition of its gas transmission pipelines, while assigning higher priority to those located in highly populated areas.

[7] Weather Normalized
[8] Please reference Page 35 of our 2018 Minnesota Jurisdictional Gas Annual Report. Our earned return on equity for 2018 was nearly 30 basis points lower than the authorized return on equity of 10.09 percent.
[9] *See* 49 C.F.R. 192, Subpart O.

The Company currently has three major TIMP initiatives under way.

- Transmission Pipeline Assessments
- Programmatic Replacement and Maximum Allowable Operating Pressure (MAOP) Remediation Program
- Automatic Shut-off Valves and Remote-controlled Valves

Project descriptions, scopes of work, estimated costs and in-service dates for specific TIMP projects are provided as Attachments C, C1, and C2. We also provide a brief explanation of new federal regulations that may have an effect on future TIMP projects. Attachment F reports the capital expenditure costs and forecasted costs for incremental TIMP activities between March 2012 and December 2024. Attachment G shows the development of 2018 through 2021 revenue requirements for TIMP activities, based on the capital expenditures referenced in Attachment F.

A. Transmission Pipeline Assessments

Transmission pipeline assessments are an ongoing program, beginning in 2002, to assess the health and condition of our gas transmission lines. Federal regulations require assessment of gas transmission pipelines using ILI, pressure testing, or direct assessment.[10] Regular assessment of pipelines is based on the health and condition of the assets as well as an evaluation of other operating information.

A new federal transmission rule that was published on October 1, 2019, will establish rules for assessing pipeline in Medium Consequence Areas (MCA). Under the new rules, MCAs must be assessed initially within 14 years of the publication date of the new rule and then must be reassessed at least once every ten years thereafter. These assessments will provide important information about the conditions of the Company's pipelines, including the existence of internal and external corrosion and other anomalies. The Company is currently assessing this provision of the new rule and has not included any costs for assessing MCAs in our 2020 GUIC Rider request. It is anticipated that the 2021 GUIC Rider request will include assessment costs for pipelines that reside in an MCA.

When performing gas transmission line assessments, the Company conducts ILI as a first preference. There are advantages to using ILI compared to alternative assessment methods. First, the pipelines need not be taken out of service while the inspection is in process. Second, ILI provides the most comprehensive profile of the integrity of a pipeline and can assess for multiple threats. Third, ILI technology allows for assessment of longer distances with one inspection run. Other approved assessment methodologies (pressure testing or direct assessment) only assess for

[10] The requirements are further defined in the Company's TIMP manual.

limited threats and are usually performed on relatively short pipe segments. After an initial capital investment to prepare a pipeline for an ILI tool, subsequent assessments will be performed using ILI as an operations and maintenance (O&M) cost.

Future costs associated with transmission pipeline assessments could vary between $2.5 million and $7.1 million depending on the specific segments being assessed. The costs incurred will likely be a combination of capital expenditures and O&M expenses, depending on the type of work being performed. The forecasted capital and O&M costs for assessments included in our previous GUIC Rider filings are shown in Table 1 below.

Table 1
GUIC Transmission Pipeline Assessments[11]
($ Millions)

Filing	Assessment (Miles)	Capital Expenditures	O&M Expenditures
2016 (15-808)	10.5	$4.9	$0.0
2017 (16-891)	13.7	$1.6	$1.1
2018 (17-787)	20.9	$0.3	$1.5
2019 (18-692)	15.8	$1.0	$2.9
2020 (19-___)	25.7	$2.3	$1.7

As shown in Table 2 below, the Company expects to complete 2 ILI projects and 1 direct assessment project in 2020. [12] Based on the current assessment plan, the Company expects to complete three to five projects each year.

[11] The Company's costs and mileage amounts included in the 2016 through 2019 GUIC Filings differ from actual and forecasted amounts as a result from program modifications occurring after the initial filing.
[12] Assessments are required every seven years according to Subpart O – Gas Transmission Pipeline Integrity Management 192.939. The first batch of second run ILI assessments was completed in 2018 to meet this requirement.

Table 2
Transmission Integrity Assessments[13]

Number of Projects							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
ILI	0	0	2	3	2	2	9
Pressure Test	2	1	0	0	0	0	3
Derate[14]	0	0	0	0	1	0	1
Direct Assessment	1	0	0	0	1	1	3
Total	3	1	2	3	4	3	16
Assessed Mileage							
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
ILI	0.0	0.0	7.8	20.6	2.9	15.4	46.7
Pressure Test	3.1	0.1	0.0	0.0	0.0	0.0	3.2
Derate	0.0	0.0	0.0	0.0	5.8	0.0	5.8
Direct Assessment	6.5	0.0	0.0	0.0	0.4	10.3	17.2
Total	9.6	0.1	7.8	20.6	9.1	25.7	72.9

B. Automatic Shut-off Valves and Remote-controlled Valves

The automatic shutoff valve and remote controlled shutoff valve installation project began in 2015 and is expected to continue at least through our current forecasting period. The installation of automatic shutoff valves and remote controlled valves provides the Company with a mechanism to more expediently shut off the flow of gas. These valves can be useful tools to prevent negative impacts to public safety in the event of an incident.

We anticipate the associated capital expenditures for installations to be approximately $0.8 million per year. The Company continues to evaluate the scope of this project and performing a risk-based engineering analysis to determine the overall duration of the project.

C. Programmatic Replacement and Maximum Allowable Operating Pressure Remediation

In 2017, the Company began work on the Programmatic Replacement and MAOP Remediation Program. The MAOP initiative strives to meet the requirement to have traceable, verifiable, and complete (TVC) records of a pipeline's MAOP and targets necessary repairs or replacement efforts on transmission pipelines that have been

[13] 2019 and 2020 amounts are estimates based on expected work scopes. Numbers may change as actual work is completed

[14] A derate project involves lowering the line's maximum allowable operating pressure to reduce risk and reclassify the pipeline as distribution. The project noted for 2019 was for the Eagan Line.

assessed for asset health and condition in prior years. PHMSA issued guidance in 2012 that clarified the recover verification requirements for establishing MAOP for natural gas pipelines and now requires MAOP records to be TVC.[15] The revised federal guidance requiring operators to re-establish MAOP are highly prescriptive and go well beyond the standards operators previously employed to maintain their transmission systems.[16] The Company could not have reasonably anticipated these new requirements decades before they were adopted, and therefore the Company's remediation initiative has followed the federal guidance and is properly a component of our integrity management project work. Further, greater than 40 percent of the Company's gas transmission pipelines were installed prior to 1970, at a time when federal code that established record keeping requirements did not exist.

Through the initiative, the Company is validating existing MAOP records for our transmission pipelines, and remediating any gaps in such records.[17] Remediating gaps includes addressing missing records associated with pipe diameter, wall thickness, grade, seam type, manufacturer, component ratings and historic pressure test data. Other record gaps could include missing information regarding design, fabrication, construction, maintenance, and testing. Record keeping can be further complicated by assets with a history of multiple owners, as the seller's pipeline records can be incomplete or inaccurate and comprehensive asset knowledge was not necessarily passed on to future owners. However, incomplete or partial records are not an adequate basis for establishing MAOP. If records are unknown, a more conservative approach is warranted. To validate MAOP, the Company uses pressure tests to establish baseline operating pressures and will replace assets, when applicable, due to lack of historical MAOP documentation needed to meet criteria established by Pipeline and Hazardous Materials Safety Administration (PHMSA).[18]

PHMSA considers validation of MAOP for gas transmission pipelines based on the new TVC criteria as sufficiently extraordinary to be the subject of a MAOP Remediation Advisory Bulletin as well as the new rule published by PHMSA on October 1, 2019.[19] Under the new regulations, MAOP records must meet the following criteria, independent of the date of construction:

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[15] See http://www.gpo.gov/fdsys/pkg/FR-2012-05-07/pdf/2012-10866.pdf.

[16] The regulations were created in response of the high-pressure natural gas pipeline that ruptured in a residential neighborhood of San Bruno, CA, causing 8 fatalities and numerous injuries, destroying 38 homes and damaging 70 more. In part, the National Transportation Safety Board concluded that Pacific Gas and Electric's integrity management program was deficient and ineffective because it was based on incomplete and inaccurate pipeline information.

[17] There are approximately 300,000 miles of natural gas transmission pipelines in the United States, and a significant portion of these lines were installed prior to federal pipeline safety regulations being codified in 1970. Therefore, it is expected that there will be gaps in MAOP records.

[18] PHMSA requires companies to have traceable, verifiable, and complete records.

[19] See http://www.gpo.gov/fdsys/pkg/FR-2012-05-07/pdf/2012-10866.pdf.

- Traceable – Records which can be clearly linked to original information about a pipeline segment (e.g. pipe mill records, purchase requisition, etc.)
- Verifiable – Records in which information is confirmed by other complementary, but separate, documentation (e.g. contract specifications for a pressure test of a line segment complemented by pressure charts or field logs)
- Complete – Records in which the record is finalized as evidenced by a signature, date or other appropriate marking.

Previously, the MAOP of pipelines installed prior to the enactment of Federal pipeline safety rules in 1970 could be established based on historical operating pressures prior to 1970. The new MAOP requirements call to retroactively remove the ability to have MAOP established by historical operating pressure as well as eliminate the possibility of data quality and data translation errors causing inaccuracies in MAOP documentation.

These are critical requirements put in place by PHMSA, and the costs incurred to meet the newer requirements are specifically considered in the GUIC statute.[20] We believe these changes necessitate the work that we are undertaking and show that the costs incurred are eligible for GUIC Rider recovery in full.

The results of the transmission pipeline assessment will drive the overall scope and timing of capital expenditures under the Programmatic Replacement and MAOP Remediation program. There is currently one, multi-year MAOP replacement project scheduled, which is expected to be completed in 2020. MAOP work will continue is scheduled for 2023 and 2024, with expected annual expenditures of $15 million in each year.[21]

V. DIMP PROJECTS

The Company's DIMP is grounded in federal rules issued by PHMSA with a goal to ensure safe and reliable gas delivery to our customers.[22] The DIMP rules are intended to help gas system operators identify, prioritize, and evaluate risks; identify and implement measures to address those risks; and validate the integrity of the gas distribution system.

[20] Minn. Stat. § 216B.1635.
[21] No capital expenditures are planned for this program in 2021 and 2022.
[22] *See* 49 C.F.R. 192, Subpart P. PHMSA is a Department of Transportation agency created in 2004, responsible for developing and enforcing regulations for the safe, reliable, and environmentally sound operation of the US' 2.6 million mile pipeline transportation.

The Company currently has three major DIMP initiatives under way.

- Poor Performing Main Replacement
- Poor Performing Service Replacement
- Distribution Pipeline Inspection and Replacement

Beyond that, three major DIMP initiatives have been completed in 2018 and 2019.

- Sewer and Gas Line Conflict Remediation
- Distribution Valves and Pipeline Data
- Federal Code Mitigation

Project descriptions, scopes, estimated costs, and in-service dates for specific DIMP projects are provided in Attachment D. Attachment F reports the capital expenditure forecast for incremental DIMP activities between August 2012 and December 2024. Attachment H shows the development of 2018 through 2021 revenue requirements for DIMP activities, based on the capital expenditures referenced in Attachment F.

A. Poor Performing Main and Service Replacements

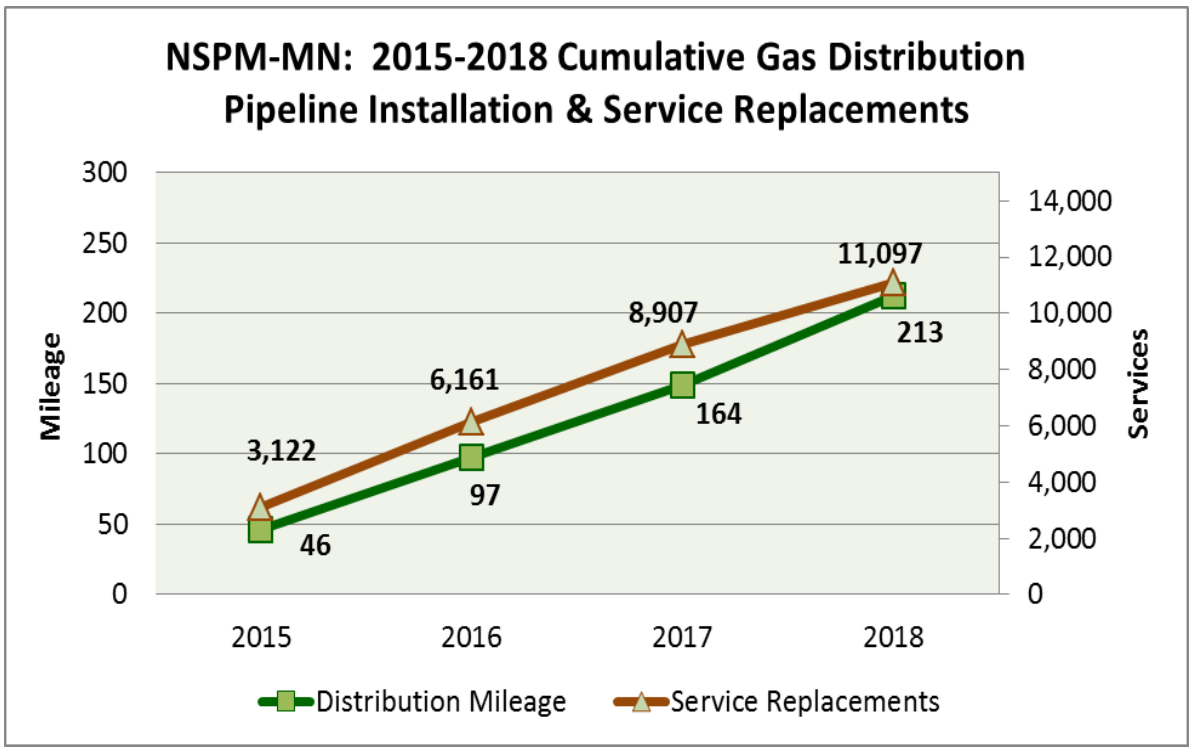
Under 49 CFR Part 192.1007(d), the Company must determine and implement measures designed to reduce the risks from failures of its gas distribution pipeline. As a result, the Company uses subject matter expertise, historical leak data, and industry information to identify risk factors that may lead to gas pipeline leaks or failures. The annual replacement levels of high- and medium-risk pipe are based on these factors.

The Company deems a main or service line to be high- or medium-risk through our risk ranking methodology as well as monitoring industry trends and issues. The goal of the Company's risk analysis is to anticipate issues and proactively address them before they become problems on the system. Improvements in data quality and Company processes are aiding the transition to a more proactive approach which benefits customers. Work undertaken systematically reduces costs compared to work undertaken in a reactionary or immediate threat mode. The Company monitors and reviews the leak history of pipe material types and year of installation. Trends of increasing leak ratio or cause associated with certain pipe types are studied further to determine if proactive action is required.

Future capital expenditures associated with poor performing mains are estimated at $11 million annually, while the poor performing services investment is estimated at $7 million annually. Replacement work will require design and construction resource procurement and deployment. The Company does not expect to incur significant O&M costs for the project as the costs of service transfers are a capital cost when the transfer is completed as the result of, and in conjunction with, another capital project.

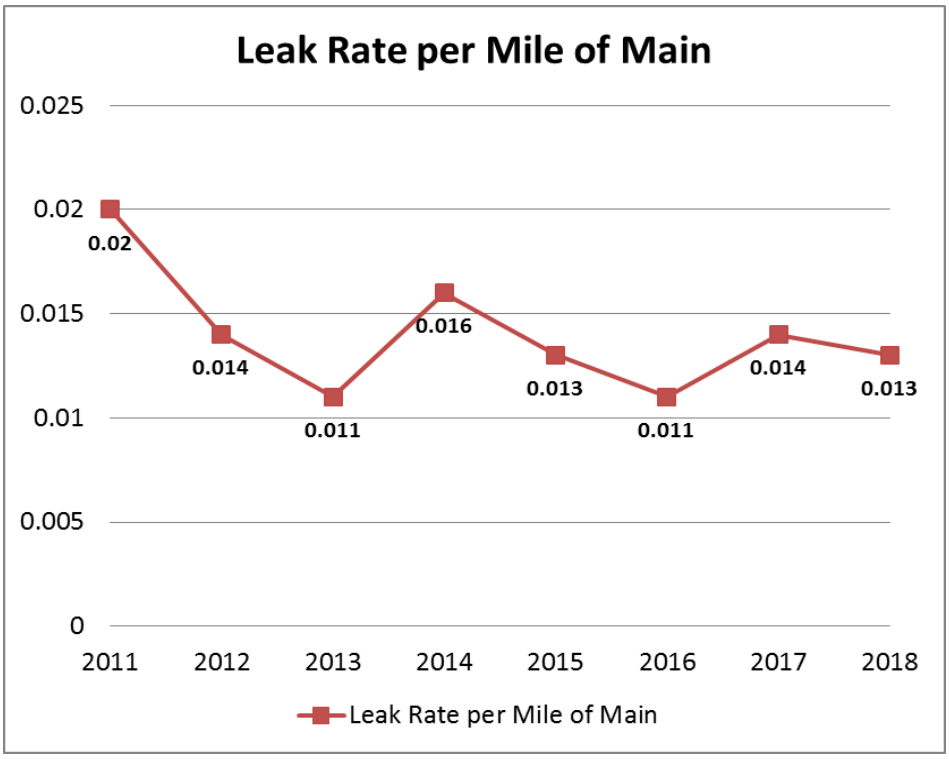
Figure 2 illustrates the Company's achievements in integrity-related main and service distribution replacement:

Figure 2
Cumulative Gas Distribution Pipeline Installation and Service Replacements



The Company continually collects data to help identify and remove distribution pipe segments that are most susceptible to failure. One of these data collection methods is periodic leak surveys to monitor system integrity and remediate known leaks that have the potential to result in an event. Figure 3 reflects leak data submitted to the United States Department of Transportation for the years 2011 through 2018:

Figure 3
Distribution Mains Leak Rate
(Per Mile of Main)



As evidenced in Figure 3, the performance of the Company's distribution system has gradually improved, as measured by an overall declining leak rate per mile of main from 2011 to 2018.[23] The Company expects to maintain current annual investments for distribution mileage and service line replacements through at least 2022.

B. Distribution Pipeline Inspection and Replacement

Distribution pipeline inspections and replacements are part of an ongoing program that involves the regular inspection and replacement of high- and medium-risk segments of pipeline to satisfy the federal pipeline safety regulations set forth by PHMSA rules.[24] The asset health data collected from these inspections will be used to develop plans for additional mitigation actions as needed to protect public safety.

[23] Leak rates can occasionally increase year over year due to variances in areas where work is focused each year.

[24] *See* 49 CFR Part 192.921 (a). The rule requires an operator to assess the integrity of the line pipe in each covered segment by applying one or more of the approved methods depending on the threats to which the covered segment is susceptible. An operator must select the method or methods best suited to address the threats identified to the covered segment.

As shown in Table 3, the Company expects to complete three direct assessment projects in 2020. From 2016 through 2020, the Company expects to assess a total of 85.4 miles of distribution pipeline. Based on the current plan, the Company expects to complete between three and five projects annually through 2023.

Table 3
Distribution Pipeline Integrity Assessments[25]

Number of Projects						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Pressure Test	0	0	0	1	0	1
Direct Assessment	2	1	2	0	3	8
Total	2	1	2	1	3	9
Assessed Mileage						
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Pressure Test	0.0	0.0	0.0	2.4	0.0	2.4
Direct Assessment	30.7	11.1	5.0	0.0	36.2	83.0
Total	30.7	11.1	5.0	2.4	36.2	85.4

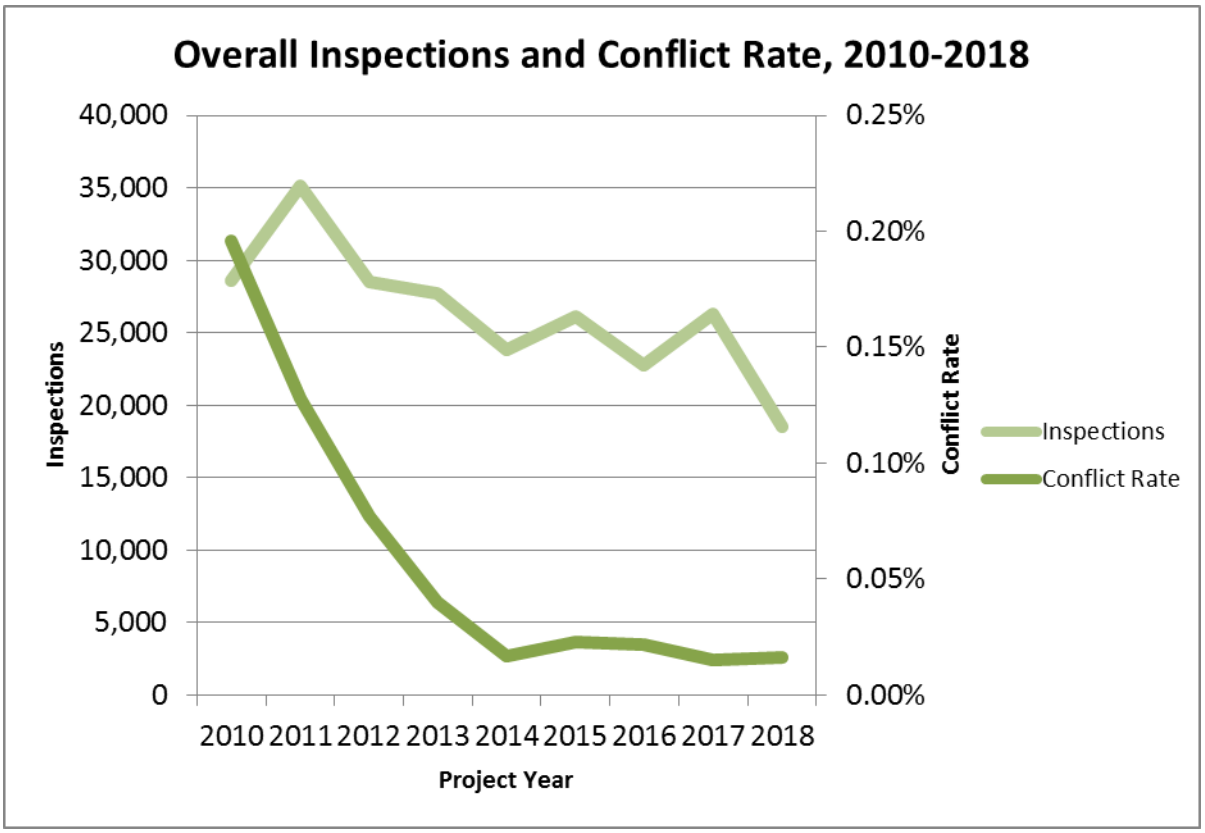
C. Sewer and Gas Line Conflict Remediation

The Company's Sewer and Gas Line Conflict Remediation Program has been a major DIMP initiative that seeks to identify conflicts that are low probability but high consequence. This program was developed in response to a 2010 incident where a sewer cleaning contractor working in Saint Paul perforated a natural gas main that intersected the sewer line, resulting in a fire, property damage, and injury.

Over time, through inspections and remediation of sewer and gas line conflicts, the Company has seen the conflict rate decrease from 0.20 percent in 2010 down to 0.02 percent in 2018. Figure 4 illustrates the progress of the Company's Sewer and Gas Line Inspection Program between 2010 and 2018.

[25] 2019 and 2020 amounts are estimates based on expected work scopes. Numbers may change as actual work is completed.

Figure 4
Overall Inspections and Conflict Rate



The sewer conflict inspection program is now in its tenth and final year. By the end of 2019, the Company expects to have performed roughly 250,000 sewer line inspections and cleared around 150 conflicts.[26]

VI. COMPLIANCE WITH COMMISSION ORDERS AND STATUTES

A. GUIC Rider Promotes Safety and Reliability and is in the Public Interest

The GUIC Rider continues to be in the public interest, as it enables ongoing improvements that help ensure the safety and reliability of the Company's gas utility assets. As the Commission has recognized, by proactively addressing system risks, the Company can systematically and efficiently conduct critical work. Indeed, working from a proactive stance allows the Company to take advantage of improved economies of scale, engage in regional planning, minimize inconvenience to impacted communities, and efficiently deploy resources.

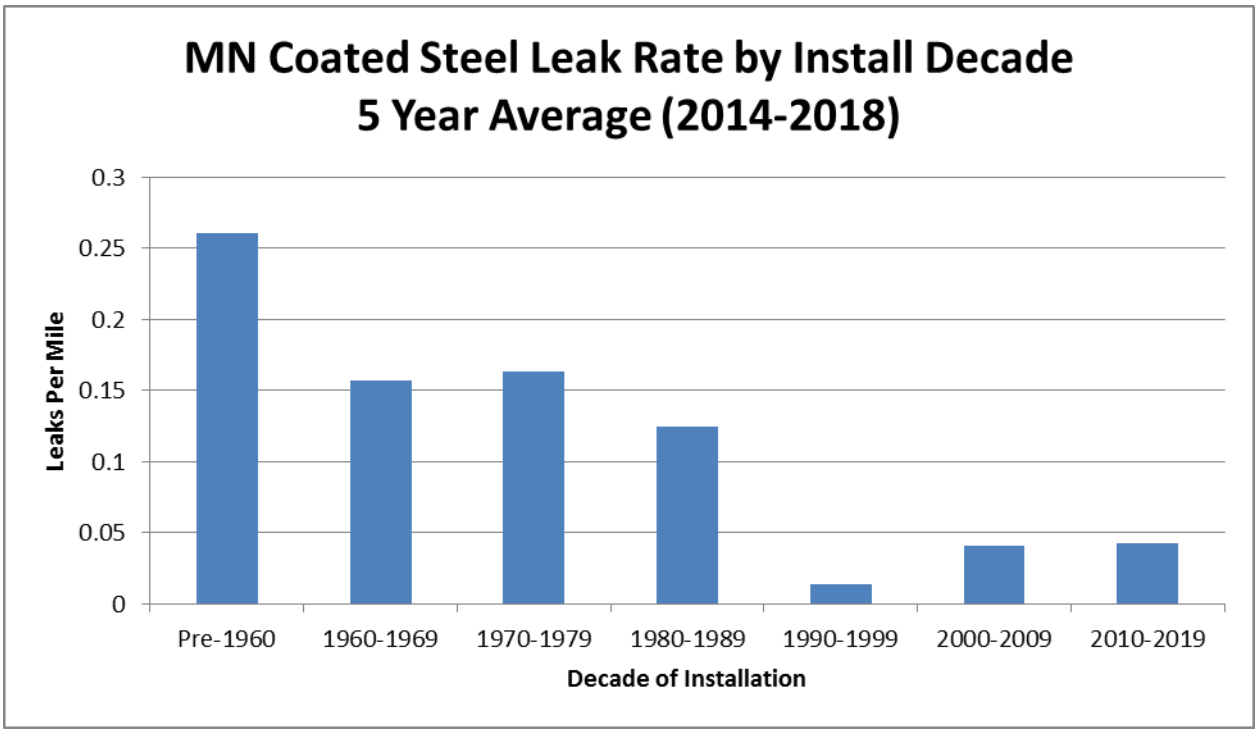
[26] As required by the Commission's Order in Docket No. G002/M-10-422, we previously provided discussions of the issues around our sewer conflict program (as required by this order) in our 2015, 2016, and 2017 GUIC Rider filings. We have no updates to provide since those filings were submitted.

The public and customer benefits of increased safety and reliability that are delivered through integrity management project work are significant and ongoing, but continued efforts are needed. For instance, the needs of our aging infrastructure, particularly in densely populated areas, are addressed through our integrity management work. Thus, integrity management project work reduces the risks of major catastrophes in the event of a failure.

1. Addressing Aging Assets

Federal regulation requires pipeline operators to assess the integrity of their pipelines based on threats to which the pipeline is susceptible. The characteristics of the Company's gas utility assets, including material types and construction methods used at the time of installation, introduce varied levels of risk. For example, steel pipes that were installed prior to the requirements or implementation of effective cathodic protection are prone to corrosion and have a higher risk of failure. Older assets also have a higher risk of material or construction flaws. A demonstration of this fact is shown in Figure 5 below. In this figure, leak rates per mile are shown for each decade of installation for our coated steel distribution pipelines.

Figure 5
Coated Steel Distribution Pipe Leak Rate by Install Date
5 Year Average (2014-2018)

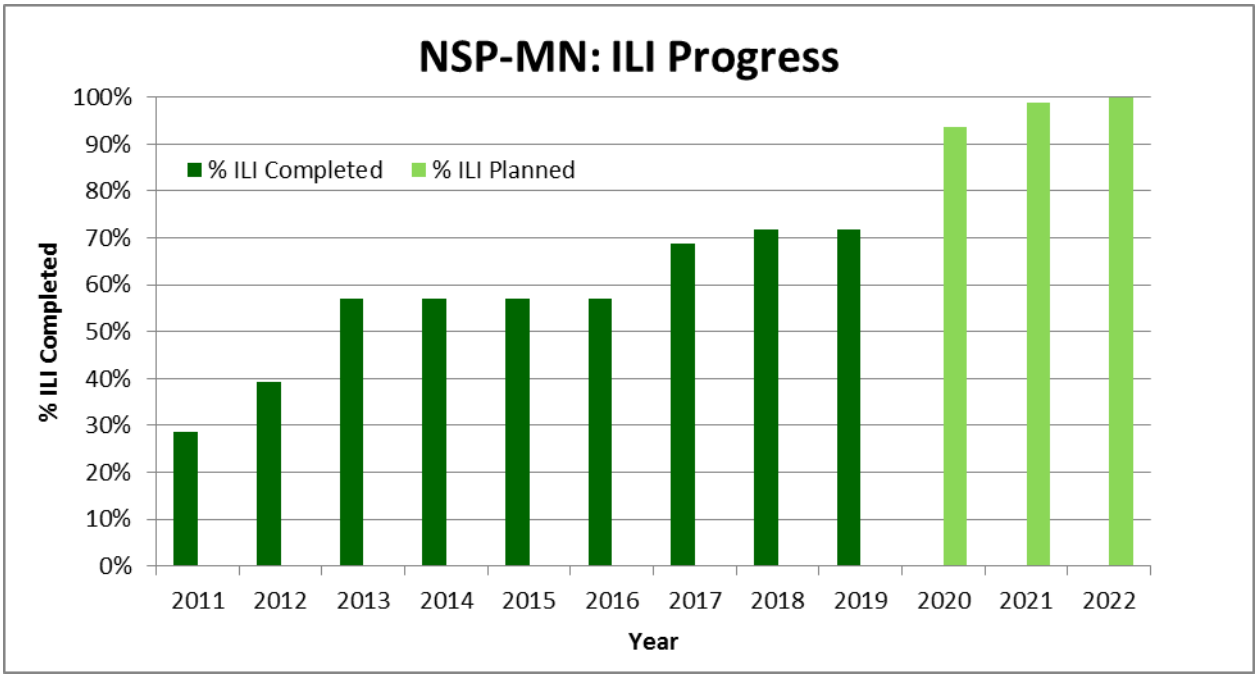


As can be seen, the leak rate for pipe installed in more recent decades is consistently lower than the leak rate for pipe installed earlier. While age alone does not indicate an imminent risk of failure, it is a predictive factor and we must address risks posed by legacy construction techniques and materials.

In order to assess these aging gas transmission assets, the Company primarily utilizes ILI due to its superior ability to provide detailed information regarding the current pipeline condition without having to remove the line from service. Not all pipelines can be assessed by ILI due to limitations in the capabilities of available ILI tools. For example, the same ILI tool cannot be used on the entire length of a pipeline if the pipe diameter varies.

As shown in Figure 6 below, approximately 72 percent of the Company's gas transmission system that is planned to be assessable using ILI tools has been assessed. The Company's current assessment plan projects 100 percent of transmission pipelines that are feasible to be assessed by ILI tools will be ILI compatible by 2022.

Figure 6
Transmission System ILI Assessment Progress



2. Safety and Population Density

Many communities with older gas utility assets have grown significantly since initial pipeline installation. Increased population density brings with it a higher risk of catastrophic consequences in the event of a failure. Population density is a critical focus of determining the criticality of pipeline work and is a factor in our risk

modeling processes which help us prioritize work in high density areas.[27] Pipeline assets, both transmission and higher-pressure distribution lines, require increased effort and related expense as the Company works to help ensure the safe and reliable operation of these systems.

3. Risk Assessment Methodology

The Company evaluates the threats to our pipeline that may pose a safety or reliability risk. Pipeline asset information from existing records, operating data, and input from subject matter experts is initially used to identify events or conditions that could cause or increase the likelihood or consequence of pipeline failure. This risk evaluation process provides information to facilitate decisions about the prioritization of health and condition assessments, the frequency of assessment, which assessment methodology is most appropriate, and in certain cases information to substantiate the need for replacement of an asset. The Company provides detailed explanations of our risk assessment processes in Attachments C and D. The actual results of the risk assessments can be found in Attachments C2, D2(a), and D2(b).

The Commission addressed our risk assessment process during its recent 2019 GUIC Rider filing. Specifically, the Commission decided that we should continue to improve risk assessment reporting for our GUIC Rider requests going forward, that we should provide consequence class information for mains and services, and that we should develop full risk assessment profiles for the TIMP Transmission Pipeline Assessment and Programmatic Replacement and MAOP Remediation programs. In compliance with the Commission's decision, the Company has included consequence class information for mains and services in our risk assessments in this filing. We have also included the risk assessment profiles as requested for the mentioned TIMP programs. This is a first step in improving our risk assessment reporting. Going forward, we will continue to assess our process to ensure our risk assessments are as useful as possible.

B. GUIC Rider Activities are Reasonable and Prudent

The GUIC statute requires that our annual filing include information regarding the reasonableness and prudency of our integrity management project costs incurred.[28] Through stringent oversight processes and a contract and charge review process, the Company is able to ensure that costs are tracked and are reasonable in comparison to forecasted amounts. The Company looks for many opportunities to control costs and the following discussion will highlight these efforts undertaken by the Company to ensure the reasonableness and prudency of our integrity management project costs.

[27] High density areas are also referred to as high consequence areas in PHMSA guidelines.
[28] Minn. Stat. § 216B.1635 Subd. 4(2)(iv).

The Company believes integrity management project work is prudent, regardless of the recovery mechanism used. The primary advantages of a rider mechanism are the added flexibility, frequency of regulatory review, and promptness of recovery. Rider recovery also provides additional certainty by allowing the Company to develop multiyear programs of work that are more comprehensive and cost effective, which can deliver cost savings over time through more efficient work planning. When the work is proactive in nature, construction crews can be optimized to reduce mobilization and demobilization costs, coordinate permitting and street construction with impacted communities, and minimize traffic control and rerouting to reduce the overall inconvenience of this work for our customers. Additionally, we can leverage economies of scale by obtaining the requisite project equipment at a competitive price. When work must be completed due to a reactive or emergency driven situation, there is less ability to plan strategically about costs, efficiencies, or community impact.

1. Forecasting

Expenditures for integrity management projects must successfully pass through the Company's capital and O&M budgeting process, which is approved by Company officers and the board of directors. The Company leverages past experience with assessments and repairs to assist in developing budgets for future work. Additionally, the Company's gas project management department handles large gas projects and programs. This department provides centralized project management to address overall scope, scheduling, and budgeting for major capital gas projects.

While the Company has strict cost controls in place to ensure that costs are prudently incurred, actual work requirements may cause actual costs to be either higher or lower than initial forecasts. To the extent actual costs are higher, this should not disqualify the additional costs from being considered reasonable, prudent, and eligible for GUIC Rider recovery consideration. The recovery of projects costs—whether in base rates or through a rider—depends on the prudency of those costs rather than the accuracy of an initial forecast. Indeed, the Commission has previously concluded that "cost overruns can be prudently incurred" and that the "Commission will therefore permit utilities to seek higher recovery levels in future proceedings, with proper documentation and explanation in their rider filings."[29]

Beyond being consistent with longstanding Commission practice and precedent, allowing the Company to true-up GUIC Rider costs in the event that costs differ from initial forecasts is also good policy. Utilities should be encouraged to provide forecasts that are as accurate as possible, given the best information available at the

[29] In the Matter of the Application of ITC Midwest LLC for a Certificate of Need for the Minnesota-Iowa 345 kV Transmission Line Projects in Jackson, Martin, and Faribault Counties, Docket No. ET-6675/CN-12-1053, at 6 (November 25, 2014).

time of the forecast and based on the expertise and judgment of their engineering and project teams. This promotes transparency and predictability when it comes to the costs (and ultimately the rates) associated with these projects. Adopting a bright-line rule with respect to any costs above a utility's forecast—whether due to permitting delays, weather, or any other factor beyond a utility's control—would distort utility incentives around forecasting accuracy. Specifically, it would create significant incentives for utilities to adopt more conservative approaches to forecasting project costs in order to avoid disallowances for the sole reason that actual costs exceeded the forecast.

2. Cost Controls

The Company's gas business unit monitors capital expenditures to ensure that authorized projects align with the established budget to achieve the lowest reasonable and prudent cost. On a monthly basis, budget to actual spend is compared and financial forecasts are updated for programs and projects.

Integrity management projects follow the Company's sourcing policy which provides that, with few exceptions, all standard goods and services agreements with a value greater than $50,000[30] are awarded on a documented competitive basis.[31] In the limited circumstances where a competitive process is not required, written justification and director level authorization from the business area and the Company's supply chain department is required.[32]

Furthermore, where practical, the Company establishes bid-unit contracts for activities that are reproducible. Contracts are awarded to the vendors that provide the best overall value, resource availability, and proven safety performance. When bid-unit contracts cannot be used, the Company employs project-specific lump sum bids or written proposals against existing contractual agreements that establish the intended work activities through a written scope of work and confirm the vendor's understanding in their written proposals and schedules.[33]

Aging infrastructure across the country has resulted in a large number of gas operators implementing multi-year replacement programs. This has resulted in heavy competition to secure specialized equipment, engineers, and construction crews

[30] Including cumulative amounts in multi-year agreements.
[31] The bid process also ensures compliance with Company policies regarding the use of diverse contractors and suppliers as specified within the Company's corporate policy on supplier diversity.
[32] Some examples of situations where a competitive bid would not be used include emergency work and the absence of competitive firms.
[33] Agreements with a value less than $50,000 are awarded on an informal competitive basis to the extent reasonable to obtain goods and services from a source whose offer is most advantageous to Xcel Energy considering the administrative cost of the purchase.

required for renewal work. The contractors that complete work as a part of these multi-year replacement programs have been unable to support the total amount of work being done. This has put stress on available engineers, construction contractors, and other needed resources. To that end, we have invested not only in robust supply chain procedures, but also in human resources, including engineers and construction crews.

3. Oversight Methods and Contract/Charge Review

In addition to using a competitive bid process to secure needed resources, we also employ significant and ongoing cost oversight. The Company conducts a monthly status review of major capital programs and projects, including integrity management projects. We review actual overall capital spending in comparison with forecasted spending monthly and at year-end.

In 2014, the Company established a Rider Review Committee (RRC) to review projects included in our various rider recovery mechanisms. For the GUIC Rider, the RRC is tasked with ensuring that modifications made to integrity management projects met the intent of the GUIC statute and Company's GUIC Rider. The RRC process was designed to formalize the structure and documentation practices as well as increase the transparency around capital and O&M expenditures related to gas integrity initiatives utilizing rider cost-recovery mechanisms. Program proposals modifying original plans are subject to review, approval, and sign-off based on cost thresholds governed by the RRC's approval matrix guidelines.

In addition to the financial oversight and controls mentioned above, the Company also employs various levels of operational oversight and controls to meet internal standards, and external requirements set forth by the Code of Federal Regulations. All gas projects completed by contractors have assigned inspectors that assist in oversight and validate that the contractor is performing work in accordance with the Company's Pipeline and Compliance Standards Manual. The Company primarily uses contract inspectors for oversight work, as these inspectors can provide specialized experience and equipment. Also, using outside resources for oversight work allows for an independent approach to inspections that is completed in a standard manner consistent with our Pipeline Compliance and Standards Manual.

Other oversight methods include scheduled and unscheduled inspection from members of the Minnesota Office of Pipeline Safety (MNOPS). Each year, MNOPS conducts scheduled field and records inspections throughout our service territory. Additionally, the Company provides MNOPS with information regarding active projects and inspectors have authority to make unannounced inspections at any time. For example, MNOPS performed 10 planned inspections and evaluated 28 unplanned

events in 2019. Inspections included a review of field locations and records, operations and maintenance procedures, safety-related concerns, and outages.

Integrity management projects have internal personnel identified that oversee the activities. Those personnel work closely with gas engineering, design, and our contractors before, during, and after construction to plan and schedule the work, discuss efficiency opportunities and communicate challenges that may impact the work as well as its cost. The personnel responsible for oversight also review and approve all project-related invoices to ensure the costs are accurate and reasonable. Similarly, the Company monitors the sewer mitigation project by tracking progress, expenditures, and outcomes. The governance team overseeing the sewer mitigation work meets on a monthly basis, and provides an annual update of progress and findings to MNOPS.

As part of our cost review process, all capital and O&M transactions identified as integrity management-related are now individually reviewed on a monthly basis and require management approval. We believe this enhanced examination of individual transactions and subsequent validation that each transaction relates to a master service agreement involving Minnesota-specific work and will help prevent instances of inadvertent incorrect jurisdictional assignments moving forward.

4. Outsourcing

While the Company seeks to minimize its outsourcing of TIMP and DIMP work, in certain instances external expertise is needed to help ensure the safe and efficient completion of projects. In these instances the Company seeks and relies on outside assistance.

The Company utilizes internal resources when the work falls within the Company's core competencies. External resources are used when the Company has neither the internal expertise nor the equipment available to perform the specialized aspects of a project. By outsourcing the specialized portion of work, the Company saves customers the cost of purchasing expensive, specialized equipment, and ensures investigations are conducted by experienced resources.

When outsourcing is needed, contractor performance is managed through contractor scorecard meetings. Performance is tracked using high-level categories of timeliness, quality and cost specific goals such as:

- Work is completed and invoiced in a timely manner and invoicing is accurate.
- Contractor safety performance is acceptable; damages to existing Company and customer facilities and customer outages are reported accurately and resolved in a timely manner.

- Cost per unit and total spend by work activity are reasonable and explainable, and that the contractors adhere to the contract structure, and identify and explain discrepancies.

The Company's contractual agreements include terms and conditions that address each of the goals listed above. Indeed, the contract covers situations such as work changes, suspension of work, work warranties, and insurance requirements that insulate the Company and its customers from cost overruns due to circumstances within the contractor's control. Once the work is complete, the general conditions specify actions required for final acceptance of the work and price and payment terms. For instance, the Company is not obligated to pay the contractor for work performed incorrectly, work that was beyond the scope of the agreement, or damage caused by the contractor's negligence. These contractual protections serve an important role in protecting against unreasonable and inappropriate cost overruns.

C. GUIC Costs are Incremental

The projects for which recovery is being requested in this filing are incremental expenditures not included in the Company's last rate case.[34] The federal Call to Action leading to the emergence of TIMP and DIMP post-dated the Company's last rate case and the work is uniquely targeted at assessing and improving the safety, reliability, and integrity of our natural gas infrastructure pursuant to state and federal regulatory requirements. As we have discussed previously, the Commission has agreed that these costs are new and outside of what was requested in our last rate case.[35] There have been no foundational changes to TIMP and DIMP that would counsel toward a different result. As such, the Commission should again conclude that the projects that are the subject of this petition were not requested in our previous rate case, and—in that way—are appropriate for rider recovery.

For example, the valve replacement costs included in this filing for which we are seeking GUIC Rider recovery have arisen only after the replacement program was initiated in response to new federal standards in 2011.[36] However, these costs are incremental to the small amount of valve-related work in base rates established under the 2010 Test Year filed in our last rate case.

While the projects being completed as a part of the integrity management programs are incremental to costs proposed in our last gas general rate case, these projects are

[34] Base rates in the 2010 Gas Rate Case included $480,000 in annual O&M expenditures for TIMP. As this amount is already collected through base rates, it has been removed from the GUIC revenue requirement in this case.
[35] *See* Order Requiring Updated Report, Approving Rider Recovery, and Requiring Metrics to Evaluate GUIC Expenditures, Docket No. G002/M-15-808 (August 18, 2016) at page 6.
[36] *See* 49 C.F.R. 192, Subpart P.

replacing gas assets that were included in the rate base approved in that case and as such are being recovered in our current base rates. To account for this fact, we are including an adjustment to our 2020 GUIC Rider revenue requirement to account for the rate base impact of these replaced assets.

In addition, questions have arisen about the continued inclusion of internal capitalized costs in our GUIC Rider. The Company maintains that the inclusion of overhead, other, and transportation costs in the revenue requirement is reasonable and properly recoverable through the GUIC Rider mechanism.

1. Retirements

Given that the GUIC Rider represents a somewhat unique set of circumstances, insofar as it is the only rider primarily involving the replacement of assets, we have removed the impact of estimated retired assets from our 2020 GUIC Rider revenue requirement request.[37] Doing so is an effective way to recognize the impact of asset replacements in base rates that have accumulated since we began integrity management work in earnest. The revenue requirement of these assets has become significant primarily due to the passage of time since our last rate case. However, we make this adjustment while also noting that the increased depreciation, and other revenue requirement impacts, from non-GUIC Rider assets added since our last rate case has been greater than the revenue requirement impact of assets retired due to integrity management project work.

Due to the method of accounting used for our capital assets, the Company cannot directly identify the value of the specific assets replaced during integrity management project work. However, based on our analysis, we estimate that approximately $9.5 million in assets that are included in our current base rates will be retired as of the result of integrity management project work through the end of 2020. We further estimate that these retired assets had a remaining net book value of approximately $2.9 million at the start of the 2010 test year used in our last gas general rate case. When ADIT on the retired assets is also accounted for, the net impact to rate base is a decrease of $2.1 million.

Attachment I includes the calculation of our estimate of annual integrity management project-related retirements from 2012 through 2020. In conjunction with the information contained in Table 6 in Section VI.F below this attachment contains the information required in Minn. Stat. § 216B.1635 Subd. 4(iii). Our calculation is primarily based on an analysis of retirement information from 2012 through 2018. For retirements in 2019 and 2020, complete actual data was not yet available. As

[37] This adjustment was included in our revenue requirement for the first time in our 2018 GUIC Rider Filing Reply Comments, in response to Comments from the Department.

such, our estimates are based on averages of annual retirements in previous years. We will redo this analysis when actual retirement information for 2019 and 2020 is available, and the final 2020 revenue requirement will reflect the impact of these actual retirements.

Removing the impact of these retired assets results in adjustments to the return on rate base, estimated book depreciation, annual deferred tax, and the estimated property tax included in our requested 2020 GUIC Rider revenue requirement. Table 4 below shows the derivation of the estimated 2020 revenue requirement impact.

Table 4
Revenue Requirement Impact – Integrity Management Project Replaced Assets
($ Millions)

Net Book Value of Retired Assets	$2.86
Less: ADIT on Retired Assets	(0.71)
Rate Base of Retired Assets	$2.15
Rate of Return on Rate Base	$0.27
Estimated Book Depreciation on Retired Assets	0.28
Annual Deferred Tax Impact	(0.02)
Estimated Property Tax on Retired Assets	0.16
Revenue Requirement Impact	**$0.70**

2. Internal Capitalized Costs

Internal capitalized costs, such as overhead, other, and transportation costs, included in our GUIC Rider request are legitimate costs for our integrity management projects. Overhead costs are assigned to projects based on an overhead pool allocation process and are not reflected as normal O&M costs. The overhead costs in our last rate case were considered capital costs and were allocated only to open construction projects during the time period. Once those construction projects are complete, they no longer receive overhead allocation costs. No projects included in our GUIC Rider request were in consideration when our current base rates were established. As such, overhead costs assigned to the projects are by definition outside of the scope of our current base rates.

Further, actual overhead costs have grown steadily since our last gas utility general rate case. In 2010,[38] we applied approximately $7.8 million in overhead costs to capital projects. None of these costs were applied to GUIC Rider projects as integrity management project work had not yet been considered. In 2018, we applied approximately $17.0 million of overhead costs to all capital projects. Of this total, $8.0 million was applied to GUIC Rider projects. The remaining $9.0 million was applied to non-GUIC Rider projects.

The amount of overheads in our current gas utility base rates covers only a portion of the overhead costs applied to current non- integrity management project work. Any overheads applied to current integrity management project work are truly incremental to costs included in our current base rates.

D. O&M Costs are Specifically Authorized

With this GUIC Rider request, the Company seeks to recover its O&M costs, consistent with the statute and the Commission's approval of this cost treatment in our previous GUIC Rider filings.

The Company provides actual and estimated TIMP and DIMP cost data for 2018 through 2024 in Attachment J. Though we enter our TIMP and DIMP building cycles with a concrete plan of action, ongoing pipeline inspections may result in the reprioritization of projects as we discover risks that may require more immediate intervention. The need for flexibility in planning is critical in pipeline work, and emergent projects can result in fluctuating O&M costs year over year. The Commission has previously recognized this dynamic, noting "[t]he costs of these investments can vary widely from year to year and are difficult to forecast with accuracy. Approving a rider will give Xcel Energy the ability to implement multi-year pipeline-replacement programs, adjusting the rates annually to correct for over- or under-recovery."[39]

E. Deferred Accounting Projects

Our 2020 request does not include any previously deferred TIMP and DIMP costs. Previous GUIC Rider requests included deferred costs from gas utility projects approved in previous deferred accounting dockets.[40] These costs were amortized over a five year period which ended in 2019.

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[38] The test year in our last gas utility general rate case, Docket No. G002/GR-09-1153, was based on a 2010 test year.

[39] *See* ORDER APPROVING RIDER WITH MODIFICATIONS, Docket No. G002/M-14-336 (January 27, 2015) at page 7.

[40] *See* 2014 Annual Report, Gas Safety Deferred Accounting, Docket No. G002/M-12-248, March 2, 2015.

F. Estimated Revenue Requirement

Table 5 below presents Xcel Energy's estimated 2020 GUIC Rider revenue requirement of $21.3 million for TIMP and DIMP activities. Capital-related revenue requirements and O&M expenses total $20.4 million and $2.1 million, respectively. In addition, O&M totaling $0.5 million of TIMP costs already being recovered in base rates is removed from this rider request. Approximately $0.7 million is also being removed to account for the impact of integrity management project -related retirements. Costs associated with the amortization of deferred costs total $4.6 million are shown for our 2019 revenue requirements.[41] However, as mentioned above, our 2020 request does not include any deferred costs.

Table 5
2019-2020 GUIC Rider Revenue Requirement ($ Millions)

	2019 Current Forecast	2020 Forecast
Capital-Related Revenue Requirement		
TIMP	$8.7	$10.5
DIMP	$9.6	$12.0
Total	$18.3	$22.5
O&M Expenses		
TIMP	$2.4	$1.5
DIMP	$2.7	$0.6
Total	$5.1	$2.1
5-Year Amortization of Deferred Costs (Year 5 in 2019)		
TIMP	$0.8	$0.0
DIMP	$3.7	$0.0
Total	$4.6	$0.0
GUIC Retirement Revenue Credits	$(0.8)	$(0.7)
O&M Recovery in Base Rates	$(0.5)	$(0.5)
Regulatory Treatment	$(2.1)	$(2.1)
Revenue Requirement Subtotal	$24.7	$21.3
True-up Carryover	$(0.9)	$0.0
Total GUIC Rider Revenue Requirement	**$23.7**	**$21.3**

See also Annual Report, Sewer Conflict Deferred Accounting, Docket No. G002/M-10-422, January 30, 2015. We have provided discussions of the issues around our sewer conflict program (as required by this order) in our 2015, 2016, and 2017 GUIC Rider filings. We have no updates to provide since those filings were submitted.

[41] As approved in Docket Nos. G002/M-10-422 and G002/M-12-248.

G. Estimated Costs and Salvage Value

The Company's cost and salvage estimates related to actual and planned integrity management project capital investments are shown in Table 6 below.

Capital expenditure estimates from 2012 through 2024 total $179.1 million for TIMP and $262.8 million for DIMP, reflecting an estimated total of $442.0 million. Distribution mains and services are depreciated using a composite depreciation rate of 2.27 percent and transmission mains are depreciated using a depreciation rate of 1.31 percent. The Company's depreciation calculations assume an average remaining life of 36.81 years[42] and a net salvage rate of negative 22.85 percent for distribution mains and services and average remaining life of 60.00 years[43] and net salvage rate of negative 15.00 percent for transmission mains.

Table 6
GUIC Capital Expenditures[44] and Net Salvage: 2012-2024
($ Thousands)

	TIMP			DIMP			Total
Year	Transmission	Distribution[45]	**Total**	Distribution	Software	**Total**	Expenditures
2012	$95	$0	$95	$83	$0	$83	$178
2013	65	9,497	9,562	343	0	343	9,906
2014	(24)	11,651	11,628	240	0	240	11,868
2015	1,073	17,937	19,010	10,011	0[46]	10,011	29,021
2016	4,556	14,196	18,752	12,782	445	13,227	31,979
2017	6,191	600	6,791	13,444	0	13,444	20,235
2018	8,763	(33)	8,730	36,974	0	36,974	45,704
2019	21,960	0	21,960	19,397	0	19,397	41,357
2020	34,943	0	34,943	16,926	0	16,926	51,869
2021	9,017	0	9,017	39,408	0	39,408	48,425
2022	6,910	0	6,910	44,977	0	44,977	51,887
2023	15,870	0	15,870	33,909	0	33,909	49,779
2024	15,870	0	15,870	33,909	0	33,909	49,779
Total	**$125,288**	**$53,849**	**$179,137**	**$262,405**	**$445**	**$262,849**	**$441,986**
Salvage Rate[47]	(15.00%)	(22.85%)		(22.85%)	0.00%		
Net Salvage	**$(18,793)**	**$(12,305)**	**$(31,098)**	**$(59,959)**	**$0**	**$(59,959)**	**$(91,057)**

[42] Composite average service life for distribution mains and services is 50.59 years.
[43] Average service life for transmission mains is 75 years.
[44] CWIP only
[45] The East Metro Project was originally identified from activities related to TIMP assessment activities; therefore it is classified under the TIMP category. However, the new plant installed is considered distribution plant from a regulatory accounting perspective.
[46] 2015 amount has been adjusted from what was reported in our 2017 GUIC Rider Petition (Docket No. G002/M-16-891). Expenditures of $49,945 that should have been assigned to another affiliated Operating Company were inadvertently included in the numbers for NSPM.
[47] Depreciation lives and salvage rates approved in Docket No. E,G002/D-18-523. These percentages can be found in Attachment K.

H. Magnitude of GUIC Rider in Relation to the Gas Utility's Approved Base Revenue and Capital Expenditures

On December 6, 2010, the Company's most recent gas general rate case was approved by the Commission.[48] In that proceeding, the Commission approved a total retail related revenue of $592.87 million for the test year ending December 31, 2010. Excluding $4.69 million of other operating income for customer-related charges not included in retail rates and $429.08 million for gas purchase and transportation charges, the total approved base revenue was $159.10 million. The revenue collection estimates using the Company's most recent unadjusted sales forecast based on a proposed 2020 GUIC Rider rate generates $21.3 million of GUIC Rider-related revenues from March 1, 2021 to February 28, 2022. The GUIC Rider revenue estimates reflect 13.4 percent of the base revenues of $159.10 million approved in the previous general rate case. For more details on the expected 2020 revenues in relation to the last rate case, please reference Attachment L. In addition, Attachment M shows our 2018 GUIC Rider recovery, gas base rate recovery, and purchased gas adjustment (PGA) in comparison to amounts reported in our 2018 Minnesota Jurisdictional Gas Annual Report.[49]

VII. GUIC Rider Factor Calculations, Timing of Implementation, Tracker Accounting, and Tariff Pages

A. Revenue Requirements and Proposed 2020 GUIC Rider Rate Adjustment Factor

In this section, we provide the 2020 revenue requirement and 2020 rate adjustments factor calculations for the proposed GUIC Rider.

1. Revenue Requirement

The projected 2020 revenue requirement proposed for recovery through the 2020 GUIC Rider adjustment factors from Minnesota gas customers is $21.3 million. The proposed revenue requirement includes recovery of capital property taxes, current and deferred taxes, and book depreciation.

Attachments G and H summarize the projected revenue requirements for the TIMP and DIMP projects respectively. The projected GUIC Rider revenue requirements for 2018 through 2024 are summarized in Attachment N to this filing. The supporting revenue requirements and projected 2018 through 2024 GUIC Rider

[48] See Docket No. G002/GR-09-1153.
[49] Filed in Docket No. E,G999-PR-19-4.

Tracker activity are provided in Attachment O. Attachment P provides descriptions of the rate base and return calculation categories included in Attachments G and H.

2. Proposed 2019 Rate and Carryover Balance

The Company's 2019 GUIC Rider request was verbally approved by the Commission at their October 10, 2019 agenda meeting, but a written order has not yet been issued. [50] The factors currently in place are collecting the 2018 revenue requirement, per the Commission's Order in the 2018 GUIC Rider docket.[51] For illustrative purposes in this docket, we have assumed a rate that will collect the 2018 carryover balance and 2019 revenue requirements from March 2020 through February 2021. The presumed rate factors are shown in Table 7 below.

3. GUIC Rider Rate Adjustment Factors

The Company's GUIC Rider adjustment factor rate design provides for rates specific to five customer groups (residential, commercial firm, commercial demand billed, interruptible, and transportation). The 2020 revenue requirement is allocated to classes in the same manner as revenues were apportioned in our most recent natural gas rate case,[52] consistent with the Commission's 2015, 2016, 2017, and 2018 GUIC Rider orders.

Proposed class factors are calculated by dividing the class revenue responsibility by the forecasted Minnesota unadjusted sales for the recovery period and include the GUIC Rider adjustment factor will be included as part of the Resource Adjustment line on customer bills. The 2019 GUIC Rider adjustment factor calculation is shown in Attachment S. Table 7 below shows the currently approved GUIC Rider adjustment factors, 2019 pending factors, and proposed 2020 factors.

[50] Docket No. G002/M-18-692
[51] Docket No. G002/M-17-787
[52] Docket No. G002/GR-09-1153

Table 7
Proposed 2020 GUIC Rider Adjustment Factors
(Dollars per therm)

	Current Factors	2019 Factors[53]	2020 Proposed Factors[54]
Residential	$0.029696	$0.041655	$0.037138
Commercial Firm	$0.015878	$0.021944	$0.019301
Commercial Demand Billed	$0.011233	$0.016221	$0.014657
Interruptible	$0.008725	$0.012977	$0.011864
Transportation	$0.001677	$0.003465	$0.003425

The residential bill impacts under each factor are listed in Table 8 below.

Table 8
Monthly Residential Bill Impacts

	Current Factors	2019 Factors	2020 Proposed Factors
Monthly Bill Impact	$2.19	$3.07	$2.74
Incremental Bill Impact Change as % of Total Bill		1.56%	(0.59%)

The GUIC Rider adjustment rate calculation is consistent with revenue apportionment in the most recent natural gas general rate case. When the Commission approved the rate design in our 2015 GUIC Rider filing, it reasoned, "There is nothing in the record to indicate that circumstances have changed [since the last natural-gas rate case] such that the allocation is no longer appropriate."[55] The Commission also approved the same methodology for the Company's customer class allocation in our 2016, 2017, and 2018 GUIC Rider filings.

[53] Assumes the 2019 GUIC Rider revenue requirement is recovered March 1, 2020 through February 28, 2021. These factors are preliminary based on the Commission's verbal decision on our 2019 GUIC Rider filing during their October 10, 2019 agenda meeting. Final 2019 factors will be filed in a subsequent compliance filing in Docket No. G002/M-18-692.
[54] Assumes the 2020 GUIC Rider revenue requirement is recovered March 1, 2021 through February 28, 2022.
[55] *See* Order Approving Rider with Modifications, Docket No. G002/M-14-336 (January 27, 2015) at page 12.

B. Timing of 2020 GUIC Rider Factor Implementation

We request approval to implement GUIC Rider factors in this annual report, effective March 1, 2021, pending review and approval by the Commission. The factor calculations assume that the 2019 GUIC Rider costs are recovered using the 2019 factors shown above starting March 1, 2020 through February 28, 2021.
Our proposed timing for 2020 GUIC Rider recovery is consistent with the timing of recovery we proposed in our 2019 GUIC Rider filing. This has the added benefit of eliminating the need to prorate our ADIT calculation, as recovery will not start until after the end of the cost period. In addition, the proposed timing will allow us to collect 12 months of GUIC Rider costs over 12 months of bills, which allows for more stable factors.

The Company believes this approach is beneficial as it is consistent with the Legislature's intent to provide timely cost recovery to support the significant and mandatory natural gas infrastructure investments. It also maintains appropriate regulatory protections and oversight by allowing the Commission and other state agencies the time required to audit and review costs sought for recovery, thus ensuring that any regulatory adjustments will be recognized and implemented appropriately.

C. GUIC Rider Tracker Account

To ensure that customers are not under or overcharged, we record the actual GUIC Rider revenue recovery and requirements in a tracker account as the accounting mechanism for eligible integrity management project costs. As revenues are collected from retail customers each month, the Company tracks the amount of recovery under the GUIC Rider rate factor and compares that amount with the monthly revenue requirements.

The difference is recorded in the tracker account as the amount of over- or under-recovery. Differences in revenue requirements from forecast to actual amounts are also recorded in the tracker. Any over- or under-recovery balance at the end of the year is used in the calculation of the rate factor for the next year's forecasted revenue requirement. In other words, over-recovery is taken into account by reducing the subsequent year's rate factor calculation. Under-recovery is similarly taken into account by increasing the subsequent year's rate factor calculation. The revenue requirements included in the tracker are only those related to Minnesota's jurisdictional share of eligible integrity management projects.

We calculate the monthly Minnesota jurisdictional revenue requirements (including appropriate overall return, income taxes, property taxes, and depreciation), compare them with monthly GUIC Rider recoveries from customers, and place the under-

recovered amounts in FERC Account 182.3, Other Regulatory Assets and over-recovered amounts in FERC Account 254, Other Regulatory Liabilities (the Tracker Accounts). Tracker balances for GUIC Rider activity estimated in 2019 are shown on Attachment Q within the carryover rollforward section. Attachment R includes a tracker that presents revenue requirement, rates, and recoveries within the same page in order to provide a clearer understanding of how the GUIC revenue requirement is recovered via the rider.

D. Proposed Tariff Sheet and Customer Notice

1. Proposed Revised Tariff Sheet

The proposed 2020 GUIC Rider factors can be found in the clean and redline formats of Tariff Sheet No. 5-64 provided in Attachment S.

2. Proposed Customer Notice

We will provide notice to customers regarding inclusion of this cost on their monthly bill. The following is our proposed language to be included as a notice on customers' bills the month the GUIC Rider factor is implemented:

> "This month's Resource Adjustment includes an updated Gas Utility Infrastructure Cost Adjustment (GUIC), which recovers the costs of assessments, modifications and replacement of natural gas facilities as required by state and federal safety programs. The GUIC portion of the Resource Adjustment is $x.xxxx per therm for Residential customers; $x.xxxx per therm for Commercial Firm customers; $x.xxxx per therm for Commercial Demand Billed customers; $x.xxxx per therm for Interruptible customers; and $x.xxxx per therm for Transportation customers."

We will work with the Department and Commission staff if there are any suggestions to modify this notice.

VIII. RATE OF RETURN

The GUIC statute states that "[t]he return on investment for the rate adjustments shall be at the level approved by the commission in the public utility's last general rate

case, unless the commission determines that a different rate of return is in the public interest."[56]

The Company supports the capital structure and cost of debt agreed to in the settlement of our 2016 Minnesota Electric General Rate Case.[57] For 2019, the settlement parties agreed that the capital structure should be represented by:

1. a cost of long-term debt of 4.75 percent;
2. a cost of short-term debt of 4.31 percent; and
3. an overall ROR of 7.08 percent.[58]

In previous GUIC Rider filings, the Company has provided detailed analyses to support ROE greater than that approved in our last general rate case. However, for this year's GUIC Rider proposal, we are recommending that the Commission approve a 9.04 percent ROE, which is consistent with the Commission's Order our 2018 GUIC Rider docket[59] and with the Commission's October 10, 2019 vote in our 2019 GUIC Rider docket (for which a written Order is still pending). This equates to an overall ROR of 7.00 percent for 2020Given that this ROE percentage matches the ROE approved by the Commission in our last two GUIC Rider docket (one as recently as last month), we are not recommending a change in this docket.

IX. GUIC RIDER PERFORMANCE METRICS

The development of performance metrics has been an ongoing effort since our 2016 GUIC Rider filing. This effort started at the behest of the Commission. In its August 18, 2016 Order,[60] the Commission requested that:

> *The Company develop metrics to measure the appropriateness of GUIC expenditures, to be included in future GUIC filings, and provide stakeholders the opportunity for meaningful involvement.*

The Commission also instructed that:

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[56] Minn. Stat. § 216B.1635, Subd. 6. The Commission authorized a return on equity of 10.09 percent in our last general rate case.
[57] *See* Findings of Fact, Conclusions, and Order, Docket No. E002/GR-15-826 (June 21, 2017) at page 11.
[58] Overall ROR was based on a common equity cost (i.e. ROE) of 9.20 percent.
[59] *See* ORDER AUTHORIZING RIDER RECOVERY AND SETTING REPORTING REQUIREMENTS, Docket No. G002/M-17-787 (August 12, 2019), Order Point 3.
[60] Order Requiring Updated Report, Approving Rider Recovery, and Requiring Metrics to Evaluate GUIC Expenditures, Docket No. G002/M-15-808.

Each metric should include a reconciliation to the pertinent TIMP/DIMP rules, and/or if not tied to TIMP/DIMP requirement, the Company must identify what goal, benefit, and/or requirement it addresses.

The Company submitted our initial proposal for GUIC Rider performance metrics in a supplement to our 2017 GUIC Rider filing.[61] Before submitting the original proposal, the Company engaged with stakeholders to gather input on the proposed metrics. The same proposed metrics were included in our 2018 GUIC Rider request.[62]

In its February 8, 2018 Order,[63] the Commission declined to adopt the proposed metrics and order us to continue to discuss metrics with other parties. The Commission also recently declined to approve the performance metrics we proposed in our 2019 GUIC Rider filing and required continued discussions to gain consensus.[64] The Company continued the discussion with stakeholders on metrics prior to submitting the metrics proposal below, through meetings with stakeholders from the Commission Staff, the Department, MNOPS, and OAG, on September 26, 2018 and again on August 27, 2019. Based on verbal comments from the Department at the October 10, 2019 PUC agenda meeting, it appears we have not yet come to agreement. We will continue to work with the Department and other interested parties on this matter.

The Company will ask stakeholders to provide informal comments on the current proposal, and invite parties to meet to discuss potential resolutions of the identified issues. We anticipate reaching out to parties to invite informal comments and schedule a meeting before the end of the year.

Table 9 below shows the TIMP and DIMP performance metrics we believe would be most useful at this time. These metrics are similar to the proposal discussed in our July 29, 2019 Comments in the 2019 GUIC Rider filing, with one small difference. We have now added an effectiveness performance metric for the TIMP ASVs and RCVs project.

[61] *See* Supplement and Compliance Metrics Proposal, Docket No. G002/M-16-891 (January 13, 2017).
[62] *See* Petition, Compliance Filing, and Annual Report, Page 42, Docket No. G002/M-17-787 (November 1, 2017).
[63] *See* Order Approving Rider with Modifications, Docket No. G002/M-16-891 (February 8, 2018).
[64] Verbal decision made in their October 10, 2019 agenda meeting.

Table 9
Recommended Performance Metrics

Program	Project	Cost Performance Metric	Effectiveness Performance Metric
TIMP	Transmission Pipeline Integrity Assessments	Estimated versus actual costs per project	Anomalies repaired by type
	ASVs and RCVs	Estimated versus actual costs per project	Reduction in response time per project
	Programmatic Replacement and MAOP Remediation	Estimated versus actual costs per project	Percentage of high/medium risk projects system-wide
DIMP	Poor Performing Main Replacement	Poor performing main replacement unit cost (per foot)	Leak rate by vintage
	Poor Performing Service Replacement	Poor performing service replacement unit cost (per foot)	Leak rate by vintage
	Distribution Pipeline Integrity Assessment	Estimated versus actual costs per project	Anomalies repaired by type

CONCLUSION

The Company implemented transmission and distribution integrity management plans to be able to follow ever-increasing federal and state regulatory standards. Our TIMP and DIMP plans are prudent investments that have resulted in the replacement of aging pipeline. By completing these replacements, the Company has minimized public safety risks associated with aging assets that deliver gas service.

The legislature authorized the prompt recovery of integrity management costs in 2013, and the Commission validated the importance of that prompt recovery in their previous GUIC Rider Orders. In this filing, the Company provides updates on the status of our TIMP and DIMP activities by describing the safety and reliability the Company brings to our gas system with the planned work. We further highlight our plan to recover the remaining 2019 investment that has not yet been recovered and outline our proposal to recover the 2020 investments. Xcel Energy respectfully requests that the Commission, consistent with its previous GUIC Rider Order, grant recovery of its gas utility infrastructure costs through the GUIC Rider and approve the proposed 2020 GUIC Rider factors.

Dated: October 25, 2019

Northern States Power Company

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Dan Lipschultz	Vice-Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE PETITION OF NORTHERN STATES POWER COMPANY FOR APPROVAL OF A GAS UTILITY INFRASTRUCTURE COST RIDER TRUE-UP REPORT FOR 2019, REVENUE REQUIREMENTS FOR 2020, AND REVISED ADJUSTMENT FACTORS	DOCKET NO. G002/M-19-____ PETITION, COMPLIANCE FILING, AND ANNUAL REPORT

SUMMARY OF FILING

Northern States Power Company, doing business as Xcel Energy (Xcel Energy or the Company), submits this Petition, Compliance Filing, and Annual Report to the Minnesota Public Utilities Commission. In order to promote a safe and reliable gas system, Xcel Energy has undertaken approved threat evaluation, assessment, and risk mitigation activities, in compliance with federal regulations. We request approval to recover gas utility infrastructure costs (GUIC) through the GUIC Rider. Xcel Energy requests cost recovery of its projected 2020 Transmission and Distribution Integrity Management Programs costs pursuant to Minn. Stat. § 216B.1635, which permits a utility to petition the Commission for recovery. The Company also seeks approval of its 2020 GUIC Rider adjustment factors and its proposed capital structure and ROE for 2020.

Compliance Matrix

Petition Requirements	Reference
Minnesota Statute § 216B.1635	
Subd. 2. **Gas infrastructure filing.** A public utility submitting a petition to recover gas infrastructure costs under this section must submit to the commission, the department, and interested parties a gas infrastructure project plan report and a petition for rate recovery of only incremental costs associated with projects under subdivision 1, paragraph (c). The report and petition must be made at least 150 days in advance of implementation of the rate schedule, provided that the rate schedule will not be implemented until the petition is approved by the commission pursuant to subdivision 5. The report must be for a forecast period of one year.	**Filing Date** October 25, 2019 **Proposed Implementation Date (Petition, Section II.C.)** March 1, 2021 **Number of Days in Advance** 493 **Forecast Period** January 1, 2020 – December 2020
Subd. 3. **Gas infrastructure project plan report.** The gas infrastructure project plan report required to be filed under subdivision 2 shall include all pertinent information and supporting data on each proposed project including, but not limited to, project description and scope, estimated project costs, and project in-service date.	**TIMP** – Attachments C,C1 **DIMP** – Attachments D,D1
Subd. 4. **Cost recovery petition for utility's facilities.** Notwithstanding any other provision of this chapter, the commission may approve a rate schedule for the automatic annual adjustment of charges for gas utility infrastructure costs net of revenues under this section, including a rate of return, income taxes on the rate of return, incremental property taxes, incremental depreciation expense, and any incremental operation and maintenance costs. A gas utility's petition for approval of a rate schedule to recover gas utility infrastructure costs outside of a general rate case under section 216B.16 is subject to the following: (1) a gas utility may submit a filing under this section no more than once per year; and (2) a gas utility must file sufficient information to satisfy the commission regarding the proposed GUIC. The information includes, but is not limited to:	**Filing Date** October 25, 2019 **Previous Filing Date** November 1, 2018

Compliance Matrix

Petition Requirements	Reference
(i) the information required to be included in the gas infrastructure project plan report under subdivision 3;	**TIMP** – Attachments C,C1 **DIMP** – Attachments D,D1
(ii) the government entity ordering or requiring the gas utility project and the purpose for which the project is undertaken;	**TIMP** – Attachment C1 **DIMP** – Attachment D1
(iii) a description of the estimated costs and salvage value, if any, associated with the existing infrastructure replaced or modified as a result of the project;	Section V.C.1 Section VI.F Attachment I
(iv) a comparison of the utility's estimated costs included in the gas infrastructure project plan and the actual costs incurred, including a description of the utility's efforts to ensure the costs of the facilities are reasonable and prudently incurred;	**TIMP** – Attachment C **DIMP** – Attachment D
(v) calculations to establish that the rate adjustment is consistent with the terms of the rate schedule, including the proposed rate design and an explanation of why the proposed rate design is in the public interest;	Section VI.A Section VII.A Attachments F,G,H,J,N,O,P,Q
(vi) the magnitude and timing of any known future gas utility projects that the utility may seek to recover under this section;	**TIMP** – Attachment C1(a) and Attachment F **DIMP** – Attachment D1(a) and Attachment F
(vii) the magnitude of GUIC in relation to the gas utility's base revenue as approved by the commission in the gas utility's most recent general rate case, exclusive of gas purchase costs and transportation charges;	Section VI.H Attachment L
(viii) the magnitude of GUIC in relation to the gas utility's capital expenditures since its most recent general rate case; and	Section VI.H Attachment L
(ix) the amount of time since the utility last filed a general rate case and the utility's reasons for seeking recovery outside of a general rate case.	Introduction Section III Sections VI.A,C,L Sections VII.A.,B Conclusion
Subd. 6. **Rate of return.** The return on investment for the rate adjustment shall be at the level approved by the commission in the public utility's last general rate case, unless the commission determines that a different rate of return is in the public interest.	Section III.A Section VIII

Compliance Matrix

Petition Requirements	Reference
In the Matter of the Petition of Northern States Power Company for Deferred Accounting Treatment of Costs Relating to Identifying and Eliminating Sewer/Natural Gas Line Conflicts **Minnesota Public Utilities Commission** ORDER GRANTING DEFERRED ACCOUNTING TREATMENT SUBJECT TO CONDITIONS AND REPORTING REQUIREMENTS **January 12, 2011 Docket No. G002/M-10-422**	
6. In any future filing seeking rate recovery of costs deferred under this order, the Company shall include the following:	_____
A. Justification for the outsourcing of any tasks required to implement the inspection and remediation plan.	Section VI.B.4
B. Details of the final resolution of the Notice of Probable Violation and the status of any proposed penalties. C. Discussion and explanation of any legal actions or settlements regarding the natural gas explosion that led to the Notice of Probable Violation. D. Discussion and analysis regarding any potential third-party recovery for the costs of the plan.	*See In the Matter of the Petition of Northern States Power Company for Approval of a Gas Utility Infrastructure Cost Rider* Petition Submitted August 1, 2014 Docket No. G002/M-14-336 Sections IV.H.,I. Petition Submitted in Docket No. G002/M-15-808 Section IV.I. Petition Submitted in Docket No. G002/M-16-891 Section IV.I. Current Petition No updates from our 2017 GUIC Rider Filing, See Section V.C
E. Discussion, analysis, and documentation demonstrating that plan costs were prudent.	Sections VI.B
F. Analysis of what it would have cost to conduct the plan over a ten-year period beginning in 2003.	Not addressed as deferral ends in 2019

Compliance Matrix

Petition Requirements	Reference
In the Matter of the Petition of Northern States Power Company for Approval of Deferred Accounting for Costs to Comply with Gas Pipeline Safety Programs **Minnesota Public Utilities Commission** ORDER **January 28, 2013 Docket No. G002/M-12-248**	
1.g. Xcel shall include in the initial filing in its next natural gas rate case, justification and supporting testimony regarding all deferred TIMP and DIMP costs for which it seeks rate recovery.	Section VI.E No gas general rate case since Order was issued
In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Gas Utility Infrastructure Cost Rider (GUIC) True-up Report for 2015, Forecasted 2016 GUIC Revenue Requirement, and Revised GUIC Adjustment Factors **Minnesota Public Utilities Commission** ORDER REQUIRING UPDATED REPORT, APPROVING RIDER RECOVERY, AND REQUIRING METRICS TO EVALUATE GUIC EXPENDITURES **August 18, 2016 Docket No. G002/M-15-808**	
2. Xcel shall develop metrics to measure the appropriateness of GUIC expenditures, to be included in future GUIC Rider filings, and provide stakeholders the opportunity for meaningful involvement. Each metric should include reconciliation to the pertinent TIMP/DIMP rules, and/or if not tied to TIMP/DIMP requirement, the Company must identify what goal, benefit, and/or requirement it addresses.	Petition Submitted in Docket No. G002/M-16-891 Section VII. Attachments B2,C2(a),C2(b) Supplement to Petition in Docket No. G002/M-16-891 Submitted January 17, 2017 Current Petition Section IX

Compliance Matrix

Petition Requirements	Reference
8. Xcel shall modify the proposed customer notice to read: This month's Resource Adjustment includes ~~the addition of the~~ an updated Gas Utility Infrastructure Cost Adjustment (GUIC), which recovers the costs of assessments, modifications and replacement of natural gas facilities as required by state and federal safety programs. The GUIC portion of the Resource Adjustment is $x.xxxx per therm for Residential customers; $x.xxxx per therm for Commercial Firm customers; $x.xxxx per therm for Commercial Demand Billed customers; and $x.xxxx per therm for Interruptible customers. Questions? Contact us at 1-800-895-4999.	Compliance Submitted August 29, 2016 Docket No. G002/M-15-808 Current Petition Section VII.D.2
In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Gas Utility Infrastructure Cost Rider (GUIC) True-up Report for 2016, Forecasted 2017 GUIC Revenue Requirement, and Revised GUIC Adjustment Factors **Minnesota Public Utilities Commission** ORDER APPROVING RIDER RECOVERY WITH MODIFICATIONS **February 8, 2018 Docket No. G002/M-16-891**	
5. Xcel shall continue to discuss with other parties, including the Department and the OAG, proposed performance metrics and ongoing evaluation of reporting requirements in future GIUC proceedings.	Meeting with Stakeholders hosted by Department of Commerce on September 26, 2018 Section IX
6. Xcel shall continue to provide, in future GUIC filings, specific information about each individual project in the GUIC rider that sufficiently (1) describes what the project is, (2) explains why the project is necessary, (3) discusses what benefits ratepayers will receive from the project, and (4) identifies the agency, regulation, or order that requires the project.	Current Petition Introduction Sections IV, V Attachments C,C1,D,D1
8. The Commission approves a revised sales forecast based on the Company's regression model results before monthly sales and demand-side management (DSM) adjustments as set forth by the Company in Attachment F of its reply comments for the 2017 GUIC rider.	Section VII.A.3 Attachment Q

Compliance Matrix

Petition Requirements	Reference
10. Xcel shall provide a cost/benefit analysis in its initial petition in future GUIC rider filings if the Company wishes to receive accelerated recovery of sewer lines costs on a going forward basis.	Section VI.E
In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Gas Utility Infrastructure Cost Rider True-up Report for 2017, the Forecasted 2018 Revenue Requirements, and Revised Adjustment Factors **Minnesota Public Utilities Commission** ORDER APPROVING RIDER RECOVERY WITH MODIFICATIONS **August 12, 2019 Docket No. G002/M-17-787**	
15. The Commission directs Xcel, the Department, and the OAG to continue discussion on the establishment of performance metrics in future GUIC proceedings.	Company met with Department and other parties on August 27, 2019 Section IX
16. In all future GUIC rider petitions, Xcel must include the reporting required by Minn. Stat. § 216B.1635, subd. 4(2)(iii).	Section V.C.1 Section VI.F Attachment I
17. In all future GUIC rider petitions, Xcel must include only incremental rate base amounts in its GUIC rider rate base.	Section VI.C
18. Xcel must include, prior to applying its calculated property tax rate, only the incremental property tax expense amount for all GUIC years by adjusting the original cost of GUIC projects by the original cost of plant assets replaced by (or retired through) the GUIC projects in each year.	Section VI.C.1 Attachment I
22. In all future GUIC filings, Xcel must include historical and projected GUIC revenue requirements, rates, and recoveries within a single tracker for each year.	Attachments Q

Index of Attachments

Index of Attachments

Transmission Integrity Management Program
Overview and Project Detail

I. TIMP OVERVIEW

Our Transmission Integrity Management Program (TIMP) was developed pursuant to the Pipeline Safety Improvement Act of 2002 and the regulations promulgated by the Department of Transportation's (DOT) Office of Pipeline Safety. On December 17, 2004, we published a TIMP manual, in accordance with 49 C.F.R. § 192, Subpart O. The TIMP manual specifies the procedures for gathering, integrating, and analyzing data; assessing pipelines; and implementing remedial actions to improve pipeline safety.

At its core, the TIMP can be summarized in three steps:

1) understand your assets,
2) risk evaluation, and
3) risk mitigation.

Our processes for these three steps are outlined below.

1. Understand Your Assets

For the TIMP to be successful, the Company needs to gather, evaluate, and integrate data in order to better understand our gas transmission system. The TIMP process has allowed us to update asset records and improve overall asset knowledge, as well as information on the surrounding area. Fundamentally, aspects about the physical and operating characteristics and ongoing integrity of a system need to be known. These aspects include date of installation and length, size, material, and operating pressure of the pipeline. In addition, information about the installation location of the gas transmission assets is also important, including class location, geotechnical data and structures in the area.

Managing the risk of gas transmission assets is an ongoing process and evolves over time. The Company's baseline assessment plan prioritizes pipeline segments based on many factors, including population density, and the likelihood and severity of potential failure. The plan is updated regularly, incorporating new information on the health and condition of the assets and other system information.

2. Risk Evaluation

The Company evaluates the threats to a given pipeline that may pose a safety or reliability risk, with pipeline segments in populated areas[1] receiving the highest priority. Pipeline asset information from existing records, operating data, and input from subject matter experts (SMEs) is initially used to identify potential threats. Industry guidance materials, such as those published by the American Society of Mechanical Engineers, have also been incorporated into the threat identification process.

The Company evaluates our gas transmission pipelines for the following threats:

- External corrosion,
- Internal corrosion,
- Stress corrosion cracking,
- Manufacturing and related defects,
- Construction defects,
- Equipment failures,
- Third-party damage,
- Incorrect operations, and
- Weather-related and outside force damage.

Xcel Energy's risk assessment process identifies events or conditions that could cause or increase the likelihood or consequence of pipeline failure. The condition and physical characteristics of its gas assets, along with industry guidance and directives, are incorporated into risk evaluations and subsequent risk mitigation strategies. This risk evaluation process provides information to facilitate decisions about the prioritization of health and condition assessments, the frequency of assessment, which assessment methodology is most appropriate, and in certain cases information to substantiate the need for replacement of an asset.

3. Risk Mitigation

The Pipeline Safety Action Plan[2] issued by the DOT in 2011 called for gas system operators to accelerate their efforts to replace pipeline facilities and take other actions to enhance the integrity of natural gas facilities. We integrate the results from our risk

[1] Known as high consequence areas (HCA).
[2] https://www.phmsa.dot.gov/regulations-fr/rulemaking/2019-20306.

evaluation processes into determining planned risk mitigation activities. Typical risk mitigation measures include excavation of the pipeline, repair or complete removal of the anomaly, and reducing the operating pressure of the system.

Other risk mitigation activities focus on reducing consequences in the event of a failure. An example is the installation of specialized valves that can remotely or automatically shut down a pipeline, limiting or reducing the consequence in the event of a pipeline failure or rupture. These specific valves are commonly referred to as automatic shut-off valves (ASVs) or remote-controlled valves (RCVs).

In March of 2016, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a Notice of Proposed Rulemaking (NPRM) under Docket No. PHMSA-2011-0023. This NPRM proposes to revise the Pipeline Safety Regulations applicable to the safety of onshore gas transmission and gathering pipelines. PHMSA proposes changes to the integrity management (IM) requirements as well as changes to non-IM requirements. The original NPRM was originally published as one rule in 2016 and was later split into three separate rules. The first of the three rules was published on October 1, 2019. The second rule will be published in 2020 and the third rule addresses expansion of regulated gas gathering pipelines and is expected in 2021. The effective date of the first rule of the rule is July 1, 2020. The Company is currently assessing the new rule that was published in October and has not included any associated projects or costs in the 2020 GUIC. It is anticipated that the 2021 GUIC will include projects and costs needed to comply with these new rules.

The specific IM requirement changes from the first rule include:

- Expansion of IM beyond high consequence areas (HCAs),
- Establishment of moderate consequence areas (MCAs),
- Maximum Allowable Operating Pressure (MAOP) validation and reconfirmation,
- Materials verification requirements and,
- Spike testing.

The IM requirement changes proposed in the second rule include:

- Repair criteria for assessments in HCAs and moderate consequence areas,
- Corrosion control,
- Risk models,
- New construction and repairs,

- Management of change and,
- Inspection of pipelines following weather events.

Finally, the IM requirement changes proposed in the third rule address gas gathering lines assessments.

In summary, risk mitigation can include initiating preventative measures, more frequent inspections and health and condition assessments, utilizing specialized technology to address a specific threat, repair or replacement of anomalous conditions along a pipeline, or complete replacement of a given asset. As part of its comprehensive IM program, the Company has identified different risk mitigation strategies intended to reduce the likelihood of consequences posed by threats.

The 2020 TIMP project detail is presented in Attachment C1and the risk assessment scores for 2020 TIMP projects are presented in Attachment C2.

II. 2020 TIMP PROJECTS

In this filing, the Company requests recovery of the following operational and maintenance (O&M) and capital expenditures associated with three 2020 TIMP programs:

2020 Estimated TIMP Project Costs
($ Millions)

Program	2020 Capital[3]	2020 O&M
Transmission Pipeline Assessments	$3.59	$1.70
ASV/RCV	$1.00	$0.00
Programmatic Replacement / MAOP Remediation	$32.40	$0.00
Total 2020 TIMP Expenditures	**$36.99**	**$1.70**
Total 2020 Minnesota TIMP Revenue Requirements	**$10.53[4]**	**$1.50[5]**

[3] Estimated capital costs include estimated removal costs. Details can be seen in Attachment C1.
[4] Capital costs represents the eligible calculated revenue requirements, which include debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation.
[5] $480,000 of O&M amount is recovered through base rates and is removed from our GUIC Rider revenue requirement.

These projects were included in the Company's 2015 through 2019 Gas Utility Infrastructure Cost (GUIC) Rider petitions.[6] Projects planned for completion in 2020 and outlined below will begin during the 2nd and 3rd quarters of 2020 and will be placed in service during the 3rd and 4th quarters of 2020.

1) Transmission Pipeline Assessments
Work Breakdown Structure (WBS):[7] E.0000018.052, E.000004.019, E.000009.018 (Capital); A.0008610.004.002.002 (O&M)

2020 Estimated Project Costs:
$3.59 million Capital expenditure
$1.70 million O&M expenditure

Project Summary and Scope
This project is an ongoing program, beginning in 2002, of health and condition assessments on gas transmission lines. Federal regulations require assessment of gas transmission pipelines using In Line Inspection (ILI), pressure testing or direct assessment.[8] Regular assessment of pipelines is based on the health and condition of the assets as well as an evaluation of other operating information.

The Company met the HCA Baseline Assessment requirements,[9] and is now focusing on the re-assessment of pipelines in HCAs as well as assessing remaining transmission pipe beyond HCAs. The program includes requirements to ensure the safe operation of all gas transmission pipelines under American Society of Mechanical Engineers Standard B31.8S.[10]

The Company has selected ILI as the primary assessment methodology due to its superior ability to provide detailed information regarding the current pipeline condition over the entire length of the line. However, based on the threats to which a pipeline is susceptible and the feasibility of assessment

[6] Docket Nos. G002/M-14-336, G002/M-15-808, G002/M-16-891, G002/M-17-787, and G002/M-18-692.
[7] WBS has replaced the parent project number given for projects in previous versions of our GUIC Rider Filing. This switch in numbering has been due to a change in our work and asset management system. The previously-used parent projects generally correspond with one WBS.
[8] The requirements are further defined in the Company's TIMP manual.
[9] Federal requirements stipulated that all pipelines in HCAs needed to be assessed by December 17, 2012.
[10] This standard is incorporated by reference into 49 C.F.R. § 192, Subpart O.

methodologies, the Company may choose to utilize direct assessment and pressure testing as complementary assessment methodologies.

ILI requires unique inspection equipment and specialized knowledge. Outside vendors maintain fleets of such tools, which may cost in upwards of $1 million, and have the expertise needed to conduct an ILI. Additionally, ILI tools are constantly being re-engineered to gather more information about the health and condition of pipelines which makes owning such tools uneconomic at this time. Working with outside contractors to complete this work provides access to specialized expertise and equipment that is outside of the Company's normal scope of business and ensures that assessments are completed safely and efficiently.

Federal regulation requires the Company to apply knowledge gained from all assessments to all similar pipelines within the system both inside and outside HCAs. While the initial investment incurred to make lines accessible to ILI tools can be significant, the benefit of this investment is the ability to assess for multiple threats, gather a more comprehensive profile of the integrity of a pipeline, and complete assessments over longer distances.

There are two distinct elements in the selection and prioritization of work to be performed in this program: the assessment of pipelines and addressing issues found during the assessment. Assessment work in prior years was primarily driven by the date and type of the previous assessment. Findings from initial assessments can and do impact the timing of subsequent assessments, with a maximum interval of at least once every seven years. The objective is to monitor anomalies found on the pipelines, assess if they are stable or deteriorating, and mitigate the anomaly before it becomes a threat to public safety.

The Company evaluates anomalous conditions found during the assessment including the location of the anomaly, severity, nature (threat cause), and type of feature (e.g., dent or metal loss). The potential for other locations along the pipeline or in the system where similar conditions may exist is also considered and evaluated. Based on this evaluation, the Company categorizes the anomaly into an immediate condition, one–year condition, or monitored condition. These conditions are used to prioritize remediations. A typical remediation may include excavation and repair, removal of the anomaly, and/or reducing the operating pressure of the system.

The cost of TIMP assessments is highly variable and depends on the assessment method, pipeline age, configuration, as well as seasonal and operational constraints.

The scope of work in 2020 includes three projects on the following lines:

Line/Loop	Type	Project Length (mi)	Project Type
Cedar Line 26-inch	ILI	9.2	O&M
Crossover Line 12-inch	ILI	6.7	O&M
East County Line 20-inch	ILI/PT/DA	10.3	O&M/Capital

- **Cedar Line 26-inch:** This project is an ILI of a 26-inch pipeline, installed in 1953, that connects Cedar Town Border Station to Mendota Station. This is the second ILI assessment of this line and will cover 9.2 miles using smart tool technology. Running a second ILI allows the Company to compare the results with the first ILI in 2013 and identify any new anomalies or growth of existing anomalies. After the ILI is run, validation digs will be completed on the line.

- **Crossover Line 12-inch:** This project is an ILI of a 12-inch pipeline that connects the Rosemount Line to the 16-inch portion of the Crossover line as well as the Eagan Line. This assessment was delayed from 2019 to 2020 to allow for the installation of a permanent tool receiver in late 2019. This is the second ILI assessment of this line and will cover 6.7 miles of 12-inch pipeline using smart tool technology. Running a second ILI allows the Company to compare the results with the first ILI in 2012 and identify any new anomalies or growth of existing anomalies. After the ILI is run, validation digs will be completed on the line.

- **East County Line 20-Inch:** This project involves the assessment of approximately 10 miles of 20-inch pipeline utilizing multiple assessment methodologies in 2020 and 2021. Due to the operating pressure, flow rates, and pipeline configuration, different assessment methodologies are planned to be utilized over different portions of the line. A detailed evaluation of the pipeline configuration, operating conditions, risk assessment, and threat

identification to determine the most appropriate assessment method(s) to address the threats to the pipeline will occur in Q4 2019 and Q1 2020.

Costs for direct assessment are classified as O&M per the Company's capitalization policy. Due to the generally non-invasive nature of direct assessment activities, the cost is generally related to the length of pipe evaluated with some variability due to the route, depth, and environment of the pipeline (open field, natural forest, in the road ditch, under a major highway, etc.).

The costs to modify pipelines for initial ILI runs are capital costs per the Company's capitalization policy. This includes vendor costs associated with the use of specialized ILI tools and the advanced analysis required to interpret the results. Once an initial ILI assessment is completed on a specific section of pipeline, all costs for subsequent assessment by ILI will be O&M. The costs for assessment by pressure test including test equipment, test medium, and disposal of medium will be classified as O&M in all cases.

Repairs to existing pipelines that do not involve cut-out of the existing pipe are defined by the capitalization policy as O&M. If a cut-out is required, capitalization policy defines the O&M or capital designation based upon the length of the required cut-out.

2) ASVs and RCVs
WBS: E.0000018.041 (Capital)

2020 Estimated Project Costs:
$1.00 million Capital expenditure
$0.00 million O&M expenditure

Project Summary and Scope
This project is for the installation of mainline isolation valves or adding actuators to existing valves to quickly minimize the impact of an unplanned gas release from gas transmission pipelines. Long lead times on valve equipment and availability of construction resources could affect the exact timing of the proposed valve installations. However, any planned installation work not completed as scheduled in a current year would be completed in a subsequent year, which could ultimately extend the full duration of this multiyear project. Changes to PHMSA rules may also have an impact on the overall scope of the program.

Section 4 of the Pipeline Safety Act calls for the Secretary of the DOT to require by regulation the use of ASV or RCV, or equivalent technology, where it is economically, technically, and operationally feasible. On August 25, 2011, PHMSA issued an NPRM addressing ASVs and RCVs and seeking comments on several broad areas for potentially expanding the TIMP rules. PHMSA has completed its study[11] on ASVs and RCVs, but has not yet issued a ruling.

49 CFR Part 192.935(c) requires each company to perform a risk analysis to determine if adding an ASV or RCV would be an efficient means of adding system protection in a HCA in the event of a gas release. The following criteria are evaluated:

- Swiftness of leak detection and pipe shutdown capabilities,
- Type of gas being transported,
- Operating pressure,
- Rate of potential release,
- Pipeline profile,
- Potential for ignition, and
- Location of nearest response personnel.

SMEs from the engineering department performed a risk analysis based on risk factors to identify and rank the sites. Further site-specific items were considered, including whether a pipeline was scheduled for replacement in the near future. As a result, it may be appropriate to install an ASV or RCV at a lower-risk location prior to one at a higher-risk location, if the latter is on a pipeline scheduled for a near-term replacement.

The determination of the applicable type of ACV or RCV to install in each situation is based on an overall risk analysis, evaluation of system operational needs, and engineering review. The Company generally anticipates installing two to four valves each year through 2021. The number of valves, valve sizes, and activity occurring at each of the locations listed below was determined by the risk analysis. Per the Company's capitalization policy, the cost of these installations is a capital cost. O&M expenses are not expected in future years.

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11 https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/Automatic%20and%20Remote%20Controlled%20Shut-Off%20Valves%20-%20December%202012.pdf

The 2020 scope of work includes the following valves:

Valve Location	Size	Description
Linwood & Century Ave	20-inch	Install new valve and actuator on the East County Line
South St. Paul Station	20-inch	Install new valve actuator on the East Count Line – West of the Mississippi

The locations proposed for installation in 2020 and beyond are based on a revised risk analysis of work completed in 2019. After 2020, the Company expects to install another two valves, in total, during 2021 and 2022 as part of this GUIC program. Two additional valves, related to the Eagan Line, were initially a part of our plans for work during 2020 and 2021. However, due to the decision to derate that line in 2019, the planned two remote operated valves are no longer needed.

3) Programmatic Replacement/MAOP Remediation
WBS: E.0000018.055, E.0000004.048, E.0000042.001, and E.0000044.001 (Capital)

2020 Estimated Project Costs:
$32.40 million Capital expenditure
$0.00 million O&M expenditure

Project Summary and Scope
The MAOP Remediation Advisory Bulletin[12] issued by PHMSA, and contained in the Federal Register, specifically addressed pipeline safety in terms of verification of records. The initial language in the advisory required operators to "take action as appropriate to assure that all MAOP and MOP [Maximum Operating Pressure] are supported by records that are traceable, verifiable and complete."

The codes and rules around material testing, welding standards, and record keeping have evolved over time. Consequently, the Company acknowledges there are gaps in data regarding our facilities that need to be closed to meet the

[12] ADB-12-06, Docket No. PMHSA-2012-0068.

Federal standards. Some data gaps are more critical than others. For instance, the construction and maintenance data of gas transmission pipelines and operating pressures are critical to support the safe operation of these assets. The MAOP initiative focuses on obtaining adequate proof of MAOP records and ensuring that they become part of the Company's official system of record. Remediation of data gaps is also part of the scope.

In the NPRM published on October 1, 2019 and effective on July 1, 2020, PHMSA proposed to require operators reconfirm MAOP for the following three categories:

1) Grandfathered pipelines,
2) Pipelines for which documentation is inadequate to support the MAOP, and
3) Pipe that has experience a reportable in-service incident since the pressures test due to an original manufacturing-related defect; a construction, installation or fabrication related defect, or a racking related defect.

Pipelines are prioritized for renewal and pressure tested based on a variety of factors and competing demands, including:

- Location within or outside of HCAs,
- Type of documentation missing,
- Criticality to system, and
- Vintage of pipeline.

All the pipelines have been prioritized using the criteria described above to develop a schedule and budget to complete the work in an appropriate amount of time.

The MAOP review portion of the work will be completed by hiring contract engineering and research analysts. The Company's internal engineering department will assist in the design of the remediation projects with project management's oversight. Material procurement will be completed using our current agreements with our vendors and using our Company sourcing group to ensure we receive the best prices and delivery schedules.

The cost estimates for this program are based on our experience with similar assets in prior years. Actual results from assessments will drive the overall scope and timing of these capital expenditures.

In 2020 we will conduct replacement work on one of the Company's existing transmission lines:

Line/Loop	Type	Project Length (mi)	Project Type
County Road B (NSP to Rice Phase 2)	Replacement	4.7	Capital

- **County Road B (NSP to Rice):** This project is along County Road B in North Saint Paul, Maplewood, Roseville, and Little Canada, MN and entails replacing 6.5 miles of 30-inch, 24-inch and 20-inch pipe with a standardized 20-inch pipe. This pipeline was originally installed in the 1950s with service lines directly connected to it, multi diameter piping and mechanical couplings. Replacement with a new single diameter pipeline will make the line capable of being inspected with ILI tools. Multi diameters, short radius elbows, valve configurations, and old service taps prevent the line from being inspected with ILI tools currently. Design and construction are anticipated to be completed over a three-year span from 2018 through 2020. The construction was split into two phases to better manage the schedule and resources. Phase 1 included removing and replacing 1.8 miles of 20-inch pipe from NSP to White Bear Avenue and will be completed in 2019. Phase 2 will begin at White Bear Avenue and move to Rice St. Phase 2 consists of 4.7 miles of pipe to remove and replace and will begin in spring of 2020.

III. 2019 TIMP PROJECTS

In 2019, there are three projects under the TIMP:

1) Transmission Pipeline Assessments;
2) ASVs and RCV; and
3) Programmatic Replacements and MAOP Remediation.

The TIMP project costs included in the Company's 2019 GUIC Rider Petition, Docket No. G002/M-18-692, as compared to updated 2019 cost estimates[13] based on emerging project developments and actual construction activity, are provided below:

2019 Estimated TIMP Project Costs
($ Millions)

Program	2019 Capital, As Filed[14]	2019 Capital Estimates	Capital Variance	Capital Variance %	2018 O&M, As Filed	2018 O&M Estimates	O&M Variance	O&M Variance %
Transmission Pipeline Assessments	$1.03	$1.03	$0.00	0.00%	$2.90	$2.90	$0.00	0.00%
ASV/RCV	$1.00	$1.00	$0.00	0.00%	$0.00	$0.00	$0.00	0.00%
Programmatic Replacement/MAOP Remediation	$26.90	$22.68	$(4.23)	(15.71%)	$0.00	$0.00	$0.00	0.00%
Total 2019 TIMP Expenditures	$28.93	$24.71	$(4.23)	(14.60)%	$2.90	$2.90	$0.00	0.00%
Total 2019 Minnesota TIMP Revenue Requirement[15]	$9.40	$8.70	$(0.70)	(7.40)%	$2.56	$2.35	$(0.22)	(8.40)%

TIMP projects planned for completion in 2019, and outlined below generally began during the 2nd and 3rd quarters of 2019 and will begin service during the 3rd and 4th quarters of 2019.

[13] Based on actual costs as of 6/30/2019 and estimates from 7/1/2019 through 12/31/2019.
[14] Estimated capital costs include estimated removal costs. Detail of numbers shown in Attachment C1 included in our 2019 GUIC Rider Filing, Docket No. G002/M-18-692.
[15] Capital costs represents the eligible calculated revenue requirements, which include: debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation. $480,000 of O&M amount is recovered through base rates, and is removed from our GUIC Rider revenue requirement.

1) Transmission Pipeline Assessments
WBS: E.0000018.052, E.000004.019, E.000009.018, E.0010033.012, E.0010043.012, E.0010043.013, E.0010043.014, and E.0010043.015 (Capital); A.0008610.004.002.002, A.0008410.163.002 (O&M)

Project Summary and Scope

The scope of assessments in 2019 includes five projects on the following lines:

Line/Loop	Type	Project Length (mi)	Project Type
Crossover Line 16-inch	ILI	0.4	O&M
Crossover Line 12-inch	ILI	6.7	O&M
Highbridge Line	ILI	2.6	O&M
Eagan Line	Derate	5.8	Capital
Montreal Line North - Transmission	Hydrostatic Pressure Test	0.3	O&M

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expeditures	$1.03	$1.03	$0.00	0.00%	$2.90	$2.90	$0.00	0.00%

Variance Explanation

Capital: None.

O&M: None.

2) ASVs and RCVs
WBS: E.0000018.041 and E.0010043.006 (Capital)

Project Summary and Scope

The determination of the applicable type of ASV or RCV to install in each situation is based on an overall risk analysis, evaluation of system operational needs, and engineering review. The locations proposed for installation in 2019 were originally based on discovery work completed in January 2016 and updated in 2018.

The scope of work in 2019 includes the completion of two projects on the following lines and the five Mendota Valve installations:

Subproject	Size	Description
Rich Valley Station Inlet	16-inch	Install new valve and actuator on the Rosemount line at the Rich Valley Station Inlet
Hwy 55 and Babcock	16-inch	Install new actuator on the Rosemount line at Hwy 55 and Babcock Rd

Valve Location	Size	Description
Mendota Station Inlet	16-inch	Install new actuator on Cedar Line
Mendota Station Outlet	20-inch	Install new actuator on Island Line South
Mendota Station Inlet	16-inch	Install new actuator on Crossover Line
Mendota Station Outlet	20-inch	Install new actuator on Montreal Line
Mendota Station Outlet	20-inch	Install new actuator on High Bridge Line

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expeditures	$1.00	$1.00	$0.00	0.00%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: None.

O&M: None.

3) Programmatic Replacement/MAOP Remediation
WBS: E.0000018.055, E.0000004.048, E.0000042.001 and E.0000044.002
(Capital)

Project Summary and Scope
In 2019, the Company is completing construction activities associated with the County Road B Line (NSP to Rice) Phase 1and the East County Line – (30 inch Maplewood Propane to North Saint Paul).

- **County Road B (NSP to Rice):** This project is along County Road B in North Saint Paul, Maplewood, Roseville, and Little Canada, MN and entails replacing 6.5 miles of 30-inch, 24-inch and 20-inch pipe with standardized 20-inch pipe. This pipeline was originally installed in the 1950s with service lines directly connected to it, multi diameter piping and mechanical couplings. Replacement with a new single diameter pipeline will make the line capable of being inspected with ILI tools. Multi diameters, short radius elbow, valve configurations, and old service taps prevent the line from being inspected with ILI tools currently. Design and construction are anticipated to be completed over a three year span from 2018 through 2020.

- **East County Line (30 inch Maplewood to North Saint Paul):** This project extends from our Maplewood Propane facility to North Saint Paul

Station in the communities of Maplewood, Oakdale, and North Saint Paul, MN. 1.5 miles of 30-inch pipe will be replaced with 20-inch pipe. This pipeline was originally installed in 1957. Replacement with standardized piping will make the line accessible to ILI tools. Design and construction will occur in 2018 and 2019.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expeditures	$26.90	$22.68	$(4.23)	(15.71)%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The main drivers for the decrease in capital expenditures results from favorable contractor mechanical bids, avoidance of hard and soft surface restoration costs by keeping the area of impact to a minimum, and fewer than expected underground utilities and obstructions encountered that reduced installation costs.

O&M: None.

IV. 2018 TIMP PROJECTS

In 2018, there were four projects under the TIMP:

1) East Metro Pipeline Replacement;
2) Transmission Pipeline Assessments;
3) ASVs and RCVs; and
4) Programmatic Replacements and MAOP Remediation.

Following are the TIMP project costs included in the Company's 2018 GUIC Rider Petition, Docket No. G002/M-17-787, as compared to actual 2018 costs.

2018 Actual TIMP Project Costs
($ Millions)

Program	2018 Capital, As Filed[16]	2018 Capital Actuals[17]	Capital Variance	Capital Variance %	2018 O&M, As Filed	2018 O&M Actuals	O&M Variance	O&M Variance %
East Metro Pipeline Replacement	$0.00	$(0.03)	$(0.03)	(100.00)%	$0.00	$0.00	$0.00	0.00%
Transmission Pipeline Assessments	$0.30	$0.39	$0.09	28.85%	$1.51	$0.98	$(0.53)	(34.96)%
ASV/RCV	$1.00	$0.43	$(0.57)	(56.84)%	$0.00	$0.00	$0.00	0.00%
Programmatic Replacement/MAOP Remediation	$8.00	$7.07	$(0.93)	(11.66%)	$0.00	$0.00	$0.00	0.00%
Total 2019 TIMP Expenditures	$9.30	$7.85	$(1.45)	(15.57)%	$1.51	$0.98	$(0.53)	(34.96)%
Total 2019 Minnesota TIMP Revenue Requirement[18]	$10.51	$7.91	$(2.60)	(24.80)%	$1.51	$0.87	$(0.64)	(42.50)%

TIMP projects completed in 2018 and outlined below generally began during the 2nd and 3rd quarters of 2018 and were placed into service during the 3rd and 4th quarters of 2018.

1) East Metro Replacement Project
Work Breakdown Structure (WBS): E.0000030.001, E.0000030.002, and E.0000030.009 (Capital)

Project Summary and Scope
The East Metro Replacement Project was completed in 2017. However, minor credits associated with constructing of the Highland regulator station and restoration activities were not processed until 2018.

[16] Detail of numbers shown in Attachment C1 included in our 2018 GUIC Rider Filing, Docket No. G002/M-17-787
[17] Includes removal costs (RWIP)
[18] Capital costs represents the eligible calculated revenue requirements, which include: debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation. $480,000 of O&M amount is recovered through base rates, and is removed from our GUIC Rider revenue requirement.

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expeditures	$0.00	$(0.03)	$(0.03)	(100.00)%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: Not significant.

O&M: None.

2) Transmission Pipeline Assessments
WBS: E.0000018.052 (Capital); A.0008610.004.002.002, A.0008410.163.002.002 (O&M)

Project Summary and Scope
The project scope in 2018 included work on the following lines:

Line/Loop	Type	Project Length (mi)	Project Type
Island Line (South of River)[19]	ILI	1.9	Capital/O&M
Rosemount Line	ILI	7.9	O&M
Blue Lake Line	ILI	10.9	O&M

[19] Island Line S was made ILI-assessable in 2016. ILI runs were completed in 2018. The O&M activities planned for the projects above are for the associated validation digs, which are not capitalized.

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expeditures	$0.30	$0.39	$0.09	28.85%	$1.51	$0.98	$(0.53)	(34.96)%

Variance Explanation

Capital: Additional costs were incurred for specialized low pressure low flow ILI equipment for Island Line ILI. The pressure and flow rate on the line required a low pressure low flow tool.

O&M: Validation digs for the Island Line (South of River) ILI were not performed in 2018 due to concerns with high water levels near the river.

3) ASVs and RCVs
WBS: E.0000018.041 (Capital)

Project Summary and Scope
In 2018, the Company installed valves at three different locations:

Valve Location	Size	Description
Rich Valley Station Inlet	16-inch	Install new valve and actuator on the Rosemount line at Rich Valley Station Inlet
Hwy 55 and Babcock	16-inch	Install new actuator on the Rosemount line at Hwy 55 and Babcock Road
South St. Paul Station Inlet	16-inch	Install new actuator on the Rosemount line at the South St Paul Station Inlet

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$1.00	$0.43	$(0.57)	(56.84)%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The variance was due to a delay in completing installation of the valves at Rich Valley Station and Hwy 55 and Babcock until 2019. These two locations needed to remain in service while our Wescott LNG facility was liquefying gas into the tanks. This process went late into the year in 2018. Due to cold temperatures, we were not able to complete the installations once Wescott completed the liquefaction run.

O&M: None.

4) Programmatic Replacement/MAOP Remediation
WBS: E.0000018.055, E.0000004.048, E.0000042.001, E.0000044.002, and E.0010073.004 (Capital)

Project Summary and Scope
The scope of work in 2018 included five projects on the following lines:

Line/Loop	Type	Project Length (mi)	Project Type
Montreal Line South	Replacement	0.2	Capital
Island Line South	Replacement	1.5	Capital
East County Line – South Saint Paul Station to Railroad Tracks	Replacement	0.5	Capital

Line/Loop	Type	Project Length (mi)	Project Type
County Road B (NSP to Rice)	Replacement	6.5	Capital
East County Line (30-inch Maplewood Propane to North Saint Paul)	Replacement	1.5	Capital

The primary scope of work in 2018 related to construction activities to replace both the Montreal Line South and the Island Line South from the Mendota Station to the Mississippi River bottom. Environmental concerns with constructing in the easement altered the alignment of the pipeline and required the closing and eventual full restoration of an entire segment of road not included in original plans. The project incurred significant costs as a result of a new alignment, difficult construction requirements, and significant hard surface restoration. The alignment and location of the new pipelines changed to reduce the risk of third-party damage by nearby railroad reconstruction work. Planning, engineering and permitting activities began for the County Road B and East County Line projects in the 3rd and 4th quarters of 2018.

2018 Actual TIMP Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$8.00	$7.07	$(0.93)	(11.66%)	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The main driver for the decrease in capital expenditures results from the removal of $5.7 million related to the Upper 55 to South St. Paul Regulator Station crossover project due to revised risk

scoring. Further, the Company did not pursue funding of the project through the GUIC Program. This decrease was partially offset by additional costs related to 2017 carryover charges for the Montreal/Island Line Replacement project. Additionally, there were unexpected cost increases related to the East County Line Renewal project. Oil contamination was found in the existing pipe causing additional expenses to clean the pipe before removal and grouting. Also, the City required curb-to-curb paving instead of only restoring the area impacted by the trench.

O&M: None.

V. TIMP MULTI-YEAR PLAN

As previously stated, some of the TIMP projects will span multiple years. As such, the Company has formulated a multi-year plan for those that will extend beyond 2020.

The table below depicts the estimated capital and O&M costs for this multi-year plan. Many of these projects require more detailed design and engineering work to improve the quality of the estimate. Other factors, including coordination with city entities, securing rights-of-way and permits, resource and equipment availability, and unforeseen circumstances all can have an impact on a final construction estimate.

The information provided below is an initial high-level budgeting estimate for each program.

TIMP 2021-2024 Plan[20]
($ Millions)

	2021 Estimates		2022 Estimates		2023 Estimates		2024 Estimates	
Project	**Capital**	**O&M**	**Capital**	**O&M**	**Capital**	**O&M**	**Capital**	**O&M**
Transmission Pipeline Assessments	$2.26	$1.70	$5.40	$1.70	$0.85	$1.70	$0.85	$1.70
ASV/RCV	$1.00	$0.00	$1.00	$0.00	$1.00	$0.00	$1.00	$0.00
Programmatic Replacement/MAOP Remediation	$0.00	$0.00	$0.00	$0.00	$15.00	$0.00	$15.00	$0.00
Total	**$3.26**	**$1.70**	**$6.40**	**$1.70**	**$16.85**	**$1.70**	**$16.85**	**$1.70**

[20] Capital figures denoted represent total estimated capital expenditures, including removal costs.

CAPITAL

Program	Regulation	WBS Structure	2018 Actuals	2019 Actuals [1]	2019 Forecast	2019 Total	2020 Plan	Cost Per Unit (CPU) Assumptions
TIMP Assessments	49 CFR 192, Subpart O	E.0000018.052; E.0010033.012; E.0010043.012; E.0010043.013; E.0010043.014; E.0010043.015.	$ 386,558	$ 61,304	$ 968,696	$ 1,030,000	$ 3,590,000	See Subpart C1(a)
ASV/RCV Valve Replacements	49 CFR Part 192.935	E.0000018.041	$ 431,581	$ 430,294	$ 569,706	$ 1,000,000	$ 1,000,000	See Subpart C1(b)
East Metro Pipeline Replacement Project	49 CFR 192, Subpart O	11615874, 11676981, 11706370, 11819647, 12013233	$ (32,830)	$ -	$ -	$ -	$ -	n/a
Programmatic Main Replacement/MAOP Validation	On May 7, 2012, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued an Advisory Bulletin to clarify the record verification requirements for establishing Maximum Allowable Operating Pressure (MAOP) for natural gas pipelines. See http://www.gpo.gov/fdsys/pkg/FR-2012-05-07/pdf/2012-10866.pdf.	E.0000018.055; E.0000004.048; E.0000042.001; E.0000042.002 ; E.0000044.001; E.0000044.002; E.0010073.004.	$ 7,067,064	$ 6,326,896	$ 16,348,104	$ 22,675,000	$ 32,400,000	See Subpart C1(c)
TOTAL TIMP CAPITAL			**$ 7,852,373**	**$ 6,818,494**	**$ 17,886,506**	**$ 24,705,000**	**$ 36,990,000**	

*Costs include non-GUIC recoverable internal labor.

O&M

Program	Regulation	WBS Structure	2018 Actuals	2019 Actuals [1]	2019 Forecast	2019 Total	2020 Plan	Cost Per Unit (CPU) Assumptions
TIMP Assessments	49 CFR 192, Subpart O	A.0008610.004.002.002; A.0008410.163.002	$ 981,386	$ 14,167	$ 2,885,833	$ 2,900,000	$ 1,700,000	See Subpart C1(a)
TOTAL TIMP O&M			**$ 981,386**	**$ 14,167**	**$ 2,885,833**	**$ 2,900,000**	**$ 1,700,000**	

[1] Actual costs through June 2019.

2018

Line/Loop	Project Description	Actuals	O&M or Capital
Rosemount Line	**2nd ILI**	**$ 291,727**	
Task 1	Pigging Runs	$ 156,501	O&M
Task 2	Validation Digs	$ 135,226	
Blue Lake Line	**2nd ILI**	**$ 647,584**	
Task 1	Pigging Runs	$ 277,770	O&M
Task 2	Validation Digs	$ 369,814	
Island Line (South of River)	**ILI Assessable (Launcher & Receiver Installation)**	**$ 352,172**	
Task 1	Pigging Runs	$ 350,714	Capital
Task 2	Validation Digs	$ -	
Task 3	O&M Repairs	$ 1,458	O&M
Capital Overheads		$ 35,844	
O&M Overheads		$ 40,617	
Capital Total		**$ 386,558**	
O&M Total		**$ 981,386**	

*Amounts above include non-GUIC recoverable costs associated with internal labor and internal labor-related Engineering and Supervision (E&S) overhead charges.

2019

Line/Loop	Project Description	Estimates	O&M or Capital
Eagan Line	**Derate**	**$1,030,000**	
Task 1	Derate to Distribution	$1,030,000	Capital
Crossover 16"	**2nd ILI**	**$800,000**	
Task 1	Pigging Runs	$500,000	O&M
Task 2	Validation Digs	$200,000	
Task 3	Contingency	$100,000	
Crossover 12"	**2nd ILI**	**$800,000**	
Task 1	Pigging Runs	$500,000	O&M
Task 2	Validation Digs	$200,000	
Task 3	Contingency	$100,000	
High Bridge Line	**ILI Assessable (Launcher & Receiver Installation)**	**$800,000**	
Task 1	Pigging Runs	$500,000	O&M
Task 2	Validation Digs	$200,000	
Task 3	Contingency	$100,000	
Montreal Line North	**Hydrostatic Pressure Test**	**$500,000**	
Task 1	Montreal Station to Shepherd Road - 20"	$240,000	O&M
Task 2	Shepherd Road crossing - 24"	$100,000	
Task 3	Shepherd Road to north valve header - 20"	$100,000	
Task 4	Contingency	$60,000	
Capital Total		**$1,030,000**	
O&M Total		**$2,900,000**	

* Amounts above include non-GUIC recoverable costs associated with internal labor-related Engineering and Supervision (E&S) overhead charges

2020

Line/Loop	Project Description	Estimates	O&M or Capital
Crossover 12"	**2nd ILI**	**$700,000**	
Task 1	Pigging Runs	$500,000	O&M
Task 2	Validation Digs	$200,000	
Cedar Line	**2nd ILI**	**$700,000**	
Task 1	Pigging Runs	$500,000	O&M
Task 2	Validation Digs	$200,000	
E County Line	**Multiple Assessments**	**$3,890,000**	
Task 1	Capital Assessments (ILI)	$3,590,000	Capital
Task 2	O&M Assessments (DA & PT)	$300,000	O&M
Capital Total		**$3,590,000**	
O&M Total		**$1,700,000**	

* Amounts above include non-GUIC recoverable costs associated with internal labor-related Engineering and Supervision (E&S) overhead charges

2018-2020 TIMP Project Detail - ASV/RCV

2018

Subproject	Size	Description	Actual Cost
Rich Valley Station Inlet	16”	Install new valve and actuator on the Rosemount line at the Rich Valley Station Inlet	$295,933
Hwy 55 and Babcock	16”	Install new actuator on the Rosemount line at Hwy 55 and Babcock Rd	$120,434
South St. Paul Station Inlet	16”	Install new actuator on the Rosemount line at the South St. Paul Station Inlet	$15,214
Total			**$431,581**

**Amounts above include internal company labor that is not recoverable through the GUIC rider.*

2019

Subproject	Size	Description	Estimated Cost
Rich Valley Station Inlet	16”	Install new valve and actuator on the Rosemount line at the Rich Valley Station Inlet	$279,693
Hwy 55 and Babcock	16”	Install new actuator on the Rosemount line at Hwy 55 and Babcock Rd	$220,307
Mendota Station Inlet	16”	Install new actuator on Cedar Line TL0203 Inlet EV0460	$100,000
Mendota Station Outlet	20"	Install new actuator on Island Line S. TL0206 Outlet EV0444	$100,000
Mendota Station Inlet	16”	Install new actuator on Crossover Line TL0207 Inlet EV421	$100,000
Mendota Station Outlet	20"	Install new actuator on Montreal Line Outlet EV0443	$100,000
Mendota Station Outlet	20"	Install new actuator on High Bridge Line EV0461	$100,000
Total			**$1,000,000**

**Amounts above include internal company labor that is not recoverable through the GUIC rider.*

2020

Subproject	Size	Description	Estimated Cost
Linwood & Century Avenue	20"	Install new valve and actuator on the East County Line	$700,000
South St. Paul Outlet	20"	Install a new actuator on the East County Line - West of the Mississippi	$300,000
Total			**$1,000,000**

**Amounts above include internal company labor that is not recoverable through the GUIC rider.*

2018		
Project Name	**Project Description**	**Actual Cost**
East Co. Line North	Construction	$ -
	Materials	$ -
	ECLN Permitting	$ 193,352
	ECLN Engineering	$ 112,988
	Total	**$ 306,340**
County Rd B	Construction	$ -
	Materials	$ -
	CRB Permitting	$ 64,808
	CRB Engineering	$ 701,115
	Total	**$ 765,923**
East County Line Renewal – S.St. Paul Station to RR Tracks	Construction	$ 3,275,652
	Materials	$ 481,999
	Permitting	$ 36,554
	Engineering	$ 139,532
	Total	**$ 3,933,737**
Montreal Line South and Island Line South Renewal	Construction	$ 2,039,513
	Engineering	$ 284
	Materials	$ 19,828
	Permitting	$ 1,439
	Total	**$ 2,061,064**
	Grand Total	**$ 7,067,064**

**Amounts above include internal company labor that is not recoverable through the GUIC rider.*

2019 & 2020 TIMP Project Detail - Programmatic Replacement/MAOP Validation

2019 & 2020		
Individual Project Name	**Description***	**Assumptions***
County Road B (NSP to Rice)	· Project Type: Pipeline Replacement	
	· Regulation: May 7, 2012 PHMSA MAOP Advisory Bulletin	Benefits: MAOP established by Traceable, Verifiable and Complete Records.
	· Overview: Replace original 1950s pipeline of 34,331" of 30", 24" and 20" with standardized 20"	Current Classification: Transmission
	· Location: County Road B in North Saint Paul and Maplewood, MN.	Future Classification: Distribution
	· 2018 Construction Period: May – October 2018	· Total Cost Per Unit: $45.3 million or $1,320/ft.
	· Total Construction Period: 2018-2020	
2018 Actual Costs:	- $766K Design, Engineering, Easement Acquisition	
2019 Estimated Costs:	- $12.1M Construction - Phase 1	
2020 Estimated Costs:	- $32.4M Construction - Phase 2	
Total Estimated Capital Costs:	- $45.3M	
East County Line (30"Maplewoood Propane to North Saint Paul)	· Project Type: Pipeline Replacement	
	· Regulation: May 7, 2012 PHMSA MAOP Advisory Bulletin	Benefits: MAOP established by Traceable, Verifiable and Complete Records.
	· Overview: Replace original 1957 pipeline of 7,323" of 30" with standardized 20"	Current Classification: Transmission
	· Location: Century Avenue from Maplewood Propane facility to North Saint Paul Station in the communities of Maplewood, Oakdale and North Saint Paul, MN	Future Classification: Distribution
	· 2018 Construction Period: May – October 2018	· Total Cost Per Unit: $10.8 million or $1,480/ft.
	· Total Construction Period: 2018-2019	
2018 Actual Costs:	- $306K Design, Engineering, Easement Acquisition	
2019 Estimated Costs:	- $10.5M Construction	
Total Estimated Capital Costs:	- $10.8M	

**Amounts above include internal company labor that is not recoverable through the GUIC rider.*

Quantitative Risk Assessment for 2020 GUIC Programs and Initiatives

TIMP

Methodology

Xcel Energy's risk assessment methodology is a process to evaluate unwanted consequences and the likelihood of the consequences occurring on the Company's natural gas infrastructure. The goal of the Company's integrity programs is to protect the public, property and the environment from pipeline failures.

The purpose of this risk assessment methodology is to develop a quantitative risk score and assign a risk category (high, medium, low) for identified projects that are funded through the Company's GUIC rider.

These quantitative risk assessment methodologies assign numeric values to likelihood and consequences by using available data and quantifying assessments. In some cases, subject matter expert (SME) input is utilized.

TIMP Transmission Pipeline Assessments

Replacement Project Risk

2020 Projects by Risk Category
NONE

Data Inputs: Findings from completed pipeline assessments and pipeline patrols. Data and information is gathered and integrated for the pipeline segment that could be relevant. In some cases replacement may be required due to the inability to assess for an applicable threat as required by Subpart O of 49 CFR 192.

Risk = Σ (Likelihood x Consequence) for all threats

Likelihood of Failure Lookup Table

Likelihood of Failure Score (L) = 0 if there are no known defects or situations of concern for the threat category. When known issues exist the following table is utilized.

Threat Category	L = 5	L = 3	L = 0.25
External Corrosion	An immediate repair condition as per 192.933(d)(1) Any metal-loss indication affecting a detected longitudinal seam, if that seam was formed by direct current or low-frequency electric resistance welding or by electric flash welding. Predicted metal loss greater than 80% of the nominal wall thickness. A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	A calculation of the remaining strength of the pipe shows a defect may grow to an immediate repair condition prior to the next scheduled assessment. A calculation of the remaining strength of the pipe is not commensurate with the pipeline class location. Predicted metal loss greater than 50% of nominal wall thickness. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.
Internal Corrosion	An immediate repair condition as per 192.933(d)(1) Any metal-loss indication affecting a detected longitudinal seam, if that seam was formed by direct current or low-frequency electric resistance welding or by electric flash welding.	A calculation of the remaining strength of the pipe shows a defect may grow to an immediate repair condition prior to the next scheduled assessment. A calculation of the remaining strength of the pipe is not commensurate with the pipeline class location.	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.

Threat Category	L = 5	L = 3	L = 0.25
	Predicted metal loss greater than 80% of the nominal wall thickness. A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	Predicted metal loss greater than 50% of nominal wall thickness. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	
Stress Corrosion Cracking (SCC) or other crack like defects	An immediate repair condition as per 192.933(d)(1) A calculation of the remaining strength of the pipe shows a defect may grow to an immediate repair condition prior to the next scheduled assessment. Any indication of significant SCC or significant selective seam weld corrosion (SSWC). A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	Evidence of cracks or crack-like defects in the pipe body, longitudinal seam, circumferential or branch-connection welds that are not an immediate condition. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	The pipeline meets the SCC threat criteria per ASME B31.8S Appendix A but no indications of SCC have been found as a result of assessments. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.

Threat Category	L = 5	L = 3	L = 0.25
Manufacturing	An immediate repair condition as per 192.933(d)(1) A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	Tooling marks, rolling scabs, or other imperfections from the original pipe fabrication > 10% of the nominal wall thickness An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	Tooling marks, rolling scabs, or other imperfections from the original pipe fabrication ≤ 10% of the nominal wall thickness An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.
Welding/Fabrication/Construction	An immediate repair condition as per 192.933(d)(1) or a one-year condition as per 192.933(d)(2) A leaking defect. A dent that has any indication of metal loss, cracking or a stress riser. An indication or anomaly that in the judgment of the person designated by the operator to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	A dent that exceeds the criteria established in 192.933 (d) (3) but is not an immediate repair condition or a one-year condition as per 192.933(d)(2) Presence of legacy construction techniques (e.g. miter bends, wrinkle bends, dresser couplings, acetylene welds, puddle welds, or a crease in a field bend). An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	A dent that meets the criteria established in 192.933 (d) (3) An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.

Threat Category	L = 5	L = 3	L = 0.25
Equipment	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii). A leaking defect.	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.
3rd Party Mechanical Damage	An immediate repair condition as per 192.933(d)(1) or a one-year condition as per 192.933(d)(2) Any metal-loss indication affecting a detected longitudinal seam, if that seam was formed by direct current or low-frequency electric resistance welding or by electric flash welding. A dent that has any indication of metal loss, cracking or a stress riser. Predicted metal loss greater than 80% of the nominal wall thickness. A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	A plain dent that exceeds the criteria established in 192.933(d)(3) but in not an immediate repair condition or a one-year condition. A calculation of the remaining strength of the pipe is not commensurate with the pipeline class location. A gouge or groove greater than 12.5% of nominal wall thickness. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	A plain dent that meets the criteria established in 192.933(d(3) Tooling marks, rolling scabs or other imperfections from the original pipe fabrication ≤ 10% of the nominal wall thickness in conjunction with a dent whose depth is > 4% of the nominal pipe diameter. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.

Threat Category	L = 5	L = 3	L = 0.25
Weather/Outside Force	An immediate repair condition as per 192.933(d)(1) A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	An active land slide zone. Line exposed due to erosion and subject to abnormal stresses. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires remediation prior to the next assessment.	An indication or anomaly that in the judgment of the person designated to evaluate the assessment results does not require remediation prior to the next assessment.
Other	Pipeline cannot be assessed for a specific threat or threats with currently available assessment techniques. A leaking defect. An indication or anomaly that in the judgment of the person designated to evaluate the assessment results requires immediate action as per 192.933(d)(iii).	Replacement is more economical than the cost of conducting ongoing assessments. Line must be taken out of service for the pipeline assessment but it is not possible to take the pipeline out of service or provide a temporary supply to serve the load.	NA

Consequence of Failure Lookup Table

Class Location	Score
4	1.15
3	1.10
2	1.05
1	1

Risk Matrix

For a segment of pipeline in the same Class Location, the following table may be used.

			Consequence			
			Class 1	Class 2	Class 3	Class 4
			1	**1.05**	**1.1**	**1.15**
Likelihood of Failure	Sum of Likelihood of Failure Scores	**≥ 5**	≥ 5	≥ 5.25	≥ 5.5	≥ 5.75
	Sum of Likelihood of Failure Scores	**4**	4	4.2	4.4	4.6
	Sum of Likelihood of Failure Scores	**3**	3	3.15	3.3	3.45
	Sum of Likelihood of Failure Scores	**≤ 2**	≤ 2	≤ 2.1	≤ 2.2	≤ 2.3
	Sum of Likelihood of Failure Scores	**≤ 1**	≤ 1	≤ 1.05	≤ 1.1	≤ 1.15

High Risk: Risk Score ≥ 5
Medium Risk: 3 ≤ Risk Score < 5
Low Risk: Risk Score < 3

TIMP Transmission Pipeline Assessments

Integrity Assessments Project Risk

Project	Project Location (Service Area)	Pipe Diameter	Pipe Vintage	Years Since Last Assessment	HCA	Risk Score	Risk Level (High, Medium, Low)
Crossover 12”	Rice Street	12	1948	7	Yes	4	High
Cedar Line	Rice Street	26	1953	7	Yes	4	High
East County Line	Rice Street	20/24	1957	6	Yes	4	High

Data Inputs:

- Years since last integrity assessment
- Presence of High Consequence Areas on the line.

Used for decisions on prioritizing integrity assessments

Risk Score = Likelihood of Failure x Consequence of Failure

			Consequence	
			Non-HCA	HCA
			1	**2**
Likelihood of Failure	Last Assessment > 20 years prior or no previous assessment	**4**	4	8
	15 years ≤ Last Assessment < 20 years prior	**3**	3	6
	5 years ≤ Last Assessment < 15 years prior	**2**	2	4
	Last Assessment < 5 years prior	**1**	1	2

High Risk, Risk Score ≥ 4
Medium Risk, 2 ≤ Risk Score < 4
Low Risk, Risk < 1

Risk Category	Project Risk Scores Range	Number of pipelines identified as of December 31, 2018	Percentage
High	Risk Score ≥ 4	7	35%
Medium	2 ≤ Risk Score <4	8	40%
Low	Risk Score <1	5	25%
Total	All	20	

TIMP Automatic Shutdown Valve (ASV) /Remote Control Valve (RCV) Project Risk

Line Name	Regulation	Proposed RCV Location	Nearest Service Center	Likelihood of Failure	COF	ASV/RCV Location Risk, Rv	Risk Level
East County Line – West of Mississippi	49 CFR Part 192.935	South St Paul Station Outlet	Newport	4	2	8	Medium
East County Line	49 CFR Part 192.935	Century Avenue & Linwood	Newport	4	3	12	High

Data inputs:

- Travel Time from Nearest Service Center to valve location (minutes), T_t
- High Consequence Area (HCA) area downstream (feet), A_H
- Risk of Failure (ROF) from TIMP risk model, from maximum of segments downstream of valve

Risk Score (R_V) = Likelihood of Failure x Consequence of Failure

Likelihood of Failure = ROF

Consequence of Failure = Location Factor + Protection Factor

$T_{t,max}$ is the longest minimum travel time for any line in the NSPM transmission system

$A_{H,max}$ is the maximum HCA area protected by any valve in the NSPM system.

Location Factor (F_L) = T_t/ $T_{t,max}$

Protection Factor (F_P) = $A_H/A_{H,max}$

Likelihood of Failure Lookup Table

Condition	Score
Risk of Failure (ROF) Score from TIMP Risk ≥ 0.3	4
Risk of Failure (ROF) Score from TIMP Risk; 0. 2 ≤ F < 0.3	3
Risk of Failure (ROF) Score from TIMP Risk; 0. 1 ≤ F < 0.2	2
Risk of Failure (ROF) Score from TIMP Risk < 0.1	0.9

Consequence of Failure Lookup Table

Condition	Score
Location Factor + Protection Factor ≥ 0.5	4
Location Factor + Protection Factor; 0.3 ≤ F < 0.5	3
Location Factor + Protection Factor; 0.1 ≤ F < 0.3	2
Location Factor + Protection Factor < 0.1	0.9

			Consequence			
			Location Factor + Protection Factor < 0.1	Location Factor + Protection Factor 0.1 ≤ F < 0.3	Location Factor + Protection Factor 0.3 ≤ F < 0.5	Location Factor + Protection Factor 0.5 ≤ F < 1.5
			0.9	**2**	**3**	**4**
Likelihood of Failure	Risk of Failure (ROF) Score from TIMP Risk ≥ 0.3	**4**	3.6	8	**12**	**16**
	Risk of Failure (ROF) Score from TIMP Risk; 0. 2 ≤ F < 0.3	**3**	2.7	6	**9**	**12**
	Risk of Failure (ROF) Score from TIMP Risk; 0. 1 ≤ F < 0.2	**2**	1.8	4	6	8
	Risk of Failure (ROF) Score from TIMP Risk < 0.1	**0.9**	0.8	1.8	2.7	3.6

High Risk: Risk Score ≥ 9
Medium Risk: Medium Risk, 4 ≤ Risk Score < 9
Low Risk: Risk Score <4

TIMP MAOP Project Risk

Project	Regulation	Project Location (Service Area)	Current Classification	Prior Test	Material	Consequence	Risk Score	Project Classification
County Road B (NSP to Rice)	49 CFR 192.921(a)	White Bear Lake	Transmission	3	0.4	4	13.6	High

Data inputs:

- Legacy Pipe (pre 1970 ERW (e.g. LFERW), SSAW, Flash Weld (AOSmith) or joint factor <1)
- Modern Pipe (pipe that is not Legacy Pipe)
- Test Pressure (validated as traceable, verifiable and complete)
- Material Records (validated as traceable, verifiable and complete)
- Class Location
- Presence of High Consequence Area (HCA) or Moderate Consequence Area (MCA)
- Grandfathered Pipeline as per 49CFR 192.619(c)

Risk Score = Likelihood of Failure x Consequence of Failure

Likelihood of Failure = Prior Test Score + Material Score

Prior Test Lookup Table

Condition	Prior Test Score
Legacy Pipe with Test Pressure < specified in 619(a)(2) or 1.25 x MAOP, whichever is greater	3
Modern Pipe with Test Pressure < specified in 619(a)(2)	2
Test Pressure records are satisfactory	0

Material Lookup Table

Condition	Material Score
Pipeline contains material not validated	0.4
Pipeline material is validated	0

Consequence Lookup Table

Condition	**Consequence Score**
Contains HCA	4
No HCA but Class 3 or Class 4	3
Grandfathered Pipeline in Class 1 or 2 with MCA	2
Class 1 or 2, not grandfathered, no HCA	1

			Consequence			
			Class 1 or 2, not grandfathered, no HCA	Grandfathered Pipeline Class 1 or 2 with MCA	No HCA but Class 3 or Class 4	Contains HCA
			1	**2**	**3**	**4**
Likelihood of Failure	Legacy Pipe with Test Pressure < specified in 619(a)(2) or 1.25 x MAOP, whichever is greater; Material not validated	**3.4**	3.4	6.8	10.2	13.6
	Legacy Pipe with Test Pressure < specified in 619(a)(2) or 1.25 x MAOP, whichever is greater; Pipe Material validated	**3**	3	6	9	12
	Modern Pipe with Test Pressure < specified in 619(a)(2); Pipe Material NOT validated	**2.4**	2.4	4.8	7.2	9.6
	Modern Pipe with Test Pressure < specified in 619(a)(2); Pipe Material validated	**2**	2	4	6	8
	Test Pressure Records Satisfactory; Pipe Material NOT Validated	**0.4**	0.4	0.8	1.2	1.6
	Test Pressure Records Satisfactory; Pipe Material Validated	**0**	0	0	0	0

High Risk: Risk Score ≥ 7
Medium Risk: 4 ≤ Risk Score < 7
Low Risk: Risk Score <4
No Risk: Risk Score = 0

Risk Category	Project Risk Scores Range	Number of pipelines identified as of December 31, 2018	Percentage
High	Risk Score $\geq$ 7	3	15%
Medium	4 $\leq$ Risk Score < 7	0	0%
Low	Risk Score < 4	9	45%
No Risk	Risk Score = 0	0	0%
Under Evaluation	TBD	8	40%
Total	All	20	

Distribution Integrity Management Program
Overview and Project Detail

I. DIMP OVERVIEW

Managing the integrity and safe operation of our gas systems is a continuous process. At its core, the Distribution Integrity Management Program (DIMP) can be summarized in three steps:

1) understand your assets,
2) risk evaluation, and
3) risk mitigation.

Our processes for these three steps are outlined below.

The progression of these steps is part of the Company's proactive integrity management program and continually evolves as new information becomes available about the Company's natural gas assets. We incorporate knowledge gained about our assets through normal operations as well as routine maintenance activities, pipeline surveys, inspections, proactive mitigation measures, industry trends, and regulatory guidance or changes to state or federal codes. Using the processes identified below, we are continually updating our DIMP plans and projects to address the on-going obligation to ensure the safe and reliable operation of our gas distribution system.

1) Understand Your Assets

The overall goal of the Company's integrity programs is to provide safe and reliable service to our customers. For the DIMP to be successful, the Company needs to gather information about gas distribution assets and their operating environments. We collect specific data and information, including paper documents, electronic databases, and the experience of subject matter experts (SMEs).

2) Risk Evaluation

Using the knowledge of our gas distribution assets, we evaluate relative risk based on variables including pipe material, pipe size, prior failures, and failure causes. The Company also considers historical incidents, industry trends, Pipeline Hazardous Materials Safety Administration (PHMSA) advisory bulletins, regulatory

commitments, and knowledge from other distribution operators and industry members. The Company employs a risk assessment methodology to evaluate unwanted consequences and the likelihood of the consequences occurring on the Company's natural gas infrastructure. A calculated "relative risk" value is assigned and is used as guidance by SMEs, enabling stratification or ranking of projects based on asset characterization and probability of pipe failure. This risk assessment methodology leads to a quantitative risk score and a risk category — high, medium, or low.

The Company evaluates our gas pipelines for the following threats:

- Corrosion,
- Natural forces,
- Excavation damage,
- Other outside force,
- Materials, weld, or joint failure,
- Equipment failure,
- Incorrect operation, and
- Other threats.

The Company also evaluates the historical cause of leaks to gain an understanding of the presence of particular threats to the system.

3) Risk Mitigation

We integrate the results from the risk evaluation process into determining planned risk mitigation activities. Using the information gathered and industry best practices, we take appropriate measures to reduce or remove the risks to the distribution system — either by reducing the likelihood or lessening the consequences of a particular threat or threats. One such measure is the targeted replacement of pipe segments that are considered to be poor performing or problematic. Specific programs identified as appropriate measures to reduce risk include:

- Replacement of poor performing coated steel pipelines to address corrosion;
- Renewal of mechanical or compression coupled mains and services to address material and welds concerns and corrosion;
- Renewal of poor performing Aldyl-A (PEA) pipelines, a type of polyethylene pipe material to address material and welds concerns and equipment issues;

- Replacement of copper services and risers to address corrosion;
- Inspecting intermediate pressure (IP) pipelines[1] and repairing or replacing as needed to address corrosion and joint, material, and weld concerns;
- Replacement of IP pipelines to address corrosion and joint, material and welds concerns.

Risk mitigation is not solely focused on pipe replacement programs, but can also include preventative measures, performing inspections utilizing specialized technology, or more frequent inspections of equipment and pipelines. As part of its comprehensive integrity management program, the Company has identified different risk mitigation strategies, all of which have the intent of reducing the likelihood or consequences posed by a particular threat or multiple threats.

II. 2020 DIMP PROJECTS

The Company requests recovery of the following operational and maintenance (O&M) and capital expenditures associated with four 2020 DIMP programs:

2020 Estimated DIMP Project Costs
($ Millions)

Program	2020 Capital[2]	2020 O&M
Poor Performing Main Replacements	$11.09	$0.00
Poor Performing Service Replacements	$6.93	$0.00
Intermediate Pressure (IP) Line Assessments/Replacements	$0.49	$0.58
Distribution Valve Replacement Project	$0.00	$0.00
Total 2020 Expenditures	**$18.51**	**$0.58**
Total 2020 Minnesota DIMP Revenue Requirement	**$11.98[3]**	**$0.58**

[1] Generally defined as lines operating above 60 pounds per square inch gauge and below transmission.
[2] Estimated capital costs include estimated removal costs. Details can be seen in Attachment D1.
[3] Capital cost represents the eligible calculated revenue requirements, which include: debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation.

All of these projects were included in the Company's 2015 through 2019 GUIC Rider petitions.[4] The capital-related cost estimates for 2020 exclude internal labor and include materials, outside services, transportation, and a portion of construction overheads. The 2020 project detail for each project is presented in Attachment D1 and the risk assessment scores for 2020 projects are presented in Attachments D2(a) and D2(b).

Main and service projects are generally planned six months to one year in advance. Actual construction on identified main projects will generally begin during the 2nd quarter, and assets will typically be in-service during the 3rd and 4th quarters. For example, 2020 project identification typically occurs in the 3rd and 4th quarters of 2019 and 1st quarter of 2020, construction will commence during the 2nd quarter of 2020, and in-servicing will occur during the 3rd and 4th quarters of 2020.

1) Poor Performing Main Replacements
Work Breakdown Structure (WBS):[5] E.0000007.002, E.0000007.045, E.0000007.060, E.0000007.067, E.0010011.003 (Capital)

2020 Estimated Project Costs
$11.09 million Capital expenditure

Project Summary and Scope
The Company's approach for the systematic renewal of poor performing mains allows for optimized resource use and coordination with local communities, reducing the inconvenience of street construction for our customers. The Company is continually evaluating threats on the pipeline system and identifying distribution main segments that pose a risk due to pipe material deterioration or leaks. The selection and prioritization of pipe segments and/or areas targeted for replacement is based on leak history, relative ranking from the risk modeling, deficiencies in coating or cathodic protection, and construction methods, particularly those joined using mechanical couplings. Additional reviews and input from engineers and SMEs are incorporated into the replacement decisions. Replacing main pipeline segments is a multi-year

[4] Docket Nos. G002/M-14-336, G002/M-15-808, G002/M-16-891, G002/M-17-787, and G002/M-18-692.
[5] WBS has replaced the parent project number given for projects in previous versions of our GUIC Filing. This switch in numbering has been due to a change in our work and asset management system. The previously-used parent projects generally correspond with one WBS.

project with the areas identified as higher risk being mitigated earlier in sequence than lower risk areas.

Materials and construction methods are a major contributing factor in poor main performance. For example, mains made from PEA[6] can become brittle over time and are subject to sudden failure from cracking.

The Company has also identified segments of vintage coated steel pipe to be removed due to the mechanical couplings that were used to join the pipe. Many of these mains appear to pose no risk unless they have been disturbed through third-party damage (i.e. excavation damage) or natural forces (i.e. frost heave). Once disturbed, the mechanical couplings can begin to leak, resulting in property damage, outages, and other consequences. The systematic removal of these pipe segments will reduce operating risk and reduce the likelihood of incidents.

As previously described, the Company utilizes a risk assessment process to perform the initial relative ranking of poor performing mains. This list is then reviewed by SMEs, who may adjust the project priorities based on their knowledge. SMEs consist of engineering, cathodic protection, construction, and integrity management employees.

To minimize costs to customers and ensure customer safety and system reliability, main and service renewal projects are designed with consideration of adjacent facilities, municipal requirements, and distribution system operational needs. This includes the viability of dual main installations, which eliminates directional boring associated with installing gas services under roadways. The Company may also convert segments from low-pressure to high-pressure distribution, eliminating the need for additional capital and on-going operating expenses for regulator stations. Additionally, to the extent possible, main and service replacements will be coordinated with city rehabilitation and resurfacing projects to further reduce overall costs and minimize construction impacts on neighborhoods. Both main and service replacements are considered for simultaneous construction to minimize overall costs.

[6] PHMSA has issued several advisory bulletins about PEA mains, including PHMSA Advisory Bulletin Nos. ADB-07-01, ADB-02-07, ADB-12-05, and ADB 08-02.

The Company utilizes a sourcing process that results in multi-year, unit cost agreements. Materials are sourced through our standard procurement contracts. Engineering and design is completed in-house using Company employees and contractor staff. Internal labor costs are excluded from the GUIC Rider.

2) Poor Performing Service Replacements
WBS: E.0000002.005, E.0000002.043, E.0000002.053, E.0000002.056, E.0010011.004 (Capital)

2020 Estimated Project Costs
$6.93 million Capital expenditure

Project Summary and Scope
As with the analysis of poor performing mains, the Company uses the aforementioned risk assessment methodology to provide a relative ranking of

problematic service segments. These problematic segments are then reviewed by SMEs, who may adjust project priorities based on their knowledge. SMEs consist of engineering, cathodic protection, construction, and integrity management employees. This is a multi-year program with the areas identified as higher risk, as measured by leak ratios and other factors, being mitigated in the appropriate order. Where pertinent, service replacements are considered for simultaneous construction along with main replacements to minimize construction costs.

3) IP Line Assessments
WBS: E.0000043.001 (Capital); A.0008610.004.001.005 (O&M)

2020 Estimated Project Costs$0.49 million Capital expenditure
$0.58 million O&M expenditure

Project Summary and Scope
This is an ongoing project to assess and renew IP lines. Selection of assessment methodologies and pipeline segments for inspection is based on an evaluation of the critical IP lines in the distribution system, and an evaluation of elements of specific DIMP threats. The IP system is comprised of steel pipe susceptible to the

threats from corrosion, manufacturing defects,[7] construction methods,[8] and third-party damage. The consequences associated with a failure of these pipelines are heightened due to the higher operating pressures and the location of many of these lines in heavily developed areas. For IP lines, direct assessment is the primary assessment methodology. However, pressure testing may also be utilized based on the applicable threats and the ability to take the pipeline out of service.

The Company plans on conducting between one and five IP line assessments per year. The Company maintains a prioritized list of anomalies identified through external corrosion direct assessment (ECDA) surveys, and verification digs will be completed on these anomalies, as applicable. O&M budgets for this program are volatile depending on the condition of the pipelines assessed and the number of anomalies identified for excavation and repair.

For 2020, the Company has four IP Line Assessment projects planned, an ECDA of the Brainerd Lakes IP system, ECDA on two laterals in Newport, MN, and engineering and permitting for the three year project to replace a segment of the County Road B Line from Rice Street to Hamline Avenue.

Line/Loop	Type	Project Length (mi)	Project Type
Brainerd Lakes Lines	ECDA	36	O&M
R313 Lateral	ECDA	0.05	O&M
R501 Lateral	ECDA	0.15	O&M
County Road B – Rice to Hamline	Replacement	3.5	Capital

- **Brainerd Lakes Lines:** This project includes several high pressure distribution pipe segments in the Brainerd Lakes Area. These segments will be assessed using ECDA methodology.

[7] Material defects, long seam defects.
[8] Compression couplings and welds.

- **R313 Lateral:** This project includes one high pressure distribution pipe segment in Newport, MN. This segment will be assessed using ECDA methodology.
- **R501 Lateral:** This project includes one high pressure distribution pipe segment in Newport, MN. This segment will be assessed using ECDA methodology.
- **County Road B – Rice to Hamline:** This project is along County Road B in Roseville, MN and entails replacing 3.5 miles of 16-inch, and 12-inch pipe with a standardized 16-inch pipe. This pipeline was originally installed in the 1950s with service lines directly connected to it, multi diameter piping and mechanical couplings. Replacement with a new single diameter pipeline will make the line capable of being inspected with ILI tools. This is a three year project with engineering and permitting in 2020, and construction in 2021 and 2022.

4) Sewer and Gas Line Conflict Investigation
WBS: A.0008410.163.001.004, A.0008510.114.001.002, A.0008610.004.001.002 (O&M)

2020 Estimated Project Costs
$0.00 million O&M expenditure

Project Summary and Scope
The inspection program was initially designed and executed as a three-year program and extended to a 10-year program that began in 2010 and will conclude in 2019. The Company will continue to monitor circumstances and implement a risk-based analysis if conflicts are identified.

III. 2019 DIMP PROJECTS

There are six projects under the DIMP in 2019. Following are the DIMP project costs originally included in the Company's 2019 GUIC Rider Petition,[9] as compared to revised 2019 cost estimates[10] based on current year project developments and actual construction activity:

[9] Docket No. G002/M-17-787.
[10] Based on actual costs as of 6/30/2019 and estimates from 7/1/2019 through 12/31/2019.

2019 Estimated DIMP Project Costs
($ Millions)

Program	2019 Capital, As Filed[11]	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Poor Performing Mains	$10.08	$12.61	$2.53	25.12%	$0.00	$0.00	$0.00	0.00%
Poor Performing Services	$6.30	$7.67	$1.37	21.80%	$0.00	$0.00	$0.00	0.00%
Intermediate Pressure (IP) Lines Assessments	$0.00	$0.26	$0.26	100.00%	$0.63	$0.63	$0.00	0.00%
Distribution Valve Replacement	$0.00	$0.27	$0.27	100.00%	$0.00	$0.00	$0.00	0.00%
Sewer & Gas Line Conflict Remediation	$0.00	$0.00	$0.00	0.00%	$2.15	$2.15	$0.00	0.00%
Total 2019 DIMP Expenditures	**$16.38**	**$20.82**	**$4.44**	**27.09%**	**$2.78**	**$2.78**	**$0.00**	**0.00%**
Total 2019 MN DIMP Revenue Requirement[12]	**$10.76**	**$9.60**	**$(1.17)**	**(10.80)%**	**$2.78**	**$2.72**	**$(0.06)**	**(2.30)%**

The capital-related cost estimates for 2019 exclude internal labor and include materials, outside services, transportation, and the portion of construction overheads not related to internal labor. The 2019 project detail for each project is presented in Attachment D1.

1) Poor Performing Main Replacements
WBS: E.0000007.002, E.0000007.045, E.0000007.060, E.0000007.067, E.0010011.003 (Capital)

[11] Estimated capital costs include estimated removal costs. Detail of numbers shown in Attachment D1 included in our 2019 GUIC Rider Filing, Docket No. G002/M-18-692.
[12] Capital Costs represents the eligible calculated revenue requirements, which include: debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation.

Project Summary and Scope
For 2019, the poor performing mains materials include PEA and vintage coated steel, but additional material types may be included based on their high or medium risk assessment classifications.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expenditures	$10.08	$12.61	$2.53	25.12%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: As was the case in 2018, the main driver for the increase in capital expenditures is an increase in problematic pipeline replaced based on a revised relative risk assessment among GUIC projects. The projects consist of coupled steel and PEA mains. The construction resources and projects identified for 2019 have been prioritized based on relative risk and SME input. Three major projects identified in downtown areas impacted roughly 50% of the programmatic main replacement anticipated cost, due to construction in congested, downtown areas with a much higher costs due to asphalt and concrete restoration and less efficient construction by hydrovac and trenching.

2) Poor Performing Service Replacements
WBS: E.0000002.005, E.0000002.043, E.0000002.053, E.0000002.056, E.0010011.004 (Capital)

Project Summary and Scope
For 2019, the primary service-related material types addressed include PEA, vintage coated steel, and copper risers. Additional material types are included as necessary based on their overall risks.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expenditures	$6.30	$7.67	$1.37	21.80%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The main driver for the increase in capital expenditures is an increase in service and copper loop riser projects replaced based on a revised relative risk assessment among GUIC projects. The construction resources and projects identified for 2019 have been prioritized based on relative risk and SME input. The service replacements are connected to the main replacement projects they are associated with. Therefore, as the identified main replacement increases, the service replacements increase as well.

3) IP Line Assessments
WBS: E.0000007.053, E.0000051.001, E.0000052.001 (Capital); A.0008610.004.001.005 (O&M)

Project Summary and Scope
This project includes health and condition assessments on IP lines. In 2019, the Company is completing the restoration activities on one replacement project that support the integrity management of the Company's intermediate pressure (IP) distribution pipelines, and a single IP Line assessment project of the hydrostatic pressure test of the river crossings associated with the Montreal Line North. The IP Line Assessment work in 2019 includes the following:

Line/Loop	Type	Project Length (mi)	Project Type
Colby Lake Lateral - Woodlane to Colby Lake	Replacement	2.5	Capital
Montreal Line North – River Crossings/Header	Pressure Test	2.4	O&M

- **Montreal Line North – River Crossings/Header:** This project includes several high pressure distribution pipe segments crossing the Mississippi River and entails pressure testing 2.4 miles of 12-inch pipe. These sections cross the Mississippi and extend from Shepard Road in St Paul to Lilydale Road in Lilydale.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expenditures	$0.00	$0.26	$0.26	100.00%	$0.63	$0.63	$0.00	0.00%

Variance Explanation

Capital: The 2019 variance is due to soft restoration work on Colby Lake Lateral project that could not be completed in 2018 because the weather was too cold for germination of the grass.

O&M: No variance

4) Distribution Valve Replacement Project
WBS: E.0010011.005 (Capital)

Project Summary and Scope

The placement, accessibility, and functionality of valves in the gas distribution system are critical components of gas operations, as valves provide the ability to isolate sections of the system in the event of an emergency or incident. By isolating sections during these events, the public can be better protected and customer impacts can be minimized. The Company has identified a need to add, replace, or otherwise rehabilitate existing distribution valves. In addition to new valve installations, the program will replace existing distribution system isolation valves which have become inaccessible, inoperable or are beyond their useful life.

As a result of DIMP regulations, the Company is focusing directly on valve conditions and locations when determining valves that should be replaced or installed. This work is in response to the Company's obligation under Code 49 CFR Part 192.1007(d).

Many of the valves identified for replacement within this program are located within busy road rights-of-way. These locations are controlled by multiple interests and permitting can have significant lead times. Additionally, many of these valves are located on critical distribution lines which have seasonal construction constraints. If permitting cannot be attained in a timely manner or if construction cannot be done because of operational constraints, a specific project may be deferred into a future year.

The Company will conclude this project in 2019. However, expenses related to final restoration activities may potentially carry over into 2020.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expenditures	$0.00	$0.27	$0.27	100.00%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The additional $270,000 of capital was to finish the program and to replace the final 8 valves that were carried over into 2019. These valves were carried over for various reasons including local resource availability, municipality deferral and seasonal construction

5) Sewer and Gas Line Conflict Investigation
WBS: A.0008410.163.001.004, A.0008510.114.001.002, A.0008610.004.001.002 (O&M)

Project Summary and Scope

The sewer and gas line conflict inspection program began in 2010 and has found approximately 150 incidences of conflicts between sewer and gas lines. Through the annual conflict investigation work, there has been a downward trend in the number of conflicts found each year. Through August, the Company has discovered three conflicts in 2019, leading to a determination and communication that Legacy inspections would be discontinued after 2019. The current plan estimates approximately 13,040 services will be inspected for conflicts in 2019, the tenth and final year of legacy inspections. The inspection program was initially designed and executed as a three-year program and extended to a 10-year program that began in 2010 and will conclude in 2019. The Company will continue to monitor risk circumstances and implement a risk-based analysis if conflicts are identified.

Through August of this year, the Company has discovered three conflicts in 2019.

2019 Estimated Project Costs
($ Millions)

	2019 Capital, As Filed	2019 Capital Estimates	Variance	% Capital Variance	2019 O&M, As Filed	2019 O&M Estimates	Variance	% O&M Variance
Capital / O&M Expenditures	$0.00	$0.00	$0.00	0.00%	$2.15	$2.15	$0.00	0.00%

Variance Explanation

O&M: No variance expected.

IV. 2018 DIMP PROJECTS

There were six projects under the DIMP in 2018. Following are the DIMP project costs originally included in the Company's 2019 GUIC Rider Petition,[13] as compared to actual 2018 costs.

2018 Actual DIMP Project Costs
($ Millions)

Program	2018 Capital, As Filed[14]	2018 Capital Actuals[15]	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Poor Performing Mains	$11.05	$14.75	$3.70	33.48%	$0.00	$0.00	$0.00	0.00%
Poor Performing Services	$6.91	$3.08	$(3.83)	(55.48)%	$0.00	$0.00	$0.00	0.00%
Intermediate Pressure (IP) Lines Assessments	$19.82	$20.36	$0.54	2.73%	$1.03	$0.14	$(0.89)	(86.91)%
Distribution Valve Replacement	$0.50	$0.38	$(0.11)	(22.44)%	$0.00	$0.00	$0.00	0.00%
Federal Code Mitigation	$0.00	$0.00	$0.00	0.00%	$0.20	$0.16	$(0.04)	(19.07)%
Sewer & Gas Line Conflict Remediation	$0.00	$0.00	$0.00	0.00%	$2.31	$2.53	$0.22	9.49%
Total 2019 DIMP Expenditures	**$38.27**	**$38.57**	**$0.30**	**0.77%**	**$3.53**	**$2.82**	**$(0.71)**	**(20.00)%**
Total 2019 MN DIMP Revenue Requirement[16]	**$7.96**	**$5.07**	**$(2.90)**	**(36.40)%**	**$3.53**	**$2.82**	**$(0.71)**	**(20.00)%**

[13] Docket No. G002/M-18-692.
[14] Detail of numbers shown in Attachment D1 included in our 2018 GUIC Rider Filing, Docket No. G002/M-17-787.
[15] Includes removal costs (RWIP)
[16] Capital Costs represents the eligible calculated revenue requirements, which include: debt and equity return on rate base, property taxes, current and deferred taxes, and book depreciation.

The capital-related cost estimates for 2018 exclude internal labor and include only materials, outside services, transportation, and the portion of construction overheads not related to internal labor. The 2018 project detail for each project is presented in Attachment D1.

1) Poor Performing Main Replacements
WBS: E.0000007.002, E.0000007.045, E.0000007.060, E.0000007.067, E.0010011.003 (Capital)

Project Summary and Scope
For 2018, the poor performing mains materials primarily included PEA and vintage coated steel. Actual replacement activity in 2018 included:

Geographic Area (by Division)	Main (Miles)
St. Paul	5.2
White Bear Lake	34.0
Wyoming	1.2
Newport	10.4
St. Cloud	2.1
Southeast	8.9
Moorhead	1.6
Total	**63.4**

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$11.05	$14.75	$3.70	33.48%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The main driver for the increase in capital expenditures is related to imprecise assumptions related to planned service costs relative to main costs. More main costs relative to service costs occurred as a result of home density differences between urban, suburban, and rural settings. As a result, dollars originally budgeted as part of service costs were actually spent on main replacement activities, and fewer dollars on the associated services on the identified main replacement projects.

O&M: None.

2) Poor Performing Service Replacements
WBS: E.0000002.005, E.0000002.043, E.0000002.053, E.0000002.056, E.0010011.004 (Capital)

Project Summary and Scope
For 2018, the primary service-related material types addressed were PEA, vintage coated steel, and copper risers. Actual replacement activity in 2018 included:

Geographic Area (by Division)	Services (Number)
St. Paul	182
White Bear Lake	1,129
Wyoming	38
Newport	308
St. Cloud	70
Southeast	378
Moorhead	64
Total	**2,169**

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$6.91	$3.08	$(3.83)	(55.48)%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The main driver for the decrease in capital expenditures is related to incorrect assumptions related to planned service costs relative to main costs. More main costs relative to service costs occurred as a result of home density differences between urban, suburban, and rural settings. As a result, dollars originally budgeted as part of service costs were actually spent on main replacement activities. These differences are often not captured accurately in budgeted amounts, as such we manage main and service replacement as an overall project, not separate projects.

3) IP Line Assessments
WBS: E.0000007.053 (Capital); A.0008610.004.001.005 (O&M)

Project Summary and Scope
This project includes health and condition assessments on IP lines. In 2018, the Company performed three ECDA projects and completed construction on two replacement projects. The scope of 2018 work includes the following lines:

Line/Loop	Type	Project Length (mi)	Project Type
Green Lake	ECDA	23.04	O&M
H08 – Lake Elmo 1A	ECDA	3.47	O&M
T09 – Cottage Grove TBS	ECDA	1.65	O&M
Colby Lake Lateral Renewal	Replacement	2.5	Capital
H005 System Renewal – Lexington to Snelling	Replacement	3.0	Capital

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$19.82	$20.36	$0.54	2.73%	$1.03	$0.14	$(0.89)	(86.91)%

Variance Explanation

Capital: Additional costs for Colby Lake and H05 System Renewals included increased costs due to the traffic management of access to a shopping center throughout the duration of the project, and that also required a redesign of a bore section. Additionally, restoration requirements by Washington County for compaction and special paving added costs.

O&M: Baseline testing of the Montreal River Crossings will now occur in 2019 as a result of a new project timeline that does not allow completion in 2018. In addition, two ECDA projects had fewer validation digs than anticipated resulting from favorable cathodic protection surveys and more internal labor was used than was initially anticipated. Internal labor is not recovered through the GUIC Rider.

4) Distribution Valve Replacement Project
WBS: E.0000004.075, E.0000004.054, E.0010011.005, E.0000008.050, E.0000008.002 (Capital)

Project Summary and Scope

In 2018, the Company replaced a total of eight inoperable emergency distribution valves, ranging in size from 4-inch to 12-inch.

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$0.50	$0.38	$(0.11)	(22.44)%	$0.00	$0.00	$0.00	0.00%

Variance Explanation

Capital: The variance was due to 8 valves being deferred to 2019. These valves were deferred for various reasons including local resource availability, municipality deferral and seasonal construction constraints. Two valves were removed from the program, as they will be replaced as part of other projects.

5) Federal Code Mitigation
WBS: A.0008510.114.001.003, A.0008610.004.001.003 (O&M)

Project Summary and Scope

The work in 2018 related to the sleeving of risers and raising meter sets in the St. Cloud and Moorhead areas, as well as some meter relocation throughout the state.

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$0.00	$0.00	$0.00	0.00%	$0.20	$0.16	$(0.04)	(19.07)%

Variance Explanation

O&M: Remaining identified Federal Code Mitigation instances were identified and completed in 2018, slightly under the planned amount as volume of exceptions were lower than anticipated, and some were completed by internal crews instead. Work by internal crews is not recovered through the GUIC.

6) Sewer and Gas Line Conflict Investigation
WBS: A.0008410.163.001.004, A.0008510.114.001.002, A.0008610.004.001.002 (O&M)

Project Summary and Scope
The sewer and gas line conflict inspection program is anticipated to be a 10-year program that began in 2010. The Company will continue to monitor risk circumstances and accelerate or scale back inspections if conditions warrant.

With a decreased budget relative to 2010 through 2017, 15,789 services were inspected for conflicts in 2018. The Company discovered three conflicts during the year.

2018 Actual Project Costs
($ Millions)

	2018 Capital, As Filed	2018 Capital Actuals	Variance	% Capital Variance	2018 O&M, As Filed	2018 O&M Actuals	Variance	% O&M Variance
Capital / O&M Expenditures	$0.00	$0.00	$0.00	0.00%	$2.31	$2.53	$0.22	9.49%

Variance Explanation

O&M: Inspection activity and some resolution work originally planned in 2019 were performed in 2018. Overall, 2018 costs per inspection and total cost were very close to anticipated costs.

V. DIMP MULTI-YEAR PLAN

As mentioned above, many of the DIMP projects are initiatives that will span multiple years. As such, the Company has formulated a five-year plan for those projects that will extend beyond 2020. As the Company continues to execute its risk-based strategy and replacement projects planned in advance of 2021 and beyond, pipe segments displaying the highest level of relative risk will be targeted. Therefore, it is anticipated that there will be an increase in the number of overall projects.

The information provided in the table below depicts the current estimated costs for future years, broken out by capital and O&M expenditures. It is important to note that in many cases the figures presented are high-level estimates. More detailed annual estimates will be developed in the future. Many of these projects require detailed design and engineering that has not yet been performed. Additionally, coordination with local government entities, securing rights-of-way and permits, resource and equipment availability and unforeseen circumstances all can have an impact on final construction estimates.

DIMP 2021-2024 Plan[17]
($ Millions)

	2021 Estimates		2022 Estimates		2023 Estimates		2024 Estimates	
Project	**Capital**	**O&M**	**Capital**	**O&M**	**Capital**	**O&M**	**Capital**	**O&M**
Poor Performing Mains	$11.09	$0.00	$11.09	$0.00	$11.09	$0.00	$11.09	$0.00
Poor Performing Services	$6.93	$0.00	$6.93	$0.00	$7.20	$0.00	$7.20	$0.00
Intermediate Pressure (IP) Line Assessments	$24.43	$0.58	$30.29	$0.58	$18.22	$0.58	$18.22	$0.58
Distribution Valve Replacements	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$42.45**	**$0.58**	**$48.31**	**$0.58**	**$36.51**	**$0.58**	**$36.51**	**$0.58**

[17] Capital figures denoted represent total estimated capital expenditures, including removal costs.

CAPITAL

Program	Regulation	WBS Structure	2018 Actuals	Cost Per Unit (CPU)	2019 Actuals [1]	2019 Forecast	2019 Total	Cost Per Unit (CPU) Assumptions	2020 Plan	Cost Per Unit (CPU) Assumptions
Distribution Valve Replacement	Code 49 CFR Part 192.1007(d).		$ 383,942	See Attachment D1(e) for actual cost results.	$ 141,360	$ 132,390	$ 273,750	2019 estimated cost per valve is $31K/valve for 8 valves.	$ -	N/A
Poor Performing Mains	PHMSA Advisory Bulletin Nos. ADB-07-01, ADB-02-07, ADB-12-05, and ADB 08-02		$ 14,747,852	$43.29/ft. for mains installed by contractors and internal resources in 2018. Difference between actuals and those on the detail tab are for restoration charges related to work in-serviced in 2017, with carryover costs in 2018. Footage and CPU were already captured within previous detail.	$ 5,155,511	$ 7,421,720	$ 12,577,231	Based on 2018 actuals, 2019 forecast is $44.16/ft. for mains installed by contractors and internal resources in 2019 (with three urban projects removed as they greatly impact the average from historic values). Difference between dollar forecast and those on the detail tab are for restoration charges related to work in-serviced in 2018, with carryover costs in 2019. Footage and CPU were already captured within 2018 detail.	$ 11,090,000	Based on 2018 actuals, 2020 forecast is $45.04/ft. for contractor-performed work and internal/local projects. Considered the best available information.
Poor Performing Services			$ 3,077,417	$1,278 per service installed by contractors and internal resources in 2018. Difference between actuals and those on the detail tab are for restoration charges related to services in-serviced in 2017, with carryover costs in 2018. Footage and CPU were already captured within previous detail.	$ 405,188	$ 7,303,438	$ 7,708,626	Based on 2018 actuals, 2019 forecast is $1,304 per service installed by contractors and internal resources in 2019 (with three urban projects removed as they greatly impact the average from historic values). Difference between forecast on 2019 tab and those on the detail tab are for restoration charges related to services in-serviced in 2018, with carryover costs in 2019. Footage and CPU were already captured within 2018 detail.	$ 6,930,000	Based on 2018 actuals, 2020 forecast is $1,330/service for contractor-performed work and internal/local projects. Considered the best available information.
Intermediate Pressure (IP) Line Assessments	Code 49 CFR Part 192.1007(d).		$ 20,358,846	See Attachment D1(d) for actual cost results.	$ 125,782	$ 131,618	$ 257,400	See Attachment D1(d) for CPU estimates by project.	$ 490,000	See Attachment D1(d) for CPU estimates by project.
TOTAL DIMP CAPITAL			**$ 38,568,057**		**$ 5,827,841**	**$ 14,989,166**	**$ 20,817,007**		**$ 18,510,000**	

O&M

Program	Regulation	WBS Structure	2018 Actuals	Cost Per Unit (CPU)	2019 Actuals [1]	2019 Forecast	2019 Total	Cost Per Unit (CPU) Assumptions	2020 Plan	Cost Per Unit (CPU) Assumptions
Intermediate Pressure (IP) Line Assessments	Code 49 CFR Part 192.1007(d).		$ 135,248	See Attachment D1(d) for actual cost results.	$ -	$ 625,000	$ 625,000	See Attachment D1(d) for CPU estimates by project.	$ 579,000	See Attachment D1(d) for CPU estimates by project.
Federal Code Mitigation	Code 49 CFR Part 192: (192.365/192.357) ; (192.745/192.747) ; (192.707/192.327/192.361) ; (192.365/192.487) ; (192.479/192.461) ; (192.357/192.353) ; (PHMSA Advisory Bulletin 08-03) ; (192.321) ; (192.455/192.457)		$ 161,868	• $485 per exception is an average, more of the 2018 cost included more meter painting, as opposed to meter raises and riser sleeves that involve different personnel and equipment.	$ (198,033)	$ 198,033	$ -	N/A	$ -	N/A
Sewer Conflict Investigation	Dockets Nos. G002/M-12-248 and G002/M-10-422		$ 2,527,134	$160.06/inspection; 15,789 inspections	$ 287,133	$ 1,866,867	$ 2,154,000	$165/inspection; 13,040 inspections	$ -	N/A
TOTAL DIMP O&M			**$ 2,824,250**		**$ 89,099**	**$ 2,689,901**	**$ 2,779,000**		**$ 579,000**	

[1] Actual costs through June 2019.

NSP-MN Main & Services DIMP Replacement Projects 2018

Area	Work Order Number	Description	Installed Footage	Services Replaced	Service CPU	Total Service Cost	Main Cost ($/ft installed)	Cost Per Unit ($/Ft Installed)	Class Location (per attachment....)
St Paul	102002462	ROSEVILLE / CO RD 2 & LAKEVIEW / DIMP	14,150	70	$2,252	$157,628	$436,249	$30.83	3
	101157888	RSV/OXFORD ST/ DIMP/ INSTALL 1200' 2" PE	1,200	4	$3,282	$13,128	$42,625	$35.52	3
	101746906	ST PAUL - ISABELL / CONGRESS	4,700	2	$1,081	$2,163	$218,606	$46.51	4
	101592642	STP/ 2018 DIMP / AREA N-UPP AFTON	7,510	106	$1,105	$117,162	$368,597	$49.08	3
White Bear Lake/Wyoming	100382714	01432348 NO ST PAUL 18TH AVE INSTALL 560	560	2	$1,361	$2,721	$27,822	$49.68	3
	101756642	MPW/Raditz Ave/ Install 3800' of 2"	3,800	26	$1,345	$34,971	$105,762	$27.83	4
	100412206	MWD/ EDGERTON ST/ INSTALL 4200' OF 2" PE	4,200	1	$1,563	$1,563	$117,402	$27.95	3
	101509812	BIR / 2018 DIMP / BIRCHWOOD AVE	2,921	39	$1,027	$40,041	$78,486	$26.87	2
	101776492	DIMP OAK GERSHWIN AVE INST 1100' - 2" PE	1,100	0	N/A	$0	$40,112	$36.47	3
	101879289	DIMP OAK GRAFTON AVE INST 1600' 2" MAIN	1,600	10	$1,418	$14,176	$46,012	$28.76	3
	102146268	DIMP OAK GRANADA AVE 4100' - 2" MAIN	4,100	24	$1,544	$37,061	$110,494	$26.95	3
	101359567	Forest Lake / 2018 DIMP / HARROW AVE N	1,900	7	$2,114	$14,797	$71,869	$37.83	1
	100441816	LTC/ EDGERTON ST/ DIMP	5,000	29	$1,382	$40,088	$238,084	$47.62	3
	100441817	LTC/ LABORE RD/ DIMP	5,400	33	$2,218	$73,194	$210,498	$38.98	3
	101756827	LTL / 2018 DIMP / EDGERTON N OF LITTLE C	8,500	35	$1,560	$54,598	$461,629	$54.31	3
	101155888	LTL / GREENBRIER ST /DIMP/ 5100' of 2"	5,400	42	$1,211	$50,877	$145,938	$27.03	3
	100920813	LTL-WESTWIND DR-DIMP-INSTALL 2700' 2" PE	2,700	19	$1,176	$22,348	$111,645	$41.35	3
	101946663	MAPLEWOOD - ROSELAWN	2,400	7	$2,835	$19,847	$185,014	$77.09	4
	101947593	MAPLEWOOD / COPE AVE	3,500	32	$1,172	$37,499	$107,356	$30.67	3
	101947594	MAPLEWOOD / CRAIG PL	5,700	44	$1,490	$65,542	$183,295	$32.16	3
	101834990	MAPLEWOOD / HOLLOWAY / DIMP	3,500	28	$1,153	$32,271	$121,086	$34.60	3
	101947595	MAPLEWOOD / JACKSON ST	4,800	36	$1,083	$38,998	$220,413	$45.92	3
	101692533	MPW / 2018 DIMP / MAYHILL - MINNEHAHA #4	5,500	43	$1,517	$65,252	$143,825	$26.15	4
	101756635	MPW/ /ARCADE ST/DIMP/INSTALL 5000' OF 2"	5,000	23	$2,403	$55,274	$153,220	$30.64	3
	101163818	MPW/ BEAUMONT ST/ DIMP/ INSTALL 1400' 2"	1,400	16	$144	$2,309	$33,496	$23.93	3
	101876643	MPW/MARYLAND AVE/DIMP/ INSTALL 1900' 2"	1,900	14	$1,169	$16,361	$72,767	$38.30	4
	101627154	MWD - ELM ST DIMP	1,250	8	$2,588	$20,702	$47,875	$38.30	3
	100588988	NEW BRIGHTON / WINDSOR CT - PHASE 3	1,850	57	$367	$20,910	$819,412	$442.93	3
	100439830	NO ST PAUL HILLTOP CT INSTALL	2,700	27	$1,048	$28,307	$133,240	$49.35	3
	101833922	NORTH ST PAUL / 1ST AVE	4,652	44	$958	$42,161	$108,076	$23.23	3
	102001637	NORTH ST PAUL / 4TH & MARGARET / DIMP	4,500	0	N/A	$0	$639,657	$142.15	4
	101834533	NORTH ST PAUL / IVY ST N	1,048	30	$1,087	$32,608	$69,763	$66.57	3
	101524703	NSP / 2018 DIMP / COWERN-HOWARD	2,300	28	$1,142	$31,981	$86,304	$37.52	3
	101693184	NSP / 2018 DIMP / NAVAJO RD	2,300	27	$1,080	$29,170	$75,900	$33.00	3
	101693177	NSP / 2018 DIMP / SHOSHONE RD E	2,500	25	$610	$15,252	$49,837	$19.93	3
	101784580	NSP / 2018 DIMP / SKILLMAN	9,340	57	$1,065	$60,701	$427,559	$45.78	3
	101916855	NSP / 2018 DIMP / WEST SIDE OF IVY ST N	800	0	N/A	$0	$35,011	$43.76	3
	101919344	NSP / MARY JO LN	4,750	37	$1,226	$45,351	$139,723	$29.42	3
	101508477	NWB /2018 DIMP / 10th AVE NW	4,180	0	N/A	$0	$248,628	$59.48	3
	101985751	SHOREVIEW / HODGSON / DIMP	4,600	0	N/A	$0	$127,455	$27.71	4
	101693170	SHV / 2018 DIMP / BRIGADOON DR	2,500	44	$2,094	$92,115	$311,972	$124.79	2
	101496871	SHV / 2018 DIMP / MERCURY-WOODLAND	3,840	17	$1,375	$23,379	$146,233	$38.08	4
	101582735	SHV / 2018 DIMP / SNAIL LK RD & JANSA	7,354	12	$1,538	$18,450	$205,258	$27.91	2
	101383583	SLL/ OLIVE ST W/ RECON/ INS 2400' 2" PE	2,350	23	$1,002	$23,037	$73,013	$31.07	1
	101960298	SLL/SYCAMORE ST W/ INSTALL 5000' 2" PE	4,700	32	$1,245	$39,839	$211,373	$44.97	1
	101582727	WBL / 2018 DIMP / CLARENCE ST	4,163	0	N/A	$0	$101,379	$24.35	4
	101688133	WHITE BEAR LAKE - STILLWATER ST-BALD-GARDEN	14,049	89	$1,316	$117,154	$516,253	$36.75	4
	101660586	WHITE BEAR LAKE / EAST COUNTY LINE	2,175	17	$1,336	$22,716	$137,574	$63.25	4
	101556528	WHITE BEAR LAKE / SOUTHWOOD	3,461	35	$922	$32,285	$86,330	$24.94	2
	101832776	WHITE BEAR TOWNSHIP / BELLAIRE / DIMP	7,000	38	$2,069	$78,611	$228,316	$32.62	4
	101838144	FOREST LAKE / FONDANT / DIMP	5,000	31	$1,529	$47,408	$135,435	$27.09	1
	101463010	SHV / 2018 DIMP / VIRGINIA AVE	1,800	0	N/A	$0	$74,275	$41.26	2
Newport	101547248	COTTAGE GROVE - IDEAL-85TH ST DIMP	4,160	35	$959	$33,560	$199,655	$47.99	4
	101876838	CTG / 2018 DIMP / HAMLET-HALLMARK-HALE	6,950	83	$942	$78,180	$223,819	$32.20	2
	101478741	CTG / DIMP / HEARTHSIDE RD / RNW MAIN	2,300	14	$935	$13,097	$70,072	$30.47	2
	101587426	IGH - CONROY CT DIMP	5,385	0	N/A	$0	$285,710	$53.06	3
	101886606	IGH / 2018 DIMP / DAWN AVE - UPPER 75TH	4,300	0	N/A	$0	$226,534	$52.68	4
	101685475	MEH / 2018 DIMP / MARIE-OVERLOOK	5,700	41	$1,796	$73,638	$226,129	$39.67	4
	102028709	MEH / 2018 DIMP / WINSTON CT-DOWNING	4,600	20	$409	$8,180	$200,792	$43.65	3
	101692530	MPW / 2018 DIMP / CRESTVIEW-HIGHWOOD	11,000	61	$1,241	$75,704	$368,028	$33.46	3
	101692534	MPW / 2018 DIMP / MAYHILL-UPP AFTON (Metz)	3,827	8	$1,254	$10,028	$192,962	$50.42	4
	101417261	SPP / DIMP / SUMMIT AVE / RENEW MAIN	3,900	36	$1,149	$41,351	$103,166	$26.45	4
	101697233	WSP / 2018 DIMP / MENDOTA RD W	2,940	10	$1,735	$17,352	$87,727	$29.84	4
St Cloud	101379226	SCL / 2018 DIMP / KINGS WAY	1,600	16	$1,391	$22,254	$45,257	$28.29	4
	101714442	ST CLOUD / 6TH ST / 11TH AVE / 10TH AVE / DIMP	1,630	12	$929	$11,153	$84,250	$51.69	4
	101579939	ST CLOUD / PROSPER DR-PROGRESS RD	2,870	3	$15,191	$45,572	$196,763	$68.56	1
	101602512	STC - 4TH AVE N / DIMP	5,055	39	$1,143	$44,584	$261,936	$51.82	4
Southeast	101804538	RDW / 2018 DIMP / 21ST ST	1,300	16	$915	$14,647	$44,374	$34.13	1
	101802475	RDW / 2018 DIMP / CENTRAL PARK-18TH ST	1,600	17	$987	$16,786	$71,779	$44.86	1
	101711329	RDW / 2018 DIMP / FINRID-WRIGHT	10,400	105	$1,263	$132,569	$359,659	$34.58	1
	101794997	RED WING 189784 - 9TH ST	850	2	$1,010	$2,020	$42,182	$49.63	1
	101728125	WINONA / DIMP / 107558 - E 7TH ST	3,500	46	$1,099	$50,572	$142,266	$40.65	4
	101591201	WINONA / DIMP / 107603 - 7TH ST W	5,800	23	$1,155	$26,570	$244,783	$42.20	4
	101780666	WINONA 107542 - E 10TH ST	3,000	37	$990	$36,629	$133,947	$44.65	1
	101889468	WINONA 107587 - E 9TH ST	1,400	11	$989	$10,884	$56,481	$40.34	4
	101913103	WNA / 2018 DIMP / 44TH AVE-VARIOUS	4,300	34	$1,120	$38,082	$257,121	$59.80	4
	101544613	WNA / 2018 DIMP / COLLEGE VIEW-PARK	2,515	18	$981	$17,663	$103,296	$41.07	4
	101692535	WNA / 2018 DIMP / CONRAD - WINCREST	6,860	44	$912	$40,115	$489,343	$71.33	1
	101747565	WNA / 2018 DIMP / KNOLLWOOD LN	1,950	4	$1,682	$6,727	$91,270	$46.81	1
	101903273	WNA / 2018 DIMP / W 9TH-ORRIN-WAYNE	3,400	21	$1,116	$23,433	$98,520	$28.98	4
Moorhead	101490329	MHD / 2018 DIMP / CEDAR LANE	4,215	34	$1,226	$41,673	$159,845	$37.92	1
	101483693	MHD / 2018 DIMP/Cedar-BIRCH	4,000	30	$1,116	$33,479	$141,003	$35.25	1
2018 DIMP-related Main Replacement Total			**334,910**	**2,190**	**$1,278**	**$2,798,509**	**$14,496,819**	**$43.29**	**N/A**

NSP-MN Main & Service Replacement Projects 2019									
City	Description	Total Design FT.	Tot. Svc	Total Anticipated Cost	Cost Per Unit ($/Ft Installed)		Main Cost	Services Cost	Service CPU
Cottage Grove	COTTAGE GROVE - PT DOUGLAS RD, IDEAL AVE DIMP	7,000	40	$ 364,874	$ 43.60	$	305,200.00	$ 59,674.00	$ 1,491.85
	COTTAGE GROVE - HYDE AVE DIMP	3,600	41	$ 218,978	$ 45.81	$	164,916.00	$ 54,062.00	$ 1,318.59
Faribault	FARIBAULT 109442 - IRVING AVE	4,600	81	$ 310,961	$ 44.04	$	202,584.00	$ 108,377.00	$ 1,337.99
Forest Lake	FOREST LAKE - 210TH	6,352	41	$ 324,875	$ 43.00	$	273,136.00	$ 51,739.00	$ 1,261.93
	FOREST LAKE - HARROW	2,000	15	$ 101,098	$ 41.66	$	83,320.00	$ 17,778.00	$ 1,185.20
Lake City	LAKE CITY 117574 - S 10TH ST	2,100	43	$ 143,237	$ 44.04	$	92,484.00	$ 50,753.00	$ 1,180.30
Lake Elmo	LAKE ELMO - 31ST/JAMLEY/JANERO	6,882	43	$ 345,853	$ 42.04	$	289,319.28	$ 56,533.72	$ 1,314.74
	MAPLEWOOD - PROSERITY	1,100	8	$ 61,140	$ 42.33	$	46,563.00	$ 14,577.00	$ 1,822.13
Mendota Heights	MENDOTA HEIGHTS - BACHELOR-STANWICH	10,570	100	$ 593,831	$ 43.78	$	462,754.60	$ 131,076.40	$ 1,310.76
North St Paul	NORTH ST PAUL - HILLTOP CT	2,591	29	$ 146,873	$ 42.33	$	109,677.03	$ 37,195.97	$ 1,282.62
	NORTH ST PAUL - COWERN	2,300	28	$ 134,582	$ 44.04	$	101,292.00	$ 33,290.00	$ 1,188.93
Northfield	NORTHFIELD - 321 ST W	3,950	35	$ 214,654	$ 42.33	$	167,203.50	$ 47,450.50	$ 1,355.73
Red Wing	RED WING 189784 - 9TH ST	850	8	$ 46,382	$ 42.33	$	35,980.50	$ 10,401.50	$ 1,300.19
	RED WING 189276 - WOODLAND DR	4,200	48	$ 245,654	$ 42.90	$	180,180.00	$ 65,474.00	$ 1,364.04
	RED WING 189336 - REDING AVE	4,830	48	$ 259,741	$ 42.33	$	204,453.90	$ 55,287.10	$ 1,151.81
	RED WING 195249 - MAPLE ST	7,600	174	$ 537,996	$ 45.00	$	342,000.00	$ 195,996.00	$ 1,126.41
Roseville	ROSEVILLE - OXFORD	1,200	5	$ 57,642	$ 42.44	$	50,928.00	$ 6,714.00	$ 1,342.80
St Paul	ST PAUL - BATTLE CREEK 1	4,300	58	$ 254,847	$ 44.14	$	189,802.00	$ 65,045.00	$ 1,121.47
	STP / 2019 DIMP / ROBIE ST E	7,360	103	$ 481,099	$ 47.32	$	348,275.20	$ 132,823.80	$ 1,289.55
	STP / 2019 DIMP / CONGRESS-ISABEL	14,675	153	$ 1,059,455	$ 52.88	$	776,014.00	$ 283,441.00	$ 1,852.56
	STP / 2019 DIMP / ST. PETER STREET	4,900	20	$ 2,500,000	$ 498.50	$	2,442,650.00	$ 57,350.00	$ 2,867.50
	STP / 2019 DIMP / LOWERTOWN	2,050	16	$ 1,550,000	$ 725.00	$	1,486,250.00	$ 63,750.00	$ 3,984.38
Wabasha	WABASHA - INDUSTRIAL PARK	4,200	11	$ 197,988	$ 41.68	$	175,056.00	$ 22,932.00	$ 2,084.73
White Bear Lake	WHITE BEAR LAKE - CLARENCE	3,900	44	$ 217,981	$ 44.34	$	172,926.00	$ 45,055.00	$ 1,023.98
	WHITE BEAR TOWNSHIP - SOUTH SHORE BLVD	9,500	95	$ 536,798	$ 44.04	$	418,380.00	$ 118,418.00	$ 1,246.51
St Cloud	SCL DOWNTOWN REPLACEMENT	5,500	96	$ 5,110,000	$ 865.00	$	4,757,500.00	$ 352,500.00	$ 3,671.88
Winona	WINONA 107542 - E 10TH ST	3,000	108	$ 261,337	$ 46.44	$	139,320.00	$ 122,017.00	$ 1,129.79
	WINONA 107558 - E 7TH ST	3,500	64	$ 227,694	$ 44.04	$	154,140.46	$ 73,553.54	$ 1,149.27
	WINONA 107587 - E 9TH ST	1,400	35	$ 104,987	$ 45.00	$	63,000.00	$ 41,987.00	$ 1,199.63
	WINONA 98058 - COLLEGEVIEW ST	2,000	54	$ 156,704	$ 44.94	$	89,880.00	$ 66,824.00	$ 1,237.48
	WINONA 98162 - W 9TH ST	3,400	64	$ 226,149	$ 44.04	$	149,736.45	$ 76,412.55	$ 1,193.95
	WINONA 98341 - E 8TH ST	4,000	66	$ 274,678	$ 48.40	$	193,600.00	$ 81,078.00	$ 1,228.45
	WINONA 107603 - 7TH ST W	5,800	138	$ 416,187	$ 44.04	$	255,432.77	$ 160,754.23	$ 1,164.89
	WINONA - EDGEWOOD RD	3,950	49	$ 231,855	$ 44.68	$	176,486.00	$ 55,369.00	$ 1,129.98
	WINONA - LAIRD ST	475	6	$ 31,450	$ 44.04	$	20,919.06	$ 10,530.94	$ 1,755.16
	WINONA - HILBERT ST	6,850	66	$ 396,984	$ 47.00	$	321,950.00	$ 75,034.00	$ 1,136.88
	WINONA - 11TH ST/SUNSET DR	15,050	194	$ 853,146	$ 43.11	$	648,805.50	$ 204,340.50	$ 1,053.30
	WINONA - W 6TH ST	2,700	25	$ 148,371	$ 42.50	$	114,750.00	$ 33,621.00	$ 1,344.84
	WINONA 98082 -CONRAD DR	5,300	133	$ 394,885	$ 43.16	$	228,748.00	$ 166,137.00	$ 1,249.15
2019 Designed DIMP-related Main Replacement Total		185,535	2,385	$ 19,740,966	$ 44.16				$ 1,303.54

*Remaining projects are in-process of development and design; this work will take place the last quarter of 2018 and the first two quarters of 2019.

NSP-MN Main & Service Replacement Projects 2020					
City	Description	Total Design FT.	Tot. Svc	Total Anticipated Cost**	Class Location
Grand Forks	Grand Forks - Gateway Dr NE (MN Side)	1,980	3	$93,169	4
Lake City	Lake City - Camp Lakeview Rd	2,342	7	$114,794	4
Maplewood	Maplewood - County B E	5,100	30	$269,604	3
Mahtomedi	MAHTOMEDI - NEPTUNE	2,350	14	$124,464	4
Moorhead	Moorhead - 30th Ave S	7,520	13	$355,991	4
Oakdale	Oakdale - 52nd Street North	4,000	23	$210,750	4
Saint Paul	Saint Paul - Cypress & Reaney	9,100	152	$612,024	4
	Saint Paul - Edgerton & Beaumont (Engineering Only)	5,850	83	$373,874	4
Shoreview	Shoreview- Rice/Marie Street	2,000	13	$107,370	2
St. Cloud	St. Cloud 18th Avenue N	3,000	33	$179,010	4
White Bear Lake	White Bear Lake - Lincoln Avenue	2,100	22	$123,844	4
2020 Designed DIMP-related Main Replacement Total		45,342	393	$ 2,564,894	

*Remaining projects are in-process of development and design; this work will take place the last quarter of 2019 and the first two quarters of 2020.

**Cost estimates based on $45.04/ft of main and $1,330/service per Attachment D1

2018

Project	Description	Assumptions
Colby Lake Lateral - Woodlane to Colby Lake	· Project Type: Pipeline Replacement · Regulation: 49 CFR 192.1007(d) · Overview: 2.5-mile replacement project; The pipeline was constructed in 1964-1965 using vintage materials and construction methods which, while acceptable at the time, are now associated with threats that contribute to the probability of failures in the pipelines. · Location: Woodbury, MN. · 2018 Construction Period: May – October 2018	Benefits: ILI assessable Current Classification: High Pressure Distribution Future Classification: Distribution · Total Cost Per Unit: $4.6 million per mile.
Capital Project (no O&M)		
2018 Actual Costs:	$ 11,629,032	
H005 - Lexington to Snelling	· Project Type: Pipeline Replacement · Regulation: 49 CFR 192.1007(d) · Overview: This is a 3.0 mile replacement project; the pipeline was constructed in 1964 using vintage materials and construction methods; resulting in threats associated with material and construction defects. The pipeline has known mechanical couplings which are a known threat. · Location: Arden Hills beginning at the intersection of Snelling and Hamline and continuing north to Lexington and I-694.	Benefits: Eliminate poor performance, unknown construction Current Classification: High Pressure Distribution Future Classification: Distribution
Capital Project (no O&M)	· 2018 Construction Period: May – October 2018	· Total Cost Per Unit: $3.5 million per mile.
2018 Actual Costs:	$ 8,729,814	
H08 – Lake Elmo 1A TBS	· Project Type: ECDA · Regulation: 49 CFR 192.1007(d) · Overview: Conducting ECDA to provide baseline assessment. · Location: Lake Elmo, MN.	· Survey: $10K · 3 digs at $60K each · Minor costs (permitting, new CP test leads, etc.)
O&M Project	· 2018 Assessment Period: May – October 2018	
2018 Estimated O&M Costs:	- $200K ECDA	
T009 – Cottage Grove TBS	· Project Type: ECDA · Regulation: 49 CFR 192.1007(d) · Overview: Conducting ECDA to provide baseline assessment. · Location: Cottage Grove, MN.	· Survey: $10K · 3 digs at $60K each · Minor costs (permitting, new CP test leads, etc.)
O&M Project	· 2018 Assessment Period: May – October 2018	
2018 Estimated O&M Costs:	- $200K ECDA	

2018

Line/Loop	Project Description	Actuals	O&M or Capital
H08 - Lake Elmo 1A TBS	ECDA	$ 10,042	O&M
T009 – Cottage Grove TBS	ECDA	$ 27,105	O&M
Green Lake	ECDA	$ 91,114	O&M
O&M Overheads		$ 6,987	O&M
O&M Total		**$ 135,248**	

2019

Project	Description
Colby Lake Lateral - Woodlane to Colby Lake	· Project Type: Pipeline Replacement · Regulation: 49 CFR 192.1007(d) · Overview: 2.5-mile replacement project; The pipeline was constructed in 1964-1965 using vintage materials and construction methods which, while acceptable at the time, are now associated with threats that contribute to the probability of failures in the pipelines. · Location: Woodbury, MN.
Capital Project (no O&M)	· 2018 Construction Period: May – October 2018
2019 Estimated Costs:	$257K (restoration)

Line/Loop	Project Description	
Montreal Line North – River Crossings/Headers	· Project Type: Strebgth Pressure Test · Regulation: 49 CFR 192.1007(d) · Overview: High pressure distribution pipe segments crossing the Mississippi River and entails hydrostatic pressure testing 2.4 miles of 12-inch pipe. Provide baseline assessment. · Location: Sections cross the Mississippi River and extend from Shepard	
O&M Project	· 2019 Assessment Period: May – October 2019	
Crossing 1	$130K	North header to south header - 12"
Crossing 2	$120K	North header to south header - 12"
Crossing 3	$120K	North header to south header - 12"
Crossing 4	$120K	North header to south header - 12"
South Header	$134K	
Total Estimated O&M Costs:	$625K	

2020

Project	Description	Assumptions	
Brainerd Lakes IP - ECDA	· Project Type: ECDA · Regulation: 49 CFR 192.1007(d) · Overview: Conducting ECDA to provide baseline assessment. · Location: Brainerd, MN · 2020 Assessment Period: May – October 2020	Cost/mile of survey Dig cost	$4,400 $20,000 - $80,000
2020 Estimated O&M Costs	$379,000		
R313 Lateral IP - ECDA	· Project Type: ECDA · Regulation: 49 CFR 192.1007(d) · Overview: Conducting ECDA to provide baseline assessment. · Location: Newport, MN · 2020 Assessment Period: May – October 2020	Cost/mile of survey Dig cost	$4,400 $20,000 - $80,000
2020 Estimated O&M Costs	$100,000		
R501 Lateral IP - ECDA	· Project Type: ECDA · Regulation: 49 CFR 192.1007(d) · Overview: Conducting ECDA to provide baseline assessment. · Location: Newport, MN · 2020 Assessment Period: May – October 2020	Cost/mile of survey Dig cost	$4,400 $20,000 - $80,000
2020 Estimated O&M Costs	$100,000		
County Road B - Rice to Hamline	· Project Type: Pipeline Replacement · Regulation: 49 CFR 192.1007(d) · Overview: 3.5-mile replacement project; The pipeline was constructed in 1953-1959 using vintage materials and construction methods which, while acceptable at the time, are now associated with threats that contribute to the probability of failures in the pipelines. · Location: Roseville, MN	Benefits: ILI assessable Current Classification: High Pressure Distribution Future Classification: Distribution	
Capital Project (no O&M)	Construction expected to be completed in 2021 and 2022		
2020 Estimated Costs	$490K - Engineering only		

DIMP Distribution Valve Project Detail for 2018

NSP-MN Inoperable Distribution Valve Replacement DIMP Projects 2018

Project Name/Location	Valve #	Size/Mtl	Cost
St. Albans & Alley South of Selby, STP	EV1373	4" SC	$ 3,505
Victoria & St. Anthony, STP	EV1069	6" SC	$ 34,536
Henry Ave & Fleming Field, SSTP	EV1245	12" SC	$ 11,810
7th & South, NSTP**	EV0291	6" SC	-
Forest & Rose, STP	EV1202	12" SC	$ 55,267
Robert & Page, STP	EV1178	8" SC	$ 26,518
Cypress & Reaney, STP**	EV1213	8" SC	-
Snelling & Englewood, STP	EV1020	12" SC	$ 31,988
Fairview & Juno, STP	EV1030	16" SC	$ 21,322
Fairview & Montreal, STP	EV1037	16" SC	$ 21,322
Fairview & Montreal, STP**	EV1038	16" SC	-
Fairview & Montreal, STP**	EV1316	16" SC	-
Algonquin & Iroquois, STP	EV1275	12" SC	$ 1,082
Algonquin & Iroquois, STP**	EV1276	6" SC	-
Hwy 19 W TBS, Northfield	EV3512	8"SC	$ 83,467
Hwy 19 W TBS, Northfield**	EV3513	6"SC	-
Cypress & 6th, STP***	EV1218	6"SC	$ 17,417
7th & Dale, STP***	EV1241	12"SC	$ 8,113
Chippewa & Wyoming, STP***	EV1121	12"SC	$ 19,662
McAndrews & Hwy 3, RMT	EV4150	2"PE	$ 3,818
8th Ave NW & 7th, NWB	EV5942	8"SC	$ 28,825
Westminister & Arlington, STP	EV1156	8"SC	$ 15,289
		Total Cost:	$ 383,942

Total valves: 22

** Known valves, subject to change.*

*** EV0291 will be replaced as part of the County Road B - NSP to Rice phase I in 2019; EV1213 will be replaced through the corresponding Programmatic Mains and Services project in 2020; EV1038 & EV1316 are in the same intersection and are included in the EV1037 project; EV1276 is in the same vault as EV1275 and are the same project; and EV3513 is in the same intersection and is included in the EV3512 project.*

**** EV1218, EV1241, and EV1121 completed in 2017, with restoration costs carried into 2018.*

DIMP Distribution Valve Project Detail for 2019

NSP-MN Inoperable Distribution Valve Replacement DIMP Projects 2019

Project Name/Location	Valve #	Size/Mtl	Estimated 2019 Cost
Snelling & Englewood, STP	EV1020	12" SC	$ 37,500
Fairview & Juno, STP	EV1030	16" SC	$ 37,500
Fairview & Montreal, STP	EV1037	16" SC	$ 97,500
Fairview & Montreal, STP	EV1038	16" SC	-
Fairview & Montreal, STP **	EV1316	16" SC	-
Algonquin & Iroquois, STP	EV1275	12" SC	$ 37,500
Algonquin & Iroquois, STP	EV1276	6" SC	-
Hwy 19 W TBS, Northfield	EV3512	8"SC	$ 63,750
Hwy 19 W TBS, Northfield	EV3513	6"SC	-
		Estimated Total Cost:	$ 273,750

Total valves: 8

** Known valves, subject to change.*

*** EV1316 will be retired.*

2018			Division					Total Items	Unit Cost	Projected Spend
Job Type	Cost Type	Description	BRD	FARI	RW	STC	WIN			
IM	O&M	SLEEVE RISER (RISER IN CONCRETE), RAISE METERS, METER PAINTING, INSTALL METER PROTECTION	131	18	0	185	0	334	$485	**$ 161,868**

DIMP 2018 Sewer Mitigation Project Detail

NSP-MN Sewer Conflict Investigation - 2018 Projects

2018		
Polygon ID	**City**	**Service Count**
312787795	Winona	7
312788059	Sartell	2
312788125	Sauk Rapids	1
312877519	West St Paul	1
312877832	St Paul	2
312877893	Winona	1
312878200	Inver Grove Heights	1
312878384	St Paul	7
317305004	Taylors Falls	2
317305364	Oakdale	1
317305430	White Bear Lake	1
317305655	Lauderdale	2
317305859	St Paul	1
317305892	St Paul	1
317305960	Saint Cloud	3
317305982	Saint Cloud	1
317306059	Winona	2
317306070	Red Wing	12
317306081	Moorhead	1
324762545	St Paul	1
324762600	St Paul	1
324762644	St Paul	65
324762666	St Paul	6
324762723	St Paul	1
324762760	St Paul	1
324762834	Winona	1
324762856	Winona	4
324763010	Nisswa	2
324763065	West St Paul	2
324763098	Newport	2
324763109	Newport	1
325047618	North St Paul	1
325047688	Winona	6
325048050	East Grand Forks	3
325048095	East Grand Forks	16
325048104	East Grand Forks	17
325048113	East Grand Forks	43
325048122	East Grand Forks	35
325048131	Mendota Heights	2
325048167	West St Paul	3
325048203	Arden Hills	1
325048221	Maplewood	1
325048230	Stillwater	2
325048257	Lindstrom	1
325048266	St Joseph	12
325048275	Waite Park	14
344831908	Mahtomedi	1
344831926	Maplewood	1
344831944	Sartell	4
344831971	Winona	5
344831989	West St Paul	1
344832016	North St Paul	1
344832043	Cottage Grove	4
344832070	Nisswa	5
344832079	Baxter	2
344832088	Becker	1
344832106	Hugo	1
344832126	Newport	7
344832135	Mounds View	1

DIMP 2018 Sewer Mitigation Project Detail

NSP-MN Sewer Conflict Investigation - 2018 Projects

2018		
Polygon ID	**City**	**Service Count**
344832166	St Joseph	12
344832193	Vadnais Heights	1
344832211	Shoreview	1
344832579	Glyndon	1
344832597	Chisago	5
344832629	Winona	16
344832638	Winona	8
344832647	Mahtomedi	2
344832665	Falcon Heights	2
344832674	Arden Hills	7
344832692	West St Paul	1
344832701	Lindstrom	8
344832719	Invergrove Heights	3
344832748	White Bear Lake	2
344832757	Roseville	2
344832766	Waite Park	9
344832826	Moorhead	1
344832884	Newport	1
344832911	Red Wing	11
344832929	Shoreview	3
344832947	Vadnais Heights	1
344832956	White Bear Lake Twp	2
359596048	Forest Lake	1
359596072	Forest Lake	7
359596126	Vadnais Heights	80
359596139	Sauk Rapids	17
359596165	Nisswa	2
359596178	Nisswa	3
359596191	New Brighton	20
359596204	New Brighton	39
359596217	New Brighton	9
359596230	Little Canada	23
359596243	Little Canada	50
359596256	Hugo	27
359596333	Forest Lake	2
359596386	Cottage Grove	1
359596399	Woodbury	2
359596412	Woodbury	5
359596425	Becker	16
359596438	Becker	6
359596451	Becker	35
359596477	Baxter	18
359596490	Moorhead	10
359596503	Moorhead	17
359596516	White Bear Township	24
359596701	Oakdale	2
372455208	Chisago	14
372455214	Wyoming	8
372455222	Winona	71
372455226	Mahtomedi	64
372455234	Vadnais Heights	88
372455238	North Oaks	24
372455242	New Brighton	171
372455246	St Cloud	95
372455250	St Cloud	61
372455254	Nisswa	42
372455258	Woodbury	85
372455262	Roseville	25
372455266	Faribault	43

DIMP 2018 Sewer Mitigation Project Detail

NSP-MN Sewer Conflict Investigation - 2018 Projects

2018		
Polygon ID	**City**	**Service Count**
372455270	Sauk Rapids	17
372455278	Cottage Grove	77
372500001	Arden Hills	188
372500003	Chisago City	21
372500004	Cottage Grove	1558
372500006	Falcon Heights	7
372500007	Faribault (already in Korterra)	65
372500008	Inver Grove Heights	1286
372500010	Lindstrom (already in Korterra)	1
372500012	Mahtomedi (already in Korterra)	6
372500013	Maplewood	1863
372500022	Roseville	931
372500023	St Cloud	1806
372500028	Shoreview (already in Korterra)	2
372500030	Stillwater	1542
372500036	White Bear Lake (already in Korterra)	20
372500038	Woodbury	4348
372500041	Faribault - Additional Legacy Inspections	418
	Total	**15,789**

DIMP 2019 Sewer Mitigation Project Detail

NSP-MN Sewer Conflict Investigation - 2019 Projects

2019			
Polygon ID	**City**	**State**	**Estimated Service Count**
372500010	Lindstrom	MN	500
372500011	Lino Lakes	MN	200
372500019	Oak Park Heights	MN	350
372500014	Marine Saint Croix	MN	250
372500015	Mendota Heights	MN	450
372500040	New Brighton	MN	3,390
372500018	Northfield	MN	1,000
372500020	Oakdale	MN	2,200
372500021	Red Wing	MN	1,100
372500028	Shoreview	MN	1,700
372500032	Vadnais Heights	MN	400
372500036	White Bear Lake	MN	1,500
		Total	**13,040**

Quantitative Risk Assessment for 2020 GUIC Programs and Initiatives

DIMP

Methodology

Xcel Energy's risk assessment methodology is a process to evaluate unwanted consequences and the likelihood of the consequences occurring on the Company's natural gas infrastructure. The goal of the Company's integrity programs is to protect the public, property and the environment from pipeline failures.

The purpose of this risk assessment methodology is to develop a quantitative risk score and assign a risk category (high, medium, low) for identified projects that are funded through the Company's GUIC rider.

These quantitative risk assessment methodologies assign numeric values to likelihood and consequences by using available data and quantifying assessments. In some cases, subject matter expert (SME) input is utilized.

DIMP Poor Performing Mains & Services

Problematic Steel Project Risk

SEE ATTACHMENT D2(b)

Uses Commercial Software: Optimain DS by Opvantek

Data Inputs include data such as Leak Date, Leak Class, Leak Cause, Pipe Length, Pipe Material, Pipe Pressure, Pipe Diameter, Pipe Coating, Year Installed, Cathodic Protection, Presence of Excess Flow Valve on Service, Building Class and proximity to pipeline, and Population Density.

A Project is comprised of mains and services with similar material, diameter and pressure and cathodic protection status. Typical projects consist of approximately 1500 feet of main and associated services.

Project Risk = Main Risk + Service Risk

Main Risk = ∑ (Risk Profile Score x EV Failure) for each failure type

Service Risk = ∑ (Risk Profile Score x EV Failure) for each service and failure type

Failure Types include Corrosion Leaks & Other Leaks

EV Failure = probability of future leaks using the number and type of prior leaks on the project

Risk Profile = ∑ (Weight x Score) over all of the Risk Profile Factors

Risk Profile Factors include factors such as Leak Class, Volume/Pressure, Inside Meters, Cover Type, Building Class, and Population Density

Projects may also be designated as high or medium risk via engineering judgment provided by subject matter experts (SMEs) who evaluate factors such as recent leakage which is not yet in the Optimain model, field observations that the pipe has significant corrosion, the presence of problematic material types such as bare steel or copper, or the presence of mechanical compression couplings.

Risk Category	Project Risk Scores Range	Number of Optimain Projects Currently Identified as of October 2019	Percentage
High	Score ≥ 36	1,361	2.33%
Medium	24 ≤ Score < 36	653	1.12%
Low	1 ≤ Score < 24	12,470	21.34%
None	Score < 1	43,958	75.22%
Total	All	58,442	

DIMP Poor Performing Mains & Services

Problematic Plastic Project Risk

SEE ATTACHMENT D2(b)

Data inputs:

- Material Risk Factor
- Pressure Leak Factor
- Population Density

Risk Score = Likelihood of Failure x Consequence of Failure

Likelihood of Failure = Material Risk Factor + Pressure Risk Factor

Material Risk Factor Lookup Table

Material Type and Year Installed	Score
Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; use installation dates prior to 1975 to account for depletion of inventory	4
Century Products Medium Density Polyethylene (MDPE) designated PE 2306 installed in any year	4
High-Density Polyethylene (HDPE) gas pipe designated PE 3306 installed in any year	4
Dylon	4
Aldyl-A installed in 1975 or later	0

Pressure Risk Factor Lookup Table

Pressure system	Score
Pounds High	1
Pounds Medium	0.75
Pounds Low	0.5

Consequence of Failure Lookup Table

Condition	Score
Business District[1]	1.75
Population Density from Census Block Data ≥ 2000 people per square mile	1.5
1000 < Population Density from Census Block Data < 2000	1.25
Population Density from Census Block Data < 1000 people per square mile	1

(1) Business Districts that have a high population during the workday will not be reflected on census data.

Risk Matrix

			Consequence			
			Population Density from Census Block Data < 1000 people per square mile	1000 < Population Density from Census Block Data < 2000	Population Density from Census Block Data ≥ 2000 people per square mile	Business District
			1	**1.25**	**1.5**	**1.75**
Likelihood of Failure	Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; or Century MDPE 2306 or HDPE 3306 or Dylon - Pounds High	**5**	5.0	6.3	7.5	8.8
	Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; or Century MDPE 2306 or HDPE 3306 or Dylon - Pounds Medium	**4.75**	4.8	5.9	7.1	8.3
	Low-ductile inner wall "Aldyl A" piping manufactured by DuPont Company before 1973; or Century MDPE 2306 or HDPE 3306 or Dylon - Pounds Low	**4.5**	4.5	5.6	6.8	7.9
	Aldyl-A installed in 1975 or later	**≤ 1**	≤ 1	≤ 1.25	≤ 1.5	≤ 1.75

High Risk, Risk Score ≥ 7
Medium Risk, 4 ≤ Risk Score < 7
Low Risk, Risk < 4

DIMP Intermediate Pressure (IP) Line Assessments
Line Replacements Project Risk

Project	Regulation	Current Classification	Mechanical Joint	Manufac-turing/ Construct-ion Defect	Corrosion	3rd Party Damage	Other Leak History	Conse-quence	Risk Score	Project Classifica-tion
None										

HP = distribution pipeline with MAOP > 60 psig

Used for decisions on replacement or other mitigation necessity

Data inputs:

- Construction Risk Factor - Presence of Mechanical Joint Joining Method
- Manufacturing/Construction Risk Factor – Post Construction Pressure Test
- History of Corrosion, 3rd Party Damage and other leakage
- Pipeline Class Location

Risk Score = Likelihood of Failure x Consequence of Failure

Likelihood of Failure = (Mechanical Joint Risk Factor + Manufacturing/Construction Risk Factor + Maximum Score of (Corrosion Risk Factor, 3rd Party Damage Risk Factor, Other Leak History Factor)

Mechanical Joint Risk Factor Lookup Table

Condition	Score
Pipeline Segment Contains Mechanical Joints	2
Does Not Include Mechanical Joints	0

Manufacturing/Construction Defect Risk Factor Lookup Table

Condition	Score
Post Construction Pressure Test < (MAOP x class location test factor from 192.619(a)(2)) OR Documentation of Pressure Test is not Traceable, Verifiable and Complete (TVC)	2
Post Construction Pressure Test ≥ (MAOP x class location test factor from 192.619(a)(2))	0

Corrosion Risk Factor Lookup Table

Condition	Score
History of Corrosion Leakage	1
Presence of Corrosion Pitting	1
No history of Corrosion leakage or pitting	0

3rd Party Damage Risk Factor Lookup Table

Condition	Score
Presence of 3rd Party Damage	1
No Presence of 3rd Party Damage	0

Other Leak History Risk Factor Lookup Table

Condition	Score
History of Leakage due to Causes other than corrosion or 3rd Party Damage	1
No History of Other Leakage	0

Consequence of Failure Lookup Table

Class Location	Score
4	4
3	3
2	2
1	0.5

Projects may also be designated as high risk or medium risk via engineering judgment provided by subject matter experts (SMEs).

Risk Matrix

Consequence			
Class 1	Class 2	Class 3	Class 4
0.5	**2**	**3**	**4**

Likelihood of Failure	Mechanical Coupled **AND** No TVC Test to criteria **AND** Corrosion/Leakage/3rd Party	**5**	2.5	10	15	20
	Mechanical Coupled **AND** No TVC Test to criteria **AND NOT** Corrosion/Leakage/3rd Party	**4**	2	8	12	16
	Mechanical Coupled **OR** No TVC Test to criteria **AND** Corrosion/Leakage/3rd Party	**3**	1.5	6	9	12
	Mechanical Coupled **OR** No TVC Test to criteria **AND NOT** Corrosion/Leakage/3rd Party	**2**	1	4	6	8
	Not Mechanically Coupled, Pressure Test is TVC and meets criteria, no Corrosion/Leakage/3rd Party	**0**	0	0	0	0

High Risk, Risk Score ≥ 10
Medium Risk, 4 ≤ Risk Score < 10
Low Risk, Risk < 4

DIMP Intermediate Pressure (IP) Line Assessments
Line Assessments Project Risk

Project	Years Since Assessment	Pipeline Class Location	Risk Score	Risk Level
Brainerd Lakes IP Lines	25	Class 2	4	Medium
R313 Lateral	Never Assessed	Class 4	12	High
R501 Lateral	Never Assessed	Class 4	12	High

HP = distribution pipeline with MAOP > 60 psig

Used for decisions on prioritizing integrity assessments

Data inputs:

- Years since last integrity assessment
- Pipeline Class Location

Risk Score = Likelihood of Failure x Consequence of Failure

			Consequence			
			Class 1	Class 2	Class 3	Class 4
			1	**2**	**3**	**4**
Likelihood of Failure	Last Assessment > 35 years prior or no previous assessment	**3**	3	6	9	12
	20 years ≤ Last Assessment < 35 years prior	**2**	2	4	6	8
	10 years ≤ Last Assessment < 20 years prior	**1.5**	1.5	3	4.5	6
	Last Assessment < 10 years prior	**0.5**	0.5	1	1.5	2

High Risk, Risk Score ≥ 8
Medium Risk, 4 ≤ Risk Score < 8
Low Risk, Risk < 4

DIMP Distribution Valve Replacement

Project Risk

The current list of inoperable valves have all been replaced as of 2019. Currently there are no valves scheduled for replacement in 2020. As valves continue to be inspected by field personnel, exceptions will be reported and will be scored using the method lined out below. If valves score in the medium to high risk then they may be added to the DIMP Distribution Valve Replacement Program.

Data inputs:

- Number of Premises in Existing Emergency Area due to non-functional valve
- Valve Operability
- Atmospheric Corrosion History
- Vault Condition

Risk Score = Likelihood of Failure x Consequence of Failure

Likelihood of Failure = Valve Operability Risk Factor + Vault Condition Risk Factor + Atmospheric Corrosion Risk Factor

Valve Operability Risk Factor Lookup Table

Valve Operable	**Score**
No	3
Yes	0

Vault Condition Risk Factor Lookup Table

Vault Condition	**Score**
Vault Condition Poor (Inaccessible due to water intrusion)	0.75
Vault Condition Good	0

Atmospheric Corrosion Risk Factor Lookup Table

Atmospheric Corrosion Status	**Score**
Atmospheric Corrosion Present	0.25
Atmospheric Corrosion Not Present	0

Consequence of Failure Lookup Table

Premise Count of Existing Emergency Area if valve remains inoperable	**Score**
Premises in Existing Emergency Area > 4000	4
3000 < Premises in Existing Emergency Area ≤ 4000	3
2000 < Premises in Existing Emergency Area ≤ 3000	2
Premises in Existing Emergency Area ≤ 2000	1

Risk Matrix

			Consequence			
			Existing Emergency Area < 2000 services	2000 < Premises in Existing Emergency Area ≤ 3000	3000 < Premises in Existing Emergency Area ≤ 4000	Premises in Existing Emergency Area > 4000
			1	**2**	**3**	**4**
Likelihood of Failure	Valve Inoperable AND Vault Condition Poor AND Atmospheric Corrosion	**4**	4	8	12	16
	Valve Inoperable AND Vault Condition Poor	**3.75**	3.75	7.5	11.25	15
	Valve Inoperable AND Atmospheric Corrosion	**3.25**	3.25	6.5	9.75	13
	Valve Inoperable	**3**	3	6	9	12
	Valve Operable but Vault Condition Poor AND Atmospheric Corrosion	**1**	1	2	3	4

High Risk, Risk Score ≥ 12
Medium Risk, 6 ≤ Risk Score < 12
Low Risk, Risk < 6

DIMP Sewer & Gas Line Conflict

Project Risk

No inspections are planned in 2020; however the Company will continue to monitor risk circumstances and implement a risk-based analysis if conflicts are identified.

Risk assessment methodology is subject to change as the Company monitors the results on ongoing inspections. The current risk assessment approach is summarized below:

			Consequence		
			Residential Single Family Structure	Residential Multi-Family Structure	Commercial Building
			1	**2**	**3**
Likelihood of Failure	Community/Area with Prior Conflict	**3**	3	**6**	**9**
	Area known to have a lot of rock Area known to have high water table Terraced properties (high home elevation relative to road) Services installed between 1991 and 2001 with trenchless or unknown installation method Services installed with trenchless installation method between 1991 and 2001 or with unknown installation date	**2**	2	4	**6**
	Areas installed post 2003 Areas previously inspected PE services off of joint main trench PE services off of steel main Known Septic areas	**0.5**	0.5	1	1.5

High Risk: Risk Score ≥ 6
Medium Risk: Medium Risk, 2 ≤ Risk Score < 6
Low Risk: Risk Score < 2

DIMP Replacements 2020 Risk Assessment Scores

Coated Steel

Priority	Optimain Risk Score	Priority Distribution
High	Score ≥ 36	4
Medium	24 ≤ Score < 36	5
Low	1 ≤ Score < 24	0
None	Score < 1	0
Total	All	9

Work Order Number	Description	Total Design FT.	Tot. Svc	YR INSTALLED	BASE MATERIAL	BASE PRESSURE	Optimain Score	QRA SCORE
TBD	Shoreview- Rice/Marie Street	2,000	13	1963	Coated Steel	MEDIUM	132	N/A
TBD	Oakdale - 52nd Street North	4,000	23	1963	Coated Steel	LOW	84	N/A
TBD	St. Cloud 18th Avenue N	3,000	33	1959	Coated Steel	MEDIUM	87	N/A
TBD	Saint Paul - Cypress & Reaney	9,100	152	1960	Coated Steel	MEDIUM	93	N/A
TBD	MAHTOMEDI - NEPTUNE	2,350	14	Unknown	Coated Steel	HIGH	33	N/A
TBD	White Bear Lake - Lincoln Avenue	2,100	22	1963	Coated Steel	MEDIUM	31	N/A
TBD	Saint Paul - Edgerton & Beaumont (Engineering Only)	5,850	83	1950	Coated Steel	MEDIUM	SME	N/A

*Scoring included for known 2020 projects with completed engineering and design.

Poor Performing Plastic - Aldyl-A

Priority	Quantitative Risk Assessment Score	Priority Distribution
High	Score ≥ 7	0
Medium	4 ≤ Score < 7	10
Low	0 ≤ Score < 4	0
Total	All	10

Work Order Number	Description	Total Design FT.	Tot. Svc	YR INSTALLED	BASE MATERIAL	BASE PRESSURE	OPTIMAIN SCORE	QRA SCORE
TBD	Maplewood - County B E	5,100	30	1968	PE (Aldyl A)	LOW	N/A	6.75
TBD	Grand Forks - Gateway Dr NE (MN Side)	1,980	3	1970	PE (Aldyl A)	HIGH	N/A	5.00
TBD	Lake City - Camp Lakeview Rd	2,342	7	1965	PE (Aldyl A)	MEDIUM	N/A	4.75
TBD	Moorhead - 30th Ave S	7,520	13	1970	PE (Aldyl A)	MEDIUM	N/A	4.75

*Scoring included for known 2020 projects with completed engineering and design.

216B.1635 RECOVERY OF GAS UTILITY INFRASTRUCTURE COSTS.

Subdivision 1. **Definitions.** (a) "Gas utility" means a public utility as defined in section 216B.02, subdivision 4, that furnishes natural gas service to retail customers.

(b) "Gas utility infrastructure costs" or "GUIC" means costs incurred in gas utility projects that:

(1) do not serve to increase revenues by directly connecting the infrastructure replacement to new customers;

(2) are in service but were not included in the gas utility's rate base in its most recent general rate case, or are planned to be in service during the period covered by the report submitted under subdivision 2, but in no case longer than the one-year forecast period in the report; and

(3) do not constitute a betterment, unless the betterment is based on requirements by a political subdivision or a federal or state agency, as evidenced by specific documentation, an order, or other similar requirement from the government entity requiring the replacement or modification of infrastructure.

(c) "Gas utility projects" means:

(1) replacement of natural gas facilities located in the public right-of-way required by the construction or improvement of a highway, road, street, public building, or other public work by or on behalf of the United States, the state of Minnesota, or a political subdivision; and

(2) replacement or modification of existing natural gas facilities, including surveys, assessments, reassessment, and other work necessary to determine the need for replacement or modification of existing infrastructure that is required by a federal or state agency.

Subd. 2. **Gas infrastructure filing.** A public utility submitting a petition to recover gas infrastructure costs under this section must submit to the commission, the department, and interested parties a gas infrastructure project plan report and a petition for rate recovery of only incremental costs associated with projects under subdivision 1, paragraph (c). The report and petition must be made at least 150 days in advance of implementation of the rate schedule, provided that the rate schedule will not be implemented until the petition is approved by the commission pursuant to subdivision 5. The report must be for a forecast period of one year.

Subd. 3. **Gas infrastructure project plan report.** The gas infrastructure project plan report required to be filed under subdivision 2 shall include all pertinent information and supporting data on each proposed project including, but not limited to, project description and scope, estimated project costs, and project in-service date.

Subd. 4. **Cost recovery petition for utility's facilities.** Notwithstanding any other provision of this chapter, the commission may approve a rate schedule for the automatic annual adjustment of charges for gas utility infrastructure costs net of revenues under this section, including a rate of return, income taxes on the rate of return, incremental property taxes, incremental depreciation expense, and any incremental operation and maintenance costs. A gas utility's petition for approval of a rate schedule to recover gas utility infrastructure costs outside of a general rate case under section 216B.16 is subject to the following:

(1) a gas utility may submit a filing under this section no more than once per year; and

(2) a gas utility must file sufficient information to satisfy the commission regarding the proposed GUIC. The information includes, but is not limited to:

(i) the information required to be included in the gas infrastructure project plan report under subdivision 3;

(ii) the government entity ordering or requiring the gas utility project and the purpose for which the project is undertaken;

(iii) a description of the estimated costs and salvage value, if any, associated with the existing infrastructure replaced or modified as a result of the project;

(iv) a comparison of the utility's estimated costs included in the gas infrastructure project plan and the actual costs incurred, including a description of the utility's efforts to ensure the costs of the facilities are reasonable and prudently incurred;

(v) calculations to establish that the rate adjustment is consistent with the terms of the rate schedule, including the proposed rate design and an explanation of why the proposed rate design is in the public interest;

(vi) the magnitude and timing of any known future gas utility projects that the utility may seek to recover under this section;

(vii) the magnitude of GUIC in relation to the gas utility's base revenue as approved by the commission in the gas utility's most recent general rate case, exclusive of gas purchase costs and transportation charges;

(viii) the magnitude of GUIC in relation to the gas utility's capital expenditures since its most recent general rate case; and

(ix) the amount of time since the utility last filed a general rate case and the utility's reasons for seeking recovery outside of a general rate case.

Subd. 5. **Commission action.** Upon receiving a gas utility report and petition for cost recovery under subdivision 2 and assessment and verification under subdivision 4, the commission may approve the annual GUIC rate adjustments provided that, after notice and comment, the costs included for recovery through the rate schedule are prudently incurred and achieve gas facility improvements at the lowest reasonable and prudent cost to ratepayers.

Subd. 6. **Rate of return.** The return on investment for the rate adjustment shall be at the level approved by the commission in the public utility's last general rate case, unless the commission determines that a different rate of return is in the public interest.

Subd. 7. **Commission authority; rules.** The commission may issue orders and adopt rules necessary to implement and administer this section.

History: *2005 c 97 art 10 s 1,3; 2013 c 85 art 7 s 2,9*

NOTE: This section expires June 30, 2023. Laws 2005, chapter 97, article 10, section 3, as amended by Laws 2013, chapter 85, article 7, section 9.

Northern States Power Company

Docket No. G002/M-19-____
Gas Utility Infrastructure Cost Rider - 2020 Factors
Attachment F - Page 1 of 1

Capital TIMP and DIMP Expenditures
Actual and Forecast Through 2024

Capital Expenditures (CWIP Only excluding internal labor)

Project Name	Sub Project	Pre-2018	2018	2019	2020	2021	2022	2023	2024	Total by Subproject
TIMP	Transmission	11,956,344	8,762,530	21,959,801	34,942,781	9,016,658	6,909,813	15,869,904	15,869,904	125,287,734
TIMP	Distribution	53,882,258	(32,830)	-	-	-	-	-	-	53,849,428
Total TIMP		**65,838,601**	**8,729,700**	**21,959,801**	**34,942,781**	**9,016,658**	**6,909,813**	**15,869,904**	**15,869,904**	**179,137,162**
DIMP	Distribution	36,903,707	36,973,996	19,396,951	16,925,935	39,408,210	44,977,308	33,909,237	33,909,237	262,404,579
DIMP	Software	444,543	-	-	-	-	-	-	-	444,543
Total DIMP		**37,348,250**	**36,973,996**	**19,396,951**	**16,925,935**	**39,408,210**	**44,977,308**	**33,909,237**	**33,909,237**	**262,849,122**
Total GUIC		**103,186,851**	**45,703,695**	**41,356,752**	**51,868,717**	**48,424,867**	**51,887,121**	**49,779,140**	**49,779,140**	**441,986,284**

TIMP - Capital Revenue Requirements for 2018-2021

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Annual 2018
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	66,961,891	67,017,881	68,912,355	70,729,194	70,729,591	70,714,499	71,767,099	74,879,359	74,240,384	74,634,095	74,644,999	74,658,602	74,658,602
Less Accumulated Book Depreciation Reserve	2,489,604	2,600,257	2,711,993	2,826,275	2,942,066	3,086,997	3,203,338	3,328,751	3,448,706	3,568,526	3,693,240	3,813,295	3,813,295
Less Accumulated Deferred Taxes	7,856,316	7,894,975	7,933,635	7,972,294	8,010,954	8,049,614	8,088,273	8,126,933	8,165,592	8,204,252	8,242,912	8,281,571	8,281,571
End Of Month Rate Base	56,615,971	56,522,649	58,266,727	59,930,625	59,776,571	59,577,888	60,475,488	63,423,675	62,626,086	62,861,317	62,708,847	62,563,736	62,563,736
Average Rate Base (Prior Mo + Cur Month/2)	56,600,457	56,569,310	57,394,688	59,098,676	59,853,598	59,677,229	60,026,688	61,949,581	63,024,881	62,743,701	62,785,082	62,636,291	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	107,069	107,010	108,572	111,795	113,223	112,889	113,550	117,188	119,222	118,690	118,768	118,487	1,366,465
Equity Return (Avg RB * Wtd Cost of Equity)	224,043	223,920	227,187	233,932	236,920	236,222	237,606	245,217	249,473	248,360	248,524	247,935	2,859,342
Total Return on Rate Base	331,113	330,930	335,759	345,727	350,144	349,112	351,156	362,405	368,696	367,051	367,293	366,422	4,225,807
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	(10,670)	11,522	63,890	53,164	201,394	55,115	13,639	17,813	179,589	70,040	96,464	117,227	869,187
Property Taxes	94,590	94,590	94,590	94,590	94,590	94,590	94,590	94,590	94,590	94,590	94,590	94,590	1,135,079
Book Depreciation	110,456	110,653	111,736	114,281	115,792	115,784	116,341	118,605	119,955	119,821	120,042	120,055	1,393,520
Deferred Taxes	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	463,915
Gross Up for Income Tax (see below)	(629)	(367)	765,730	1,675	3,148	5,737	400,411	67,255	(544,861)	(34,877)	9,771	14,232	687,224
Total Income Statement Expense	232,406	255,057	1,074,605	302,370	453,584	309,885	663,641	336,922	(112,067)	288,234	359,526	384,763	4,548,925
Total Revenue Requirement	**563,519**	**585,987**	**1,410,364**	**648,097**	**803,727**	**658,997**	**1,014,797**	**699,327**	**256,629**	**655,285**	**726,818**	**751,186**	**8,774,733**
													7,905,546
Capital Structure													
Weighted Cost of Debt	2.27%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.02%												
Current Income Tax Calculation													
Equity Return	224,043	223,920	227,187	233,932	236,920	236,222	237,606	245,217	249,473	248,360	248,524	247,935	2,859,342
Book Depreciation	110,456	110,653	111,736	114,281	115,792	115,784	116,341	118,605	119,955	119,821	120,042	120,055	1,393,520
Deferred Taxes	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	38,660	463,915
Less Tax Depreciation	375,221	374,254	(1,520,663)	383,533	386,275	380,669	(591,599)	242,140	1,760,382	495,318	383,922	374,965	3,044,417
Plus CPI-Tax Interest (If Applicable)	502	111	173	813	2,708	4,225	8,505	6,399	1,460	2,010	921	3,598	31,425
Total	(1,560)	(911)	1,898,419	4,153	7,805	14,222	992,710	166,740	(1,350,834)	(86,467)	24,224	35,283	1,703,786
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	(629)	(367)	765,730	1,675	3,148	5,737	400,411	67,255	(544,861)	(34,877)	9,771	14,232	687,224

TIMP - Capital Revenue Requirements for 2018-2021

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Annual 2019
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	74,661,796	74,676,725	74,489,588	74,519,214	74,579,191	74,632,300	74,982,900	75,277,659	83,482,786	84,835,664	85,621,713	87,044,263	87,044,263
Less Accumulated Book Depreciation Reserve	3,933,360	4,053,434	4,173,368	4,293,171	4,413,022	4,532,935	(277,324)	(405,087)	(413,046)	(358,705)	(271,282)	(821,684)	(821,684)
Less Accumulated Deferred Taxes	8,387,276	8,492,980	8,598,684	8,704,388	8,810,093	8,915,797	9,021,501	9,127,205	9,232,910	9,338,614	9,444,318	9,550,023	9,550,023
End Of Month Rate Base	62,341,161	62,130,311	61,717,535	61,521,655	61,356,076	61,183,568	66,238,723	66,555,541	74,662,922	75,855,756	76,448,677	78,315,924	78,315,924
Average Rate Base (Prior Mo + Cur Month/2)	62,452,448	62,235,736	61,923,923	61,619,595	61,438,865	61,269,822	63,711,145	66,397,132	70,609,232	75,259,339	76,152,216	77,382,301	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	117,098	116,692	116,107	115,537	115,198	114,881	119,458	124,495	132,392	141,111	142,785	145,092	1,500,847
Equity Return (Avg RB * Wtd Cost of Equity)	247,208	246,350	245,116	243,911	243,196	242,526	252,190	262,822	279,495	297,902	301,436	306,305	3,168,455
Total Return on Rate Base	364,306	363,042	361,223	359,448	358,393	357,407	371,648	387,317	411,887	439,013	444,221	451,397	4,669,302
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	284	7,959	414	-	3,854	25,910	299,513	374,392	499,189	748,784	49,919	374,394	2,384,612
Property Taxes	105,747	105,747	105,747	105,747	105,747	105,747	105,747	105,747	105,747	105,747	105,747	105,747	1,268,961
Book Depreciation	120,064	120,074	119,934	119,803	119,851	119,913	120,133	120,485	125,125	130,342	131,510	132,715	1,479,950
Deferred Taxes	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	1,268,451
Gross Up for Income Tax (see below)	20,214	17,987	20,525	316	5,229	(3,453)	(9,289)	(60,507)	(9,941)	5,343	28,264	20,239	34,926
Total Income Statement Expense	352,013	357,471	352,324	331,570	340,386	353,821	621,809	645,821	825,824	1,095,920	421,143	738,799	6,436,901
Total Revenue Requirement	**716,319**	**720,513**	**713,547**	**691,017**	**698,779**	**711,228**	**993,457**	**1,033,138**	**1,237,712**	**1,534,933**	**865,364**	**1,190,196**	**11,106,203**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	247,208	246,350	245,116	243,911	243,196	242,526	252,190	262,822	279,495	297,902	301,436	306,305	3,168,455
Book Depreciation	120,064	120,074	119,934	119,803	119,851	119,913	120,133	120,485	125,125	130,342	131,510	132,715	1,479,950
Deferred Taxes	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	105,704	1,268,451
Less Tax Depreciation	426,771	431,335	424,014	474,888	465,473	490,762	529,054	678,104	574,474	553,037	505,900	537,695	6,091,508
Plus CPI-Tax Interest (If Applicable)	3,909	3,800	4,145	6,254	9,686	14,057	27,998	39,080	39,504	32,336	37,323	43,148	261,241
Total	50,115	44,593	50,885	784	12,964	(8,561)	(23,029)	(150,012)	(24,646)	13,247	70,072	50,178	86,590
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	20,214	17,987	20,525	316	5,229	(3,453)	(9,289)	(60,507)	(9,941)	5,343	28,264	20,239	34,926

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Annual 2020
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	87,442,019	87,713,736	87,968,018	88,295,440	88,662,036	89,161,589	89,766,327	90,426,662	91,031,230	91,587,662	91,940,864	137,452,399	137,452,399
Less Accumulated Book Depreciation Reserve	(711,585)	(594,297)	(477,304)	(362,208)	(247,898)	(137,858)	(32,368)	71,173	176,048	283,291	401,272	549,799	549,799
Less Accumulated Deferred Taxes	9,699,337	9,848,651	9,997,965	10,147,280	10,296,594	10,445,908	10,595,222	10,744,537	10,893,851	11,043,165	11,192,480	11,341,794	11,341,794
End Of Month Rate Base	78,454,267	78,459,381	78,447,357	78,510,369	78,613,340	78,853,539	79,203,472	79,610,952	79,961,330	80,261,205	80,347,113	125,560,806	125,560,806
Average Rate Base (Prior Mo + Cur Month/2)	78,385,096	78,456,824	78,453,369	78,478,863	78,561,854	78,733,439	79,028,506	79,407,212	79,786,141	80,111,268	80,304,159	102,953,959	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	146,972	147,107	147,100	147,148	147,303	147,625	148,178	148,889	149,599	150,209	150,570	193,039	1,823,739
Equity Return (Avg RB * Wtd Cost of Equity)	310,274	310,558	310,545	310,645	310,974	311,653	312,821	314,320	315,820	317,107	317,871	407,526	3,850,115
Total Return on Rate Base	457,246	457,665	457,645	457,793	458,277	459,278	461,000	463,209	465,419	467,316	468,441	600,565	5,673,854
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	-	-	-	-	-	143,927	172,712	215,890	287,853	431,781	28,785	215,890	1,496,838
Property Taxes	123,290	123,290	123,290	123,290	123,290	123,290	123,290	123,290	123,290	123,290	123,290	123,290	1,479,478
Book Depreciation	133,709	134,074	134,361	134,679	135,058	135,530	136,133	136,824	137,514	138,148	138,644	163,679	1,658,352
Deferred Taxes	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	1,791,771
Gross Up for Income Tax (see below)	(9,025)	(8,990)	(12,264)	(27,307)	(22,893)	(28,482)	(23,662)	(23,345)	(5,837)	15,590	25,723	45,612	(74,880)
Total Income Statement Expense	397,287	397,688	394,701	379,976	384,769	523,580	557,788	601,972	692,135	858,122	465,757	697,785	6,351,559
Total Revenue Requirement	**854,534**	**855,353**	**852,346**	**837,769**	**843,046**	**982,858**	**1,018,787**	**1,065,181**	**1,157,554**	**1,325,438**	**934,197**	**1,298,349**	**12,025,413**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	310,274	310,558	310,545	310,645	310,974	311,653	312,821	314,320	315,820	317,107	317,871	407,526	3,850,115
Book Depreciation	133,709	134,074	134,361	134,679	135,058	135,530	136,133	136,824	137,514	138,148	138,644	163,679	1,658,352
Deferred Taxes	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	149,314	1,791,771
Less Tax Depreciation	659,993	659,993	668,265	711,205	711,205	739,157	744,482	763,730	740,038	698,879	679,774	679,241	8,455,964
Plus CPI-Tax Interest (If Applicable)	44,320	43,758	43,639	48,867	59,103	72,046	87,551	105,394	122,919	132,961	137,718	71,805	970,081
Total	(22,376)	(22,289)	(30,406)	(67,700)	(56,756)	(70,614)	(58,663)	(57,878)	(14,470)	38,651	63,773	113,083	(185,644)
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	(9,025)	(8,990)	(12,264)	(27,307)	(22,893)	(28,482)	(23,662)	(23,345)	(5,837)	15,590	25,723	45,612	(74,880)

TIMP - Capital Revenue Requirements for 2018-2021

	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Annual 2021
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	137,617,133	137,741,216	137,876,716	138,335,054	138,971,115	140,049,353	141,403,656	142,907,972	144,176,303	145,297,027	145,946,396	146,336,085	146,336,085
Less Accumulated Book Depreciation Reserve	727,608	907,788	416,683	587,662	754,780	910,818	1,059,030	1,203,959	1,355,288	1,511,989	1,685,109	1,867,250	1,867,250
Less Accumulated Deferred Taxes	11,531,813	11,721,831	11,911,850	12,101,869	12,291,887	12,481,906	12,671,925	12,861,944	13,051,962	13,241,981	13,432,000	13,622,019	13,622,019
End Of Month Rate Base	125,357,712	125,111,597	125,548,183	125,645,522	125,924,448	126,656,629	127,672,701	128,842,070	129,769,052	130,543,058	130,829,288	130,846,816	130,846,816
Average Rate Base (Prior Mo + Cur Month/2)	125,459,259	125,234,655	125,329,890	125,596,853	125,784,985	126,290,538	127,164,665	128,257,386	129,305,561	130,156,055	130,686,173	130,838,052	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	235,236	234,815	234,994	235,494	235,847	236,795	238,434	240,483	242,448	244,043	245,037	245,321	2,868,945
Equity Return (Avg RB * Wtd Cost of Equity)	496,610	495,721	496,097	497,154	497,899	499,900	503,360	507,685	511,835	515,201	517,299	517,901	6,056,662
Total Return on Rate Base	731,846	730,535	731,091	732,648	733,746	736,695	741,794	748,168	754,282	759,244	762,336	763,222	8,925,607
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	-	-	-	-	-	143,376	172,051	215,063	286,751	430,126	28,675	215,063	1,491,104
Property Taxes	194,688	194,688	194,688	194,688	194,688	194,688	194,688	194,688	194,688	194,688	194,688	194,688	2,336,257
Book Depreciation	188,610	188,768	188,910	189,234	189,831	190,767	192,095	193,655	195,168	196,472	197,439	198,006	2,308,955
Deferred Taxes	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	2,280,225
Gross Up for Income Tax (see below)	12,257	11,880	9,972	4,205	5,135	(1,492)	(1,148)	1,548	10,339	12,991	24,996	25,128	115,811
Total Income Statement Expense	585,574	585,354	583,588	578,146	579,673	717,358	747,704	794,972	876,965	1,024,297	635,816	822,903	8,532,352
Total Revenue Requirement	**1,317,420**	**1,315,890**	**1,314,679**	**1,310,794**	**1,313,419**	**1,454,053**	**1,489,498**	**1,543,140**	**1,631,248**	**1,783,541**	**1,398,152**	**1,586,125**	**17,457,959**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	496,610	495,721	496,097	497,154	497,899	499,900	503,360	507,685	511,835	515,201	517,299	517,901	6,056,662
Book Depreciation	188,610	188,768	188,910	189,234	189,831	190,767	192,095	193,655	195,168	196,472	197,439	198,006	2,308,955
Deferred Taxes	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	190,019	2,280,225
Less Tax Depreciation	845,564	845,564	850,782	867,348	867,348	888,174	893,499	893,499	876,933	874,271	846,096	845,564	10,394,644
Plus CPI-Tax Interest (If Applicable)	713	509	479	1,367	2,330	3,790	5,179	5,977	5,545	4,787	3,311	1,936	35,923
Total	30,388	29,452	24,723	10,425	12,731	(3,698)	(2,847)	3,837	25,633	32,209	61,971	62,297	287,121
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	12,257	11,880	9,972	4,205	5,135	(1,492)	(1,148)	1,548	10,339	12,991	24,996	25,128	115,811

DIMP - Capital Revenue Requirements for 2018-2021

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Annual 2018
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	35,219,339	35,955,192	36,106,374	37,248,277	38,789,485	39,307,709	39,618,620	40,813,947	42,968,187	47,193,806	51,322,415	70,535,701	70,535,701
Less Accumulated Book Depreciation Reserve	(5,608,057)	(5,551,986)	(5,489,109)	(5,335,006)	(5,259,646)	(5,180,976)	(5,108,992)	(5,001,101)	(4,919,099)	(4,805,937)	(4,456,671)	(4,348,954)	(4,348,954)
Less Accumulated Deferred Taxes	6,521,495	6,619,266	6,717,038	6,814,809	6,912,581	7,010,352	7,108,124	7,205,895	7,303,667	7,401,438	7,499,210	7,596,981	7,596,981
End Of Month Rate Base	34,305,901	34,887,912	34,878,445	35,768,474	37,136,550	37,478,333	37,619,488	38,609,153	40,583,620	44,598,305	48,279,877	67,287,674	67,287,674
Average Rate Base (Prior Mo + Cur Month/2)	34,598,583	34,596,907	34,883,179	35,323,459	36,452,512	37,307,442	37,548,911	38,114,320	39,596,386	42,590,962	46,439,091	57,783,775	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	65,449	65,446	65,987	66,820	68,956	70,573	71,030	72,100	74,903	80,568	87,847	109,308	898,987
Equity Return (Avg RB * Wtd Cost of Equity)	136,953	136,946	138,079	139,822	144,291	147,675	148,631	150,869	156,736	168,589	183,821	228,727	1,881,141
Total Return on Rate Base	202,402	202,392	204,067	206,642	213,247	218,249	219,661	222,969	231,639	249,157	271,669	338,035	2,780,128
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	(22,859)	42,863	116,650	46,755	243,851	306,483	308,310	481,603	333,388	270,627	230,385	466,193	2,824,250
Property Taxes	50,432	50,432	50,432	50,432	50,432	50,432	50,432	50,432	50,432	50,432	50,432	50,432	605,186
Book Depreciation	65,299	65,589	66,326	67,401	69,631	71,343	72,032	73,284	76,069	81,372	88,316	107,718	904,381
Deferred Taxes	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	1,173,258
Gross Up for Income Tax (see below)	11,304	913	(806)	198	(10,222)	(32,685)	(31,836)	(155,881)	(97,718)	(139,971)	75,274	(16,042)	(397,474)
Total Income Statement Expense	201,946	257,568	330,374	262,557	451,464	493,346	496,710	547,210	459,942	360,231	542,179	706,073	5,109,601
Total Revenue Requirement	**404,348**	**459,960**	**534,440**	**469,199**	**664,711**	**711,594**	**716,371**	**770,179**	**691,581**	**609,388**	**813,847**	**1,044,108**	**7,889,728**
Capital Structure													
Weighted Cost of Debt	2.27%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.02%												
Current Income Tax Calculation													
Equity Return	136,953	136,946	138,079	139,822	144,291	147,675	148,631	150,869	156,736	168,589	183,821	228,727	1,881,141
Book Depreciation	65,299	65,589	66,326	67,401	69,631	71,343	72,032	73,284	76,069	81,372	88,316	107,718	904,381
Deferred Taxes	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	97,771	1,173,258
Less Tax Depreciation	277,224	302,203	308,968	309,556	342,246	404,863	411,303	733,930	611,476	746,418	245,737	490,778	5,184,701
Plus CPI-Tax Interest (If Applicable)	5,225	4,159	4,791	5,051	5,208	7,040	13,939	25,541	38,634	51,664	62,450	16,790	240,493
Total	28,024	2,262	(1,999)	490	(25,344)	(81,032)	(78,928)	(386,464)	(242,266)	(347,021)	186,621	(39,771)	(985,428)
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	11,304	913	(806)	198	(10,222)	(32,685)	(31,836)	(155,881)	(97,718)	(139,971)	75,274	(16,042)	(397,474)

	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Annual 2019
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	75,081,888	75,127,406	75,049,341	75,453,544	75,483,943	75,994,634	80,152,399	83,639,223	86,386,360	89,212,711	91,536,105	93,949,204	93,949,204
Less Accumulated Book Depreciation Reserve	(4,214,485)	(3,555,492)	(3,383,734)	(3,246,941)	(3,093,122)	(2,946,448)	(3,208,286)	(3,302,372)	(3,320,059)	(3,334,953)	(3,318,357)	(3,284,543)	(3,284,543)
Less Accumulated Deferred Taxes	7,715,419	7,833,858	7,952,296	8,070,734	8,189,172	8,307,610	8,426,048	8,544,487	8,662,925	8,781,363	8,899,801	9,018,239	9,018,239
End Of Month Rate Base	71,580,954	70,849,040	70,480,779	70,629,751	70,387,893	70,633,471	74,934,637	78,397,109	81,043,494	83,766,300	85,954,661	88,215,508	88,215,508
Average Rate Base (Prior Mo + Cur Month/2)	69,434,314	71,214,997	70,664,910	70,555,265	70,508,822	70,510,682	72,784,054	76,665,873	79,720,301	82,404,897	84,860,481	87,085,085	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	130,189	133,528	132,497	132,291	132,204	132,208	136,470	143,749	149,476	154,509	159,113	163,285	1,699,518
Equity Return (Avg RB * Wtd Cost of Equity)	274,844	281,893	279,715	279,281	279,097	279,105	288,104	303,469	315,560	326,186	335,906	344,712	3,587,872
Total Return on Rate Base	405,033	415,421	412,212	411,572	411,301	411,312	424,574	447,218	465,035	480,695	495,019	507,996	5,287,390
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	(130,325)	10,611	30,553	14,329	152,994	259,343	490,488	502,776	477,110	290,323	343,703	276,066	2,717,971
Property Taxes	99,907	99,907	99,907	99,907	99,907	99,907	99,907	99,907	99,907	99,907	99,907	99,907	1,198,885
Book Depreciation	127,467	131,283	131,256	131,527	131,889	132,338	136,219	142,573	147,755	152,388	156,668	160,605	1,681,969
Deferred Taxes	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	1,421,258
Gross Up for Income Tax (see below)	31,564	29,370	30,001	(19,155)	(10,551)	(39,296)	(27,842)	(23,639)	(5,496)	(6,525)	11,207	20,901	(9,460)
Total Income Statement Expense	247,050	389,610	410,155	345,047	492,677	570,730	817,210	840,055	837,714	654,531	729,923	675,918	7,010,623
Total Revenue Requirement	**652,084**	**805,031**	**822,367**	**756,619**	**903,979**	**982,043**	**1,241,784**	**1,287,273**	**1,302,749**	**1,135,227**	**1,224,943**	**1,183,915**	**12,298,013**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	274,844	281,893	279,715	279,281	279,097	279,105	288,104	303,469	315,560	326,186	335,906	344,712	3,587,872
Book Depreciation	127,467	131,283	131,256	131,527	131,889	132,338	136,219	142,573	147,755	152,388	156,668	160,605	1,681,969
Deferred Taxes	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	118,438	1,421,258
Less Tax Depreciation	446,541	462,763	459,146	580,232	558,256	629,493	613,924	624,982	597,136	614,916	584,973	572,850	6,745,213
Plus CPI-Tax Interest (If Applicable)	4,046	3,964	4,115	3,495	2,674	2,187	2,138	1,896	1,759	1,728	1,745	914	30,660
Total	78,254	72,815	74,379	(47,490)	(26,157)	(97,425)	(69,026)	(58,606)	(13,625)	(16,177)	27,785	51,819	(23,453)
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	31,564	29,370	30,001	(19,155)	(10,551)	(39,296)	(27,842)	(23,639)	(5,496)	(6,525)	11,207	20,901	(9,460)

	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Annual 2020
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	94,501,617	94,918,646	95,257,114	95,810,040	97,075,727	98,722,212	100,416,647	102,875,932	105,146,029	107,513,586	109,546,350	110,461,393	110,461,393
Less Accumulated Book Depreciation Reserve	(3,147,162)	(3,009,265)	(3,362,052)	(3,235,213)	(3,154,325)	(3,097,337)	(3,032,582)	(2,986,432)	(2,921,920)	(2,856,363)	(2,777,494)	(2,628,044)	(2,628,044)
Less Accumulated Deferred Taxes	9,143,707	9,269,176	9,394,644	9,520,112	9,645,580	9,771,048	9,896,517	10,021,985	10,147,453	10,272,921	10,398,389	10,523,857	10,523,857
End Of Month Rate Base	88,505,071	88,658,735	89,224,522	89,525,141	90,584,472	92,048,501	93,552,713	95,840,379	97,920,496	100,097,029	101,925,455	102,565,580	102,565,580
Average Rate Base (Prior Mo + Cur Month/2)	88,360,290	88,581,903	88,941,629	89,374,831	90,054,806	91,316,486	92,800,607	94,696,546	96,880,437	99,008,762	101,011,242	102,245,517	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	165,676	166,091	166,766	167,578	168,853	171,218	174,001	177,556	181,651	185,641	189,396	191,710	2,106,137
Equity Return (Avg RB * Wtd Cost of Equity)	349,759	350,637	352,061	353,775	356,467	361,461	367,336	374,840	383,485	391,910	399,836	404,722	4,446,289
Total Return on Rate Base	515,435	516,728	518,826	521,353	525,320	532,680	541,337	552,397	565,136	577,551	589,232	596,432	6,552,426
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	-	-	-	-	20,170	39,330	29,258	112,058	112,058	112,058	86,834	67,234	579,000
Property Taxes	133,070	133,070	133,070	133,070	133,070	133,070	133,070	133,070	133,070	133,070	133,070	133,070	1,596,840
Book Depreciation	163,070	163,876	164,504	165,245	166,756	169,177	171,954	175,407	179,338	183,193	186,850	189,301	2,078,671
Deferred Taxes	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	1,505,618
Gross Up for Income Tax (see below)	32,836	30,996	31,823	25,155	5,674	(1,204)	6,103	(3,981)	13,601	16,444	28,396	61,282	247,125
Total Income Statement Expense	454,444	453,410	454,865	448,938	451,139	465,841	465,854	542,022	563,535	570,233	560,619	576,354	6,007,253
Total Revenue Requirement	**969,879**	**970,138**	**973,691**	**970,291**	**976,458**	**998,521**	**1,007,190**	**1,094,418**	**1,128,671**	**1,147,784**	**1,149,851**	**1,172,787**	**12,559,680**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	349,759	350,637	352,061	353,775	356,467	361,461	367,336	374,840	383,485	391,910	399,836	404,722	4,446,289
Book Depreciation	163,070	163,876	164,504	165,245	166,756	169,177	171,954	175,407	179,338	183,193	186,850	189,301	2,078,671
Deferred Taxes	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	125,468	1,505,618
Less Tax Depreciation	556,904	563,141	563,141	582,203	634,897	659,596	650,365	686,597	655,857	661,245	643,280	569,129	7,426,353
Plus CPI-Tax Interest (If Applicable)	13	6	3	79	272	505	738	1,011	1,285	1,444	1,526	1,570	8,453
Total	81,407	76,847	78,895	62,364	14,067	(2,985)	15,131	(9,870)	33,720	40,769	70,401	151,931	612,678
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	32,836	30,996	31,823	25,155	5,674	(1,204)	6,103	(3,981)	13,601	16,444	28,396	61,282	247,125

DIMP - Capital Revenue Requirements for 2018-2021

	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Annual 2021
Rate Base													
CWIP	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant In-Service	110,958,604	111,375,709	111,737,539	112,364,443	113,830,573	115,846,689	117,877,118	120,932,534	123,807,167	126,824,181	129,406,816	144,182,418	144,182,418
Less Accumulated Book Depreciation Reserve	(2,460,882)	(2,295,135)	(2,127,145)	(1,974,949)	(1,872,128)	(1,796,680)	(1,719,991)	(1,668,615)	(1,598,103)	(1,526,789)	(1,438,291)	(1,261,110)	(1,261,110)
Less Accumulated Deferred Taxes	10,686,428	10,848,998	11,011,568	11,174,138	11,336,708	11,499,279	11,661,849	11,824,419	11,986,989	12,149,559	12,312,129	12,474,700	12,474,700
End Of Month Rate Base	102,733,059	102,821,846	102,853,116	103,165,254	104,365,993	106,144,090	107,935,261	110,776,730	113,418,281	116,201,410	118,532,977	132,968,829	132,968,829
Average Rate Base (Prior Mo + Cur Month/2)	102,649,319	102,777,452	102,837,481	103,009,185	103,765,623	105,255,042	107,039,675	109,355,995	112,097,505	114,809,846	117,367,194	125,750,903	
Return on Rate Base													
Debt Return (Avg RB * Wtd Cost of Debt)	192,467	192,708	192,820	193,142	194,561	197,353	200,699	205,042	210,183	215,268	220,063	235,783	2,450,091
Equity Return (Avg RB * Wtd Cost of Equity)	406,320	406,827	407,065	407,745	410,739	416,635	423,699	432,867	443,719	454,456	464,578	497,764	5,172,414
Total Return on Rate Base	598,788	599,535	599,885	600,887	605,299	613,988	624,398	637,910	653,902	669,724	684,642	733,547	7,622,505
Income Statement Items													
AFUDC Pre-Eligible	-	-	-	-	-	-	-	-	-	-	-	-	-
Operating Expenses	-	-	-	-	20,170	39,330	29,258	112,058	112,058	112,058	86,834	67,234	579,000
Property Taxes	156,458	156,458	156,458	156,458	156,458	156,458	156,458	156,458	156,458	156,458	156,458	156,458	1,877,495
Book Depreciation	190,474	191,234	191,882	192,704	194,443	196,380	193,534	197,762	202,691	207,588	212,242	226,671	2,397,605
Deferred Taxes	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	1,950,842
Gross Up for Income Tax (see below)	32,822	31,009	31,548	21,066	(7,149)	(16,289)	(7,147)	(37,575)	(3,639)	(980)	26,654	59,161	129,481
Total Income Statement Expense	542,325	541,271	542,458	532,798	526,492	538,449	534,673	591,273	630,138	637,694	644,758	672,094	6,934,423
Total Revenue Requirement	**1,141,112**	**1,140,807**	**1,142,343**	**1,133,685**	**1,131,792**	**1,152,437**	**1,159,071**	**1,229,183**	**1,284,040**	**1,307,418**	**1,329,400**	**1,405,641**	**14,556,928**
Capital Structure													
Weighted Cost of Debt	2.25%												
Weighted Cost of Equity	4.75%												
Required Rate of Return	7.00%												
Current Income Tax Calculation													
Equity Return	406,320	406,827	407,065	407,745	410,739	416,635	423,699	432,867	443,719	454,456	464,578	497,764	5,172,414
Book Depreciation	190,474	191,234	191,882	192,704	194,443	196,380	193,534	197,762	202,691	207,588	212,242	226,671	2,397,605
Deferred Taxes	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	162,570	1,950,842
Less Tax Depreciation	679,785	686,022	686,022	714,470	791,825	826,509	812,285	908,124	847,731	863,704	815,784	773,276	9,405,538
Plus CPI-Tax Interest (If Applicable)	1,794	2,269	2,721	3,679	6,347	10,541	14,762	21,768	29,729	36,661	42,474	32,945	205,690
Total	81,374	76,878	78,215	52,228	(17,725)	(40,383)	(17,720)	(93,157)	(9,022)	(2,429)	66,081	146,674	321,013
Tax Rate (T/(1-T)	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351	0.403351
Gross Up for Income Tax	32,822	31,009	31,548	21,066	(7,149)	(16,289)	(7,147)	(37,575)	(3,639)	(980)	26,654	59,161	129,481

Annual Summary

	Annual Retirements	Estimate of 2010 Rate Base for Replaced Assets	Depreciation Expense
2012	$ 47	$ 14	$ 1
2013	1,053	322	31
2014	537,681	164,566	16,007
2015	1,801,071	551,247	53,619
2016	1,269,324	388,497	37,788
2017	2,669,862	817,154	79,483
2018	370,315	106,852	10,968
2019	1,436,500	414,495	42,545
2020	1,436,500	414,495	42,545
Total	$ 9,522,353	$ 2,857,643	$ 282,986

3-Yr Average Retirements 2016-2018	% of Remaining NBV for replaced assets	Composite Depreciation Rate
$ 1,436,500	28.9%	2.96%

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4584498	$ 1,138,113	$ 727,159	$ 410,954	$ (588,411)	52%	$ 212,465	2.8889%	$ 16,999	20367000-Transmission Mains
4584499	118,508	71,834	46,674	(58,295)	49%	22,959	2.8889%	1,684	20367000-Transmission Mains
4584500	160,030	91,759	68,271	(79,213)	49%	33,793	2.8889%	2,288	20367000-Transmission Mains
4584501	667,967	339,232	328,736	(596,455)	89%	293,541	2.8889%	17,231	20367000-Transmission Mains
4584502	13,645	6,482	7,162	(5,781)	42%	3,034	2.8889%	167	20367000-Transmission Mains
4584544	25,153	32,699	(7,546)	(22,031)	88%	(6,609)	2.8889%	636	20367000-Transmission Mains
4584545	137,819	179,165	(41,346)	(7,115)	5%	(2,135)	2.8889%	206	20367000-Transmission Mains
4584659	379,108	436,124	(57,015)	(1,764)	0%	(265)	2.8889%	51	20376010-Distribution Mains-Steel
4584661	27,934	30,782	(2,848)	(486)	2%	(50)	2.8889%	14	20376010-Distribution Mains-Steel
4584698	104,515	120,233	(15,718)	(193)	0%	(29)	2.8889%	6	20376010-Distribution Mains-Steel
4584720	(2,751)	(3,576)	825	340	12%	102	2.8889%	(10)	20376010-Distribution Mains-Steel
4584724	669	870	(201)	(276)	41%	(83)	2.8889%	8	20376010-Distribution Mains-Steel
4584725	3,006	3,908	(902)	(681)	23%	(204)	2.8889%	20	20376010-Distribution Mains-Steel
4584727	2,993	3,891	(898)	(883)	29%	(265)	2.8889%	26	20376010-Distribution Mains-Steel
4584729	2,675	3,477	(802)	(857)	32%	(257)	2.8889%	25	20376010-Distribution Mains-Steel
4584731	842	1,095	(253)	(359)	43%	(108)	2.8889%	10	20376010-Distribution Mains-Steel
4584733	2,817	3,649	(833)	(712)	25%	(210)	2.8889%	21	20376010-Distribution Mains-Steel
4584735	2,170	2,760	(589)	(537)	25%	(146)	2.8889%	16	20376010-Distribution Mains-Steel
4584736	11,111	13,858	(2,747)	(2,996)	27%	(741)	2.8889%	87	20376010-Distribution Mains-Steel
4584737	13,504	16,516	(3,012)	(2,804)	21%	(625)	2.8889%	81	20376010-Distribution Mains-Steel
4584738	11,996	14,382	(2,385)	(2,318)	19%	(461)	2.8889%	67	20376010-Distribution Mains-Steel
4584739	3,938	4,626	(688)	(873)	22%	(152)	2.8889%	25	20376010-Distribution Mains-Steel
4584740	17,798	20,475	(2,677)	(3,522)	20%	(530)	2.8889%	102	20376010-Distribution Mains-Steel
4584742	10,211	11,500	(1,288)	(1,638)	16%	(207)	2.8889%	47	20376010-Distribution Mains-Steel
4584743	13,022	14,349	(1,328)	(2,666)	20%	(272)	2.8889%	77	20376010-Distribution Mains-Steel
4584744	12,955	13,962	(1,007)	(2,785)	21%	(216)	2.8889%	80	20376010-Distribution Mains-Steel
4584746	7,606	8,013	(407)	(1,693)	22%	(91)	2.8889%	49	20376010-Distribution Mains-Steel
4584749	6,101	6,280	(179)	(1,022)	17%	(30)	2.8889%	30	20376010-Distribution Mains-Steel
4584751	2,310	2,321	(12)	(333)	14%	(2)	2.8889%	10	20376010-Distribution Mains-Steel
4584819	43,767	56,897	(13,130)	(1,368)	3%	(411)	2.8889%	40	20376010-Distribution Mains-Steel
4584825	15,415	20,040	(4,625)	(794)	5%	(238)	2.8889%	23	20376010-Distribution Mains-Steel
4584827	50,957	66,244	(15,287)	(1,169)	2%	(351)	2.8889%	34	20376010-Distribution Mains-Steel
4584833	8,194	10,220	(2,026)	(973)	12%	(240)	2.8889%	28	20376010-Distribution Mains-Steel
4584835	12,413	15,182	(2,769)	(1,396)	11%	(311)	2.8889%	40	20376010-Distribution Mains-Steel
4584841	28,492	31,396	(2,905)	(1,292)	5%	(132)	2.8889%	37	20376010-Distribution Mains-Steel
4584854	89,162	42,108	47,054	(989)	1%	522	2.8889%	29	20376010-Distribution Mains-Steel
4584877	853	1,108	(256)	(284)	33%	(85)	2.8889%	8	20376010-Distribution Mains-Steel
4584879	713	926	(214)	(178)	25%	(53)	2.8889%	5	20376010-Distribution Mains-Steel
4584880	217	276	(59)	(108)	50%	(29)	2.8889%	3	20376010-Distribution Mains-Steel
4584883	14,063	11,410	2,653	(7,031)	50%	1,327	2.8889%	203	20376010-Distribution Mains-Steel
4584885	20,492	9,678	10,814	(10,246)	50%	5,407	2.8889%	296	20376010-Distribution Mains-Steel
4584955	302,385	355,185	(52,800)	(3,013)	1%	(526)	2.8889%	87	20376010-Distribution Mains-Steel
4584956	38,057	43,780	(5,724)	(377)	1%	(57)	2.8889%	11	20376010-Distribution Mains-Steel
4584957	37,596	42,340	(4,744)	(431)	1%	(54)	2.8889%	12	20376010-Distribution Mains-Steel

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4584960	52,660	58,029	(5,369)	(424)	1%	(43)	2.8889%	12	20376010-Distribution Mains-Steel
4584966	63,882	67,301	(3,419)	(451)	1%	(24)	2.8889%	13	20376010-Distribution Mains-Steel
4584969	52,181	53,710	(1,529)	(975)	2%	(29)	2.8889%	28	20376010-Distribution Mains-Steel
4584972	39,900	40,103	(203)	(183)	0%	(1)	2.8889%	5	20376010-Distribution Mains-Steel
4585002	3,389	4,405	(1,017)	(24)	1%	(7)	2.8889%	1	20376010-Distribution Mains-Steel
4585008	187,076	219,742	(32,666)	(667)	0%	(117)	2.8889%	19	20376010-Distribution Mains-Steel
4585051	1,325,901	305,062	1,020,839	(1,142)	0%	879	2.8889%	33	20376010-Distribution Mains-Steel
4585145	2,343	2,809	(466)	(1,171)	50%	(233)	2.8889%	34	20376010-Distribution Mains-Steel
4585148	7,083	5,746	1,336	(3,541)	50%	668	2.8889%	102	20376010-Distribution Mains-Steel
4585153	14,871	19,332	(4,461)	(1,155)	8%	(347)	2.8889%	33	20376010-Distribution Mains-Steel
4585154	15,078	19,537	(4,459)	(2,050)	14%	(606)	2.8889%	59	20376010-Distribution Mains-Steel
4585155	47,247	60,074	(12,827)	(7,892)	17%	(2,142)	2.8889%	228	20376010-Distribution Mains-Steel
4585156	35,695	44,522	(8,826)	(5,450)	15%	(1,348)	2.8889%	157	20376010-Distribution Mains-Steel
4585158	208,589	255,115	(46,526)	(31,333)	15%	(6,989)	2.8889%	905	20376010-Distribution Mains-Steel
4585159	132,735	159,127	(26,392)	(20,492)	15%	(4,074)	2.8889%	592	20376010-Distribution Mains-Steel
4585160	250,175	293,859	(43,684)	(36,151)	14%	(6,312)	2.8889%	1,044	20376010-Distribution Mains-Steel
4585161	286,264	329,317	(43,052)	(39,940)	14%	(6,007)	2.8889%	1,154	20376010-Distribution Mains-Steel
4585163	238,246	268,307	(30,061)	(32,729)	14%	(4,130)	2.8889%	946	20376010-Distribution Mains-Steel
4585166	257,627	283,893	(26,266)	(34,033)	13%	(3,470)	2.8889%	983	20376010-Distribution Mains-Steel
4585169	312,009	336,263	(24,255)	(40,325)	13%	(3,135)	2.8889%	1,165	20376010-Distribution Mains-Steel
4585172	314,643	331,483	(16,839)	(37,490)	12%	(2,006)	2.8889%	1,083	20376010-Distribution Mains-Steel
4585175	298,013	306,744	(8,732)	(35,498)	12%	(1,040)	2.8889%	1,025	20376010-Distribution Mains-Steel
4585178	96,238	96,727	(489)	(12,109)	13%	(62)	2.8889%	350	20376010-Distribution Mains-Steel
4585181	63,145	61,936	1,209	(5,324)	8%	102	2.8889%	154	20376010-Distribution Mains-Steel
4585184	53,722	51,393	2,329	(6,509)	12%	282	2.8889%	188	20376010-Distribution Mains-Steel
4585188	24,609	22,350	2,259	(2,098)	9%	193	2.8889%	61	20376010-Distribution Mains-Steel
4585190	27,017	23,882	3,134	(2,106)	8%	244	2.8889%	61	20376010-Distribution Mains-Steel
4585192	20,763	17,851	2,911	(2,736)	13%	384	2.8889%	79	20376010-Distribution Mains-Steel
4585195	163,961	136,998	26,963	(14,043)	9%	2,309	2.8889%	406	20376010-Distribution Mains-Steel
4585240	210,543	273,706	(63,163)	(17,206)	8%	(5,162)	2.8889%	497	20376010-Distribution Mains-Steel
4585242	348,346	452,850	(104,504)	(32,414)	9%	(9,724)	2.8889%	936	20376010-Distribution Mains-Steel
4585245	173,791	225,928	(52,137)	(15,840)	9%	(4,752)	2.8889%	458	20376010-Distribution Mains-Steel
4585248	258,233	334,594	(76,361)	(22,717)	9%	(6,718)	2.8889%	656	20376010-Distribution Mains-Steel
4585251	280,415	356,545	(76,129)	(24,073)	9%	(6,535)	2.8889%	695	20376010-Distribution Mains-Steel
4585254	257,326	320,955	(63,629)	(20,916)	8%	(5,172)	2.8889%	604	20376010-Distribution Mains-Steel
4585256	422,598	516,859	(94,261)	(33,240)	8%	(7,414)	2.8889%	960	20376010-Distribution Mains-Steel
4585259	405,083	485,626	(80,543)	(31,323)	8%	(6,228)	2.8889%	905	20376010-Distribution Mains-Steel
4585261	377,895	443,880	(65,985)	(27,604)	7%	(4,820)	2.8889%	797	20376010-Distribution Mains-Steel
4585263	499,763	574,925	(75,161)	(35,642)	7%	(5,360)	2.8889%	1,030	20376010-Distribution Mains-Steel
4585265	403,328	454,218	(50,890)	(27,481)	7%	(3,467)	2.8889%	794	20376010-Distribution Mains-Steel
4585267	367,523	404,995	(37,471)	(24,788)	7%	(2,527)	2.8889%	716	20376010-Distribution Mains-Steel
4585269	460,817	496,640	(35,823)	(29,788)	6%	(2,316)	2.8889%	861	20376010-Distribution Mains-Steel
4585271	334,787	352,705	(17,917)	(20,367)	6%	(1,090)	2.8889%	588	20376010-Distribution Mains-Steel
4585273	320,022	329,398	(9,377)	(18,937)	6%	(555)	2.8889%	547	20376010-Distribution Mains-Steel

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4585275	157,172	157,970	(799)	(10,350)	7%	(53)	2.8889%	299	20376010-Distribution Mains-Steel
4585277	269,925	264,759	5,166	(14,013)	5%	268	2.8889%	405	20376010-Distribution Mains-Steel
4585279	114,656	109,684	4,971	(8,270)	7%	359	2.8889%	239	20376010-Distribution Mains-Steel
4585281	80,781	75,322	5,459	(5,892)	7%	398	2.8889%	170	20376010-Distribution Mains-Steel
4585287	53,929	46,367	7,562	(3,516)	7%	493	2.8889%	102	20376010-Distribution Mains-Steel
4585289	190,640	159,289	31,351	(8,658)	5%	1,424	2.8889%	250	20376010-Distribution Mains-Steel
4585341	124,089	161,315	(37,227)	(5,603)	5%	(1,681)	2.8889%	162	20376010-Distribution Mains-Steel
4585343	280,109	364,141	(84,033)	(10,004)	4%	(3,001)	2.8889%	289	20376010-Distribution Mains-Steel
4585345	94,431	122,761	(28,329)	(1,894)	2%	(568)	2.8889%	55	20376010-Distribution Mains-Steel
4585347	283,534	367,376	(83,843)	(10,253)	4%	(3,032)	2.8889%	296	20376010-Distribution Mains-Steel
4585349	253,364	322,149	(68,785)	(8,137)	3%	(2,209)	2.8889%	235	20376010-Distribution Mains-Steel
4585351	216,259	269,733	(53,474)	(6,831)	3%	(1,689)	2.8889%	197	20376010-Distribution Mains-Steel
4585353	558,715	683,336	(124,621)	(16,287)	3%	(3,633)	2.8889%	471	20376010-Distribution Mains-Steel
4585355	153,671	184,225	(30,555)	(4,355)	3%	(866)	2.8889%	126	20376010-Distribution Mains-Steel
4585357	619,300	727,437	(108,137)	(16,975)	3%	(2,964)	2.8889%	490	20376010-Distribution Mains-Steel
4585359	292,741	336,768	(44,026)	(7,630)	3%	(1,148)	2.8889%	220	20376010-Distribution Mains-Steel
4585361	368,412	414,896	(46,484)	(9,221)	3%	(1,163)	2.8889%	266	20376010-Distribution Mains-Steel
4585363	184,374	203,172	(18,798)	(4,501)	2%	(459)	2.8889%	130	20376010-Distribution Mains-Steel
4585365	155,034	167,086	(12,052)	(4,030)	3%	(313)	2.8889%	116	20376010-Distribution Mains-Steel
4585368	91,213	96,094	(4,882)	(2,897)	3%	(155)	2.8889%	84	20376010-Distribution Mains-Steel
4585370	207,642	213,726	(6,084)	(3,449)	2%	(101)	2.8889%	100	20376010-Distribution Mains-Steel
4585372	138,051	138,753	(701)	(1,989)	1%	(10)	2.8889%	57	20376010-Distribution Mains-Steel
4585374	188,994	185,377	3,617	(2,358)	1%	45	2.8889%	68	20376010-Distribution Mains-Steel
4585376	126,593	121,105	5,489	(2,310)	2%	100	2.8889%	67	20376010-Distribution Mains-Steel
4585380	115,170	104,598	10,572	(3,583)	3%	329	2.8889%	104	20376010-Distribution Mains-Steel
4585386	144,878	121,052	23,825	(2,890)	2%	475	2.8889%	83	20376010-Distribution Mains-Steel
4585390	114,713	90,292	24,421	(2,195)	2%	467	2.8889%	63	20376010-Distribution Mains-Steel
4585392	381,704	291,200	90,505	(5,813)	2%	1,378	2.8889%	168	20376010-Distribution Mains-Steel
4585394	487,708	360,258	127,451	(7,231)	1%	1,890	2.8889%	209	20376010-Distribution Mains-Steel
4585396	774,716	553,500	221,216	(13,686)	2%	3,908	2.8889%	395	20376010-Distribution Mains-Steel
4585402	588,454	377,669	210,785	(10,286)	2%	3,684	2.8889%	297	20376010-Distribution Mains-Steel
4585408	585,017	332,958	252,059	(10,946)	2%	4,716	2.8889%	316	20376010-Distribution Mains-Steel
4585410	653,892	356,321	297,571	(8,381)	1%	3,814	2.8889%	242	20376010-Distribution Mains-Steel
4585414	446,012	221,438	224,573	(2,822)	1%	1,421	2.8889%	82	20376010-Distribution Mains-Steel
4585416	1,303,765	615,725	688,040	(14,116)	1%	7,450	2.8889%	408	20376010-Distribution Mains-Steel
4585437	43,401	56,421	(13,020)	(26,023)	60%	(7,807)	2.8889%	752	20376010-Distribution Mains-Steel
4585439	635	826	(191)	(345)	54%	(104)	2.8889%	10	20376010-Distribution Mains-Steel
4585440	224	291	(67)	(168)	75%	(50)	2.8889%	5	20376010-Distribution Mains-Steel
4585441	60	77	(18)	(51)	86%	(15)	2.8889%	1	20376010-Distribution Mains-Steel
4585443	70	87	(17)	(39)	56%	(10)	2.8889%	1	20376010-Distribution Mains-Steel
4585444	60	73	(13)	(51)	86%	(11)	2.8889%	1	20376010-Distribution Mains-Steel
4585445	57	67	(10)	(29)	50%	(5)	2.8889%	1	20376010-Distribution Mains-Steel
4585446	141	162	(21)	(75)	53%	(11)	2.8889%	2	20376010-Distribution Mains-Steel
4585450	233,140	303,082	(69,942)	(3,653)	2%	(1,096)	2.8889%	106	20376010-Distribution Mains-Steel

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Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4585451	299,262	389,040	(89,778)	(4,210)	1%	(1,263)	2.8889%	122	20376010-Distribution Mains-Steel
4585453	118,348	153,344	(34,996)	(3,992)	3%	(1,180)	2.8889%	115	20376010-Distribution Mains-Steel
4585454	101,373	128,895	(27,522)	(4,113)	4%	(1,116)	2.8889%	119	20376010-Distribution Mains-Steel
4585456	106,815	130,640	(23,825)	(1,367)	1%	(305)	2.8889%	39	20376010-Distribution Mains-Steel
4585458	188,605	221,538	(32,933)	(4,602)	2%	(804)	2.8889%	133	20376010-Distribution Mains-Steel
4585783	69,497	83,315	(13,818)	(8,063)	12%	(1,603)	2.8889%	233	20376010-Distribution Mains-Steel
4585784	118,211	138,852	(20,641)	(13,554)	11%	(2,367)	2.8889%	392	20376010-Distribution Mains-Steel
4585785	45,214	52,014	(6,800)	(5,011)	11%	(754)	2.8889%	145	20376010-Distribution Mains-Steel
4585787	11,051	12,445	(1,394)	(1,285)	12%	(162)	2.8889%	37	20376010-Distribution Mains-Steel
4585788	25,728	28,351	(2,623)	(2,715)	11%	(277)	2.8889%	78	20376010-Distribution Mains-Steel
4585791	251,980	271,569	(19,588)	(23,131)	9%	(1,798)	2.8889%	668	20376010-Distribution Mains-Steel
4585794	46,639	49,135	(2,496)	(4,328)	9%	(232)	2.8889%	125	20376010-Distribution Mains-Steel
4585797	35,000	36,025	(1,025)	(3,396)	10%	(100)	2.8889%	98	20376010-Distribution Mains-Steel
4585800	16,033	16,115	(81)	(1,258)	8%	(6)	2.8889%	36	20376010-Distribution Mains-Steel
4585830	102,935	123,401	(20,467)	(8,190)	8%	(1,628)	2.8889%	237	20376010-Distribution Mains-Steel
4585834	191,655	225,120	(33,465)	(14,914)	8%	(2,604)	2.8889%	431	20376010-Distribution Mains-Steel
4585836	165,548	190,446	(24,897)	(12,641)	8%	(1,901)	2.8889%	365	20376010-Distribution Mains-Steel
4585838	36,768	41,407	(4,639)	(2,748)	7%	(347)	2.8889%	79	20376010-Distribution Mains-Steel
4585840	46,692	51,453	(4,761)	(3,002)	6%	(306)	2.8889%	87	20376010-Distribution Mains-Steel
4585842	130,183	140,303	(10,120)	(8,355)	6%	(649)	2.8889%	241	20376010-Distribution Mains-Steel
4585844	17,173	18,092	(919)	(958)	6%	(51)	2.8889%	28	20376010-Distribution Mains-Steel
4585846	43,287	44,556	(1,268)	(2,482)	6%	(73)	2.8889%	72	20376010-Distribution Mains-Steel
4585850	10,377	10,179	199	(1,210)	12%	23	2.8889%	35	20376010-Distribution Mains-Steel
4585853	13,595	12,677	919	(501)	4%	34	2.8889%	14	20376010-Distribution Mains-Steel
4585878	125,503	150,456	(24,954)	(128)	0%	(26)	2.8889%	4	20376010-Distribution Mains-Steel
4586209	(2,097)	(2,333)	236	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586210	3,973	4,216	(244)	(531)	13%	(33)	2.5556%	14	20376020-Distribution Mains-Plastic
4586213	25,867	26,130	(263)	(2,771)	11%	(28)	2.5556%	71	20376020-Distribution Mains-Plastic
4586216	19,565	19,264	301	(2,225)	11%	34	2.5556%	57	20376020-Distribution Mains-Plastic
4586218	66,864	64,124	2,740	(6,959)	10%	285	2.5556%	178	20376020-Distribution Mains-Plastic
4586221	10,625	9,918	707	(1,475)	14%	98	2.5556%	38	20376020-Distribution Mains-Plastic
4586224	5,618	5,101	518	(489)	9%	45	2.5556%	12	20376020-Distribution Mains-Plastic
4586226	14,243	12,566	1,676	(851)	6%	100	2.5556%	22	20376020-Distribution Mains-Plastic
4586229	9,101	7,797	1,304	(595)	7%	85	2.5556%	15	20376020-Distribution Mains-Plastic
4586231	42,930	35,681	7,249	(4,037)	9%	682	2.5556%	103	20376020-Distribution Mains-Plastic
4586233	15,499	12,485	3,013	(814)	5%	158	2.5556%	21	20376020-Distribution Mains-Plastic
4586234	26,627	20,769	5,858	(1,206)	5%	265	2.5556%	31	20376020-Distribution Mains-Plastic
4586235	147,883	111,568	36,316	(7,345)	5%	1,804	2.5556%	188	20376020-Distribution Mains-Plastic
4586236	95,363	69,506	25,857	(5,522)	6%	1,497	2.5556%	141	20376020-Distribution Mains-Plastic
4586237	16,476	11,587	4,889	(1,424)	9%	423	2.5556%	36	20376020-Distribution Mains-Plastic
4586238	31,453	21,316	10,137	(1,826)	6%	589	2.5556%	47	20376020-Distribution Mains-Plastic
4586239	32,069	20,914	11,156	(1,892)	6%	658	2.5556%	48	20376020-Distribution Mains-Plastic
4586240	38,284	23,987	14,297	(1,518)	4%	567	2.5556%	39	20376020-Distribution Mains-Plastic
4586241	19,111	11,486	7,626	(834)	4%	333	2.5556%	21	20376020-Distribution Mains-Plastic

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4586242	14,426	8,301	6,125	(676)	5%	287	2.5556%	17	20376020-Distribution Mains-Plastic
4586243	45,613	25,080	20,533	(1,047)	2%	471	2.5556%	27	20376020-Distribution Mains-Plastic
4586244	94,354	49,467	44,888	(2,018)	2%	960	2.5556%	52	20376020-Distribution Mains-Plastic
4586245	36,279	18,092	18,187	(715)	2%	359	2.5556%	18	20376020-Distribution Mains-Plastic
4586246	23,686	11,206	12,480	(773)	3%	407	2.5556%	20	20376020-Distribution Mains-Plastic
4586247	111,619	49,954	61,664	(2,806)	3%	1,550	2.5556%	72	20376020-Distribution Mains-Plastic
4586248	28,678	12,101	16,577	(625)	2%	361	2.5556%	16	20376020-Distribution Mains-Plastic
4586249	66,602	26,401	40,201	(1,323)	2%	799	2.5556%	34	20376020-Distribution Mains-Plastic
4586250	55,514	20,586	34,928	(751)	1%	472	2.5556%	19	20376020-Distribution Mains-Plastic
4586251	149,004	51,443	97,560	(2,788)	2%	1,826	2.5556%	71	20376020-Distribution Mains-Plastic
4586252	102,416	32,740	69,676	(1,639)	2%	1,115	2.5556%	42	20376020-Distribution Mains-Plastic
4586253	102,655	30,191	72,464	(2,729)	3%	1,927	2.5556%	70	20376020-Distribution Mains-Plastic
4586254	91,510	24,573	66,937	(2,434)	3%	1,780	2.5556%	62	20376020-Distribution Mains-Plastic
4586284	16,350	18,189	(1,839)	(1,634)	10%	(184)	2.5556%	42	20376020-Distribution Mains-Plastic
4586286	12,527	13,295	(768)	(708)	6%	(43)	2.5556%	18	20376020-Distribution Mains-Plastic
4586288	18,673	19,341	(667)	(895)	5%	(32)	2.5556%	23	20376020-Distribution Mains-Plastic
4586290	14,219	14,364	(145)	(577)	4%	(6)	2.5556%	15	20376020-Distribution Mains-Plastic
4586293	22,678	22,329	349	(1,069)	5%	16	2.5556%	27	20376020-Distribution Mains-Plastic
4586296	21,018	20,157	861	(1,000)	5%	41	2.5556%	26	20376020-Distribution Mains-Plastic
4586298	5,396	5,037	359	(422)	8%	28	2.5556%	11	20376020-Distribution Mains-Plastic
4586307	22,847	18,990	3,858	(1,045)	5%	177	2.5556%	27	20376020-Distribution Mains-Plastic
4586309	66,729	53,755	12,974	(1,922)	3%	374	2.5556%	49	20376020-Distribution Mains-Plastic
4586311	60,335	47,061	13,273	(1,279)	2%	281	2.5556%	33	20376020-Distribution Mains-Plastic
4586312	111,092	83,811	27,281	(2,115)	2%	519	2.5556%	54	20376020-Distribution Mains-Plastic
4586314	88,809	64,729	24,080	(895)	1%	243	2.5556%	23	20376020-Distribution Mains-Plastic
4586315	38,154	26,833	11,321	(1,539)	4%	457	2.5556%	39	20376020-Distribution Mains-Plastic
4586316	10,949	7,421	3,529	(304)	3%	98	2.5556%	8	20376020-Distribution Mains-Plastic
4586317	26,231	15,764	10,466	(216)	1%	86	2.5556%	6	20376020-Distribution Mains-Plastic
4586318	42,989	24,737	18,253	(983)	2%	417	2.5556%	25	20376020-Distribution Mains-Plastic
4586319	72,438	39,829	32,609	(1,628)	2%	733	2.5556%	42	20376020-Distribution Mains-Plastic
4586320	110,407	57,883	52,525	(2,917)	3%	1,388	2.5556%	75	20376020-Distribution Mains-Plastic
4586321	258,758	129,040	129,718	(2,910)	1%	1,459	2.5556%	74	20376020-Distribution Mains-Plastic
4586322	99,509	47,080	52,430	(12)	0%	6	2.5556%	0	20376020-Distribution Mains-Plastic
4586323	177,505	79,441	98,064	(872)	0%	481	2.5556%	22	20376020-Distribution Mains-Plastic
4586325	101,998	40,432	61,566	(1,376)	1%	831	2.5556%	35	20376020-Distribution Mains-Plastic
4586326	155,250	57,570	97,680	(1,800)	1%	1,133	2.5556%	46	20376020-Distribution Mains-Plastic
4586327	165,181	57,028	108,153	(1,980)	1%	1,297	2.5556%	51	20376020-Distribution Mains-Plastic
4586328	379,000	121,157	257,844	(2,707)	1%	1,842	2.5556%	69	20376020-Distribution Mains-Plastic
4586329	327,721	96,383	231,338	(1,059)	0%	748	2.5556%	27	20376020-Distribution Mains-Plastic
4586330	279,664	75,097	204,567	(3,202)	1%	2,342	2.5556%	82	20376020-Distribution Mains-Plastic
4586332	322,465	78,343	244,121	(2,613)	1%	1,978	2.5556%	67	20376020-Distribution Mains-Plastic
4586334	11,328	11,443	(115)	(10)	0%	(0)	2.5556%	0	20376020-Distribution Mains-Plastic
4586336	17,630	17,358	272	(304)	2%	5	2.5556%	8	20376020-Distribution Mains-Plastic
4586348	153,133	115,529	37,605	(733)	0%	180	2.5556%	19	20376020-Distribution Mains-Plastic

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4586368	529,808	169,366	360,442	(812)	0%	552	2.5556%	21	20376020-Distribution Mains-Plastic
4586455	(3,468)	(3,858)	390	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586457	87,414	95,009	(7,595)	(1,844)	2%	(160)	2.5556%	47	20376020-Distribution Mains-Plastic
4586459	27,449	29,132	(1,683)	(768)	3%	(47)	2.5556%	20	20376020-Distribution Mains-Plastic
4586461	64,639	66,949	(2,310)	(1,323)	2%	(47)	2.5556%	34	20376020-Distribution Mains-Plastic
4586463	28,386	28,674	(289)	(761)	3%	(8)	2.5556%	19	20376020-Distribution Mains-Plastic
4586465	20,232	19,921	312	(430)	2%	7	2.5556%	11	20376020-Distribution Mains-Plastic
4586469	32,709	30,532	2,177	(515)	2%	34	2.5556%	13	20376020-Distribution Mains-Plastic
4586474	21,640	19,093	2,547	(498)	2%	59	2.5556%	13	20376020-Distribution Mains-Plastic
4586476	68,667	58,829	9,838	(1,045)	2%	150	2.5556%	27	20376020-Distribution Mains-Plastic
4586478	46,783	38,883	7,899	(925)	2%	156	2.5556%	24	20376020-Distribution Mains-Plastic
4586480	71,182	57,343	13,839	(1,059)	1%	206	2.5556%	27	20376020-Distribution Mains-Plastic
4586481	97,993	76,435	21,558	(1,682)	2%	370	2.5556%	43	20376020-Distribution Mains-Plastic
4586482	201,128	151,737	49,391	(3,137)	2%	770	2.5556%	80	20376020-Distribution Mains-Plastic
4586484	310,304	226,167	84,137	(3,254)	1%	882	2.5556%	83	20376020-Distribution Mains-Plastic
4586485	334,393	235,173	99,220	(3,252)	1%	965	2.5556%	83	20376020-Distribution Mains-Plastic
4586486	145,519	98,620	46,900	(476)	0%	153	2.5556%	12	20376020-Distribution Mains-Plastic
4586487	252,210	164,475	87,735	(2,548)	1%	886	2.5556%	65	20376020-Distribution Mains-Plastic
4586488	288,570	180,806	107,763	(1,875)	1%	700	2.5556%	48	20376020-Distribution Mains-Plastic
4586489	276,832	166,372	110,459	(2,354)	1%	939	2.5556%	60	20376020-Distribution Mains-Plastic
4586490	467,080	268,764	198,316	(3,117)	1%	1,324	2.5556%	80	20376020-Distribution Mains-Plastic
4586491	402,492	221,306	181,186	(2,485)	1%	1,119	2.5556%	64	20376020-Distribution Mains-Plastic
4586492	860,193	450,969	409,224	(5,056)	1%	2,405	2.5556%	129	20376020-Distribution Mains-Plastic
4586493	847,137	422,460	424,677	(3,762)	0%	1,886	2.5556%	96	20376020-Distribution Mains-Plastic
4586494	412,742	195,275	217,466	(2,067)	1%	1,089	2.5556%	53	20376020-Distribution Mains-Plastic
4586495	452,368	202,454	249,914	(2,126)	0%	1,175	2.5556%	54	20376020-Distribution Mains-Plastic
4586496	210,957	89,017	121,939	(711)	0%	411	2.5556%	18	20376020-Distribution Mains-Plastic
4586497	1,042,404	413,204	629,200	(4,075)	0%	2,460	2.5556%	104	20376020-Distribution Mains-Plastic
4586498	737,520	273,489	464,032	(2,115)	0%	1,331	2.5556%	54	20376020-Distribution Mains-Plastic
4586499	1,051,280	362,952	688,328	(2,553)	0%	1,672	2.5556%	65	20376020-Distribution Mains-Plastic
4586500	1,583,487	506,200	1,077,288	(4,060)	0%	2,762	2.5556%	104	20376020-Distribution Mains-Plastic
4586501	1,468,532	431,895	1,036,637	(3,383)	0%	2,388	2.5556%	86	20376020-Distribution Mains-Plastic
4586502	1,729,586	464,439	1,265,147	(4,122)	0%	3,015	2.5556%	105	20376020-Distribution Mains-Plastic
4586503	2,503,772	608,297	1,895,475	(4,923)	0%	3,727	2.5556%	126	20376020-Distribution Mains-Plastic
4586506	1,539	1,554	(16)	(219)	14%	(2)	2.5556%	6	20376020-Distribution Mains-Plastic
4586507	20,640	19,266	1,374	(971)	5%	65	2.5556%	25	20376020-Distribution Mains-Plastic
4586511	25,743	21,397	4,347	(998)	4%	169	2.5556%	26	20376020-Distribution Mains-Plastic
4586517	287,604	209,622	77,982	(5,738)	2%	1,556	2.5556%	147	20376020-Distribution Mains-Plastic
4586519	113,301	79,683	33,618	(2,803)	2%	832	2.5556%	72	20376020-Distribution Mains-Plastic
4586525	265,618	166,426	99,192	(3,329)	1%	1,243	2.5556%	85	20376020-Distribution Mains-Plastic
4586531	152,073	83,616	68,457	(2,339)	2%	1,053	2.5556%	60	20376020-Distribution Mains-Plastic
4586533	811,014	425,186	385,827	(5,868)	1%	2,792	2.5556%	150	20376020-Distribution Mains-Plastic
4586535	234,049	116,718	117,331	(1,824)	1%	914	2.5556%	47	20376020-Distribution Mains-Plastic
4586537	289,957	137,184	152,774	(3,723)	1%	1,962	2.5556%	95	20376020-Distribution Mains-Plastic

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4586541	224,217	94,613	129,605	(1,845)	1%	1,066	2.5556%	47	20376020-Distribution Mains-Plastic
4586543	814,548	322,883	491,665	(4,974)	1%	3,003	2.5556%	127	20376020-Distribution Mains-Plastic
4586545	673,729	249,833	423,896	(3,948)	1%	2,484	2.5556%	101	20376020-Distribution Mains-Plastic
4586546	610,057	210,621	399,436	(3,096)	1%	2,027	2.5556%	79	20376020-Distribution Mains-Plastic
4586548	739,920	236,533	503,387	(3,575)	0%	2,432	2.5556%	91	20376020-Distribution Mains-Plastic
4586549	1,090,416	320,691	769,725	(6,133)	1%	4,329	2.5556%	157	20376020-Distribution Mains-Plastic
4586550	1,656,456	444,802	1,211,654	(5,702)	0%	4,171	2.5556%	146	20376020-Distribution Mains-Plastic
4586551	757,110	183,942	573,169	(3,237)	0%	2,451	2.5556%	83	20376020-Distribution Mains-Plastic
4586553	19,790	9,869	9,921	(503)	3%	252	2.5556%	13	20376020-Distribution Mains-Plastic
4586566	(29,470)	(33,891)	4,421	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586571	78,556	85,382	(6,826)	(4,312)	5%	(375)	2.5556%	110	20376020-Distribution Mains-Plastic
4586573	80,197	85,114	(4,917)	(5,141)	6%	(315)	2.5556%	131	20376020-Distribution Mains-Plastic
4586575	255,511	264,644	(9,133)	(14,676)	6%	(525)	2.5556%	375	20376020-Distribution Mains-Plastic
4586578	292,377	295,350	(2,973)	(15,823)	5%	(161)	2.5556%	404	20376020-Distribution Mains-Plastic
4586581	222,221	218,798	3,423	(11,508)	5%	177	2.5556%	294	20376020-Distribution Mains-Plastic
4586583	268,204	257,213	10,990	(12,623)	5%	517	2.5556%	323	20376020-Distribution Mains-Plastic
4586585	386,162	360,462	25,700	(18,516)	5%	1,232	2.5556%	473	20376020-Distribution Mains-Plastic
4586587	283,454	257,340	26,114	(12,739)	4%	1,174	2.5556%	326	20376020-Distribution Mains-Plastic
4586589	508,730	448,852	59,878	(21,112)	4%	2,485	2.5556%	540	20376020-Distribution Mains-Plastic
4586591	497,404	426,139	71,265	(18,884)	4%	2,706	2.5556%	483	20376020-Distribution Mains-Plastic
4586593	342,207	284,426	57,782	(11,618)	3%	1,962	2.5556%	297	20376020-Distribution Mains-Plastic
4586595	453,464	365,301	88,163	(14,513)	3%	2,822	2.5556%	371	20376020-Distribution Mains-Plastic
4586597	999,885	779,915	219,970	(27,659)	3%	6,085	2.5556%	707	20376020-Distribution Mains-Plastic
4586599	2,950,300	2,225,796	724,504	(76,230)	3%	18,720	2.5556%	1,948	20376020-Distribution Mains-Plastic
4586601	3,195,908	2,329,358	866,550	(79,862)	2%	21,654	2.5556%	2,041	20376020-Distribution Mains-Plastic
4586602	1,687,144	1,186,539	500,605	(36,349)	2%	10,785	2.5556%	929	20376020-Distribution Mains-Plastic
4586604	1,125,930	763,053	362,878	(25,617)	2%	8,256	2.5556%	655	20376020-Distribution Mains-Plastic
4586606	1,157,668	754,955	402,712	(24,724)	2%	8,601	2.5556%	632	20376020-Distribution Mains-Plastic
4586607	1,539,411	964,535	574,876	(28,175)	2%	10,521	2.5556%	720	20376020-Distribution Mains-Plastic
4586609	1,049,859	630,951	418,908	(19,436)	2%	7,755	2.5556%	497	20376020-Distribution Mains-Plastic
4586610	1,485,316	854,670	630,646	(24,830)	2%	10,542	2.5556%	635	20376020-Distribution Mains-Plastic
4586612	847,318	465,888	381,429	(12,407)	1%	5,585	2.5556%	317	20376020-Distribution Mains-Plastic
4586613	1,476,062	773,848	702,214	(19,796)	1%	9,418	2.5556%	506	20376020-Distribution Mains-Plastic
4586614	3,822,588	1,906,291	1,916,297	(45,836)	1%	22,978	2.5556%	1,171	20376020-Distribution Mains-Plastic
4586615	1,699,833	804,221	895,612	(20,031)	1%	10,554	2.5556%	512	20376020-Distribution Mains-Plastic
4586616	2,031,800	909,319	1,122,481	(21,455)	1%	11,853	2.5556%	548	20376020-Distribution Mains-Plastic
4586617	1,916,219	808,586	1,107,633	(19,217)	1%	11,108	2.5556%	491	20376020-Distribution Mains-Plastic
4586618	3,052,458	1,209,981	1,842,478	(26,667)	1%	16,096	2.5556%	681	20376020-Distribution Mains-Plastic
4586619	3,062,603	1,135,680	1,926,923	(26,859)	1%	16,899	2.5556%	686	20376020-Distribution Mains-Plastic
4586621	5,234,772	1,807,294	3,427,479	(39,792)	1%	26,054	2.5556%	1,017	20376020-Distribution Mains-Plastic
4586624	6,207,668	1,984,429	4,223,239	(47,034)	1%	31,998	2.5556%	1,202	20376020-Distribution Mains-Plastic
4586625	6,865,747	2,019,216	4,846,531	(46,913)	1%	33,116	2.5556%	1,199	20376020-Distribution Mains-Plastic
4586628	5,201,250	1,396,671	3,804,579	(32,685)	1%	23,908	2.5556%	835	20376020-Distribution Mains-Plastic
4586629	6,158,564	1,496,236	4,662,327	(35,890)	1%	27,170	2.5556%	917	20376020-Distribution Mains-Plastic

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4586631	79,929	86,874	(6,945)	(2,514)	3%	(218)	2.5556%	64	20376020-Distribution Mains-Plastic
4586633	45,798	48,606	(2,808)	(1,810)	4%	(111)	2.5556%	46	20376020-Distribution Mains-Plastic
4586635	28,786	29,815	(1,029)	(2,089)	7%	(75)	2.5556%	53	20376020-Distribution Mains-Plastic
4586637	87,872	88,766	(894)	(2,114)	2%	(21)	2.5556%	54	20376020-Distribution Mains-Plastic
4586639	163,711	161,189	2,522	(4,655)	3%	72	2.5556%	119	20376020-Distribution Mains-Plastic
4586641	149,775	143,638	6,138	(5,675)	4%	233	2.5556%	145	20376020-Distribution Mains-Plastic
4586643	136,533	127,446	9,087	(3,526)	3%	235	2.5556%	90	20376020-Distribution Mains-Plastic
4586645	184,396	167,408	16,988	(4,302)	2%	396	2.5556%	110	20376020-Distribution Mains-Plastic
4586647	179,122	158,040	21,082	(4,656)	3%	548	2.5556%	119	20376020-Distribution Mains-Plastic
4586649	91,400	78,304	13,095	(2,331)	3%	334	2.5556%	60	20376020-Distribution Mains-Plastic
4586651	115,840	96,281	19,559	(971)	1%	164	2.5556%	25	20376020-Distribution Mains-Plastic
4586653	371,660	299,401	72,259	(6,969)	2%	1,355	2.5556%	178	20376020-Distribution Mains-Plastic
4586655	587,124	457,959	129,165	(8,709)	1%	1,916	2.5556%	223	20376020-Distribution Mains-Plastic
4586657	1,353,997	1,021,496	332,501	(18,305)	1%	4,495	2.5556%	468	20376020-Distribution Mains-Plastic
4586659	1,494,805	1,089,498	405,307	(16,303)	1%	4,421	2.5556%	417	20376020-Distribution Mains-Plastic
4586661	1,276,232	897,552	378,681	(19,202)	2%	5,697	2.5556%	491	20376020-Distribution Mains-Plastic
4586663	718,057	486,633	231,424	(11,449)	2%	3,690	2.5556%	293	20376020-Distribution Mains-Plastic
4586665	731,485	477,027	254,458	(8,029)	1%	2,793	2.5556%	205	20376020-Distribution Mains-Plastic
4586667	1,293,263	810,308	482,955	(14,661)	1%	5,475	2.5556%	375	20376020-Distribution Mains-Plastic
4586669	1,195,203	718,302	476,902	(11,298)	1%	4,508	2.5556%	289	20376020-Distribution Mains-Plastic
4586671	1,101,424	633,774	467,651	(8,834)	1%	3,751	2.5556%	226	20376020-Distribution Mains-Plastic
4586673	2,552,656	1,403,550	1,149,106	(17,487)	1%	7,872	2.5556%	447	20376020-Distribution Mains-Plastic
4586675	1,504,771	788,899	715,872	(10,917)	1%	5,194	2.5556%	279	20376020-Distribution Mains-Plastic
4586677	3,684,635	1,837,495	1,847,140	(25,019)	1%	12,542	2.5556%	639	20376020-Distribution Mains-Plastic
4586679	3,994,046	1,889,652	2,104,393	(21,279)	1%	11,212	2.5556%	544	20376020-Distribution Mains-Plastic
4586681	2,751,839	1,231,568	1,520,272	(14,014)	1%	7,742	2.5556%	358	20376020-Distribution Mains-Plastic
4586683	3,394,332	1,432,305	1,962,027	(14,614)	0%	8,447	2.5556%	373	20376020-Distribution Mains-Plastic
4586685	3,758,173	1,489,723	2,268,450	(21,538)	1%	13,001	2.5556%	550	20376020-Distribution Mains-Plastic
4586687	4,144,531	1,536,882	2,607,649	(17,060)	0%	10,734	2.5556%	436	20376020-Distribution Mains-Plastic
4586689	1,914,494	660,975	1,253,519	(10,194)	1%	6,674	2.5556%	261	20376020-Distribution Mains-Plastic
4586691	2,590,184	828,014	1,762,170	(11,279)	0%	7,674	2.5556%	288	20376020-Distribution Mains-Plastic
4586693	2,342,366	688,890	1,653,476	(7,832)	0%	5,529	2.5556%	200	20376020-Distribution Mains-Plastic
4586695	1,680,122	451,157	1,228,966	(5,688)	0%	4,160	2.5556%	145	20376020-Distribution Mains-Plastic
4586697	1,722,775	418,552	1,304,223	(5,593)	0%	4,234	2.5556%	143	20376020-Distribution Mains-Plastic
4586700	6,971	5,438	1,534	(46)	1%	10	2.5556%	1	20376020-Distribution Mains-Plastic
4586704	386,117	202,428	183,689	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586705	1,132,668	564,852	567,817	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586707	1,553,901	695,438	858,463	(5,843)	0%	3,228	2.5556%	149	20376020-Distribution Mains-Plastic
4586709	1,269,470	503,212	766,258	(9,841)	1%	5,940	2.5556%	251	20376020-Distribution Mains-Plastic
4586710	2,292,746	850,200	1,442,546	(11,926)	1%	7,503	2.5556%	305	20376020-Distribution Mains-Plastic
4586714	714,646	228,454	486,192	(3,870)	1%	2,633	2.5556%	99	20376020-Distribution Mains-Plastic
4586716	1,085,880	319,357	766,523	(119)	0%	84	2.5556%	3	20376020-Distribution Mains-Plastic
4586718	713,540	191,604	521,936	-	0%	-	2.5556%	-	20376020-Distribution Mains-Plastic
4586720	1,285,358	312,281	973,078	(4,314)	0%	3,266	2.5556%	110	20376020-Distribution Mains-Plastic

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4586731	9,559	10,145	(586)	(571)	6%	(35)	2.5556%	15	20376020-Distribution Mains-Plastic
4586733	8,368	8,667	(299)	(591)	7%	(21)	2.5556%	15	20376020-Distribution Mains-Plastic
4586735	31,858	32,182	(324)	(1,930)	6%	(20)	2.5556%	49	20376020-Distribution Mains-Plastic
4586737	21,999	21,660	339	(1,247)	6%	19	2.5556%	32	20376020-Distribution Mains-Plastic
4586740	29,369	28,165	1,204	(1,599)	5%	66	2.5556%	41	20376020-Distribution Mains-Plastic
4586743	33,563	31,329	2,234	(1,633)	5%	109	2.5556%	42	20376020-Distribution Mains-Plastic
4586745	38,280	34,753	3,527	(1,774)	5%	163	2.5556%	45	20376020-Distribution Mains-Plastic
4586748	23,209	20,477	2,732	(1,164)	5%	137	2.5556%	30	20376020-Distribution Mains-Plastic
4586750	77,390	66,302	11,088	(2,984)	4%	428	2.5556%	76	20376020-Distribution Mains-Plastic
4586752	77,899	64,746	13,153	(3,004)	4%	507	2.5556%	77	20376020-Distribution Mains-Plastic
4586754	54,773	44,124	10,649	(1,599)	3%	311	2.5556%	41	20376020-Distribution Mains-Plastic
4586756	89,847	70,081	19,766	(2,748)	3%	605	2.5556%	70	20376020-Distribution Mains-Plastic
4586757	154,777	116,768	38,008	(4,400)	3%	1,080	2.5556%	112	20376020-Distribution Mains-Plastic
4586758	233,263	170,015	63,248	(6,171)	3%	1,673	2.5556%	158	20376020-Distribution Mains-Plastic
4586759	171,427	120,562	50,865	(4,062)	2%	1,205	2.5556%	104	20376020-Distribution Mains-Plastic
4586760	78,046	52,893	25,154	(2,116)	3%	682	2.5556%	54	20376020-Distribution Mains-Plastic
4586762	146,925	92,058	54,868	(3,041)	2%	1,136	2.5556%	78	20376020-Distribution Mains-Plastic
4586763	101,853	61,213	40,641	(1,352)	1%	539	2.5556%	35	20376020-Distribution Mains-Plastic
4586764	181,251	104,294	76,957	(2,822)	2%	1,198	2.5556%	72	20376020-Distribution Mains-Plastic
4586766	123,068	64,520	58,548	(1,692)	1%	805	2.5556%	43	20376020-Distribution Mains-Plastic
4586767	84,785	42,282	42,503	(1,303)	2%	653	2.5556%	33	20376020-Distribution Mains-Plastic
4586769	68,733	30,761	37,972	(839)	1%	464	2.5556%	21	20376020-Distribution Mains-Plastic
4586770	77,477	32,693	44,784	(366)	0%	212	2.5556%	9	20376020-Distribution Mains-Plastic
4586780	340,507	82,727	257,780	(1,735)	1%	1,313	2.5556%	44	20376020-Distribution Mains-Plastic
4586815	206,303	118,710	87,594	(1,321)	1%	561	2.5556%	34	20376020-Distribution Mains-Plastic
4586834	407,920	182,562	225,358	(1,779)	0%	983	2.5556%	45	20376020-Distribution Mains-Plastic
4587204	174,123	226,360	(52,237)	(5,148)	3%	(1,544)	3.2500%	167	20380010-Distribution Service-Steel
4587209	226,947	295,031	(68,084)	(8,663)	4%	(2,599)	3.2500%	282	20380010-Distribution Service-Steel
4587213	349,928	454,906	(104,978)	(13,347)	4%	(4,004)	3.2500%	434	20380010-Distribution Service-Steel
4587219	421,364	547,773	(126,409)	(15,560)	4%	(4,668)	3.2500%	506	20380010-Distribution Service-Steel
4587225	251,034	326,344	(75,310)	(9,184)	4%	(2,755)	3.2500%	298	20380010-Distribution Service-Steel
4587229	571,319	742,715	(171,396)	(10,222)	2%	(3,067)	3.2500%	332	20380010-Distribution Service-Steel
4587240	549,571	714,442	(164,871)	(16,359)	3%	(4,908)	3.2500%	532	20380010-Distribution Service-Steel
4587246	626,845	814,898	(188,053)	(18,543)	3%	(5,563)	3.2500%	603	20380010-Distribution Service-Steel
4587251	717,463	932,702	(215,239)	(19,276)	3%	(5,783)	3.2500%	626	20380010-Distribution Service-Steel
4587255	424,371	551,682	(127,311)	(11,610)	3%	(3,483)	3.2500%	377	20380010-Distribution Service-Steel
4587263	306,330	398,229	(91,899)	(7,415)	2%	(2,224)	3.2500%	241	20380010-Distribution Service-Steel
4587270	262,839	341,690	(78,852)	(6,481)	2%	(1,944)	3.2500%	211	20380010-Distribution Service-Steel
4587278	137,246	178,419	(41,174)	(3,508)	3%	(1,052)	3.2500%	114	20380010-Distribution Service-Steel
4587283	153,698	199,807	(46,109)	(4,455)	3%	(1,337)	3.2500%	145	20380010-Distribution Service-Steel
4587288	74,252	96,527	(22,276)	(2,345)	3%	(703)	3.2500%	76	20380010-Distribution Service-Steel
4587294	40,781	53,015	(12,234)	(516)	1%	(155)	3.2500%	17	20380010-Distribution Service-Steel
4587298	70,295	91,383	(21,089)	(1,736)	2%	(521)	3.2500%	56	20380010-Distribution Service-Steel
4587301	201,597	262,077	(60,479)	(2,321)	1%	(696)	3.2500%	75	20380010-Distribution Service-Steel

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4587304	110,666	143,001	(32,335)	(1,476)	1%	(431)	3.2500%	48	20380010-Distribution Service-Steel
4587308	116,604	148,293	(31,688)	(2,082)	2%	(566)	3.2500%	68	20380010-Distribution Service-Steel
4587319	145,927	181,113	(35,186)	(1,717)	1%	(414)	3.2500%	56	20380010-Distribution Service-Steel
4587371	29,541	38,403	(8,862)	(1,092)	4%	(328)	3.2500%	35	20380010-Distribution Service-Steel
4587373	87,876	114,239	(26,363)	(3,413)	4%	(1,024)	3.2500%	111	20380010-Distribution Service-Steel
4587377	66,084	85,909	(19,825)	(530)	1%	(159)	3.2500%	17	20380010-Distribution Service-Steel
4587381	57,885	75,251	(17,366)	(601)	1%	(180)	3.2500%	20	20380010-Distribution Service-Steel
4587383	107,665	139,965	(32,300)	(3,876)	4%	(1,163)	3.2500%	126	20380010-Distribution Service-Steel
4587386	88,545	115,109	(26,564)	(3,330)	4%	(999)	3.2500%	108	20380010-Distribution Service-Steel
4587388	55,632	72,321	(16,690)	(1,974)	4%	(592)	3.2500%	64	20380010-Distribution Service-Steel
4587392	31,462	40,900	(9,438)	(983)	3%	(295)	3.2500%	32	20380010-Distribution Service-Steel
4587393	11,885	15,450	(3,565)	(396)	3%	(119)	3.2500%	13	20380010-Distribution Service-Steel
4587394	4,514	5,869	(1,354)	(238)	5%	(71)	3.2500%	8	20380010-Distribution Service-Steel
4587400	5,075	6,597	(1,522)	(267)	5%	(80)	3.2500%	9	20380010-Distribution Service-Steel
4587557	16,997	22,096	(5,099)	(586)	3%	(176)	3.2500%	19	20380020-Distribut Service-Plastic
4587558	8,008	10,262	(2,254)	(480)	6%	(135)	3.2500%	16	20380020-Distribut Service-Plastic
4587561	26,040	32,547	(6,507)	(1,975)	8%	(493)	3.2500%	64	20380020-Distribut Service-Plastic
4587566	47,865	58,312	(10,447)	(313)	1%	(68)	3.2500%	10	20380020-Distribut Service-Plastic
4587568	26,928	31,953	(5,025)	(962)	4%	(179)	3.2500%	31	20380020-Distribut Service-Plastic
4587570	32,506	37,543	(5,037)	(1,806)	6%	(280)	3.2500%	59	20380020-Distribut Service-Plastic
4587575	34,225	38,446	(4,221)	(1,857)	5%	(229)	3.2500%	60	20380020-Distribut Service-Plastic
4587577	27,160	29,650	(2,490)	(937)	3%	(86)	3.2500%	30	20380020-Distribut Service-Plastic
4587580	27,699	29,362	(1,663)	(1,245)	4%	(75)	3.2500%	40	20380020-Distribut Service-Plastic
4587584	50,207	51,632	(1,425)	(1,424)	3%	(40)	3.2500%	46	20380020-Distribut Service-Plastic
4587587	29,069	28,974	95	(868)	3%	3	3.2500%	28	20380020-Distribut Service-Plastic
4587590	20,454	19,741	714	(705)	3%	25	3.2500%	23	20380020-Distribut Service-Plastic
4587593	69,914	65,263	4,652	(1,531)	2%	102	3.2500%	50	20380020-Distribut Service-Plastic
4587595	129,366	116,665	12,701	(3,329)	3%	327	3.2500%	108	20380020-Distribut Service-Plastic
4587598	48,919	42,568	6,351	(1,165)	2%	151	3.2500%	38	20380020-Distribut Service-Plastic
4587601	47,566	39,886	7,680	(661)	1%	107	3.2500%	21	20380020-Distribut Service-Plastic
4587603	65,608	52,938	12,669	(1,367)	2%	264	3.2500%	44	20380020-Distribut Service-Plastic
4587605	81,429	63,128	18,301	(1,189)	1%	267	3.2500%	39	20380020-Distribut Service-Plastic
4587607	95,387	70,931	24,457	(545)	1%	140	3.2500%	18	20380020-Distribut Service-Plastic
4587609	82,100	58,452	23,648	(537)	1%	155	3.2500%	17	20380020-Distribut Service-Plastic
4587612	101,633	69,143	32,490	(888)	1%	284	3.2500%	29	20380020-Distribut Service-Plastic
4587614	67,793	43,976	23,817	(706)	1%	248	3.2500%	23	20380020-Distribut Service-Plastic
4587616	122,557	75,622	46,935	(2,043)	2%	782	3.2500%	66	20380020-Distribut Service-Plastic
4587619	95,018	55,623	39,395	(1,027)	1%	426	3.2500%	33	20380020-Distribut Service-Plastic
4587622	151,357	83,814	67,543	(2,032)	1%	907	3.2500%	66	20380020-Distribut Service-Plastic
4587626	157,410	82,185	75,225	(1,553)	1%	742	3.2500%	50	20380020-Distribut Service-Plastic
4587630	133,968	65,707	68,262	(1,080)	1%	551	3.2500%	35	20380020-Distribut Service-Plastic
4587633	153,842	70,586	83,256	(944)	1%	511	3.2500%	31	20380020-Distribut Service-Plastic
4587636	221,142	94,467	126,675	(1,746)	1%	1,000	3.2500%	57	20380020-Distribut Service-Plastic
4587639	172,670	68,297	104,373	(1,004)	1%	607	3.2500%	33	20380020-Distribut Service-Plastic

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4587642	205,638	74,830	130,808	(770)	0%	490	3.2500%	25	20380020-Distribut Service-Plastic
4587645	177,693	59,038	118,654	(1,125)	1%	751	3.2500%	37	20380020-Distribut Service-Plastic
4587649	183,996	55,311	128,686	(1,034)	1%	723	3.2500%	34	20380020-Distribut Service-Plastic
4587651	640	832	(192)	(160)	25%	(48)	3.2500%	5	20380020-Distribut Service-Plastic
4587657	13,265	16,580	(3,315)	(1,124)	8%	(281)	3.2500%	37	20380020-Distribut Service-Plastic
4587659	20,960	25,535	(4,575)	(1,732)	8%	(378)	3.2500%	56	20380020-Distribut Service-Plastic
4587661	21,545	25,565	(4,020)	(1,647)	8%	(307)	3.2500%	54	20380020-Distribut Service-Plastic
4587663	17,803	20,561	(2,759)	(1,259)	7%	(195)	3.2500%	41	20380020-Distribut Service-Plastic
4587665	14,639	16,445	(1,805)	(949)	6%	(117)	3.2500%	31	20380020-Distribut Service-Plastic
4587667	75,333	82,240	(6,906)	(4,383)	6%	(402)	3.2500%	142	20380020-Distribut Service-Plastic
4587669	23,925	25,362	(1,436)	(1,311)	5%	(79)	3.2500%	43	20380020-Distribut Service-Plastic
4587671	63,140	64,932	(1,793)	(3,036)	5%	(86)	3.2500%	99	20380020-Distribut Service-Plastic
4587673	85,096	84,819	277	(3,918)	5%	13	3.2500%	127	20380020-Distribut Service-Plastic
4587676	88,898	85,796	3,102	(3,741)	4%	131	3.2500%	122	20380020-Distribut Service-Plastic
4587679	101,145	94,415	6,730	(3,758)	4%	250	3.2500%	122	20380020-Distribut Service-Plastic
4587682	110,408	99,568	10,840	(3,986)	4%	391	3.2500%	130	20380020-Distribut Service-Plastic
4587685	54,260	47,215	7,044	(367)	1%	48	3.2500%	12	20380020-Distribut Service-Plastic
4587688	41,248	34,588	6,660	(1,085)	3%	175	3.2500%	35	20380020-Distribut Service-Plastic
4587691	52,948	42,724	10,225	(1,444)	3%	279	3.2500%	47	20380020-Distribut Service-Plastic
4587694	58,116	45,054	13,062	(1,571)	3%	353	3.2500%	51	20380020-Distribut Service-Plastic
4587697	50,819	37,789	13,030	(1,044)	2%	268	3.2500%	34	20380020-Distribut Service-Plastic
4587699	82,555	58,776	23,779	(1,804)	2%	520	3.2500%	59	20380020-Distribut Service-Plastic
4587702	117,769	80,121	37,648	(2,795)	2%	893	3.2500%	91	20380020-Distribut Service-Plastic
4587705	171,861	111,483	60,379	(2,934)	2%	1,031	3.2500%	95	20380020-Distribut Service-Plastic
4587708	134,889	83,231	51,658	(2,600)	2%	996	3.2500%	85	20380020-Distribut Service-Plastic
4587711	523,598	306,510	217,088	(8,336)	2%	3,456	3.2500%	271	20380020-Distribut Service-Plastic
4587714	210,619	116,630	93,989	(2,864)	1%	1,278	3.2500%	93	20380020-Distribut Service-Plastic
4587717	316,276	165,130	151,146	(4,287)	1%	2,049	3.2500%	139	20380020-Distribut Service-Plastic
4587720	227,619	111,639	115,980	(3,047)	1%	1,552	3.2500%	99	20380020-Distribut Service-Plastic
4587723	370,163	169,839	200,324	(4,738)	1%	2,564	3.2500%	154	20380020-Distribut Service-Plastic
4587727	340,739	145,556	195,182	(3,909)	1%	2,239	3.2500%	127	20380020-Distribut Service-Plastic
4587731	348,277	137,756	210,521	(3,745)	1%	2,264	3.2500%	122	20380020-Distribut Service-Plastic
4587734	360,636	131,233	229,403	(3,685)	1%	2,344	3.2500%	120	20380020-Distribut Service-Plastic
4587738	284,803	94,626	190,177	(2,216)	1%	1,480	3.2500%	72	20380020-Distribut Service-Plastic
4587741	409,098	122,978	286,120	(3,131)	1%	2,190	3.2500%	102	20380020-Distribut Service-Plastic
4587829	4,463	5,801	(1,339)	(109)	2%	(33)	3.2500%	4	20380020-Distribut Service-Plastic
4587830	31,251	40,626	(9,375)	(648)	2%	(194)	3.2500%	21	20380020-Distribut Service-Plastic
4587831	24,995	32,032	(7,037)	(490)	2%	(138)	3.2500%	16	20380020-Distribut Service-Plastic
4587834	32,615	40,766	(8,150)	(228)	1%	(57)	3.2500%	7	20380020-Distribut Service-Plastic
4587837	48,200	58,720	(10,520)	(1,054)	2%	(230)	3.2500%	34	20380020-Distribut Service-Plastic
4587839	40,213	47,717	(7,504)	(748)	2%	(140)	3.2500%	24	20380020-Distribut Service-Plastic
4587842	59,945	69,235	(9,289)	(1,013)	2%	(157)	3.2500%	33	20380020-Distribut Service-Plastic
4587844	71,286	80,077	(8,791)	(1,268)	2%	(156)	3.2500%	41	20380020-Distribut Service-Plastic
4587846	59,469	64,921	(5,452)	(1,331)	2%	(122)	3.2500%	43	20380020-Distribut Service-Plastic

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Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4587848	183,936	194,979	(11,043)	(2,745)	1%	(165)	3.2500%	89	20380020-Distribut Service-Plastic
4587850	165,376	170,072	(4,695)	(1,997)	1%	(57)	3.2500%	65	20380020-Distribut Service-Plastic
4587853	120,481	120,090	392	(1,970)	2%	6	3.2500%	64	20380020-Distribut Service-Plastic
4587856	257,455	248,472	8,984	(1,788)	1%	62	3.2500%	58	20380020-Distribut Service-Plastic
4587858	356,993	333,240	23,753	(6,017)	2%	400	3.2500%	196	20380020-Distribut Service-Plastic
4587862	524,491	472,997	51,494	(7,617)	1%	748	3.2500%	248	20380020-Distribut Service-Plastic
4587866	311,420	270,991	40,429	(4,375)	1%	568	3.2500%	142	20380020-Distribut Service-Plastic
4587869	216,477	181,524	34,954	(2,506)	1%	405	3.2500%	81	20380020-Distribut Service-Plastic
4587872	310,612	250,631	59,982	(3,316)	1%	640	3.2500%	108	20380020-Distribut Service-Plastic
4587876	417,633	323,770	93,863	(3,797)	1%	853	3.2500%	123	20380020-Distribut Service-Plastic
4587881	403,724	300,212	103,512	(2,784)	1%	714	3.2500%	90	20380020-Distribut Service-Plastic
4587888	629,711	448,331	181,380	(3,515)	1%	1,012	3.2500%	114	20380020-Distribut Service-Plastic
4587892	541,738	368,556	173,182	(5,106)	1%	1,632	3.2500%	166	20380020-Distribut Service-Plastic
4587896	965,684	626,418	339,266	(6,898)	1%	2,423	3.2500%	224	20380020-Distribut Service-Plastic
4587901	871,232	537,581	333,651	(6,294)	1%	2,410	3.2500%	205	20380020-Distribut Service-Plastic
4587905	598,161	350,159	248,002	(3,684)	1%	1,527	3.2500%	120	20380020-Distribut Service-Plastic
4587909	810,315	448,711	361,603	(4,331)	1%	1,933	3.2500%	141	20380020-Distribut Service-Plastic
4587913	1,005,461	524,958	480,503	(5,935)	1%	2,836	3.2500%	193	20380020-Distribut Service-Plastic
4587921	1,118,680	548,672	570,008	(6,501)	1%	3,312	3.2500%	211	20380020-Distribut Service-Plastic
4587925	908,009	416,614	491,395	(3,831)	0%	2,073	3.2500%	125	20380020-Distribut Service-Plastic
4587928	1,094,115	467,382	626,733	(4,664)	0%	2,672	3.2500%	152	20380020-Distribut Service-Plastic
4587931	1,633,120	645,957	987,163	(7,340)	0%	4,437	3.2500%	239	20380020-Distribut Service-Plastic
4587935	1,552,319	564,877	987,441	(5,843)	0%	3,717	3.2500%	190	20380020-Distribut Service-Plastic
4587940	2,242,431	745,047	1,497,384	(5,553)	0%	3,708	3.2500%	180	20380020-Distribut Service-Plastic
4587946	3,414,708	1,026,485	2,388,223	(10,972)	0%	7,673	3.2500%	357	20380020-Distribut Service-Plastic
4587951	370,050	481,065	(111,015)	(1,700)	0%	(510)	3.2500%	55	20380020-Distribut Service-Plastic
4587952	83,467	106,966	(23,499)	(2,616)	3%	(736)	3.2500%	85	20380020-Distribut Service-Plastic
4587956	228,507	285,609	(57,102)	(6,347)	3%	(1,586)	3.2500%	206	20380020-Distribut Service-Plastic
4587960	369,208	449,787	(80,579)	(10,050)	3%	(2,193)	3.2500%	327	20380020-Distribut Service-Plastic
4587965	477,197	566,245	(89,048)	(17,888)	4%	(3,338)	3.2500%	581	20380020-Distribut Service-Plastic
4587969	587,441	678,473	(91,032)	(23,693)	4%	(3,672)	3.2500%	770	20380020-Distribut Service-Plastic
4587973	656,746	737,736	(80,990)	(26,135)	4%	(3,223)	3.2500%	849	20380020-Distribut Service-Plastic
4587978	920,453	1,004,838	(84,385)	(34,596)	4%	(3,172)	3.2500%	1,124	20380020-Distribut Service-Plastic
4587985	884,086	937,162	(53,076)	(32,799)	4%	(1,969)	3.2500%	1,066	20380020-Distribut Service-Plastic
4587990	1,382,162	1,421,404	(39,243)	(47,280)	3%	(1,342)	3.2500%	1,537	20380020-Distribut Service-Plastic
4587994	2,352,154	2,344,508	7,646	(79,795)	3%	259	3.2500%	2,593	20380020-Distribut Service-Plastic
4587999	2,924,814	2,822,757	102,057	(93,383)	3%	3,258	3.2500%	3,035	20380020-Distribut Service-Plastic
4588004	4,876,870	4,552,381	324,489	(145,748)	3%	9,698	3.2500%	4,737	20380020-Distribut Service-Plastic
4588009	5,254,129	4,738,282	515,847	(146,931)	3%	14,426	3.2500%	4,775	20380020-Distribut Service-Plastic
4588013	3,621,692	3,151,516	470,176	(67,494)	2%	8,762	3.2500%	2,194	20380020-Distribut Service-Plastic
4588017	2,453,004	2,056,930	396,074	(59,249)	2%	9,567	3.2500%	1,926	20380020-Distribut Service-Plastic
4588021	2,972,750	2,398,689	574,061	(62,841)	2%	12,135	3.2500%	2,042	20380020-Distribut Service-Plastic
4588027	3,515,635	2,725,494	790,141	(75,118)	2%	16,883	3.2500%	2,441	20380020-Distribut Service-Plastic
4588032	3,692,236	2,745,571	946,665	(73,349)	2%	18,806	3.2500%	2,384	20380020-Distribut Service-Plastic

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Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
4588037	3,878,947	2,761,670	1,117,277	(72,163)	2%	20,786	3.2500%	2,345	20380020-Distribut Service-Plastic
4588041	4,864,964	3,309,737	1,555,227	(81,397)	2%	26,021	3.2500%	2,645	20380020-Distribut Service-Plastic
4588046	4,398,027	2,852,904	1,545,123	(69,409)	2%	24,385	3.2500%	2,256	20380020-Distribut Service-Plastic
4588052	6,318,714	3,898,870	2,419,845	(92,390)	1%	35,382	3.2500%	3,003	20380020-Distribut Service-Plastic
4588058	6,278,899	3,675,620	2,603,279	(82,875)	1%	34,361	3.2500%	2,693	20380020-Distribut Service-Plastic
4588063	8,209,086	4,545,778	3,663,308	(103,101)	1%	46,009	3.2500%	3,351	20380020-Distribut Service-Plastic
4588067	5,848,228	3,053,400	2,794,829	(66,091)	1%	31,584	3.2500%	2,148	20380020-Distribut Service-Plastic
4588072	6,820,222	3,345,073	3,475,149	(72,616)	1%	37,000	3.2500%	2,360	20380020-Distribut Service-Plastic
4588077	6,690,418	3,069,705	3,620,713	(66,504)	1%	35,990	3.2500%	2,161	20380020-Distribut Service-Plastic
4588082	6,947,860	2,967,975	3,979,885	(62,528)	1%	35,817	3.2500%	2,032	20380020-Distribut Service-Plastic
4588087	6,471,056	2,559,532	3,911,524	(53,142)	1%	32,123	3.2500%	1,727	20380020-Distribut Service-Plastic
4588093	6,961,238	2,533,143	4,428,095	(53,311)	1%	33,911	3.2500%	1,733	20380020-Distribut Service-Plastic
4588098	6,791,745	2,256,556	4,535,189	(46,946)	1%	31,348	3.2500%	1,526	20380020-Distribut Service-Plastic
4588103	7,047,641	2,118,570	4,929,071	(47,793)	1%	33,426	3.2500%	1,553	20380020-Distribut Service-Plastic
4588124	3,282	4,205	(924)	(365)	11%	(103)	3.2500%	12	20380020-Distribut Service-Plastic
4588126	4,250	5,311	(1,062)	(425)	10%	(106)	3.2500%	14	20380020-Distribut Service-Plastic
4588128	24,342	29,655	(5,313)	(2,144)	9%	(468)	3.2500%	70	20380020-Distribut Service-Plastic
4588130	39,645	47,043	(7,398)	(3,447)	9%	(643)	3.2500%	112	20380020-Distribut Service-Plastic
4588133	30,407	35,119	(4,712)	(2,085)	7%	(323)	3.2500%	68	20380020-Distribut Service-Plastic
4588136	61,092	68,626	(7,534)	(3,980)	7%	(491)	3.2500%	129	20380020-Distribut Service-Plastic
4588140	66,892	73,025	(6,133)	(4,009)	6%	(368)	3.2500%	130	20380020-Distribut Service-Plastic
4588144	99,341	105,305	(5,964)	(6,209)	6%	(373)	3.2500%	202	20380020-Distribut Service-Plastic
4588146	116,338	119,641	(3,303)	(6,590)	6%	(187)	3.2500%	214	20380020-Distribut Service-Plastic
4588149	126,513	126,102	411	(6,506)	5%	21	3.2500%	211	20380020-Distribut Service-Plastic
4588152	218,755	211,122	7,633	(10,860)	5%	379	3.2500%	353	20380020-Distribut Service-Plastic
4588155	414,005	386,458	27,547	(13,466)	3%	896	3.2500%	438	20380020-Distribut Service-Plastic
4588158	411,518	371,115	40,402	(16,862)	4%	1,656	3.2500%	548	20380020-Distribut Service-Plastic
4588161	257,815	224,345	33,470	(9,704)	4%	1,260	3.2500%	315	20380020-Distribut Service-Plastic
4588164	155,502	130,394	25,108	(5,292)	3%	854	3.2500%	172	20380020-Distribut Service-Plastic
4588167	141,253	113,976	27,277	(4,927)	3%	952	3.2500%	160	20380020-Distribut Service-Plastic
4588169	225,226	174,606	50,620	(6,213)	3%	1,396	3.2500%	202	20380020-Distribut Service-Plastic
4588172	169,157	125,786	43,371	(4,641)	3%	1,190	3.2500%	151	20380020-Distribut Service-Plastic
4588175	297,366	211,714	85,652	(6,519)	2%	1,878	3.2500%	212	20380020-Distribut Service-Plastic
4588177	218,448	148,615	69,833	(5,735)	3%	1,833	3.2500%	186	20380020-Distribut Service-Plastic
4588179	252,265	163,639	88,626	(4,787)	2%	1,682	3.2500%	156	20380020-Distribut Service-Plastic
4588182	177,852	109,741	68,111	(3,328)	2%	1,274	3.2500%	108	20380020-Distribut Service-Plastic
4588185	212,736	124,534	88,202	(3,903)	2%	1,618	3.2500%	127	20380020-Distribut Service-Plastic
4588188	295,568	163,671	131,897	(5,499)	2%	2,454	3.2500%	179	20380020-Distribut Service-Plastic
4588191	240,215	125,418	114,797	(3,995)	2%	1,909	3.2500%	130	20380020-Distribut Service-Plastic
4588195	246,296	120,799	125,497	(3,394)	1%	1,729	3.2500%	110	20380020-Distribut Service-Plastic
4588199	311,615	142,976	168,639	(4,621)	1%	2,501	3.2500%	150	20380020-Distribut Service-Plastic
4588202	263,701	112,647	151,054	(3,516)	1%	2,014	3.2500%	114	20380020-Distribut Service-Plastic
4588204	296,994	117,472	179,522	(3,773)	1%	2,281	3.2500%	123	20380020-Distribut Service-Plastic
4588207	289,704	105,421	184,283	(3,156)	1%	2,007	3.2500%	103	20380020-Distribut Service-Plastic

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4588210	323,783	107,577	216,206	(2,828)	1%	1,888	3.2500%	92	20380020-Distribut Service-Plastic
4588213	598,336	179,864	418,472	(5,378)	1%	3,762	3.2500%	175	20380020-Distribut Service-Plastic
4790078	1,334	820	514	(1,334)	100%	514	4.0323%	54	20378000-Dist Meas & Reg Sta Eq-Gen
4790079	2,568	1,578	990	(2,568)	100%	990	4.0323%	104	20378000-Dist Meas & Reg Sta Eq-Gen
4790080	3,965	2,437	1,528	(3,965)	100%	1,528	4.0323%	160	20378000-Dist Meas & Reg Sta Eq-Gen
4790081	3,704	2,276	1,428	(3,704)	100%	1,428	4.0323%	149	20378000-Dist Meas & Reg Sta Eq-Gen
4790082	243	149	94	(243)	100%	94	4.0323%	10	20378000-Dist Meas & Reg Sta Eq-Gen
4790091	1,542	948	594	(1,542)	100%	594	4.0323%	62	20378000-Dist Meas & Reg Sta Eq-Gen
4790092	4,958	3,047	1,911	(4,958)	100%	1,911	4.0323%	200	20378000-Dist Meas & Reg Sta Eq-Gen
4790093	4,300	2,643	1,657	(4,300)	100%	1,657	4.0323%	173	20378000-Dist Meas & Reg Sta Eq-Gen
4790094	2,841	1,746	1,095	(2,841)	100%	1,095	4.0323%	115	20378000-Dist Meas & Reg Sta Eq-Gen
4790095	4,958	3,047	1,911	(4,958)	100%	1,911	4.0323%	200	20378000-Dist Meas & Reg Sta Eq-Gen
4790096	2,398	1,474	924	(2,398)	100%	924	4.0323%	97	20378000-Dist Meas & Reg Sta Eq-Gen
4790097	221	136	85	(221)	100%	85	4.0323%	9	20378000-Dist Meas & Reg Sta Eq-Gen
4790694	3,877	2,633	1,244	(3,877)	100%	1,244	4.0323%	156	20378000-Dist Meas & Reg Sta Eq-Gen
4790695	4,306	2,925	1,381	(4,306)	100%	1,381	4.0323%	174	20378000-Dist Meas & Reg Sta Eq-Gen
4790696	3,582	2,433	1,149	(3,582)	100%	1,149	4.0323%	144	20378000-Dist Meas & Reg Sta Eq-Gen
4790697	3,877	2,633	1,244	(3,877)	100%	1,244	4.0323%	156	20378000-Dist Meas & Reg Sta Eq-Gen
4790698	3,852	2,616	1,236	(3,852)	100%	1,236	4.0323%	155	20378000-Dist Meas & Reg Sta Eq-Gen
4790699	326	221	104	(326)	100%	104	4.0323%	13	20378000-Dist Meas & Reg Sta Eq-Gen
4791503	12,832	5,119	7,713	(12,832)	100%	7,713	4.0323%	517	20378000-Dist Meas & Reg Sta Eq-Gen
4791504	3,164	1,262	1,902	(3,164)	100%	1,902	4.0323%	128	20378000-Dist Meas & Reg Sta Eq-Gen
4791505	3,122	1,246	1,877	(3,122)	100%	1,877	4.0323%	126	20378000-Dist Meas & Reg Sta Eq-Gen
4791506	2,840	1,133	1,707	(2,840)	100%	1,707	4.0323%	115	20378000-Dist Meas & Reg Sta Eq-Gen
4791507	2,484	991	1,493	(2,484)	100%	1,493	4.0323%	100	20378000-Dist Meas & Reg Sta Eq-Gen
4791549	3,057	1,813	1,244	(3,057)	100%	1,244	4.0323%	123	20378000-Dist Meas & Reg Sta Eq-Gen
4791949	3,605	972	2,634	(3,605)	100%	2,634	4.0323%	145	20378000-Dist Meas & Reg Sta Eq-Gen
4791975	3,075	829	2,246	(3,075)	100%	2,246	4.0323%	124	20378000-Dist Meas & Reg Sta Eq-Gen
4795404	235,492	48,478	187,013	(973)	0%	773	2.8889%	28	20376010-Distribution Mains-Steel
4795418	2,289,980	497,792	1,792,189	(11,652)	1%	9,119	2.5556%	298	20376020-Distribution Mains-Plastic
4795421	958,468	208,350	750,118	(358)	0%	280	2.5556%	9	20376020-Distribution Mains-Plastic
4795440	163,113	43,872	119,242	(1,359)	1%	994	3.2500%	44	20380020-Distribut Service-Plastic
4795442	3,679,824	989,740	2,690,084	(21,505)	1%	15,721	3.2500%	699	20380020-Distribut Service-Plastic
4795443	629,901	169,421	460,481	(6,216)	1%	4,544	3.2500%	202	20380020-Distribut Service-Plastic
4795444	1,554,981	418,234	1,136,747	(5,990)	0%	4,379	3.2500%	195	20380020-Distribut Service-Plastic
5287228	357,704	77,757	279,947	(179)	0%	140	2.5556%	5	20376020-Distribution Mains-Plastic
6851764	383,504	83,365	300,138	(1,094)	0%	856	2.5556%	28	20376020-Distribution Mains-Plastic
7391636	2,343,510	556,165	1,787,345	(6,566)	0%	5,008	3.2500%	213	20380020-Distribut Service-Plastic
7391712	5,477,475	1,050,603	4,426,872	(30,596)	1%	24,727	2.5556%	782	20376020-Distribution Mains-Plastic
7391717	9,049,917	2,147,738	6,902,179	(52,369)	1%	39,941	3.2500%	1,702	20380020-Distribut Service-Plastic
7391893	99,347	23,577	75,770	(376)	0%	287	3.2500%	12	20380020-Distribut Service-Plastic
7391922	1,060,308	203,372	856,937	(5,729)	1%	4,631	2.5556%	146	20376020-Distribution Mains-Plastic
7391969	1,834,750	351,913	1,482,837	(4,280)	0%	3,459	2.5556%	109	20376020-Distribution Mains-Plastic
8500823	895,435	212,506	682,929	(5,110)	1%	3,898	3.2500%	166	20380020-Distribut Service-Plastic

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
8500834	397,301	76,204	321,097	(3,084)	1%	2,493	2.5556%	79	20376020-Distribution Mains-Plastic
11287563	48,417	9,287	39,130	(149)	0%	121	2.5556%	4	20376020-Distribution Mains-Plastic
12435917	3,936,724	654,403	3,282,321	(18,888)	0%	15,748	2.5556%	483	20376020-Distribution Mains-Plastic
13014594	1,989,769	330,760	1,659,008	(4,376)	0%	3,648	2.5556%	112	20376020-Distribution Mains-Plastic
13819657	102,463	17,032	85,430	(858)	1%	716	2.5556%	22	20376020-Distribution Mains-Plastic
14766146	170,970	26,914	144,055	(5,807)	3%	4,893	2.8889%	168	20376010-Distribution Mains-Steel
16268507	437,882	61,591	376,291	(2,436)	1%	2,094	2.5556%	62	20376020-Distribution Mains-Plastic
16276071	1,336,352	187,967	1,148,385	(1,617)	0%	1,390	2.5556%	41	20376020-Distribution Mains-Plastic
16276709	5,215,361	733,574	4,481,787	(20,757)	0%	17,837	2.5556%	530	20376020-Distribution Mains-Plastic
16638119	6,276,384	1,092,314	5,184,070	(27,725)	0%	22,900	3.2500%	901	20380020-Distribut Service-Plastic
23860823	1,641,033	188,854	1,452,179	(9,654)	1%	8,543	2.5556%	247	20376020-Distribution Mains-Plastic
23860828	884,920	101,839	783,081	(589)	0%	521	2.5556%	15	20376020-Distribution Mains-Plastic
23861345	3,160,746	363,747	2,796,999	(11,174)	0%	9,888	2.5556%	286	20376020-Distribution Mains-Plastic
23861375	2,011,886	231,533	1,780,353	(3,858)	0%	3,414	2.5556%	99	20376020-Distribution Mains-Plastic
23861380	851,685	98,014	753,671	(4,602)	1%	4,072	2.5556%	118	20376020-Distribution Mains-Plastic
23863724	166,038	19,108	146,930	(1,301)	1%	1,152	2.5556%	33	20376020-Distribution Mains-Plastic
32303665	388	42	346	(4)	1%	4	2.8889%	0	20376010-Distribution Mains-Steel
33898552	6,532,610	584,725	5,947,885	(24,348)	0%	22,169	2.5556%	622	20376020-Distribution Mains-Plastic
33898670	1,771,043	158,524	1,612,520	(2,692)	0%	2,451	2.5556%	69	20376020-Distribution Mains-Plastic
34949551	993,907	88,963	904,943	(200)	0%	183	2.5556%	5	20376020-Distribution Mains-Plastic
34949792	421,667	37,743	383,924	(2,477)	1%	2,255	2.5556%	63	20376020-Distribution Mains-Plastic
36954016	143,348	12,831	130,517	(1,339)	1%	1,219	2.5556%	34	20376020-Distribution Mains-Plastic
44260449	1,559,565	99,710	1,459,854	(2,679)	0%	2,508	2.5556%	68	20376020-Distribution Mains-Plastic
44260798	174,411	11,151	163,260	(2,014)	1%	1,886	2.5556%	51	20376020-Distribution Mains-Plastic
44261044	4,357,797	278,615	4,079,182	(14,401)	0%	13,481	2.5556%	368	20376020-Distribution Mains-Plastic
45695733	1,773,948	113,417	1,660,531	(3,941)	0%	3,689	2.5556%	101	20376020-Distribution Mains-Plastic
51432385	2,253,868	463,572	1,790,296	(5,549)	0%	4,408	3.2500%	180	20380020-Distribut Service-Plastic
51432386	188,822	38,837	149,986	(1,775)	1%	1,410	3.2500%	58	20380020-Distribut Service-Plastic
51432387	4,602,876	946,712	3,656,163	(22,207)	0%	17,639	3.2500%	722	20380020-Distribut Service-Plastic
51432404	2,301,483	400,540	1,900,943	(5,615)	0%	4,638	3.2500%	182	20380020-Distribut Service-Plastic
51432410	2,118,109	301,603	1,816,506	(5,299)	0%	4,544	3.2500%	172	20380020-Distribut Service-Plastic
51432415	4,545,791	647,288	3,898,504	(16,638)	0%	14,269	3.2500%	541	20380020-Distribut Service-Plastic
51432419	5,494,375	608,502	4,885,874	(19,573)	0%	17,405	3.2500%	636	20380020-Distribut Service-Plastic
51432420	396,716	43,936	352,779	(1,261)	0%	1,122	3.2500%	41	20380020-Distribut Service-Plastic
51432423	1,561,331	172,917	1,388,414	(2,774)	0%	2,467	3.2500%	90	20380020-Distribut Service-Plastic
51432425	4,622,227	365,651	4,256,576	(12,989)	0%	11,962	3.2500%	422	20380020-Distribut Service-Plastic
51432431	1,357,487	107,387	1,250,100	(2,703)	0%	2,489	3.2500%	88	20380020-Distribut Service-Plastic
51432432	685,819	141,058	544,761	(3,257)	0%	2,587	3.2500%	106	20380020-Distribut Service-Plastic
51432433	504,178	71,791	432,387	(1,939)	0%	1,663	3.2500%	63	20380020-Distribut Service-Plastic
51432437	87,382	6,913	80,470	(704)	1%	648	3.2500%	23	20380020-Distribut Service-Plastic
51432447	910,775	158,507	752,268	(3,832)	0%	3,165	3.2500%	125	20380020-Distribut Service-Plastic
51432448	515,588	40,787	474,801	(1,899)	0%	1,749	3.2500%	62	20380020-Distribut Service-Plastic
52893431	1,911,909	73,343	1,838,567	(9,793)	1%	9,418	2.5556%	250	20376020-Distribution Mains-Plastic
52896108	76,280	3,620	72,660	(967)	1%	921	3.2500%	31	20380020-Distribut Service-Plastic

Asset Detail

Asset ID	Book Value	Estimated Reserve 1/1/2010	Net Book Value 1/1/2010	Estimated GUIC Retirement	% of Book Value Retired	Estimate of 2010 Rate Base for Replaced Asset	Approved Depreciation Rate	Depreciation Expense	Utility Account
55410534	414	20	394	(5,000)	1209%	4,763	3.2500%	163	20380020-Distribut Service-Plastic
55673138	749,806	28,763	721,043	(1,119)	0%	1,076	2.5556%	29	20376020-Distribution Mains-Plastic
55675327	51,808	2,459	49,349	(1,016)	2%	968	3.2500%	33	20380020-Distribut Service-Plastic
56468336	714,396	27,405	686,991	(1,076)	0%	1,035	2.5556%	28	20376020-Distribution Mains-Plastic
56760362	2,062,989	79,138	1,983,851	(7,403)	0%	7,119	2.5556%	189	20376020-Distribution Mains-Plastic
56763759	35,878	1,703	34,175	(815)	2%	777	3.2500%	27	20380020-Distribut Service-Plastic
58037637	3,866,538	183,522	3,683,016	(9,203)	0%	8,766	3.2500%	299	20380020-Distribut Service-Plastic
58037665	985,827	46,792	939,035	(1,243)	0%	1,184	3.2500%	40	20380020-Distribut Service-Plastic
58037827	578,539	27,460	551,079	(1,952)	0%	1,859	3.2500%	63	20380020-Distribut Service-Plastic
58045438	360,167	5,698	354,468	(6,014)	2%	5,918	3.2500%	195	20380020-Distribut Service-Plastic
	$ 471,973,828	$ 219,565,478	$ 252,408,350	$ (7,303,675)		$ 2,107,439		$ 216,312	

% of Remaining NBV for replaced assets	28.85%	Composite Depreciation Rate	2.9617%

Replacement Projects Summary

Project No	Project Description	Install Dates of Replaced Assets
GUIC TIMP		
11503515	ASV/REV Installation on High Pressure systems - MN Rider	No related retirements. New installations
11615874	East Metro Pipe Replac. Proj HP Gas	1940s/1950s
12013233	East Metro Pipeline Replacement - Reg Installation	1940s/1950s
11676981	East Metro Pipe Replac. Proj Distr	1940s/1950s
11706370	Install Rice & Co Rd Regulator	1940s/1950s
11819647	RTUs - East Metro Pipe Replacement	1940s/1950s
11649797	High Bridge Lateral Replacement	1948/but partial relocation in 1960
11649797	High Bridge Lateral Replacement	1948/but partial relocation in 1960
34000342	High Bridge Lat Replace Dist Reg	1948/but partial relocation in 1960
11649521	NSPM TIMP Mitigation of ILI Results	Island Line 1950s / East County Line Casings 1960
11651650	NSPM Pre 1950 Trans and IP Pipe	1950s
34003261	NSPM Trans and IP Pipe - Distr	1950s
50000704	MN/WBL/County Rd B Replacement-NSP to Rice	1950s
50000709	MN/STP/ECL Replace-Maplewood to NSP	1957
GUIC DIMP		
11649520	NSPM Install 6" and 4" Distribution Valves	No related retirements. New installations
50000646	NSPM Install 6" and 4" Distribution Valves	No related retirements. New installations
11649522	NSPM Programmatic Main Replacements	See Detail on Valve/Mains/Services Tabs
50000644	NSPM Programmatic Main Replacements	See Detail on Valve/Mains/Services Tabs
11649766	NSPM Programmatic Service Replacement	See Detail on Valve/Mains/Services Tabs
50000645	NSPM Programmatic Service Replacement	See Detail on Valve/Mains/Services Tabs
11813698	Pipeline Data Project Dist - NSPM	No related retirements. New installations
11980562	Hugo Line ILI improvements	No related retirements. Assessment work only
12173704	Replace Emr Vlvs in NSPM metro Dist Sys	See Detail on Valve/Mains/Services Tabs
12173830	NSPM Programmatic Service Reply	See Detail on Valve/Mains/Services Tabs
12173831	NSPM Programmatic Main Replace	See Detail on Valve/Mains/Services Tabs
34000462	Sartell Bridge Replacement	See Detail on Valve/Mains/Services Tabs
50000705	MN/STP/County Rd B Replace-Rice to Hamline	1950s
50000939	MN/Colby Lake Lateral Replace	1964-1965
50000937	MN/Arden Hills/System H05 Replace	1964
50000708	MN/NPT/Langdon Line Replacement	1958

Note: Please note that replaced assets shown in our retirement and net book value estimate (Pages 2-18) do not directly correlate to this listing. See our Petition for an explanation of our retirement process.

Valve Replacements

Functional Class	Type of Asset Replaced	Project Description	Location	Year Retired Asset was Installed	Quantity Replaced	Year of Replacement	Valve #	Valve Size
Distribution	Valve	Inoperable Emergency Valve	7th & Dale, STP	Uknown	1	2017	EV1241	12" SC
Distribution	Valve	Inoperable Emergency Valve	Cypress & 6th, STP	1974	1	2017	EV1218	6" SC
Distribution	Valve	Inoperable Emergency Valve	Victoria & St. Anthony, STP	Uknown	1	2017	EV1069	6" SC
Distribution	Valve	Inoperable Emergency Valve	Roselawn & McMenomie	1954	1	2017	DV6070	4" SC
Distribution	Valve	Inoperable Emergency Valve	Roselawn & McMenomie	1954	1	2017	DV6068	6" SC
Distribution	Valve	Inoperable Emergency Valve	Roselawn & McMenomie	1954	1	2017	EV6069	6" SC
Distribution	Valve	Inoperable Emergency Valve	McKnight & 3rd St E	1954	1	2017	EV1289	4" SC
Distribution	Valve	Inoperable Emergency Valve	McKnight & 3rd St E	1954	1	2017	EV1288	8" SC
Distribution	Valve	Inoperable Emergency Valve	McKnight & 3rd St E	1954	1	2017	EV1290	4" SC
Distribution	Valve	Inoperable Emergency Valve	McKnight & Hudson Rd	1954	1	2017	EV1291	8" SC
Distribution	Valve	Inoperable Emergency Valve	St. Albans & Alley South of Selby, STP	1974	1	2018	EV1373	4" SC
Distribution	Valve	Inoperable Emergency Valve	Victoria & St. Anthony, STP	Unknown	1	2018	EV1069	6" SC
Distribution	Valve	Inoperable Emergency Valve	Henry Ave & Fleming Field, SSTP	Unknown	1	2018	EV1245	12" SC
Distribution	Valve	Inoperable Emergency Valve	Hamline & County Road "B", RSV	N/A	1	2018	R063 bypass	4" SC
Distribution	Valve	Inoperable Emergency Valve	Forest & Rose, STP	1974	1	2018	EV1202	12" SC
Distribution	Valve	Inoperable Emergency Valve	Robert & Page, STP	1963	1	2018	EV1178	8" SC
Distribution	Valve	Inoperable Emergency Valve	Snelling & Englewood, STP	Unknown	1	2019	EV1020	12" SC
Distribution	Valve	Inoperable Emergency Valve	Fairview & Juno, STP	1974	1	2019	EV1030	16" SC
Distribution	Valve	Inoperable Emergency Valve	Fairview & Montreal, STP	1976	1	2019	EV1037	16" SC
Distribution	Valve	Inoperable Emergency Valve	Fairview & Montreal, STP	1974	1	2019	EV1038	16" SC
Distribution	Valve	Inoperable Emergency Valve	Fairview & Montreal, STP	1975	1	2019	EV1316	16" SC
Distribution	Valve	Inoperable Emergency Valve	Algonquin & Iroquois, STP	1975	1	2019	EV1275	12" SC
Distribution	Valve	Inoperable Emergency Valve	Algonquin & Iroquois, STP	1975	1	2019	EV1276	6" SC
Distribution	Valve	Inoperable Emergency Valve	Hwy 19 W TBS	2002	1	2019	EV3512	8" SC
Distribution	Valve	Inoperable Emergency Valve	Hwy 19 W TBS	2002	1	2019	EV3513	6" SC

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2015 Mains and Services Replacements

NSP-MN Main & Services DIMP Replacements					Main Footage			Service		
Division	Project	WO	Year Retired Main was Installed	Remaining Depreciable Service Life 1/1/2010 [1]	Estimate	Actual Replaced	Actual Installed from Passport	Estimate	Replaced	Transferred
St. Paul	STP/ARLINGTON, NEVADA, NEBRASKA BTN. WHITE BEAR & FURNESS	11935351	1977	12	12,760	7,100	12,760	230	223	4
	ROSEVILLE/ COHANSEY ST. PROJECT/ INSTALL 7500' OF 2" PE	12118923	1965	0	7,500	4,530	7,517	74	71	2
	STP / CLARENCE ST BTN ARLINGTON AVE E & HOYT AVE E / DIMP PR	12096468	1967	2	2,600	1,300	1,300	48	46	4
	Barclay/Dieter	12185039	Unknown	-	3,750	2,675	3,925	60	58	4
	STP / IVY AVE E XST: RUTH ST / LOW PRESSURE DIMP PROJECT	12088590	1953	0	16,000	11,350	16,031	218	224	0
	STP / 7TH ST W BTN ALTON & RANKIN ST	12217850	1972	7	2,326	4,660	2,326	24	21	4
	Idaho / Barclay / Clarence	12227467	1960	0	7,350	4,775	7,467	99	93	8
	ROSEVILLE/ GALTIER ST/ INSTALL 4600' OF 2" PE MAIN (DIMP)	12122749	Unknown	-	4,400	2,405	4,560	49	48	0
White Bear Lake	VADNAIS HEIGHTS-5-STAR MOBILE ESTATES-INSTALL 10,480' 2" PE	12100647	1974	9	10,480	9,225	10,124	190	112	77
	LAKE ELMO-CIMARRON MOBILE HOME PARK-SOUTH HALF-RENEW MAIN	12148971	1970	5	15,000	15,234	15,234	250	228	0
	LAKE ELMO-CIMARRON MOBILE HOME PARK-NORTH HALF-RENEW MAIN*	12225339	1970	5	16,709	16,064	16,709	252	237	0
	WBL/OPH/Area D	12200298	1962	0	5,000	4,520	5,097	12	14	7
	Vad Heights - North Star Estates	12226824	1972	7	10,000	7,040	9,485	172	161	8
	BAYPORT 5TH ST S INSTALL 3900' OF 2"PE MAIN RENEW 43 SVCS	12093773	Unknown	-	2,900	2,000	3,845	43	16	23
	NO ST PAUL / 14th AVE E	11945105	1978	13	3,865	2,105	3,999	48	40	6
Wyoming	Forest Lake - Carry-over from 2014	12185020	1968	3	9,000	10,850	8,741	93	68	28
	Forest Lake - 11th Ave & 6th St	12233388	1968	3	4,100	3,310	3,310	36	41	6
	Forest Lake - 1st Ave / 2nd Ave / 8th St / 7th St / 6th St	12234310	Unknown	-	4,650	3,750	4,642	27	43	9
Newport	Cloman Way & Lower 67th St	12262781	1971	6	5,500	3,900	6,322	152	154	0
	ST PAUL PARK /2015 DIMP/ DIXON / BLOSSOM	12148969	Unknown	-	2,204	950	2,224	26	26	0
	2015 DIMP / ST PAUL PK / DIXON DR	12149144	Unknown	-	2,581	1,600	2,549	29	29	0
	2015 DIMP / ST PAUL PK / GARY/ SELBY / DAYTON	12149707	Unknown	-	9,274	5,050	9,274	110	110	0
	ST PAUL PARK / 2015 DIMP / PORTLAND AVE / 13TH / 15TH	12101212	1972	7	1,800	1,240	1,764	16	11	5
	SOUTH ST PAUL / 2015 DIMP / BUTLER / KASSAN	12089427	1974	9	2,224	2,980	2,224	20	15	3
	SOUTH ST PAUL / 2015 DIMP BUTLER AVE / BUTLER CT	12101218	1974	9	2,298	1,200	2,298	30	26	6
	Denton	12255539	1973	8	4,828	4,220	4,828	75	75	0
	Burns Ave	12170859	Unknown	-	6,901	3,900	6,902	85	73	11
St. Cloud	DLH / DIMP / RIVER'S EDGE PARKING	12188957	Unknown	-	250	256	270	2	0	0
	St Cloud - Lincoln Ave*	12223516	Unknown	-	7,750	5,990	6,273	36	18	11
	Watertown	12162124	Unknown	-	10,200	7,030	10,210	95	73	37
	Sauk Rapids - 7th St NE (@ 2nd Ave NE)	12227154	Unknown	-	286	250	250	3	3	0
Southeast	GOODVIEW-LAKE VILLAGE MOBILE HOME PARK	12157111	1974	9	9,989	6,930	8,455	230	192	0
	Northfield Viking Ter	12241776	1970	5	10,550	8,525	7,677	180	180	0
	7th St S - Lake City	12205025	1971	6	1,400	-	1,256	6	0	0
	Hallstrom Dr & Burton St - Red Wing	12218584	1971	6	17,000	14,482	14,482	270	136	25
	Bluffview - Winona	12231997	1971	6	2,000	1,120	1,626	5	12	3
	Bush St & Langsford Ave - Red Wing	12212950	1972	7	5,950	5,100	6,337	85	69	7
	Hillsdale - Hidden Valley Mobile Home Park	12162836	1976	11	10,064	8,115	10,699	185	176	0
Moorhead	Moorehead 30th Ave & 8th St S	12215066 & 12208317	Unknown	-	975	-		1	0	0
	Moorehead Dale & 5th St S	12215099 & 12210767	Unknown	-	1,608	-	1,599	32	0	0
	Service Materials									
		Totals			**254,022**	**195,731**	**244,591**	**3,598**	**3,122**	**298**

[1] Remaining Service Life at start of 2010 Test Year in 2010 Gas Rate Case (Docket No. G002/GR-09-1153). Based on Gas Distribution Main Depreciation Average Service Life of 45 Years (Approved in Docket No. E,G002/D-07-1528)

Note: Please note that replaced assets shown in our retirement and net book value estimate (Pages 2-18) do not directly correlate to this listing. See our Petition for an explanation of our retirement process.

2016 Mains and Services Replacements

NSP-MN Main & Services DIMP Replacement Projects 2016						
Area	Work Order Number	Description	Year Retired Main was Installed	Remaining Depreciable Service Life 1/1/2010 [1]	Total Design FT.	Tot. Svc
St. Paul	12092489	ST PAUL - ARMSTRONG AVE XST: CHATSWORTH ST S	1990	25	1,350	28
	12328949	ST PAUL - ARMSTRONG AVE	1990	25	7,506	150
	12381180	ST PAUL - ATLANTIC, DULUTH & LARPENTEUR	1955	-	8,900	118
	12294860	ROSEVILLE - GLENHILL, WOODLYNN, CLARMAR	1955	-	7,810	81
	12398688	LAUDERDALE - EUSTIS ST	Unknown	-	1,100	17
	12380740	ROSEVILLE - WEWERS RD	Unknown	-	1,400	15
	12404989	ST PAUL - DOWNTOWN - 10TH-MINNESOTA	1957	-	1,200	5
	12344852	ROSEVILLE - COUNTY RD C, FISK, AVON, GROTTO	1958	-	23,400	305
	12444470	ST PAUL - DOWN TOWN (Kellogg)	1956	-	150	-
	12361662	ST PAUL - JUNO CONTRACTOR PORTION	1980	15	4,750	56
	12358730	ST PAUL - JUNO LOCAL PORTION	1980	15	1,260	20
	12364882	ST PAUL - AURORA - LOCAL PORTION	1980	15	960	36
	12369728	ST PAUL - AURORA - CONTRACTOR PORTION	1980	15	3,875	100
	12317526	ST PAUL - BERKELY-STANFORD-WELLESLY	1980	15	10,440	195
	12294862	ROSEVILLE - SKILLMAN-ELDRIDGE	1963	-	6,700	79
White Bear Lake	12344860	LAKE ELMO - 32ND ST	Unknown	-	8,600	77
	12293638	LAKE ELMO - LAKE ELMO AVE	Unknown	-	6,800	51
	12334697	NORTH ST PAUL - 19TH AVE	1956	-	7,000	85
	12371725	BAYTOWN TWP/ 13606 30TH ST N	Unknown	-	320	5
	12320156	OAKDALE - GROSPOINT AVE	1960	-	16,200	178
	12317855	WHITE BEAR LAKE - FLORENCE ST	1976	11	16,600	109
	12320058	MAPLEWOOD - ROSELAWN AVE	1954	-	12,900	179
	12320143	OAKDALE - GERSHWIN AVE	1967	2	9,500	70
	12320392	SHOREVIEW - DEBRA LN	1976	11	11,200	105
	12317856	SHOREVIEW NANCY PL	1971	6	7,600	85
	12275730	OAKDALE GREENE AVE	Unknown	-	2,150	22
Wyoming	12334677	FOREST LAKE - 2ND ST SE	1972	7	10,900	128
Newport	12346387	SOUTH ST PAUL - 3RD AVE S - 6TH ST S	Unknown	-	1,680	28
	12352620	MENDOTA HTS - 3RD ST-VANDALL-SOMERSET	1968	3	1,900	22
	12352631	ST PAUL PARK - 13TH-14TH-CHICAGO	Unknown	-	8,815	100
	12346491	SOUTH ST PAUL - 2ND AVE S - MARIE AVE	Unknown	-	7,530	120
	12346357	MENDOTA HTS - HWY 13 - WACHTER AVE	Unknown	-	911	5
St. Cloud	12342575	ST JOSEPH - 1ST AVE NE - CTY RD 75	1966	1	9,150	79
	12403875	SARTELL - MISSISSIPPI RIVER CROSSING	1973	8	1,700	-
	12249351	DELANO	Unknown	-	14,800	127
Southeast	12385504	WINONA - 3RD ST BTW GALE ST-MECHANIC ST	1974	9	8,100	127
	12354151	NORTHFIELD - FLORELLAS CT	1968	3	1,550	22
	12328936	FARIBAULT - 8TH ST SW	Unknown	-	5,320	48
	12345274	FARIBAULT - 7TH ST NW	1980	15	4,900	43
	12350531	FARIBAULT - 8TH ST SW, BOTSFORD, CARLTON	Unknown	-	3,000	49
Moorhead	12359542	MOORHEAD - REGAL ESTATES	Unknown	-	10,500	210
2016 DIMP-related Main Replacement Total					**270,427**	**3,279**

[1] Remaining Service Life at start of 2010 Test Year in 2010 Gas Rate Case (Docket No. G002/GR-09-1153). Based on Gas Distribution Main Depreciation Average Service Life of 45 Years (Approved in Docket No. E,G002/D-07-1528)

Note: Please note that replaced assets shown in our retirement and net book value estimate (Pages 2-18) do not directly correlate to this listing. See our Petition for an explanation of our retirement process.

2017 Mains and Services Replacements

NSP-MN Main & Services DIMP Replacement Projects 2017						
Area	**Work Order Number**	**Description**	**Year Retired Main was Installed**	**Remaining Depreciable Service Life 1/1/2010 [1]**	**Total Design FT.**	**Tot. Svc**
St. Paul	12294045	ROSEVILLE - FERNWOOD ST	1955	-	3,760	44
	12315892	ST PAUL - CASE AVE BTN EDGERTON-EARL	1979	14	11,300	177
	12328310	ST PAUL - HAGUE/SELBY	1978	13	6,745	128
	12326608	ST PAUL - EDMOND	Unknown	-	5,290	113
	N/A	ST PAUL - ST PETER, FORD 4TH	1963	-	4,200	62
	12320752	ST PAUL - ETNA-BIRMINGHAM-WINCHELL	1962	-	9,600	141
White Bear Lake	12317581	ARDEN HILLS - ARDEN VIEW DR	Unknown	-	2,300	34
	12320389	ARDEN HILLS - GLENPAUL AVE	1955	-	4,700	58
	12319969	MAHTOMEDI - GRIFFIN AVE	1968	3	3,200	39
	12092590	BAYPORT - 7TH ST	1964	-	1,000	11
Wyoming	12320014	FOREST LAKE - 11TH AVE SW (LAKE ST)	Unknown	-	2,100	25
	12320051	FOREST LAKE - 208TH-209TH ST	1969	4	4,000	47
	12320027	FOREST LAKE - IVERSON AVE	1967	2	3,700	53
	N/A	FOREST LAKE - HEATH AVE	1968	3	3,600	34
Newport	12352434	COTTAGE GROVE - IRONWOOD	1971	6	3,338	100
	12438126	ST PAUL - BURNS-RUTH	1955	-	11,715	147
	DE 522036	COTTAGE GROVE - HYDE	1961	-	3,710	41
	DE 521888	COTTAGE GROVE - PT DOUGLAS RD, IDEAL AVE	1961	-	4,735	56
	DE 521609	COTTAGE GROVE - IDEAL-85TH ST	1962	-	4,160	36
	DE 521021	MENDOTA HTS - BACHELOR-SUTTON-MARIE	1973	8	10,570	77
	DE 526906	INVER GROVE HTS - DAWN-UPPER 75TH-77TH	1971	6	5,160	89
	DE 519457	INVER GROVE HTS - CONROY CT	1972	7	5,400	142
St. Cloud	N/A	ST CLOUD - 16TH AVE - 3RD ST N	1972	7	4,100	26
	12412846	ST CLOUD - 44TH AVE N, APPOLLO BY VA	1972	7	2,500	10
Southeast	DE 525652	WINONA - 3RD ST BTW WINONA ST-LIBERTY ST	1968	3	8,500	154
	12320940	NORTHFIELD - WOODLEY ST E	1977	12	500	13
	12344771	NORTHFIELD - ARCHIBALD ST/ASTER	1981	16	3,500	55
	12356426	LAKE CITY - LAKEWOOD AVE	1972	7	4,250	79
	12360394	RED WING - SPRUCE/SOUTHWOOD	Unknown	-	6,000	86
	12356414	WINONA - 9TH/52ND	1977	12	3,500	42
	N/A	NORTHFIELD - EDWARDS LN	1968	3	1,660	42
	DE 525650	RED WING - BUSH ST - PLUM ST	1983	18	3,250	76
	N/A	RED WING - WRIGHT/FINRUD	1975	10	10,400	130
Moorhead	12410474	MOORHEAD-MOBILE MANOR-1224 15TH AVE. N	1972	7	1,260	38
	12422040	DILWORTH - 1ST AVE SE	1972	7	5,000	48
2017 Designed DIMP-related Main Replacement Total					**168,703**	**2,453**

[1] Remaining Service Life at start of 2010 Test Year in 2010 Gas Rate Case (G002/GR-09-1153). Based on Gas Distribution Main Depreciation Average Service Life of 45 Years (Approved in E,G002/D-07-1528)

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2018 Mains and Service Replacements

NSP-MN Main & Services DIMP Replacement Projects 2018						
Area	Work Order Number	Description	Year Retired Main was Installed	Remaining Depreciable Service Life 1/1/2010 [1]	Total Design FT.	Tot. Svc
St Paul	102002462	ROSEVILLE / CO RD 2 & LAKEVIEW / DIMP	Unknown	-	14,150	70
	101157888	RSV/OXFORD ST/ DIMP/ INSTALL 1200' 2" PE	Unknown	-	1,200	4
	101746906	ST PAUL - ISABELL / CONGRESS	1965	-	4,700	2
	101592642	STP/ 2018 DIMP / AREA N-UPP AFTON	1960	-	7,510	106
White Bear Lake/Wyoming	100382714	01432348 NO ST PAUL 18TH AVE INSTALL 560	Unknown	-	560	2
	101756642	MPW/Radisz Ave/ Install 3800' of 2"	1965	-	3,800	26
	100412206	MWD/ EDGERTON ST/ INSTALL 4200' OF 2" PE	1955	-	4,200	1
	101509812	BIR / 2018 DIMP / BIRCHWOOD AVE	1968	3	2,921	39
	101776492	DIMP OAK GERSHWIN AVE INST 1100' - 2" PE	1970	5	1,100	-
	101879289	DIMP OAK GRAFTON AVE INST 1600' 2" MAIN	1970	5	1,600	10
	102146268	DIMP OAK GRANADA AVE 4100' - 2" MAIN	1970	-	4,100	24
	101359567	Forest Lake / 2018 DIMP / HARROW AVE N	1969	4	1,900	7
	100441816	LTC/ EDGERTON ST/ DIMP	1968	3	5,000	29
	100441817	LTC/ LABORE RD/ DIMP	1969	4	5,400	33
	101756827	LTL / 2018 DIMP / EDGERTON N OF LITTLE C	1968	3	8,500	35
	101155888	LTL / GREENBRIER ST /DIMP/ 5100' of 2"	1970	5	5,400	42
	100920813	LTL-WESTWIND DR-DIMP-INSTALL 2700' 2" PE	1969	4	2,700	19
	101946663	MAPLEWOOD - ROSELAWN	1954	-	2,400	7
	101947593	MAPLEWOOD / COPE AVE	1957	-	3,500	32
	101947594	MAPLEWOOD / CRAIG PL	1959	-	5,700	44
	101834990	MAPLEWOOD / HOLLOWAY / DIMP	1955	-	3,500	28
	101947595	MAPLEWOOD / JACKSON ST	1956	-	4,800	36
	101692533	MPW / 2018 DIMP / MAYHILL - MINNEHAHA #4	1961	-	5,500	43
	101756635	MPW/ /ARCADE ST/DIMP/INSTALL 5000' OF 2"	1966	1	5,000	23
	101163818	MPW/ BEAUMONT ST/ DIMP/ INSTALL 1400' 2"	1955	-	1,400	16
	101876643	MPW/MARYLAND AVE/DIMP/ INSTALL 1900' 2"	1965	-	1,900	14
	101627154	MWD - ELM ST DIMP	1970	5	1,250	8
	100588988	NEW BRIGHTON / WINDSOR CT - PHASE 3	1967	2	1,850	57
	100439830	NO ST PAUL HILLTOP CT INSTALL	1969	-	2,700	27
	101833922	NORTH ST PAUL / 1ST AVE	1966	1	4,652	44
	102001637	NORTH ST PAUL / 4TH & MARGARET / DIMP	1953	-	4,500	-
	101834533	NORTH ST PAUL / IVY ST N	1970	5	1,048	30
	101524703	NSP / 2018 DIMP / COWERN-HOWARD	1969	4	2,300	28
	101693184	NSP / 2018 DIMP / NAVAJO RD	1958	-	2,300	27
	101693177	NSP / 2018 DIMP / SHOSHONE RD E	1958	-	2,500	25
	101784580	NSP / 2018 DIMP / SKILLMAN	1954	-	9,340	57
	101916855	NSP / 2018 DIMP / WEST SIDE OF IVY ST N	1970	5	800	-
	101919544	NSP / MARY JO LN	1955	-	4,750	37
	101508477	NWB /2018 DIMP / 10th AVE NW	1970	5	4,180	-
	101985751	SHOREVIEW / HODGSON / DIMP	1962	-	4,600	-
	101693170	SHV / 2018 DIMP / BRIGADOON DR	1968	3	2,500	44
	101496871	SHV / 2018 DIMP / MERCURY-WOODLAND	1967	2	3,840	17
	101582735	SHV / 2018 DIMP / SNAIL LK RD & JANSA	1962	-	7,354	12
	101383583	SLL/ OLIVE ST W/ RECON/ INS 2400' 2" PE	Unknown	-	2,350	23
	101960298	SLL/SYCAMORE ST W/ INSTALL 5000' 2" PE	1968	3	4,700	32
	101582727	WBL / 2018 DIMP / CLARENCE ST	1968	3	4,163	-
	101688133	WHITE BEAR LAKE - STILLWATER ST-BALD-GARDEN	1961	-	14,049	89
	101660586	WHITE BEAR LAKE / EAST COUNTY LINE	1961	-	2,175	17
	101556528	WHITE BEAR LAKE / SOUTHWOOD	1968	3	3,461	35
	101832776	WHITE BEAR TOWNSHIP / BELLAIRE / DIMP	1961	-	7,000	38
	101838144	FOREST LAKE / FONDANT / DIMP	1970	5	5,000	31
	101463010	SHV / 2018 DIMP / VIRGINIA AVE	1968	3	1,800	-
Newport	101547248	COTTAGE GROVE - IDEAL-85TH ST DIMP	1961	-	4,160	35
	101876838	CTG / 2018 DIMP / HAMLET-HALLMARK-HALE	1959	-	6,950	83
	101478741	CTG / DIMP / HEARTHSIDE RD / RNW MAIN	1964	-	2,300	14
	101587426	IGH - CONROY CT DIMP	1972	7	5,385	-
	101886606	IGH / 2018 DIMP / DAWN AVE - UPPER 75TH	1955	-	4,300	-
	102028709	MEH / 2018 DIMP / WINSTON CT-DOWNING	1968	3	4,600	20
	101692530	MPW / 2018 DIMP / CRESTVIEW-HIGHWOOD	1969	4	11,000	61
	101685475	MEH / 2018 DIMP / MARIE-OVERLOOK	1969	4	5,700	41
	101692534	MPW / 2018 DIMP / MAYHILL-UPP AFTON (Metz)	1959	-	3,827	8
	101417261	SPP / DIMP / SUMMIT AVE / RENEW MAIN	Unknown	-	3,900	36
	101697233	WSP / 2018 DIMP / MENDOTA RD W	1969	4	2,940	10
St Cloud	101379226	SCL / 2018 DIMP / KINGS WAY	Unknown	-	1,600	16
	101714442	ST CLOUD / 6TH ST / 11TH AVE / 10TH AVE / DIMP	Unknown	-	1,630	12
	101579939	ST CLOUD / PROSPER DR-PROGRESS RD	1970	5	2,870	3
	101602512	STC - 4TH AVE N / DIMP	1970	5	5,055	39
Southeast	101804538	RDW / 2018 DIMP / 21ST ST	1960	-	1,300	16
	101802475	RDW / 2018 DIMP / CENTRAL PARK-18TH ST	1955	-	1,600	17
	101711329	RDW / 2018 DIMP / FINRID-WRIGHT	1971	6	10,400	105
	101794997	RED WING 189784 - 9TH ST	1955	-	850	2
	101728125	WINONA / DIMP / 107558 - E 7TH ST	1964	-	3,500	46
	101591201	WINONA / DIMP / 107603 - 7TH ST W	1966	1	5,800	23
	101780666	WINONA 107542 - E 10TH ST	1965	-	3,000	37
	101889468	WINONA 107587 - E 9TH ST	1961	-	1,400	11
	101913103	WNA / 2018 DIMP / 44TH AVE-VARIOUS	1961	-	4,300	34
	101544613	WNA / 2018 DIMP / COLLEGE VIEW-PARK	1960	-	2,515	18
	101692535	WNA / 2018 DIMP / CONRAD - WINCREST	1961	-	6,860	44
	101747565	WNA / 2018 DIMP / KNOLLWOOD LN	1969	4	1,950	4
	101903273	WNA / 2018 DIMP / W 9TH-ORRIN-WAYNE	1960	-	3,400	21
Moorhead	101490329	MHD / 2018 DIMP / CEDAR LANE	1970	5	4,215	34
	101483693	MHD / 2018 DIMP/Cedar-BIRCH	1970	5	4,000	30
2018 Designed DIMP-related Main Replacement Total					334,910	2,190

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2019 Mains and Services Replacements

NSP-MN Main & Services DIMP Replacement Projects 2019					
Area	**Description**	**Year Retired Main was Installed**	**Remaining Depreciable Service Life 1/1/2010 [1]**	**Total Design FT.**	**Tot.Svc**
Cottage Grove	COTTAGE GROVE - PT DOUGLAS RD, IDEAL AVE DIMP	1961	-	7,000	40
	COTTAGE GROVE - HYDE AVE DIMP	1961	-	3,600	41
Faribault	FARIBAULT 109442 - IRVING AVE	1971	6	4,600	81
Forest Lake	FOREST LAKE - 210TH	1967	-	6,352	41
	FOREST LAKE - HARROW	1969	4	2,000	15
Lake City	LAKE CITY 117574 - S 10TH ST	1972	-	2,100	43
Lake Elmo	LAKE ELMO - 31ST/JAMLEY/JANERO	1967	2	6,882	43
Maplewood	MAPLEWOOD - PROSERITY	1963	-	1,100	8
Mendota Heights	MENDOTA HEIGHTS - BACHELOR-STANWICH	1967	2	10,570	100
North St Paul	NORTH ST PAUL - HILLTOP CT	1969	4	2,591	29
	NORTH ST PAUL - COWERN	1969	4	2,300	28
Northfield	NORTHFIELD - 321 ST W	1967	2	3,950	35
Red Wing	RED WING 189784 - 9TH ST	1955	-	850	8
	RED WING 189276 - WOODLAND DR	1969	4	4,200	48
	RED WING 189336 - REDING AVE	1968	3	4,830	48
	RED WING 195249 - MAPLE ST	1959	-	7,600	174
Roseville	ROSEVILLE - OXFORD	Unknown	-	1,200	5
St Paul	ST PAUL - BATTLE CREEK 1	1960	-	4,300	58
	STP / 2019 DIMP / ROBIE ST E	1971	6	7,360	103
	STP / 2019 DIMP / CONGRESS-ISABEL	1965	-	14,675	153
	STP / 2019 DIMP / ST. PETER STREET	1951	-	4,900	20
	STP / 2019 DIMP / LOWERTOWN	1956	-	2,050	16
St. Cloud	SCL DOWNTOWN REPLACEMENT	1972	7	5,500	96
Wabasha	WABASHA - INDUSTRIAL PARK	1970	5	4,200	11
White Bear Lake	WHITE BEAR LAKE - CLARENCE	1968	3	3,900	44
	WHITE BEAR TOWNSHIP - SOUTH SHORE BLVD	Unknown	-	9,500	95
Winona	WINONA 107542 - E 10TH ST	1965	-	3,000	108
	WINONA 107558 - E 7TH ST	1964	-	3,500	64
	WINONA 107587 - E 9TH ST	1961	-	1,400	35
	WINONA 98058 - COLLEGEVIEW ST	1960	-	2,000	54
	WINONA 98162 - W 9TH ST	1960	-	3,400	64
	WINONA 98341 - E 8TH ST	1960	-	4,000	66
	WINONA 107603 - 7TH ST W	1966	1	5,800	138
	WINONA - EDGEWOOD RD	1965	-	3,950	49
	WINONA - LAIRD ST	1960	-	475	6
	WINONA - HILBERT ST	1948	-	6,850	66
	WINONA - 11TH ST/SUNSET DR	1960	-	15,050	194
	WINONA - W 6TH ST	1961	-	2,700	25
	WINONA 98082 -CONRAD DR	1961	-	5,300	133
2019 Designed DIMP-related Main Replacement Total				**185,535**	**2,385**

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TIMP and DIMP O&M Budget Estimates for 2018-2024 and Cost Data for Previous Years

DEFERRED ITEMS (Actual O&M Expense Only)	**2010**	**2011**	**2012**	**2013**	**2014**		**Total**	
11990774 - MN Rider Amortization								
TIMP	$ -	$ -	$ 580,929	$ 3,180,143	$ 340,062		$ 4,101,134	[A]
DIMP	$ 4,175,186	$ 3,639,148	$ 3,538,635	$ 3,630,020	$ 3,686,292		$ 18,669,281	[B]
	2015 YE Actuals	**2016 YE Actuals**	**2017 YE Actuals**	**2018 YE Budget**	**2019 YE Budget**		**Total**	
5 Year Amortization								
TIMP (annual amt. equals [A]/5)	$ 820,227	$ 820,227	$ 820,227	$ 820,227	$ 820,227		$ 4,101,134	
DIMP (annual amt. equals [B]/5)	$ 3,733,856	$ 3,733,856	$ 3,733,856	$ 3,733,856	$ 3,733,856		$ 18,669,281	
Grand Total	**$ 4,554,083**	**$ 4,554,083**	**$ 4,554,083**	**$ 4,554,083**	**$ 4,554,083**		**$ 22,770,415**	

MN GUIC Incremental O&M	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
	Actual	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**
TIMP O&M							
MN Transmission Pipeline Assessments	981,386	2,700,213	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000
MN East Metro Pipeline Replacement	-	-	-	-	-	-	-
Total TIMP O&M	**981,386**	**2,700,213**	**1,700,000**	**1,700,000**	**1,700,000**	**1,700,000**	**1,700,000**
MN Allocator (G Load Dispatch)	88.57%	88.31%	88.05%	87.71%	87.55%	87.76%	88.2000%
MN Allocated TIMP O&M	**869,187**	**2,384,612**	**1,496,838**	**1,491,104**	**1,488,308**	**1,491,845**	**1,499,400**
DIMP O&M							
MN IP Line Assessments	135,248	535,369	579,000	579,000	579,000	579,000	579,000
MN Poor Performing Mains	-	-	-	-	-	-	-
MN Poor Performing Services	-	-	-	-	-	-	-
MN Federal Code Mitigation	161,868	(200,790)	-	-	-	-	-
MN Sewer Conflict Investigation	2,527,134	2,383,392	-	-	-	-	-
Total DIMP O&M	**2,824,250**	**2,717,971**	**579,000**	**579,000**	**579,000**	**579,000**	**579,000**
Total Operations & Maintenance Expenses	**3,693,437**	**5,102,583**	**2,075,838**	**2,070,104**	**2,067,308**	**2,070,845**	**2,078,400**

	Universal Inputs				
	2018	**2019**	**2020**	**2021**	**2022**
Cap Structure (Last Authorized)					
Long Term Debt %	45.61%	45.81%	45.81%	45.81%	45.81%
Long Term Debt Cost	4.94%	4.75%	4.75%	4.75%	4.75%
Short Term Debt %	1.89%	1.69%	1.69%	1.69%	1.69%
Short Term Debt Cost	1.12%	4.31%	4.31%	4.31%	4.31%
Weighted Cost of Debt	2.27%	2.25%	2.25%	2.25%	2.25%
Common Stock %	52.50%	52.50%	52.50%	52.50%	52.50%
Common Stock Cost	9.04%	9.04%	9.04%	9.04%	9.04%
Weighted Cost of Equity	4.75%	4.75%	4.75%	4.75%	4.75%
Rate of Return	7.02%	7.00%	7.00%	7.00%	7.00%
Tax Rates					
Income Tax Rates					
State Income Tax Rate	9.80%	9.80%	9.80%	9.80%	9.80%
Federal Income Tax Rate	21.00%	21.00%	21.00%	21.00%	21.00%
Composite Income Tax Rate					
State Composite Income Tax Rate	28.7420%	28.7420%	28.7420%	28.7420%	28.7420%
Company Composite Income Tax Rate	28.1344%	28.1344%	28.1344%	28.1344%	28.1344%
Property Tax Rate	1.70%	1.70%	1.70%	1.70%	1.70%
Book Depreciation Lives					
Transmission		60.00	60.00	60.00	60.00
Distribution		36.81	36.81	36.81	36.81
Software		2.58	2.58	2.58	2.58
Net Salvage %					
Transmission		-15.00%	-15.00%	-15.00%	-15.00%
Distribution		-22.85%	-22.85%	-22.85%	-22.85%
Software		0.00%	0.00%	0.00%	0.00%
Book Depreciation Rates					
Transmission		1.31%	1.31%	1.31%	1.31%
Distribution		2.27%	2.27%	2.27%	2.27%
Software		19.71%	19.71%	19.71%	19.71%

*Note: Book Depreciation Rates reflect Average Remaining Life

" Minn. Stat. § 216B.1635 Subd. 3 (VII) magnitude of GUIC in relation to gas utility's rate base revenue approved by the Commission in gas utility's most recent general rate case, exclusive of gas purchase costs and transportation charges "

" Minn. Stat. § 216B.1635 Subd. 3 (VIII) magnitude of GUIC in relation to gas utility's capital expenditures since its most recent general rate case"

2010 Rate Case, Cost of Service Study - Docket G002/GR-09-1153
($000s)

Operating Revenues	**2010 TY**	
Retail	588,179	Fn 1
Operating Expenses:		
Fuel & Purchased Energy	429,081	
Base Revenue, Net of Gas Purchase Costs & Transportation Charges	**159,098**	[A]
Capital Expenditures (CWIP)	**29,890**	[B]

Proposed Gas Utility Infrastructure Costs (GUIC) Rider
(Dollars in Thousands)

	2018	**2019**	**2020**	**2021**	**2022**	
Revenue Collection Forecast	**17,546**	**23,705**	**21,285**	**29,461**	**34,517**	[C] Fn 2
% of GUIC Revenue as Compared to Base Revenue Approved in Docket G-002/GR-09-1153 (2010 TY)	11.03%	14.90%	13.38%	18.52%	21.70%	= [C] / [A]
Capital Expenditures Forecast	**45,704**	**41,357**	**51,869**	**48,425**	**51,887**	[D]
% of GUIC Capital Expenditures as Compared to Expenditures Approved in Docket G-002/GR-09-1153 (2010 TY)	152.91%	138.36%	173.53%	162.01%	173.60%	= [D] / [B]

Notes

Fn 1 Excludes $4.69 million of other operating income for customer-related charges not included in retail rates. See Compliance Filing in Docket G002/GR-09-1153: “Income Statement Adjustment Schedules”, Page 13, Line No. 4

Fn 2 Reflects forecasted revenue recovery for gas costs eligible for rider recovery under Minnesota 2013 Statute §216B.1635 Recovery of Gas Utility Infrastructure Costs, including:
(a) revenue requirements associated with new gas utility infrastructure projects, and
(b) deferred costs include implementation of the inspection and remediation of sewer/natural gas line conflicts approved in Docket No. G002/M-10-422 and costs to comply with gas pipeline safety programs approved in Docket No. G002/M-12-248

	GUIC Rider			Base Rates & PGA			MN Gas 2018 Annual Report			
Amounts in $000's	Dec - 2017	Dec - 2018	BOY/EOY Avg	Dec - 2017	Dec - 2018	BOY/EOY Avg	Dec - 2017	Dec - 2018	BOY/EOY Avg	Annual Report Page Reference
Rate Base										
Plant Investment	$ 102,388	$ 135,452	$ 118,920	$ 1,207,981	$ 1,174,916	$ 1,191,449	$ 1,310,368	$ 1,310,368	$ 1,310,368	G-2; G-16 + G-16A; G-34A
Depreciation Reserve	$ (3,330)	$ (608)	$ (1,969)	580,725	578,003	579,364	577,395	577,395	$ 577,395	G-2; G-19 + G-19A; G-34A
Net Utility Plant	105,718	136,060	120,889	627,256	596,913	612,084	732,973	732,973	732,973	
CWIP				30,461	30,461	30,461	30,461	30,461	30,461	G-2; G-34A
Accumulated Deferred Taxes	14,241	15,786	$ 15,014	173,456	171,911	172,684	187,697	187,697	187,697	sum G-29A
DTA - NOL Average Balance			-	-	-	-	-	-	-	G-29A; G-34B
Total Accum Deferred Taxes	14,241	15,786	15,014	173,456	171,911	172,684	187,697	187,697	187,697	G-29A
Cash Working Capital										
Materials and Supplies				1,117	1,117	1,117	1,117	1,117	1,117	G-34A
Fuel Inventory				19,981	19,981	19,981	19,981	19,981	19,981	G-34A
Non-plant Assets and Liabilities				(4,079)	(4,079)	(4,079)	(4,079)	(4,079)	(4,079)	G-34A
Prepaids and Other				202	202	202	202	202	202	G-34A
Regulatory Amortizations										
Total Other Rate Base Items				17,221	17,221	17,221	17,221	17,221	17,221	
Total Rate Base	**$ 91,476**	**$ 120,274**	**$ 105,875**	**$ 501,481**	**$ 472,684**	**$ 487,082**	**$ 592,957**	**$ 592,957**	**$ 592,957**	**G-34; G-34A**
	15.43%	20.28%	17.86%	84.57%	79.72%	82.14%	100.00%	100.00%	100.00%	
Amounts in $000's	2018			2018			2018			
Revenues										
Operating Revenues		$ 17,062			$ 500,580			$ 517,642		G-2; G-30; G-34
Expenses										
Operating Expenses:										
Production					4,833			4,833		G-33
Purchased Gas					253,553			253,553		G-33
Natural Gas Storage					3,872			3,872		G-33
Gas Transmission		389			49,146			49,535		G-33
Gas Distribution		2,715			31,770			34,485		G-33
Customer Accounting					11,322			11,322		G-33
Customer Service & Information					24,668			24,668		G-33
Sales, Econ Dvlp & Other					(5)			(5)		G-33
Administrative & General					23,445			23,445		G-33
Total Operating Expenses		3,104			402,604			405,708		G-2; G-30
Book Depreciation		2,225			35,666			37,891		G-30
Amortization		1,795			(1,911)			(116)		G-30; G-30-1
Total Depreciation and Amortization		4,021			33,754			37,775		G-2
Taxes:										
Total Federal Income Taxes					2,182			2,182		G-30
Total State Income Taxes					4,217			4,217		G-30
Property Taxes		1,424			13,973			15,396		G-30
Deferred Income Tax & ITC		1,545			2,532			4,076		G-30
Payroll & Other Taxes					2,499			2,499		G-30
Total Taxes Other Than Income		2,968			19,003			21,971		G-30
Total Taxes		2,968			25,402			28,370		G-30
Total Expenses		10,093			461,760			471,853		G-2; G-30; G-34
Net Operating Income		6,969			38,820			45,789		G-30; G-34
AFUDC					1,683			1,683		G-2; G-32; G-34
Net Income		**$ 6,969**			**$ 40,503**			**$ 47,472**		**G-2; G-34**
		14.68%			85.32%			100.00%		
Revenue Requirements Calculation										
ROR		7.02%			7.47%			7.47%		
Average Rate Base		95,430	GUIC 13 Mo Ave, not BOY/EOY		487,082			592,957		
Required Operating Income		6,699			36,385			44,294		
Net Income		6,969			40,503			47,472		
Income Deficiency		(270)			(4,118)			(3,178)		
Revenue Conversion Factor		1.403351			1.403351			1.403351		
Revenue Deficiency		(378)			(5,779)			(4,460)		
Revenue Requirements		**$ 16,683**			**$ 494,801**			**$ 509,278**		
		3.28%			97.16%			100.00%		

MN GUIC Rider - Annual Tracker Summary

	2018	2019	2020	2021
	Actual	Forecast	Forecast	Forecast
Operations & Maintenance Expenses				
TIMP	869,187	2,384,612	1,496,838	1,491,104
DIMP	2,824,250	2,717,971	579,000	579,000
Total Operations & Maintenance Expenses	3,693,437	5,102,583	2,075,838	2,070,104
Capital-Related Revenue Requirements				
TIMP	7,905,546	8,721,590	10,528,575	15,966,855
DIMP	5,065,479	9,580,042	11,980,680	13,977,928
Total Capital-Related Revenue Requirments	12,971,024	18,301,632	22,509,255	29,944,783
Deferred Gas Infrastructure Costs				
TIMP	820,227	820,227	-	-
DIMP	3,733,856	3,733,856	-	-
Total Deferred Gas Infrastructure Costs	4,554,083	4,554,083	-	-
GUIC Retirement Revenue Credits	(484,635)	(757,540)	(695,217)	0
Revenue Requirement in Base Rates	(480,000)	(480,000)	(480,000)	(480,000)
Regulatory Treatment	(889,545)	(2,075,424)	(2,125,154)	(2,073,451)
Revenue Requirement Subtotal	**19,364,364**	**24,645,334**	**21,284,722**	**29,461,436**
Prior Year Carryover	(2,758,845)	(940,727)	-	-
Revenue Requirement (RR)	**16,605,519**	**23,704,608**	**21,284,722**	**29,461,436**
Revenue Collections (RC)	17,546,246	23,704,608	21,284,722	29,461,436
Carryover Balance (RR - RC)	(940,727)	-	-	-

2018 Tracker													
	Jan-18	**Feb-18**	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**Aug-18**	**Sep-18**	**Oct-18**	**Nov-18**	**Dec-18**	**Annual Total**
	Actual	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	
Operations & Maintenance Expenses													
TIMP	(10,670)	11,522	63,890	53,164	201,394	55,115	13,639	17,813	179,589	70,040	96,464	117,227	869,187
DIMP	(22,859)	42,863	116,650	46,755	243,851	306,483	308,310	481,603	333,388	270,627	230,385	466,193	2,824,250
Total Operations & Maintenance Expenses	(33,529)	54,385	180,540	99,918	445,246	361,598	321,949	499,415	512,978	340,668	326,849	583,420	3,693,437
Capital-Related Revenue Requirements													
TIMP*	574,189	574,466	1,346,474	594,933	602,333	603,882	1,001,158	681,514	77,039	585,245	630,355	633,958	7,905,546
DIMP*	427,208	417,097	417,790	422,445	420,860	405,111	408,061	288,576	358,193	338,761	583,462	577,915	5,065,479
Total Capital-Related Revenue Requirements	1,001,396	991,563	1,764,264	1,017,378	1,023,193	1,008,993	1,409,219	970,090	435,232	924,005	1,213,817	1,211,873	12,971,024
Deferred Gas Infrastructure Costs													
TIMP*	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	820,227
DIMP*	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	3,733,856
Total Deferred Gas Infrastructure Costs	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	4,554,083
GUIC Retirement Revenue Credits	(480,210)	74	86	589	31	130	249	747	(57)	528	(3,836)	(2,967)	(484,635)
Revenue Requirement in Base Rates	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(480,000)
Regulatory Treatment	(434,472)	(13,059)	(13,788)	(19,274)	(25,318)	(29,517)	(35,546)	(42,900)	(52,732)	(64,171)	(74,689)	(84,080)	(889,545)
Revenue Requirement Subtotal	**392,692**	**1,372,470**	**2,270,609**	**1,438,118**	**1,782,660**	**1,680,711**	**2,035,379**	**1,766,859**	**1,234,928**	**1,540,537**	**1,801,648**	**2,047,754**	**19,364,364**

Prior Year Carryover Balance	(2,758,845)
Total Revenue Requirements	**16,605,519**
Revenue Collections at previous Do. 15-808 rate (Mar 2019 - Aug 2019)	**5,946,246**
Revenue Collections at new Do. 16-891 rate (Sept 2019 - Feb 2020)	**11,600,000**
Current Year Carryover Balance	**(940,727)**

2019 Tracker													
	Jan-19	**Feb-19**	**Mar-19**	**Apr-19**	**May-19**	**Jun-19**	**Jul-19**	**Aug-19**	**Sep-19**	**Oct-19**	**Nov-19**	**Dec-19**	**Annual Total**
	Actual	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	
Operations & Maintenance Expenses													
TIMP	284	7,959	414	-	3,854	25,910	299,513	374,392	499,189	748,784	49,919	374,394	2,384,612
DIMP	(130,325)	10,611	30,553	14,329	152,994	259,343	490,488	502,776	477,110	290,323	343,703	276,066	2,717,971
Total Operations & Maintenance Expenses	(130,042)	18,571	30,967	14,329	156,848	285,253	790,001	877,168	976,299	1,039,107	393,622	650,460	5,102,583
Capital-Related Revenue Requirements													
TIMP	716,035	712,554	713,133	691,017	694,925	685,318	693,944	658,746	738,522	786,149	815,446	815,802	8,721,590
DIMP	782,409	794,420	791,814	742,290	750,985	722,700	751,296	784,497	825,640	844,903	881,240	907,848	9,580,042
Total Capital-Related Revenue Requirements	1,498,444	1,506,973	1,504,947	1,433,307	1,445,910	1,408,018	1,445,240	1,443,243	1,564,162	1,631,052	1,696,685	1,723,650	18,301,632
Deferred Gas Infrastructure Costs													
TIMP	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	68,352	820,227
DIMP	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	311,155	3,733,856
Total Deferred Gas Infrastructure Costs	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	379,507	4,554,083
GUIC Retirement Revenue Credits	(757,540)	0	0	0	0	0	0	0	0	0	0	0	(757,540)
Revenue Requirement in Base Rates	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(480,000)
Regulatory Treatment	(701,846)	(97,545)	(98,086)	(103,374)	(109,220)	(113,225)	(119,056)	(126,211)	(135,838)	(147,070)	(157,383)	(166,571)	(2,075,424)
Revenue Requirement Subtotal	**248,524**	**1,767,506**	**1,777,336**	**1,683,769**	**1,833,045**	**1,919,553**	**2,455,692**	**2,533,707**	**2,744,129**	**2,862,597**	**2,272,431**	**2,547,046**	**24,645,334**

Prior Year Carryover Balance	(940,727)
Total Revenue Requirements	**23,704,608**

2020 Tracker													
	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Annual Total
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	
Operations & Maintenance Expenses													
TIMP	-	-	-	-	-	143,927	172,712	215,890	287,853	431,781	28,785	215,890	1,496,838
DIMP	-	-	-	-	20,170	39,330	29,258	112,058	112,058	112,058	86,834	67,234	579,000
Total Operations & Maintenance Expenses	-	-	-	-	20,170	183,257	201,970	327,948	399,911	543,839	115,619	283,124	2,075,838
Capital-Related Revenue Requirements													
TIMP	854,534	855,353	852,346	837,769	843,046	838,931	846,075	849,291	869,701	893,658	905,412	1,082,460	10,528,575
DIMP	969,879	970,138	973,691	970,291	956,288	959,191	977,932	982,360	1,016,613	1,035,726	1,063,017	1,105,553	11,980,680
Total Capital-Related Revenue Requirements	1,824,413	1,825,491	1,826,036	1,808,060	1,799,335	1,798,121	1,824,007	1,831,652	1,886,313	1,929,384	1,968,430	2,188,012	22,509,255
Deferred Gas Infrastructure Costs													
TIMP	-	-	-	-	-	-	-	-	-	-	-	-	-
DIMP	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Deferred Gas Infrastructure Costs	-	-	-	-	-	-	-	-	-	-	-	-	-
GUIC Retirement Revenue Credits	(695,218)	0	0	0	0	0	0	0	0	0	0	0	(695,217)
Revenue Requirement in Base Rates	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(480,000)
Regulatory Treatment	(179,158)	(178,783)	(178,408)	(178,033)	(177,659)	(177,284)	(176,909)	(176,534)	(176,159)	(175,784)	(175,409)	(175,034)	(2,125,154)
Revenue Requirement Subtotal	**910,037**	**1,606,708**	**1,607,628**	**1,590,027**	**1,601,846**	**1,764,095**	**1,809,069**	**1,943,066**	**2,070,066**	**2,257,439**	**1,868,640**	**2,256,102**	**21,284,722**

Prior Year Carryover Balance	-
Total Revenue Requirements	**21,284,722**

2021 Tracker													
	Jan-21	**Feb-21**	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Annual Total**
	Forecast	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	**Forecast**	
Operations & Maintenance Expenses													
TIMP	-	-	-	-	-	143,376	172,051	215,063	286,751	430,126	28,675	215,063	1,491,104
DIMP	-	-	-	-	20,170	39,330	29,258	112,058	112,058	112,058	86,834	67,234	579,000
Total Operations & Maintenance Expenses	-	-	-	-	20,170	182,706	201,309	327,121	398,809	542,184	115,509	282,297	2,070,104
Capital-Related Revenue Requirements													
TIMP	1,317,420	1,315,890	1,314,679	1,310,794	1,313,419	1,310,677	1,317,447	1,328,078	1,344,497	1,353,414	1,369,478	1,371,062	15,966,855
DIMP	1,141,112	1,140,807	1,142,343	1,133,685	1,111,622	1,113,107	1,129,813	1,117,125	1,171,982	1,195,360	1,242,566	1,338,407	13,977,928
Total Capital-Related Revenue Requirements	2,458,532	2,456,696	2,457,023	2,444,479	2,425,041	2,423,784	2,447,260	2,445,202	2,516,479	2,548,775	2,612,044	2,709,469	29,944,783
Deferred Gas Infrastructure Costs													
TIMP	-	-	-	-	-	-	-	-	-	-	-	-	-
DIMP	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Deferred Gas Infrastructure Costs	-	-	-	-	-	-	-	-	-	-	-	-	-
GUIC Retirement Revenue Credits	0	0	0	0	0	0	0	0	0	0	0	0	0
Revenue Requirement in Base Rates	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(480,000)
Regulatory Treatment	(174,746)	(174,390)	(174,034)	(173,678)	(173,322)	(172,966)	(172,610)	(172,254)	(171,898)	(171,542)	(171,186)	(170,829)	(2,073,451)
Revenue Requirement Subtotal	**2,243,787**	**2,242,307**	**2,242,989**	**2,230,801**	**2,231,889**	**2,393,524**	**2,435,959**	**2,560,069**	**2,703,390**	**2,879,417**	**2,516,367**	**2,780,936**	**29,461,436**

Prior Year Carryover Balance	-
Total Revenue Requirements	**29,461,436**

Revenue Requirements Category Descriptions

Attachments G and H to this Petition respectively provide the TIMP and DIMP annual revenue requirements for 2018-2021. The rate base categories in our proposed revenue requirements analysis and rationale for including or excluding costs in each category are explained below.

Plus Plant in Service: This is an addition to rate base. This category reflects the original cost of gas plant that has been put into service. In the specific case of the annual 2020 plant in service for gas utility infrastructure projects (GUIC), the $137,452,399 for TIMP (Attachment G) and $110,461,393 for DIMP (Attachment H) reflect the dollar-value portion of the project in service as of December 31, 2020, which results in an increase to rate base. Standard ratemaking methodology calls for the inclusion of this item in the determination of rate base.

Less Book Depreciation Reserve: This is a reduction to rate base. It reflects the accumulated recovery of the amount invested in plant in service. In the specific case of the 2020 book depreciation reserve for GUIC projects, the $549,799 for TIMP (Attachment G) and ($2,628,044) for DIMP (Attachment H) reflect the amount of the plant in service that has been recovered as of December 31, 2020, which results in an increase to rate base. Standard ratemaking methodology calls for the exclusion of this credit balance in an asset account (contra-asset) from plant in service in the determination of rate base.

Less Accum Deferred Taxes: This is a reduction to rate base. It reflects the tax timing differences between book and tax depreciation lives and other non-plant book/tax timing differences, multiplied by the tax rate. Over the life of an asset, the Accumulated Deferred Tax is zero. In the specific case of the 2020 accumulated deferred taxes for GUIC projects, the $11,341,794 for TIMP (Attachment G) and $10,523,857 for DIMP (Attachment H) reflect the accumulation of tax timing differences between book and tax depreciation through December 31, 2020, which results in a decrease to rate base. Standard ratemaking methodology calls for the exclusion of this timing-related asset in the determination of rate base.

Below we describe the categories we use to calculate the return in our proposed revenue requirements analysis, and our rationale for including costs in each category. We note that for both items below, standard ratemaking methodology calls for the inclusion of these items in the calculation of revenue requirements.

Plus Debt Return: This category reflects the return the Company is allowed in order to recover its weighted cost of debt for financing its capital investments. In the specific case of the annual 2020 debt return for GUIC return the Company is allowed in order to recover its weighted cost of debt for financing its capital projects, the $1,823,739 for TIMP (Attachment G) and $2,106,137 for DIMP (Attachment H) reflect the amount of debt return the Company is allowed for January 2020 - December 2020 based on the cost of debt and ratios approved in the most recent GUIC filing (Docket No. G002/M-18-692).

Plus Equity Return: This category reflects the return the Company is allowed in order to recover its weighted cost of equity for financing its capital investments. In the specific case of the annual 2020 equity return for GUIC projects, the $3,850,115 for TIMP (Attachment G) and $4,446,289 for DIMP (Attachment H) reflect the amount of return on equity the Company is allowed for January 2020 - December 2020 based on the equity ratio approved in the most recent GUIC filing (Docket No. G002/M-18-692) and the return on equity proposed in the present GUIC docket.

The types of income statement categories, description and rationale for including costs in each category in the Company's proposed revenue requirements analysis are described below. For all four items, standard ratemaking methodology calls for the inclusion of these items in the calculation of revenue requirements.

Plus Property Taxes: This category reflects the estimated property taxes billed from local taxing authorities that the Company must pay based on the original cost of the Company's assets. Property taxes accrued are based on the original cost at December 31 from the prior year, and then paid the following year. In the specific case of the estimated annual 2020 property tax amount for GUIC projects, the $1,479,478 for TIMP (Attachment G) and $1,596,840 for DIMP (Attachment H) reflect property tax rates based on ending plant in service as of December 31, 2017 payable in 2019.

Plus Book Depreciation: This category reflects the monthly/annual depreciation expense that is accumulated in the book depreciation reserve defined in part a) subsection ii). In the specific case of the annual 2020 book depreciation for GUIC projects, the $1,658,352 for TIMP (Attachment G) and $2,078,671 for DIMP (Attachment H) reflect the amount of plant in service that is being recovered through depreciation expense from January 2020-December 2020 and results in an increase to revenue requirements.

Plus Deferred Taxes: This category reflects the monthly/annual deferred tax expense that is accumulated in the accumulated deferred reserve defined in part a) subsection iii). In the specific case of the annual 2020 deferred taxes for GUIC projects, the $1,791,771 for TIMP (Attachment G) and $1,505,618 for DIMP (Attachment H) reflect the January 1, 2020 - December 31, 2020 tax timing difference when book expense differs from tax expense and results in an increase to revenue requirements.

Plus Gross Up for Income Taxes: This category reflects the current income taxes the Company is anticipated to pay based on its taxable income. In the specific case of the annual 2020 current taxes for GUIC projects, the ($74,880) for TIMP (Attachment G) and $247,125 for DIMP (Attachment H) reflect the amount of current income taxes the Company is anticipating to pay as a result of the taxable income being generated by GUIC projects.

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18
Revenue Requirement Subtotal	1,543,660	1,476,291	1,550,066	1,306,131	1,570,762	1,706,251	1,643,289	1,575,073	1,551,021	1,906,545	1,987,309	1,621,902	392,692	1,372,470
Revenue Collections	1,126,556	717,341	748,292	387,813	263,473	179,974	175,650	158,511	183,916	321,225	703,628	1,064,416	1,168,573	1,031,712
Carryover Rollforward:														
Carryover Beginning Balance	-	-	-	538,473	6,026,808	7,334,096	8,860,373	10,328,013	11,744,574	13,111,679	14,696,999	15,980,679	16,538,164	15,369,591
Activity (Under/(Over) Collection)	417,104	758,950	801,775	918,318	1,307,288	1,526,278	1,467,639	1,416,562	1,367,105	1,585,320	1,283,680	557,485	(775,881)	340,758
Deferral Impact	(1,543,660)	(1,476,291)	(1,550,066)	4,570,017									(392,692)	(1,372,470)
Carryover Ending Balance	(1,126,556)	(717,341)	(748,292)	6,026,808	7,334,096	8,860,373	10,328,013	11,744,574	13,111,679	14,696,999	15,980,679	16,538,164	15,369,591	14,337,879

Rate by Class:	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Estimated Revenue Collections	**Jan-17**	**Feb-17**	**Mar-17**	**Apr-17**	**May-17**	**Jun-17**	**Jul-17**	**Aug-17**	**Sep-17**	**Oct-17**	**Nov-17**	**Dec-17**	**Jan-18**	**Feb-18**
Residential	764,737	482,791	497,799	229,980	138,176	88,606	69,278	73,306	88,769	189,411	469,534	713,375	801,959	704,935
Commercial Firm	239,658	152,416	157,236	77,048	52,944	29,427	25,725	27,183	31,813	62,559	145,470	227,299	251,703	217,226
Commercial Demand Billed	21,399	18,861	12,850	11,440	9,480	8,111	7,127	8,022	11,100	7,530	14,695	19,686	22,329	16,838
Interruptible	60,646	34,893	38,329	34,380	26,212	17,266	24,532	20,789	20,984	31,811	39,677	59,602	48,582	51,611
Transport	40,116	28,381	42,079	34,965	36,661	36,563	48,988	29,211	31,250	29,914	34,252	44,454	44,000	41,102
	1,126,556	717,341	748,292	387,813	263,473	179,974	175,650	158,511	183,916	321,225	703,628	1,064,416	1,168,573	1,031,712
Sales by Customer Group														
Residential	70,018,040	44,203,507	45,577,603	21,056,625	12,651,163	8,112,657	6,342,989	6,711,762	8,127,562	17,342,154	42,989,748	65,315,456	73,426,012	64,542,634
Commercial Firm	39,223,882	24,945,263	25,734,179	12,610,066	8,665,180	4,816,167	4,210,252	4,448,942	5,206,677	10,238,792	23,808,496	37,201,090	41,195,263	35,552,603
Commercial Demand Billed	4,057,500	3,576,221	2,436,434	2,169,125	1,797,545	1,537,990	1,351,319	1,521,039	2,104,703	1,427,823	2,786,400	3,732,731	4,233,868	3,192,678
Interruptible	15,711,352	9,039,580	9,929,732	8,906,818	6,790,681	4,473,066	6,355,338	5,385,877	5,436,289	8,241,128	10,279,117	15,440,864	12,585,901	13,370,819
Transport	25,551,561	18,076,885	26,801,682	22,270,554	23,350,892	23,288,497	31,202,790	18,605,815	19,904,229	19,053,465	21,816,268	28,314,783	28,025,586	26,179,299
Total Sales	154,562,334	99,841,457	110,479,630	67,013,188	53,255,462	42,228,377	49,462,688	36,673,435	40,779,461	56,303,363	101,680,029	150,004,925	159,466,630	142,838,034
Allocated Cost Per therm														
Residential	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922	0.010922
Commercial Firm	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110	0.006110
Commercial Demand Billed	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274	0.005274
Interruptible	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860	0.003860
Transport	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570	0.001570

	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19
Revenue Requirement Subtotal	2,270,609	1,438,118	1,782,660	1,680,711	2,035,379	1,766,859	1,234,928	1,540,537	1,801,648	2,047,754	248,524	1,767,506
Revenue Collections	1,954,223	1,534,546	596,436	455,180	455,986	462,696	482,709	1,063,808	2,017,585	2,337,930	3,028,269	2,707,320
Carryover Rollforward:												
Carryover Beginning Balance	14,337,879	12,383,655	10,849,109	10,252,674	9,797,494	9,341,508	8,878,811	8,396,102	7,332,294	5,314,709	2,976,778	(51,491)
Activity (Under/(Over) Collection)	316,386	(96,428)	1,186,224	1,225,531	1,579,393	1,304,163	752,218	476,729	(215,937)	(290,177)	(2,779,745)	(939,814)
Deferral Impact	(2,270,609)	(1,438,118)	(1,782,660)	(1,680,711)	(2,035,379)	(1,766,859)	(1,234,928)	(1,540,537)	(1,801,648)	(2,047,754)	(248,524)	(1,767,506)
Carryover Ending Balance	12,383,655	10,849,109	10,252,674	9,797,494	9,341,508	8,878,811	8,396,102	7,332,294	5,314,709	2,976,778	(51,491)	(2,758,810)

2017 Annual Revenue Requirements (Jan 2017-Dec 2017)	19,438,298
Carryover Balance at beginning of collection period	538,473
Total 2018 Revenue Requirement	19,976,771
Revenue Collections from April 2017 - February 2019	22,735,581
Carryover Balance at End of collection period	(2,758,810)

Rate by Class:	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Estimated Revenue Collections	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**Aug-18**	**Sep-18**	**Oct-18**	**Nov-18**	**Dec-18**	**Jan-19**	**Feb-19**
Residential	1,308,440	1,027,011	269,626	207,058	174,299	186,024	226,541	693,278	1,373,632	1,566,582	2,190,617	1,860,910
Commercial Firm	428,500	304,489	115,688	72,269	62,471	69,549	81,453	218,467	447,921	529,714	587,934	550,765
Commercial Demand Billed	38,429	33,161	17,665	17,864	17,455	16,664	18,749	26,788	42,142	42,995	43,771	40,563
Interruptible	101,038	77,566	43,544	43,759	37,910	44,149	48,574	65,842	87,799	126,632	111,741	109,802
Transport	77,817	92,318	149,913	114,231	163,853	146,311	107,393	59,434	66,091	72,008	94,205	145,280
	1,954,223	1,534,546	596,436	455,180	455,986	462,696	482,709	1,063,809	2,017,585	2,337,930	3,028,269	2,707,320
Sales by Customer Group												
Residential	47,348,909	37,164,770	9,757,038	7,492,867	6,307,397	6,731,725	8,197,896	25,087,846	49,708,054	56,690,376	79,272,519	67,341,314
Commercial Firm	28,415,100	20,191,599	7,671,614	4,792,361	4,142,612	4,611,978	5,401,390	14,487,205	29,702,983	35,126,935	38,987,692	36,522,890
Commercial Demand Billed	3,391,202	2,926,356	1,558,827	1,576,378	1,540,303	1,470,529	1,654,478	2,363,902	3,718,827	3,794,081	3,862,639	3,579,473
Interruptible	12,452,304	9,559,547	5,366,490	5,393,076	4,672,129	5,441,028	5,986,493	8,114,627	10,820,648	15,606,645	13,771,416	13,532,436
Transport	23,674,159	28,085,750	45,607,931	34,752,206	49,848,646	44,511,947	32,671,941	18,081,591	20,106,686	21,906,760	28,659,872	44,198,360
Total Sales	115,281,673	97,928,022	69,961,901	54,006,888	66,511,088	62,767,207	53,912,199	68,135,172	114,057,199	133,124,796	164,554,138	165,174,472
Allocated Cost Per therm												
Residential	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634
Commercial Firm	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080
Commercial Demand Billed	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332
Interruptible	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114
Transport	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287

	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
Revenue Requirement Subtotal	1,777,336	1,683,769	1,833,045	1,919,553	2,455,692	2,533,707	2,744,129	2,862,597	2,272,431	2,547,046	910,037	1,606,708
Revenue Collections	2,311,014	1,322,655	815,220	499,001	502,184	496,172	461,054	946,843	1,786,915	2,728,315	3,080,423	2,596,449
Carryover Rollforward:												
Carryover Beginning Balance	(2,758,810)	16,071,875	12,971,884	12,156,665	11,657,664	11,155,480	10,659,308	10,198,254	9,251,411	7,464,496	4,736,181	1,655,758
Activity (Under/(Over) Collection)	(533,679)	361,114	1,017,826	1,420,552	1,953,509	2,037,535	2,283,075	1,915,753	485,516	(181,269)	(2,170,386)	(989,742)
Deferral Impact	19,364,364	(3,461,105)	(1,833,045)	(1,919,553)	(2,455,692)	(2,533,707)	(2,744,129)	(2,862,597)	(2,272,431)	(2,547,046)	(910,037)	(1,606,708)
Carryover Ending Balance	16,071,875	12,971,884	12,156,665	11,657,664	11,155,480	10,659,308	10,198,254	9,251,411	7,464,496	4,736,181	1,655,758	(940,692)

2018 Annual Revenue Requirements (Jan 2018-Dec 2018)	19,364,364
Carryover Balance at beginning of collection period	(2,758,810)
Total 2018 Revenue Requirement	16,605,554
Revenue Collections from March 2019 - February 2020	17,546,246
Carryover Balance at End of collection period	(940,692)

Rate by Class:	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Estimated Revenue Collections	**Mar-19**	**Apr-19**	**May-19**	**Jun-19**	**Jul-19**	**Aug-19**	**Sep-19**	**Oct-19**	**Nov-19**	**Dec-19**	**Jan-20**	**Feb-20**
Residential	1,515,606	779,208	475,091	236,819	185,741	183,209	255,673	596,479	1,249,562	1,927,275	2,203,979	1,847,812
Commercial Firm	506,379	264,554	154,169	73,290	67,958	70,823	89,692	194,402	390,510	610,587	675,251	571,617
Commercial Demand Billed	39,880	26,144	22,352	15,435	16,538	18,097	19,280	26,720	34,613	42,825	46,223	42,420
Interruptible	104,394	82,896	43,862	37,688	45,434	46,805	47,175	65,137	87,940	117,307	113,496	113,568
Transport	144,755	169,854	119,747	135,770	186,512	177,236	49,235	64,106	24,290	30,321	41,474	21,033
	2,311,014	1,322,655	815,220	499,001	502,184	496,172	461,054	946,843	1,786,915	2,728,315	3,080,423	2,596,449
Sales by Customer Group												
Residential	54,845,695	28,197,421	17,192,257	8,569,824	6,721,451	6,629,851	8,609,691	20,086,161	42,078,449	64,900,143	74,218,046	62,224,271
Commercial Firm	33,579,540	17,543,389	10,223,381	4,860,075	4,506,530	4,696,505	5,648,798	12,243,491	24,594,439	38,454,922	42,527,477	36,000,540
Commercial Demand Billed	3,519,224	2,307,070	1,972,452	1,362,031	1,459,430	1,597,024	1,716,343	2,378,685	3,081,344	3,812,435	4,114,945	3,776,404
Interruptible	12,865,964	10,216,378	5,405,699	4,644,846	5,599,485	5,768,444	5,406,829	7,465,561	10,079,073	13,444,973	13,008,131	13,016,336
Transport	44,038,567	51,674,524	36,430,365	41,305,047	56,742,318	53,920,438	29,359,079	38,226,391	14,484,143	18,080,300	24,730,956	12,542,039
Total Sales	148,848,990	109,938,781	71,224,155	60,741,824	75,029,215	72,612,262	50,740,739	80,400,290	94,317,447	138,692,772	158,599,555	127,559,590
Allocated Cost Per therm												
Residential	0.027634	0.027634	0.027634	0.027634	0.027634	0.027634	$0.0296960	$0.0296960	$0.0296960	$0.0296960	$0.0296960	$0.0296960
Commercial Firm	0.015080	0.015080	0.015080	0.015080	0.015080	0.015080	$0.0158780	$0.0158780	$0.0158780	$0.0158780	$0.0158780	$0.0158780
Commercial Demand Billed	0.011332	0.011332	0.011332	0.011332	0.011332	0.011332	$0.0112330	$0.0112330	$0.0112330	$0.0112330	$0.0112330	$0.0112330
Interruptible	0.008114	0.008114	0.008114	0.008114	0.008114	0.008114	$0.0087250	$0.0087250	$0.0087250	$0.0087250	$0.0087250	$0.0087250
Transport	0.003287	0.003287	0.003287	0.003287	0.003287	0.003287	$0.0016770	$0.0016770	$0.0016770	$0.0016770	$0.0016770	$0.0016770

	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21
Revenue Requirement Subtotal	1,607,628	1,590,027	1,601,846	1,764,095	1,809,069	1,943,066	2,070,066	2,257,439	1,868,640	2,256,102	2,243,787	2,242,307
Revenue Collections	2,863,470	1,724,526	1,115,094	559,379	672,256	716,005	704,434	1,371,092	2,428,315	3,820,655	4,088,786	3,640,630
Carryover Rollforward:												
Carryover Beginning Balance	(940,692)	22,448,801	19,116,646	18,001,552	17,442,173	16,769,917	16,053,912	15,349,478	13,978,386	11,550,071	7,729,416	3,640,630
Activity (Under/(Over) Collection)	(1,255,842)	(134,500)	486,752	1,204,716	1,136,813	1,227,061	1,365,632	886,346	(559,676)	(1,564,553)	(1,844,999)	(1,398,323)
Deferral Impact	24,645,334	(3,197,655)	(1,601,846)	(1,764,095)	(1,809,069)	(1,943,066)	(2,070,066)	(2,257,439)	(1,868,640)	(2,256,102)	(2,243,787)	(2,242,307)
Carryover Ending Balance	22,448,801	19,116,646	18,001,552	17,442,173	16,769,917	16,053,912	15,349,478	13,978,386	11,550,071	7,729,416	3,640,630	0

2019 Annual Revenue Requirements (Jan 2019-Dec 2019)	24,645,334
Carryover Balance at beginning of collection period	(940,692)
Total 2019 Revenue Requirement	23,704,642
Revenue Collections from Mar 2020-Feb 2021	23,704,642
Carryover Balance at End of collection period	-
Total Sales from Revenue Collection Period	1,003,609,049
Annual Cost Per Therm	0.023619

Rate by Class:	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Estimated Revenue Collections	**Mar-20**	**Apr-20**	**May-20**	**Jun-20**	**Jul-20**	**Aug-20**	**Sep-20**	**Oct-20**	**Nov-20**	**Dec-20**	**Jan-21**	**Feb-21**
Residential	1,993,772	1,148,570	698,054	213,152	310,136	337,402	402,034	909,359	1,664,264	2,785,371	2,887,526	2,585,662
Commercial Firm	614,104	373,514	222,731	164,245	136,617	149,013	146,755	272,894	510,006	766,834	892,540	790,283
Commercial Demand Billed	57,332	39,221	35,284	23,975	23,017	25,458	25,572	33,065	51,369	58,803	64,364	60,575
Interruptible	143,386	111,151	87,687	70,991	67,837	76,858	64,258	85,101	151,081	149,752	166,946	164,761
Transport	54,875	52,069	71,339	87,015	134,649	127,274	65,814	70,673	51,596	59,896	77,409	39,349
	2,863,470	1,724,526	1,115,094	559,379	672,256	716,005	704,434	1,371,092	2,428,315	3,820,655	4,088,786	3,640,630
Sales by Customer Group	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Residential	47,863,550	27,573,198	16,757,846	5,117,049	7,445,302	8,099,865	9,651,451	21,830,548	39,953,218	66,867,111	69,319,506	62,072,782
Commercial Firm	27,985,548	17,021,540	10,150,157	7,484,892	6,225,808	6,790,719	6,687,845	12,436,164	23,241,668	34,945,680	40,674,263	36,014,273
Commercial Demand Billed	3,534,345	2,417,864	2,175,126	1,477,960	1,418,890	1,569,416	1,576,422	2,038,341	3,166,696	3,624,983	3,967,806	3,734,260
Interruptible	11,049,101	8,565,101	6,756,969	5,470,462	5,227,418	5,922,527	4,951,633	6,557,763	11,642,003	11,539,581	12,864,588	12,696,189
Transport	15,839,179	15,029,268	20,591,282	25,115,945	38,864,862	36,736,090	18,996,500	20,398,936	14,892,557	17,288,156	22,343,267	11,357,578
Total Sales	106,271,723	70,606,972	56,431,380	44,666,309	59,182,281	59,118,618	41,863,851	63,261,751	92,896,141	134,265,512	149,169,430	125,875,082
Allocated Cost Per therm												
Residential	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553	$0.0416553
Commercial Firm	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436	$0.0219436
Commercial Demand Billed	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215	$0.0162215
Interruptible	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772	$0.0129772
Transport	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645	$0.0034645

	Revenue Apportionment	GUIC $ recovered in Mar20-Feb21	Mar20-Feb21 Sales therms	Mar20-Feb21 GUIC Factors $/therm
Residential	67.224%	15,935,304	382,551,426	0.041655
Commercial Firm	21.260%	5,039,536	229,658,557	0.021944
Commercial Demand Billed	2.101%	498,035	30,702,109	0.016222
Interruptible	5.652%	1,339,810	103,243,336	0.012977
Transportation	3.763%	891,958	257,453,622	0.003465
Total		23,704,642	1,003,609,049	
*Revenue Apportionment Allocations - Do. No. G002/GR-09-1153		-	-	

	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22
Revenue Requirement Subtotal	2,242,989	2,230,801	2,231,889	2,393,524	2,435,959	2,560,069	2,703,390	2,879,417	2,516,367	2,780,936	2,634,891	2,635,595
Revenue Collections	2,559,640	1,554,801	995,760	492,742	632,248	628,922	629,947	1,261,679	2,148,446	3,427,823	3,678,291	3,274,424
Carryover Rollforward:												
Carryover Beginning Balance	0	20,968,071	17,170,281	16,174,521	15,681,779	15,049,531	14,420,609	13,790,662	12,528,984	10,380,538	6,952,715	3,274,424
Activity (Under/(Over) Collection)	(316,650)	676,000	1,236,129	1,900,782	1,803,712	1,931,147	2,073,443	1,617,739	367,921	(646,886)	(1,043,400)	(638,829)
Deferral Impact	21,284,722	(4,473,790)	(2,231,889)	(2,393,524)	(2,435,959)	(2,560,069)	(2,703,390)	(2,879,417)	(2,516,367)	(2,780,936)	(2,634,891)	(2,635,595)
Carryover Ending Balance	20,968,071	17,170,281	16,174,521	15,681,779	15,049,531	14,420,609	13,790,662	12,528,984	10,380,538	6,952,715	3,274,424	0

2020 Annual Revenue Requirements (Jan 2020-Dec 2020)	21,284,722
Carryover Balance at beginning of collection period	0
Total 2020 Revenue Requirement	21,284,722
Revenue Collections from Mar 2021-Feb 2022	21,284,722
Carryover Balance at End of collection period	-
Total Sales from Revenue Collection Period	985,476,691
Annual Cost Per Therm	0.021598

Rate by Class:	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Estimated Revenue Collections	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**
Residential	1,785,678	1,032,417	628,235	192,633	292,746	288,414	358,674	827,618	1,482,806	2,498,539	2,597,976	2,322,790
Commercial Firm	543,430	336,665	204,804	149,660	132,661	131,191	135,157	257,331	446,519	685,119	795,620	706,912
Commercial Demand Billed	49,157	35,614	32,182	21,618	21,832	21,876	23,058	31,327	44,094	53,426	57,900	55,107
Interruptible	126,655	99,793	79,264	63,755	63,227	67,055	57,491	78,891	132,274	135,496	150,183	148,950
Transport	54,720	50,312	51,274	65,077	121,781	120,387	55,566	66,512	42,752	55,243	76,612	40,665
	2,559,640	1,554,801	995,760	492,742	632,248	628,922	629,947	1,261,679	2,148,446	3,427,823	3,678,291	3,274,424
Sales by Customer Group	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Residential	48,082,066	27,799,378	16,916,181	5,186,924	7,882,630	7,765,987	9,657,832	22,284,844	39,926,784	67,276,897	69,954,394	62,544,601
Commercial Firm	28,156,142	17,443,253	10,611,292	7,754,159	6,873,429	6,797,260	7,002,733	13,332,797	23,134,995	35,497,309	41,222,583	36,626,463
Commercial Demand Billed	3,353,745	2,429,778	2,195,638	1,474,871	1,489,520	1,492,480	1,573,145	2,137,271	3,008,329	3,644,987	3,950,211	3,759,678
Interruptible	10,675,771	8,411,565	6,681,169	5,373,977	5,329,442	5,652,060	4,845,967	6,649,782	11,149,448	11,421,043	12,659,035	12,555,026
Transport	15,976,012	14,689,168	14,970,084	18,999,837	35,555,196	35,148,144	16,223,211	19,418,924	12,481,981	16,128,836	22,367,719	11,872,708
Total Sales	106,243,736	70,773,141	51,374,364	38,789,768	57,130,217	56,855,930	39,302,888	63,823,618	89,701,537	133,969,072	150,153,942	127,358,476
Allocated Cost Per therm												
Residential	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381	$0.0371381
Commercial Firm	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006	$0.0193006
Commercial Demand Billed	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574	$0.0146574
Interruptible	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637	$0.0118637
Transport	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251	$0.0034251

	Revenue Apportionment	GUIC $ recovered in Mar21-Feb22	Mar21-Feb22 Sales therms	Mar21-Feb22 GUIC Factors $/therm
Residential	67.224%	14,308,526	385,278,518	0.037138
Commercial Firm	21.260%	4,525,068	234,452,417	0.019301
Commercial Demand Billed	2.101%	447,192	30,509,652	0.014657
Interruptible	5.652%	1,203,034	101,404,285	0.011864
Transportation	3.763%	800,902	233,831,819	0.003425
Total		21,284,722	985,476,691	
*Revenue Apportionment Allocations - Do. No. G002/GR-09-1153		-	-	

Carryover Rollforward

Carryover Rollforward:	**Mar-19**	**Apr-19**	**May-19**	**Jun-19**	**Jul-19**	**Aug-19**	**Sep-19**	**Oct-19**	**Nov-19**	**Dec-19**	**Jan-20**	**Feb-20**
Carryover Beginning Balance	(2,758,810)	16,071,875	12,971,884	12,156,665	11,657,664	11,155,480	10,659,308	10,198,254	9,251,411	7,464,496	4,736,181	1,655,758
Revenue Requirement	1,777,336	1,683,769	1,833,045	1,919,553	2,455,692	2,533,707	2,744,129	2,862,597	2,272,431	2,547,046	910,037	1,606,708
Deferral Impact	19,364,364	(3,461,105)	(1,833,045)	(1,919,553)	(2,455,692)	(2,533,707)	(2,744,129)	(2,862,597)	(2,272,431)	(2,547,046)	(910,037)	(1,606,708)
Cost Per Therm					-	-	-	-	-	-	-	-
Revenue Collections	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Residential												
Commercial Firm												
Commercial Demand Billed												
Interruptible												
Transport												
Total Revenue Collections	2,311,014	1,322,655	815,220	499,001	502,184	496,172	461,054	946,843	1,786,915	2,728,315	3,080,423	2,596,449
Activity (Under/(Over) Collection)	**16,071,875**	**12,971,884**	**12,156,665**	**11,657,664**	**11,155,480**	**10,659,308**	**10,198,254**	**9,251,411**	**7,464,496**	**4,736,181**	**1,655,758**	**(940,692)**

Carryover Rollforward

Carryover Rollforward:	**Mar-20**	**Apr-20**	**May-20**	**Jun-20**	**Jul-20**	**Aug-20**	**Sep-20**	**Oct-20**	**Nov-20**	**Dec-20**	**Jan-21**	**Feb-21**
Carryover Beginning Balance	(940,692)	22,448,801	19,116,646	18,001,552	17,442,173	16,769,917	16,053,912	15,349,478	13,978,386	11,550,071	7,729,416	3,640,630
Revenue Requirement	1,607,628	1,590,027	1,601,846	1,764,095	1,809,069	1,943,066	2,070,066	2,257,439	1,868,640	2,256,102	2,243,787	2,242,307
Deferral Impact	24,645,334	(3,197,655)	(1,601,846)	(1,764,095)	(1,809,069)	(1,943,066)	(2,070,066)	(2,257,439)	(1,868,640)	(2,256,102)	(2,243,787)	(2,242,307)
Cost Per Therm	-	-	-	-	-	-	-	-	-	-	-	-
Revenue Collections	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Residential	1,993,772	1,148,570	698,054	213,152	310,136	337,402	402,034	909,359	1,664,264	2,785,371	2,887,526	2,585,662
Commercial Firm	614,104	373,514	222,731	164,245	136,617	149,013	146,755	272,894	510,006	766,834	892,540	790,283
Commercial Demand Billed	57,332	39,221	35,284	23,975	23,017	25,458	25,572	33,065	51,369	58,803	64,364	60,575
Interruptible	143,386	111,151	87,687	70,991	67,837	76,858	64,258	85,101	151,081	149,752	166,946	164,761
Transport	54,875	52,069	71,339	87,015	134,649	127,274	65,814	70,673	51,596	59,896	77,409	39,349
Total Revenue Collections	2,863,470	1,724,526	1,115,094	559,379	672,256	716,005	704,434	1,371,092	2,428,315	3,820,655	4,088,786	3,640,630
Activity (Under/(Over) Collection)	**22,448,801**	**19,116,646**	**18,001,552**	**17,442,173**	**16,769,917**	**16,053,912**	**15,349,478**	**13,978,386**	**11,550,071**	**7,729,416**	**3,640,630**	**0**

Carryover Rollforward

Carryover Rollforward:	**Mar-21**	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**
Carryover Beginning Balance	0	20,968,071	17,170,281	16,174,521	15,681,779	15,049,531	14,420,609	13,790,662	12,528,984	10,380,538	6,952,715	3,274,424
Revenue Requirement	2,242,989	2,230,801	2,231,889	2,393,524	2,435,959	2,560,069	2,703,390	2,879,417	2,516,367	2,780,936	2,634,891	2,635,595
Deferral Impact	21,284,722	(4,473,790)	(2,231,889)	(2,393,524)	(2,435,959)	(2,560,069)	(2,703,390)	(2,879,417)	(2,516,367)	(2,780,936)	(2,634,891)	(2,635,595)
Cost Per Therm	-	-	-	-	-	-	-	-	-	-	-	-
Revenue Collections	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Residential	1,785,678	1,032,417	628,235	192,633	292,746	288,414	358,674	827,618	1,482,806	2,498,539	2,597,976	2,322,790
Commercial Firm	543,430	336,665	204,804	149,660	132,661	131,191	135,157	257,331	446,519	685,119	795,620	706,912
Commercial Demand Billed	49,157	35,614	32,182	21,618	21,832	21,876	23,058	31,327	44,094	53,426	57,900	55,107
Interruptible	126,655	99,793	79,264	63,755	63,227	67,055	57,491	78,891	132,274	135,496	150,183	148,950
Transport	54,720	50,312	51,274	65,077	121,781	120,387	55,566	66,512	42,752	55,243	76,612	40,665
Total Revenue Collections	2,559,640	1,554,801	995,760	492,742	632,248	628,922	629,947	1,261,679	2,148,446	3,427,823	3,678,291	3,274,424
Activity (Under/(Over) Collection)	**20,968,071**	**17,170,281**	**16,174,521**	**15,681,779**	**15,049,531**	**14,420,609**	**13,790,662**	**12,528,984**	**10,380,538**	**6,952,715**	**3,274,424**	**0**

Redline

APPLICABILITY
Applicable to bills for natural gas service provided under the Company's retail rate schedules.

RIDER
The Gas Utility Infrastructure Cost (GUIC) Rider is designed to collect the costs of assessments, modifications, and replacement of natural gas facilities as required to comply with state and federal pipeline safety programs. There shall be included on each customer's monthly bill a GUIC Rider charge, which shall be calculated by multiplying the monthly applicable billing therms for natural gas service by the GUIC Rider Factor for the appropriate customer group. T T

DETERMINATION OF GUIC RIDER FACTORS T
A separate GUIC Rider Factor shall be calculated for the following five customer groups: (1) Residential, (2) Commercial Firm, (3) Commercial Demand Billed, (4) Interruptible, and (5) Transportation. The GUIC Rider Factor for each customer group shall be the value obtained by multiplying the balance of the GUIC Rider Tracker Account by each customer group's allocation factor, divided by the forecasted sales for the customer group in the recovery period. T T T T

The GUIC Rider Factor for each customer group may be adjusted annually with approval of the Minnesota Public Utilities Commission (Commission). On or before November 1, the Company will file a GUIC Rider Annual Report with request to change the GUIC Rider Factor. T T T

The current GUIC Rider Factor for each customer group is: T

Residential	~~$0.029696~~$0.037138 per therm	–R
Commercial Firm	~~$0.015878~~$0.019301 per therm	–R
Commercial Demand Billed	~~$0.011233~~$0.014657 per therm	–R
Interruptible	~~$0.008725~~$0.011864 per therm	–R
Transportation	~~$0.001677~~$0.003425 per therm	–R

Recoverable GUIC Rider Expenses T
Recoverable GUIC Rider Expenses shall be the annual revenue requirements for costs associated with natural gas infrastructure projects eligible for recovery under Minnesota Statute Sections 216B.1635 or 216B.16, subd. 11 that are determined by the Commission to be eligible for recovery under this GUIC Rider. A standard model will be used to calculate the total forecasted revenue requirements for eligible projects for the designated period. All costs appropriately charged to the GUIC Rider Tracker Account shall be eligible for recovery through this Rider, and all revenues recovered from the GUIC Rider Factor shall be credited to the GUIC Rider Tracker Account. The GUIC Rider Tracker Account includes adjustments for forecasted revenue requirements compared to actual revenue requirements and for actual revenue requirements compared to actual revenue recovery. T T T T T

(Continued on Sheet No. 5-65)

Clean

GAS UTILITY INFRASTRUCTURE COST RIDER

APPLICABILITY
Applicable to bills for natural gas service provided under the Company's retail rate schedules.

RIDER
The Gas Utility Infrastructure Cost (GUIC) Rider is designed to collect the costs of assessments, modifications, and replacement of natural gas facilities as required to comply with state and federal pipeline safety programs. There shall be included on each customer's monthly bill a GUIC Rider charge, which shall be calculated by multiplying the monthly applicable billing therms for natural gas service by the GUIC Rider Factor for the appropriate customer group. T T

DETERMINATION OF GUIC RIDER FACTORS T
A separate GUIC Rider Factor shall be calculated for the following five customer groups: (1) Residential, (2) Commercial Firm, (3) Commercial Demand Billed, (4) Interruptible, and (5) Transportation. The GUIC Rider Factor for each customer group shall be the value obtained by multiplying the balance of the GUIC Rider Tracker Account by each customer group's allocation factor, divided by the forecasted sales for the customer group in the recovery period. T T T

The GUIC Rider Factor for each customer group may be adjusted annually with approval of the Minnesota Public Utilities Commission (Commission). On or before November 1, the Company will file a GUIC Rider Annual Report with request to change the GUIC Rider Factor. T T T

The current GUIC Rider Factor for each customer group is: T

Residential	$0.037138 per therm	R
Commercial Firm	$0.019301 per therm	R
Commercial Demand Billed	$0.014657 per therm	R
Interruptible	$0.011864 per therm	R
Transportation	$0.003425 per therm	R

<u>Recoverable GUIC Rider Expenses</u> T
Recoverable GUIC Rider Expenses shall be the annual revenue requirements for costs associated with natural gas infrastructure projects eligible for recovery under Minnesota Statute Sections 216B.1635 or 216B.16, subd. 11 that are determined by the Commission to be eligible for recovery under this GUIC Rider. A standard model will be used to calculate the total forecasted revenue requirements for eligible projects for the designated period. All costs appropriately charged to the GUIC Rider Tracker Account shall be eligible for recovery through this Rider, and all revenues recovered from the GUIC Rider Factor shall be credited to the GUIC Rider Tracker Account. The GUIC Rider Tracker Account includes adjustments for forecasted revenue requirements compared to actual revenue requirements and for actual revenue requirements compared to actual revenue recovery. T T T T

(Continued on Sheet No. 5-65)

CERTIFICATE OF SERVICE

I, Jim Erickson, hereby certify that I have this day served copies or summaries of the foregoing documents on the attached list(s) of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States Mail at Minneapolis, Minnesota

xx electronic filing

Docket No. G002/M-18-692

Docket No. G002/GR-09-1153

Xcel Energy Miscellaneous Gas Service List

Dated this 25th day of October 2019

/s/

_____

Jim Erickson
Regulatory Case Specialist

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	OFF_SL_18-692_M-18-692
Alison C	Archer	aarcher@misoenergy.org	MISO	2985 Ames Crossing Rd Eagan, MN 55121	Electronic Service	No	OFF_SL_18-692_M-18-692
Gail	Baranko	gail.baranko@xcelenergy.com	Xcel Energy	414 Nicollet Mall7th Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_18-692_M-18-692
John	Coffman	john@johncoffman.net	AARP	871 Tuxedo Blvd. St, Louis, MO 63119-2044	Electronic Service	No	OFF_SL_18-692_M-18-692
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_18-692_M-18-692
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	OFF_SL_18-692_M-18-692
Rebecca	Eilers	rebecca.d.eilers@xcelenergy.com	Xcel Energy	414 Nicollet Mall - 401 7th Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_18-692_M-18-692
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Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_18-692_M-18-692
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