December 2023

ASSET MODERNIZATION

The purpose of this communication is to describe, validate and update the Asset Modernization investment that Northern has made and will continue to make to ensure the safety and reliability of its system, as well as to comply with applicable regulatory requirements. By the end of 2023, Northern is expected to have completed $1.4 billion of Asset Modernization investment since the beginning of the program. Over the next ten years, Northern is expected to invest another $2.7 billion, for a total overall investment of over $4.1 billion in Asset Modernization since program inception.

The Asset Modernization program is intended to significantly reduce the reliability risk inherent in Northern's vintage facilities and the integrity risks that have plagued other operators. Northern classifies its Asset Modernization projects into seven broad project classifications: (1) Pipeline Assessment; (2) Maximum Allowable Operating Pressure Reconfirmation; (3) Compression Replacement; (4) Remote Mitigation Valves; (5) LNG Equipment Replacement; (6) Underground Storage Integrity; and (7) Vintage Pipeline Replacement. The Maximum Allowable Operating Pressure (MAOP) Reconfirmation and Remote Mitigation Valve programs were added to Northern's Asset Modernization project portfolio in 2022 to more precisely categorize and communicate additional facets of Northern's modernization efforts.

The program impacts Northern's operations and maintenance (O&M) expenses as well. While some projects result in a reduction to O&M, the net impact is an increase to O&M expenses. The primary O&M cost driver of Asset Modernization is the Pipeline Assessment category, which causes substantial increases to Northern's costs of in-line inspections due to the increased mileage of inspectable pipeline and increased inspection requirements to comply with updated pipeline safety laws and regulations. Many Asset Modernization projects reduce greenhouse gas emissions by replacing leak and emission-prone equipment with newer, more efficient systems.

Facilities of equivalent capacity are installed to replace the capacity of retired pipeline and compressor units. Incremental capacity is not generally created through these replacements; however, Northern has and will continue to pursue efficiencies through project coordination with expansion open seasons.

Background

The Northern pipeline system was built in phases, beginning in the 1930s, with system expansions developed to meet customer needs. Northern currently operates approximately 14,300 miles of pipeline and 55 compressor stations. Approximately 85% of the pipeline mileage was installed prior to the first enactment of federal pipeline safety standards in 1968. Significant expansion facilities were installed in the 1940s, 1950s and 1960s, and the utility and reliability of these expansions has been maintained with robust equipment analysis, equipment maintenance programs and proactive parts management. While these

facilities are still dependable, they have a finite life, and vendor/product support is no longer available for older equipment as manufacturers move to support newer technology.

Northern has been working to maintain and modernize its system for many years, repairing and replacing components of its transmission and storage plant to ensure continued reliability. Examples of Northern's modernization efforts over the last eight years include:

- Replacing compressor units at eight stations within Northern's operational territory.
- Modernizing original equipment installed at Northern's liquefied natural gas (LNG) storage facilities in Garner, Iowa and Wrenshall, Minnesota.
- Abandoning approximately 700 miles of large-diameter (greater than 12-inch diameter) 1930s vintage A-mainline from Bushton, Kansas to Ventura, Iowa and Palmyra, Nebraska to Sioux Falls, South Dakota as part of the vintage pipeline replacement program.
- Modifying pipelines to make nearly 2,400 miles of large-diameter pipe inspectable in the past eight years, modifying an average of 335 miles a year since 2019.

While these efforts have maintained the reliability of Northern's system, Northern continues broader replacement programs for specific asset modernization needs.

Asset Modernization as a category was created in 2016 to capture and characterize the significant increase in costs related to modernization projects. Northern's Asset Modernization program was designed using FERC's policy statement on Cost Recovery Mechanisms for Modernization of Natural Gas Facilities, and it necessarily represents a significant expansion of Northern's historical maintenance and upgrade programs due to the age of the system and updated safety laws and regulations. The costs are captured in the following budget summary categories:

- Pipeline Assessment
- Maximum Allowable Operating Pressure Reconfirmation
- Remote Mitigation Valves
- Compression Replacement
- LNG Equipment Replacement
- Underground Storage Integrity
- Vintage Pipeline Replacement

Northern must continue with this Asset Modernization effort to ensure its industry-leading service reliability will not suffer due to increased outage quantities and duration, as well as to comply with increased legal and regulatory requirements as further discussed below. In addition, Asset Modernization ensures continued pipeline integrity and avoids unacceptable pipeline incidents. The industry in general, including distribution utilities, have undertaken similar modernization efforts to replace vintage facilities such as cast-iron pipelines, which pose similar threats to service reliability and public safety.

Capital Expenditures Summary

Northern expects to complete $251 million of Asset Modernization projects in 2023, compared with $300 million in projects completed in 2022. Asset Modernization projects totaling $2.7 billion are planned from 2024 through 2033, approximately $410 million greater than the 10-year plan reported in 2022, primarily due to additional MAOP reconfirmation and underground storage projects discussed below.

Asset Modernization does not completely replace all vintage facilities on the Northern system, as a majority of the approximately 14,300 miles of pipeline and 181 compressor units will continue to be maintained through more traditional means. The Asset Modernization program only addresses facilities and systems at the end of their useful lives or where replacement or inspections are required by federal regulations.

Budget Summary Categories

Pipeline Assessment

On October 1, 2019, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued the first of a three-part final rule titled the Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements and Other Related Amendments (Mega Rule). The rule focuses primarily on reconfirming maximum allowable operating pressures and expanding assessment requirements to include the recently defined moderate consequence areas. The rule expands pipeline integrity assessment requirements by defining moderate consequence areas and requiring integrity assessments. The rule requires MAOP reconfirmation in high consequence areas, moderate consequence areas, and Class 3 locations that operate at or above 30% specified minimum yield strength.

The Pipeline Assessment category captures significant capital expenditures driven by the need to modernize infrastructure for the purpose of accommodating the internal inspection of pipelines and to comply with increased requirements imposed by new and updated pipeline safety laws and regulations. The costs for pipeline assessments fall into two major categories:

(1) Pipeline modification projects on Class 3 pipeline segments that are operating above 30% specified minimum yield strength not previously assessed with in-line inspection tools to meet requirements of the Mega Rule.

(2) Pipeline modifications to increase the percent of the system that is in-line inspection capable with the focus on large-diameter pipelines (greater than 16-inch-diameter) and pipelines operating above 30% of their specified minimum yield strength in areas outside of high consequence areas, and to assist with meeting existing PHMSA MAOP Regulations and other regulations.

As shown in Exhibit No. 1, Northern plans to invest $592 million in Pipeline Assessment projects during the next 10 years. The large-diameter pipeline modifications are anticipated to be largely complete by 2030 and all projects mandated by the Mega Rule will be completed by 2035.

These projects will continue to have a significant O&M expense impact that materializes as a result of subsequent in-line inspections, tool data verification excavations and repair work associated with the inspections. These costs are not included in the capital portion of the work required to make the modifications, and are extremely variable based on the line length, tool technology required and results of the inspection. Expenses associated with the inspections will be recurring, normally five to 10 years in frequency, depending on the condition of the line and regulatory requirements.

MAOP Reconfirmation

As noted above, the Mega Rule, issued by PHMSA in 2019, requires MAOP reconfirmation in high consequence areas, moderate consequence areas, and Class 3 locations that operate at or above 30% specified minimum yield strength. While Northern has conducted many reviews to confirm MAOP of its pipelines, if no pressure test record exists for a pipeline, the MAOP must be re-established by completion of a pressure test, reducing pressure, an engineering critical assessment or through pipe replacement. The pipe replacement projects are being captured as part of Northern's Asset Modernization program as these replacements increase pipeline integrity and reliability in areas of consequence.

The majority of Northern's pipelines impacted by the Mega Rule have existing pressure tests and material documentation in support of the MAOP. Of approximately 603 miles of pipeline within high consequence areas, moderate consequence areas, and Class 3 locations, 510 miles of pipeline have adequate pressure test records that establish MAOP. Northern's system has approximately 93 miles of pipeline requiring reestablished MAOP.

As shown in Exhibit No. 1, Northern plans to invest $495 million in MAOP replacement projects during the next 10 years. Per the PHMSA rule, half of these projects must be completed by 2029, with the entire program complete in 2034. Northern reevaluated and reprioritized projects in 2023 to ensure completion within the PHMSA requirements. As a result of this review, Northern increased the 10-year budget by $157 million and accelerated $43m of projects into 2024.

Remote Mitigation Valves

On April 8, 2022, PHMSA revised the Federal Pipeline Safety Regulations applicable to most newly constructed and entirely replaced onshore gas transmission pipelines with diameters of six-inches or greater. In the revised regulations, PHMSA requires installation of remote mitigation valves, such as an automatic shut-off valve (ASV) or a remote-control valve (RCV), to minimize the volume of gas released from a pipeline in the case of a pipeline rupture, helping to mitigate public safety and environmental consequences. The

final rule establishes requirements for remote mitigation valves spacing, maintenance and inspection and applies to construction after April 10, 2023.

Previously, Northern estimated spending approximately $2.4 million per year on projects to install RCVs on existing pipelines in consequence areas; however, Northern plans to spend an average of $11.4 million per year in 2024 and 2025. These projects will be ongoing as Northern assesses risks and opportunities to mitigate the risks on the existing system. Remote mitigation valves will also be installed as required on new pipeline segments and included with the original project (excluded from Asset Modernization).

Compression Replacement

The Compression Replacement category represents the costs to replace vintage compressor units as well as related auxiliary equipment and infrastructure. Projects are prioritized based on unit vintage, criticality to pipeline operations, historical reliability concerns and outlook for future maintainability.

To fulfill customer commitments, it is paramount that Northern's compression fleet maintain high reliability. With more than sixty units reaching 80-years old and some surpassing 90-years old in the next 20 years, a replacement program has been implemented that will mitigate short- and long-term customer reliability risks. Northern will replace at least one unit per year to allow replacement of units and critical auxiliary equipment at a rate necessary to largely avoid relying on units greater than 90 years old. If not replaced, such vintage units would present significant reliability risk to Northern's customers, as the equipment would be difficult to maintain and overhaul given obsolescence of spare parts, lack of industry service options, and end of life being reached on major unit subcomponents that are not normally replaced or available.

Northern has 94 compression units between 50 and 75 years old. The current Asset Modernization plan includes replacement of approximately 45 units over the next ten years, 25% of Northern's 181 total compression units. Twenty units have been replaced under this program since 2016, as shown in the table below. The units targeted for modernization are spread across Northern's system and are included in both the field and market areas.

Replacement Year	Location	Vintage	Number of Units	Unit Type
2016	Beatrice, Nebraska	1972	1	General Electric LM-1500 (Turbine)
2019	Mullinville, Kansas	1968	1	General Electric LM-1500 (Turbine)
2020	Bushton, Kansas	1968	1	General Electric LM-1500 (Turbine)
2021	Farmington, Minnesota	1961-1965	5	Ingersoll Rand 616KVT x Qty. 2; Ingersoll Rand 48KVS x Qty. 3 (Reciprocating)
2022	Brownfield, Texas	1968	1	General Electric Frame 3 Model F (Turbine)
2022	Ogden, Iowa	1951-1953	4	Cooper Bessemer 26-H (Reciprocating)
2022	Spraberry, Texas	1953	2	Ingersoll Rand 412KVG (Reciprocating)
2023	Paullina, Iowa	1947	5	Ingersoll – Rand 82KVG (Reciprocating)

Table 1: Compression replacement projects completed as part of Northern's asset modernization program.

When prioritizing compression replacement projects, Northern considers the vintage, continued maintenance ability, repair requirements and overhaul frequency necessary to sustain reliability. As facilities reach obsolescence, parts become more difficult – if not impossible – to obtain. In fact, Northern has manufactured many of its own replacement parts for outdated units. In addition to lack of spare parts, qualified third-party vendor service options and quality of service can rapidly diminish for units as they become rare in the industry. Unexpected failures can lead to longer outages while parts are located or fabricated and qualified repair resources are secured, negatively impacting service to customers.

For example, the Beatrice, Nebraska; Mullinville, Kansas; and Bushton, Kansas, units replaced in 2016, 2019 and 2020 respectively, eliminated the last three General Electric LM 1500 units on the Northern system. These 1960s vintage units were becoming increasingly unreliable, with quality of spare parts and service waning, with only one known service option remaining within the industry. Critical rotating components were at end of useful life and not available for replacement. Early 1950s vintage horizontal reciprocating compressor units at Ogden, Iowa, were replaced for similar reasons in 2022. Most pipeline companies in North America replaced vintage horizontal compressors years ago, although Northern was able to extract several years of additional life out of the units by self-performing most maintenance and manufacturing spare parts in-house when they were not otherwise available.

In some cases, retirement offers the benefit of extending the service life of remaining units. For example, replacement of the General Electric Frame 3 turbine in Brownfield, Texas, in 2022 gave Northern access to critical spare parts such as rotors, casings, and turbine wheels that are not generally available within the industry and will help extend the service life of nine additional like turbines across the Northern compression fleet.

In addition to maintenance and reliability concerns, vintage units also require replacement to comply with more rigorous environmental regulations. For example, the Farmington, Minnesota, early 1960s vintage reciprocating Unit Nos. 1-5 were replaced in 2022, as the station would otherwise fail to meet current emissions limits mandated by the Minnesota Pollution Control Agency. In general, vintage unit replacements reduce greenhouse gas emissions, as antiquated equipment is replaced with new, more efficient equipment.

Upcoming projects include replacing the 1970's vintage electric driven Garner C-061 York refrigeration compressor at the Garner, Iowa, liquified natural gas facility in 2024. The existing refrigeration compressor is becoming increasingly difficult to maintain, creating a reliability risk for this critical unit. In addition to limited technical support from the manufacturer or aftermarket support vendors, spare part lead time is generally longer than six months. Northern is opting to install a natural gas-fired unit as increasing operational and electric costs make an electric driven compressor less economical over the long-term.

In 2025, Northern will replace four 1960's vintage Worthington ML-7 units at the North Branch, Minnesota, compressor station. Few of these units are still in-service within the industry and are poorly supported by original equipment manufacturer. Spare parts are high-cost, custom orders that often take more than a year to fulfill. Replacing these units in 2025 also allows Northern to avoid over $10m in capital projects intended to offset reliability concerns with unit and station auxiliary equipment. Finally, replacing these units will also allow for compliance with potential future emissions mandates in Minnesota.

As shown in Exhibit No. 1, Northern plans to invest $628 million in Compression Replacement projects during the next 10 years.

LNG Equipment Replacement

Northern operates peak shaving LNG facilities at Wrenshall, Minnesota, and Garner, Iowa. The Wrenshall LNG station was installed in 1974, and the Garner LNG station was installed in 1977. These cryogenic facilities each have 2.1 billion cubic feet of LNG storage and can vaporize the stored liquefied gas into useable pipeline gas at a total rate of 300,000 Mcf/day through three vaporization trains. The liquefaction equipment can replace vaporized storage gas at a rate of 12,000-17,000 Mcf/day.

The LNG facilities are used as operational storage to support the delivery of hourly peaking volumes, to support the simultaneous receipt and delivery of transportation quantities, and to balance line pack on Northern's system. While vaporization ensures contractual deliveries are not jeopardized, the resultant system flexibility has also proven routinely critical for customer reliability in winter.

This category represents the cost to replace major equipment components at the LNG plants. LNG plant operations also involve significant electrical and electronic control equipment. Electrical system modernization increases the safety and reliability of station motor control centers and electrical power distribution to critical vaporization and liquefaction equipment.

The original facilities were installed in the 1970's, and as a result, much of the equipment has reached the end of its life. Northern has historically maintained older equipment and replaced parts or subsystems versus wholesale replacements. However, in recent years, routine maintenance projects have proven insufficient, and Northern began replacing larger systems or pieces of equipment out of necessity. This equipment either displayed integrity concerns or required replacement due to obsolescence and unavailability of parts.

Also, as part of the ongoing modernization and replacement of original equipment at the Garner facility, the 4160-volt motor control replacement project will be completed in 2023 and 2024 with the cold box heat exchanger and the noted refrigeration compressor replacement. The 480-volt motor control replacement project was completed in 2022.

At the Wrenshall LNG facility, vaporizer replacement is planned for 2026. This project will replace all three of Wrenshall's direct fired, submerged combustion LNG vaporizers which are original to the facility and have become less reliable and more costly to maintain. The replacement LNG vaporizers will reduce maintenance costs as well as improve vaporizer reliability. In 2026 the current 5,900 gallon liquid nitrogen storage tank and associated vaporizer, both original to the facility, are scheduled to be replaced. The nitrogen vaporizer will be increased in size to better meet the capacity requirements of the various nitrogen system uses throughout the facility. Replacement of the reactivation gas cooler and purification filters, also original to the facility and nearing the end of serviceable life, are scheduled for replacement in 2027 and 2028.

As shown in Exhibit No. 1, Northern plans to invest $36 million in LNG Replacement projects during the next 10 years. These projects are expected to continue intermittently beyond the 10-year outlook to maintain system reliability.

Underground Storage Integrity

The Underground Storage Integrity category includes projects to ensure compliance with a relatively new PHMSA rule. In 2020, the Safety of Natural Gas Underground Storage Final Rule became effective, giving PHMSA new jurisdiction over the underground storage field wells and reservoirs. The new regulations incorporated new industry standards into the pipeline safety regulation that operators are required to implement, including American Petroleum Institute API- Recommended Practice 1171- Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon and Aquifer Reservoirs. To comply with the regulations, Northern revised its reservoir integrity management plan to include new operating procedures and engineering standards and also created the Underground Storage Integrity capital expenditure program.

Under its reservoir integrity management plan required per this rulemaking, Northern will complete additional observation and natural gas withdrawal wells in the Redfield, Iowa, underground storage field. Additionally, Northern will establish and maintain an undisturbed buffer zone around the storage field to further ensure field integrity. Northern completed the installation of a withdrawal well in 2020 and in 2022.

This year, Northern completed an engineering design study to add a natural gas dehydration and hydrogen sulfide treatment facility to the Lyons, Kansas underground storage system, with construction anticipated in 2026 and 2027. Currently, Northern performs dehydration and hydrogen sulfide treatment on the storage gas at a facility in Bushton, Kansas, 16-miles away. While Northern has maintained the 1974 vintage facility in Bushton, maintenance efforts and costs have increased substantially in recent years. A new facility located in Lyons, Kansas will optimize gas treatment at the withdrawal point of the storage field similar to Northern's other underground storage facilities. This eliminates the shipment of untreated gas to the Bushton, Kansas facility. Additionally, the new treatment facility will be constructed according to current codes, regulations and best practices, which will increase the energy efficiency of the facility as well as employee safety by providing improved means of ingress and egress.

Northern also added the Cunningham, Kansas storage facility northeast containment system project to the underground storage integrity program. This project is planned for 2025 and includes the installation of a water extraction well, water injection well and associated facilities to allow for water injection to prevent the migration of storage gas beyond the limits of the field. This is similar to the existing north extension containment system.

As shown in Exhibit No. 1, Northern plans to invest $159 million in Underground Storage Integrity projects during the next 10 years. These projects are expected to continue beyond the 10-year outlook as additional withdrawal well replacements or observation wells are needed.

The new wells will slightly increase storage O&M expense to maintain the new facilities.

Vintage Pipeline Replacement

The Vintage Pipeline Replacement projects will replace existing aged pipelines by abandoning mechanically coupled and acetylene-welded mainlines and branch lines and installing facilities to replace the associated capacity. To date, Northern has abandoned approximately 760 miles of vintage mainline and branch line as part of this program, with an additional 210 miles of mainline planned for abandonment through 2029.

Mechanically coupled pipeline joint technology, originating in 1891, and acetylene-welded pipeline technology, initially used for pipeline construction beginning in 1911, were historically used in natural gas pipeline applications but were largely discontinued by 1940. These construction techniques were also used in the initial construction of Northern's system. By 1933, most cross-country pipelines were being constructed with the superior-strength electric resistance arc-welded girth joints, as mechanically coupled and acetylene-welded joints are subject to failure from ground movement and can frequently leak natural gas. Furthermore, these joint types are not compatible with modern pipeline integrity assessment methods; they cannot be inspected with in-line inspection tools nor hydrostatically tested without incurring significant quantities of leaks. Additionally, much of this pipe is uncoated and is therefore susceptible to external corrosion.

While Northern has successfully operated these facilities for nearly 90 years, these pipelines have reached the end of their useful life. As shown in Exhibit No. 1, Northern plans to invest $727 million in Vintage Pipeline Replacement projects during the next 10 years. This program is anticipated to continue for approximately 15 years, with large-diameter mainlines being replaced within the next six years and the program's focus shifting to branch lines and ultimately small-diameter pipelines. The total program cost is currently estimated at $1.3 billion through 2033 although updates on the total will be provided as out-year projects are more fully evaluated and prioritized.

Conclusion

In summary, Northern will invest approximately $2.7 billion over the next 10 years to modernize the pipeline, compression, underground storage and LNG facilities as described above, resulting in improvements to system integrity, reliability, efficiency and public safety.

Exhibit 1
Asset Modernization Project Detail

Project Description	2024	2025	2026	2027 - 2033	10-Year 2024 - 2033
Pipeline Assessments					
M520C Ogden-To-Ventura In-Line Inspection Modifications					
M590D And M590E Beatrice-To-Palmyra ILI Modifications		9,630,270	10,021,645		
M510B Waterloo-To-Dubuque In-Line Inspection Modifications					
M580D-30-I-Mods23 MP 0-30 Palmyra-Mynard D					
MNB86701-8-I-Mods22 Stillwater-CL3					
MNB66801 Grand Rapids Branch Line In-Line Inspection Modificaiton	2,494,309				
M440B North Branch-to-Carlton ILI Modifications Carlton Receiver					
M510C Earlivlle Branch Line Take-off Emergency					
M660E-30-I-Mods28 Macksville-Bushton E				5,662,978	
LYU12101-3-Install Launcher at Well 11-10					
M580C MP 14.12 Tap and Lateral to Weeping Water TBS					
MNB75202-MNB67302-6-I-Mods23 Waconia-Mound 2nd					
M836B-16-I-Mods24 Sid Richardson-Hobbs-MCA	10,706,821				
CNU22801-6-Mod2023 Install Launcher and Receiver					
M600E and M600D Clifton-to-Beatrice In-Line Inspection Modification					
Brownfield-To-Beaver In-Line Inspection Modifications					
M710B-20-X-I-Mods22 Holcomb-Kalvesta B - Pig Trap Facilities					
M815B Gaines County to Brownfield ILI Modifications					
M511B Dubuque to Galena ILI Modifications Iowa Side					
M796B Kalvesta-Burdette ILI Modifications					
IAB42701 Worthington 2-inch BL Replacement					
SDB92002-8-Repl24 Replace Yankton 2nd-MCA	5,598,003				
IAB57201 Earlville Branch Line Replacement and 260th Bore					
M660D-30-X-I-Mods22 Macksville-Bushton D					
M771B Dumas-to-Sunray ILI Mods MCA	3,122,405				
A1-AFE-22-216: M532C Galena-to-Janesville ILI Modifcations					
M530D-30-I-Mods24 Oakland-Ogden D-MCA Oakland Portion	11,926,438				
M500B-26-I-Mods24 Ventura-Faribault B-MCA Owatonna	11,055,455				
WIB23601-12-I-Mods24 Beloit-MCA	4,234,357				
Huron South Dakota 1 TBS Relocation	2,673,232				
WIB13401-4-H-Mods MP 0-5 Monroe-MCA	1,651,376				
NEB43201-12-H-Mods MP 0-0.03 OPPD BL-MCA	633,014				
M520D-30-I-Mods25 Ogden-Vent D-MCA		10,390,389			
M500C-30-I-Mods25 Ventura-Faribault C-MCA		10,231,261	10,912,441		
M500D-30-I-Mods25 Ventura-Faribault-MCA		10,200,153			
M530D-30-I-Mods25 Oakland-Ogden D-MCA Ogden Portion		7,666,494			
NEB52902-10-I-Mod25 MP 0-28 Columbus 2nd-MCA		5,968,575			
M119C-20-I-Mods25 Odgen-Redfield C-MCA		4,117,486			
M119B-20-I-Mods25 Ogden-Redfield B-MCA		3,801,419			
MNB75601-10-I-Mods MP 50.6-79.4 Willmar BL-MCA			6,535,900		
MNB73202-12-I-Mods MP 0-43.8 lacrosse BL-MCA			5,627,386		
IAB60501-16-I-Mods MP 0-3.5 NGPL Interconnect-MCA			5,542,012		
SDB92002-8-Replace MP 10.8-12.8 Yankton 2nd BL-MCA			5,210,785		
MNB67702-4-H-Mods MP 3.27-6.3 St Michael 2nd-MCA			522,074		
M520B-26-I-Mods29 Ogden-Vent B				22,385,834	
M560C-24-I-Mods MP 3.4-46 SSC-Paullina C-MCA				19,334,520	
M600D-30-I-Mods Clifton-Beatrice D				18,322,825	
M530B-26-I-Mods30 Oakland-Ogden B-MCA				18,097,796	
Approved Plan for A2 - 2031				17,939,402	
M580C-30-I-Mods27 Palmyra-Oakland C-MCA				17,057,149	
M471B-12-I-Mods MP 76-159 Paullina-Aberdeen-MCA				15,701,595	
M855C-30-Mods26 Coyanosa-Kermit-MCA (accelerated to 2023)				15,239,484	
M730B-24-I-Mods32 Sublette-Fowler				12,094,842	
M670E-30-I-Mods27 Mullinville-Macksville E-MCA				10,000,000	
M710B-20-I-Mods30 Holcomb-Kalvesta B				9,741,398	
M580B-26-I-Mods Palmyra-Oakland B Iowa				9,418,097	
M670D-30-I-Mods28 Mullinville-Macksville D				9,245,654	
MNB83701-6-I-Mods MP 8.9-9.2 Springfield BL-MCA				9,057,946	
OKG33902-16-I-Mods30 Hemphill Loop				8,571,550	
M610B-20-I-Mods31 Albert-Bushton				7,988,606	
M850B-16-I-Mods MP 0-16 Andrews-MCA				7,695,598	
M725B-24-I-Mods32 Fowler-Mullinville				7,688,841	
MNB65101-8-I-Mods MP 0-16.5 Morris-MCA				7,193,275	
TXG54801-12-I-Mods MP 0-18.9 Shamrock-MCA				7,034,125	
M500B-26-I-Mods29 Ventura-Faribault B-Ventura Portion				6,471,046	
M686B-20-I-Mods33 PEP-Mullinville				6,175,297	
M530B Guthrie Center CS Launcher Receiver Mods				5,500,000	
TXG52002-20-I-Mods33 Shamrock Loop				4,949,573	
TXG56302-16-I-Mods33 Hemphill 2 Loop				4,666,452	
IAB88401-16-I-Mods32 Cedar Rapids				4,619,174	
WIB24001-16-I-Mods27 Madison-MCA				4,550,000	
M835B Seminole CS Launcher Receiver Mods				4,350,000	
M470B MP 27.45 Launcher Receiver Mods				4,335,016	
M510C Earlville CS Launcher Receiver Mods				4,335,016	
M532B Belleville CS Launcher Receiver Mods				4,335,016	
M530D Guthrie Center CS Launcher Receiver Mods				4,335,016	
M530C Guthrie Center CS Launcher Receiver Mods				4,335,016	
M810B MP 41.13 Launcher Receiver Mods				4,335,016	
M680D Beaver CS-MP 50.74-Launcher Receiver Mods				4,200,000	
TXG53203-16-I-Mods Hemphill CO 2 Loop				4,076,836	
TXG52002-12-I-Mods Shamrock GL Loop				4,034,849	
IAB47601-6-I-Mods MP 0-11.9 Bristow BL-MCA				4,021,536	
MNB91901-8-I-Mods MP 0-11 Princeton Tie-over				3,818,793	

Project Description	2024	2025	2026	2027 - 2033	10-Year 2024 - 2033
WIB15801-4-I-Mods MP 9-26 Arlington BL-MCA				3,818,793	
MNB67702-6-I-Mods MP 6.3-7.7 St Michael BL-MCA				3,818,793	
KSB81401-16-I-Mods33 Jayhawk Plant				3,660,862	
TXG52003-16-I-Mods Shamrock GL Loop				3,530,493	
TXG53202-12-I-Mods Mathers Ranch-Hemhill CO 1				3,530,493	
TXG53203-20-I-Mods Hemphill CO 2 Loop				3,530,493	
MNB72902-8-I-Mods MP 0-12.5 Alexandria 2nd-MCA				3,334,464	
KSB77101-12-I-Mods28 Mullinville to Dodge City				3,272,166	
IAB60502-16-I-Mods MP 0-3 NGPL IC-MCA				3,262,603	
IAB71901-16-I-Mods MP 0-4.3 Waterloo BL-MCA				3,136,641	
OKG51601-16-X-I-Mods30 Esperanza				3,127,236	
M452A-12-I-Mods MP 0-1.6 Rosemount Jct-St Paul-MCA				3,024,816	
MNB96701-12-I-Mods MP 0-4.2 Flint Hills-MCA				3,024,816	
NEB57901-10-I-Mods MP 0-13 Sheldon Power Plant-MCA				3,024,816	
NEB53002-8-I-Mods MP 0-16 Blair Cargill BL-MCA				3,024,816	
WIB14801-6-I-Mods Lady Smith BL				2,995,652	
M680C MP 50.69 Launcher Receiver Mods				2,995,652	
M770C MP 46.2 Launcher Receiver Mods				2,995,652	
M883B Bakersfield CS Launcher Receiver Mods				2,995,652	
IAB62501-10-I-Mods MP 7.9-50 Grinnell				2,993,018	
IAB66002-10-I-Mods MP 0-9 Ames 2nd-MCA				2,968,024	
MNB65801-6-I-Mods MP 0-2 Virginia				2,866,902	
MNB78401-6-I-Mods MP 0-18.5 Mora BL-MCA				2,491,532	
M433B MP 70.25 Launcher Receiver Mods				2,250,000	
WIB18601 MP 32.43 Launcher Receiver Mods				2,250,000	
MNB72701 MP 35.34 Launcher Receiver Mods				2,250,000	
M770D Beaver CS Receiver Mods				1,497,826	
MNB67802-6-H-Mods MP 0-1.0 Dayton 2nd BL-MCA				1,433,451	
SDB92002-8-H-Mods MP 29.4-29.8 Yankton 2nd BL-MCA				1,100,000	
M500E-36-I-Mods MP 0-28.2 Ventura-Farmington-MCA				1,000,000	
SDB92002-8-H-Mods MP 4.47-4.52 Yankton 2nd BL-MCA				1,000,000	
MNB83801-12-H-Mods MP 0-0.1 Faribault-MCA				950,000	
TXM85302-24-I-Mods Trans Pecos Lateral				758,170	
WIB14701-4-H-Mods MP 0-8.5 Wisconsin Dells				750,000	
TXM85301-24-I-Mods Valero Interconnect				505,447	
Subtotal: Pipeline Assessments	**53,929,719**	**62,092,867**	**44,410,546**	**431,652,772**	**592,085,904**
Compression Replacement					
Paullina Horsepower Replacement					
North Branch 1-4 Replacement Compression	41,344,992				
Garner LNG MCC-4160 Volt	2,075,448				
Brownfield Compressor Replacement					
AM-Waterloo MCC Replacement					
Claude Turbine MCC					
AM-Alexandria MCC					
Ogden Horizontal Compression Replacement					
Beaver 15-18 Replacement Compression	5,077,502	35,002,241			
Spraberry Compressor Units 4 and 5 Replacement	4,971,275	12,437,203			
North Branch 1-4 Replacement Compression - Contingency	2,364,142				
Spraberry 8 and 10 Replacement Compression		17,157,452			
Ventura 14-15 Replacement Compression		4,955,104	35,044,915		
Bushton 26-31 Replacement Compression		4,955,104	29,915,383	39,879,057	
Approved Plan for A3 - 2033				62,797,825	
Wrenshall Replacement Compression				60,013,611	
Clifton 27-31 Replacement Compression				60,002,407	
Beatrice 24-25 Replacement Compression				40,000,008	
Plainview Unit 1 Replacement Compression				30,075,302	
Pampa Unit 1 Replacement Compression				30,075,302	
Claude Unit 1 Replacement Compression				29,997,550	
Macksville Unit 1 Replacement Compression				29,994,341	
Bushton 23-25 Replacement Compression				29,945,323	
Subtotal: Compression Replacement	**55,833,359**	**74,507,104**	**64,960,297**	**432,780,930**	**628,081,690**
LNG Replacement					
Garner Refrigeration Compressor, Cold Box, and Meter Replacement	15,147,843				
AM-Garner LNG MCC - 480 volt					
Garner Vaporizer Stack Modification	995,157				
Wrenshall Vap Replacements A B C	1,109,810	2,246,002	12,663,056		
Wrenshall Liquid Nitrogen Tank Replacement			651,967		
Wrenshall Purification Filter Replacement				1,649,947	
Wrenshall Reactivation Gas Cooler Replacement				1,249,955	
Subtotal: LNG Replacement	**17,252,810**	**2,246,002**	**13,315,023**	**2,899,902**	**35,713,737**

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Underground Storage PHMSA					
Lyons UGS Gas Storage Lease Acquisitions					
Redfield GSLA Acquisitions					
Lyons Underground Storage Treatment Facility - PRELIM	34,183	3,858,303	40,406,851	35,413,961	
Cunningham UGS Gas Storage Lease Acquisition					
Redfield Broderick 16	693,448				
Cunningham Northeast Containment System Downhole		15,003,442			
Redfield McCarthy No. 3 Disposal Well Downhole		7,277,832	8,525,693		
Cunningham Northeast Containment System Surface Facilities		5,955,189			
Redfield - New I W Wells			8,978,000	26,936,106	
Approved Plan for A5 - 2033				5,576,978	
Subtotal: Underground Storage	**727,631**	**32,094,767**	**57,910,545**	**68,135,422**	**158,868,365**
Vintage Pipeline Replacement					
IAB65001 Des Moines A Branch Line Abandoment					
M500A Ventura to Farmington Abandonment	2,214,872	2,557,673	76,657,966	50,577,999	
M520A Ogden to Ventura Abandonment					
M561A South Sioux City-To-Sioux Falls Abandonment	1,351,963				
Lake City Branch Line Abandonment					
Plains System Line Replacement					
Auburn Branch Line Abandonment					
Columbus Vintage Pipe Replacement - NEB52901	5,537,952	20,285,843			
Eagle Grove Branch Line Replacement - Prelim	2,853,691				
Mason City Vintage Pipe Replacement - IAB72001		10,250,001			
Lake Mills Vintage Pipe Replacement - IAB73801		5,605,137			
New Prague Vintage Pipe Replacement - MNB84501		2,281,889			
Mankato Vintage Pipe Replacement - MNB83001				66,252,666	
Yankton Vintage Pipe Replacement - SDB92001				58,451,228	
New Ulm Vintage Pipe Replacement - MNB88301				47,355,484	
Worthington Vintage Pipe Replacement - MNB87001				44,651,256	
LeSueur Vintage Pipe Replacement - MNB84201				41,151,636	
Blair Vintage Pipe Replacement - NEB53001				37,201,146	
Schuyler Vintage Pipe Replacement - NEB41701				33,150,994	
BRITT VINTAGE PIPE REPLACEMENT - IAB71301				29,351,125	
Beemer Vintage Pipe Replacement - NEB55001				24,220,202	
Audubon Vintage Pipe Replacement - IAB63001				19,734,186	
Ashgrove Vintage Pipe Replacement - NEB47701				19,354,382	
M725A, M730A Mullinville to Sublette Abandonment				17,974,017	
Hawarden Vintage Pipe Replacement - SDB94301				17,501,569	
Avoca Vintage Pipe Replacement - IAB62301				17,350,914	
Belle Plaine Vintage Pipe Replacement - MNB84401				14,401,099	
Jefferson Vintage Pipe Replacement - IAB64001				10,451,196	
Fort Dodge Vintage Pipe Replacement - IAB69401				10,200,098	
Kingsley Vintage Pipe Replacement - IAB75401				9,051,029	
HDI Yankton Vintage Pipe Replacement - SDB92011				8,240,061	
Northwood Vintage Pipe Replacement - IAB73501				7,922,294	
Milford Vintage Pipe Replacement - IAB77201				6,001,031	
Bancroft Vintage Pipe Replacement - NEB56201				4,700,977	
Meade BL - KSB21801 Abandonment				285,856	
Subtotal: Vintage Pipeline Replacement	**11,958,517**	**41,240,392**	**76,657,967**	**597,325,726**	**727,182,603**
MAOP Reconfirmation					
MNB59201-6-I-Replace MP 0.0-1.2 Paynesville-MCA					
M570B-18-Replace MP 59.5-60.9 Hooper-Sioux City-MR					
WIB14801 Ladysmith Branch Line Replacement Milepost 1.15					
IAB43901-4-Replace MP 5.2-5.4 Onawa BL-MCA					
MNB86801-6-Replace MP 2.8-3.0 White Bear Lake BL-CLS-MR					
WIB14801 Ladysmith Branch Line Replacement Milepost 2.60					
WIB14801 Ladysmith Branch Line Replacement Milepost 19.10					
M836B-16-Replace MP 37.8-38.0 Sid Richardson IC-Hobbs Discharge-MCA-MR	913,292				
M836B-16-Replace MP 9.3-9.7 Sid Richardson IC-Hobbs Discharge-MCA-MR				3,015,887	
M771B-30-PT-MP 2.9-3.8 Dumas-Sunray B-MCA-MR	12,335,844				
MNB65101-6-Replace Morris-CLS	11,531,046				
IAB62501-10-Replace - MP13.7-33.13 - Grinnell	9,018,346				
M520C-30-Replace MP 49.6-50.0 Ogden-Ventura-MCA-MR	5,176,136				
M520C-30-Replace MP 27.9-28.5 Ogden-Ventura-MCA-MR	5,121,715				
M511B-20-Replace MP 6.5-6.7 Dubuque TBS 4-Galena-MCA-MR	4,388,159				
M500B-26-Replace MP 85.7-86.1 Ventura-Farmington-MR	3,722,449				
M511B-20-Replace MP 8.7-9.1 Dubuque TBS 4-Galena-MCA-MR	3,272,538				
IAB56501-6-Replace MP 16.5-16.9 Vinton BL-MR	3,209,099				
WIB11901-6-Replace MP 26-45 Tomah	3,001,671				
WIB11901-8-Replace MP 10.6-11.0 Tomah BL-MCA-MR	2,804,951				
M500B-26-Replace MP 80.3-80.5 Ventura-Farmington-MCA-MR	2,467,378				
IAB69701-6-Replace MP 10.0-10.3 Iowa Falls BL-MCA-MR	1,485,344				
WIB11901-10-Replace MP 3.9-4.2 Tomah BL-MCA-MR	472,675				
Grinnell Replacement	230,902				
M450B-24-Replace MP 63.8-65.8 Farmington-NB-MCA-MR		16,099,927			
M530B-26-Replace MP 22.1-23.2 Oakland-Ogden-MCA-MR		6,889,281			
M580B-26-PT-MP 37.8-38.8 Palmyra-Oakland B-MCA-MR		6,000,018			
M470B-16-Replace MP 36.7-37.1 Paullina-Welcome-MCA-MR		3,207,800			
M460B-20-PT-MP 79.6-79.9 Welcome-Mpls TBS 1P-MCA-MR		3,002,429			
MNB78401-6-Replace MP 3.1-3.4 Mora BL-MCA-MR		1,900,281			
M460B-20-PT-MP 97.3-97.7 Welcome-Mpls TBS 1P-MCA-MR		1,001,855			
M460C-26-PT-MP 0.0-2.8 MNM80901-Mpls TBS 1-HCA-MR		1,000,633			
M560C-24-PT-MP 36.6-36.9 S Sioux City-Paullina C-MCA-MR		1,000,026			

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M521C-26-PT-MP 52.8-53.4 Ogden-Waterloo C-HCA-MR		999,850			
M580B-26-PT-MP 31.8-31.9 Palmyra-Oakland B-MCA-MR		800,576			
M460B-20-PT-MP 1.9-2.3 Welcome-Mpls TBS 1P-MCA-MR		700,957			
MNB75601-12-PT-MP 23.0-23.4 Willmar BL-MCA-MR		501,217			
M119B-20-PT-MP 14.7-15.2 Ogden-Redfield B-MCA-MR		500,065			
MNB87701-8-PT-MP 20.41-25.0 Elk River BL-MCA-MR		500,000			
MNB87701-8-PT-MP 19.77-20.28 Elk River BL-MCA-MR		200,000			
M530C-30-Replace MP 22.3-23.7 Oakland-Ogden-MCA-MR			9,002,211		
WIB11901-10-Replace MP 1.1-1.7 Tomah BL-MR			6,794,176		
M521C-26-PT-MP 27.5-28.1 Ogden-Waterloo C-MCA-MR			5,502,069		
IAB79501-6-Replace MP 1.1-3.5 Tipton BL-MR			5,012,456		
M510B-16-Replace MP 47.9-48.1 Waterloo-Dubuque TBS 4-MCA-MR			5,012,453		
M521B-20-Replace MP 27.6-28.0 Ogden-Waterloo-MCA-MR			4,002,355		
IAB67101-10-Replace MP 33.9-34.3 Charles City BL-MCA-MR			3,003,117		
M520B-20-Replace MP 27.9-28.3 Ogden-Ventura-MCA-MR			3,001,681		
IAB54001-4-Replace Class 3 Anamosa			3,001,122		
M510B-16-Replace MP 9.1-9.6 Waterloo-Dubuque TBS 4-MCA-MR			2,701,287		
M471B-20-Replace MP 80.9-81.2 Paullina-Aberdeen-MCA-MR			2,500,659		
MNB77501-16-Replace MP 50.5-50.9 MN IC BL-MCA-MR			2,006,499		
MNB75601-8-Replace MP 99.8-100.1 Willmar BL-MR			1,503,293		
IAB67101-10-Replace MP 0.4-0.7 Charles City BL-MCA-MR			1,490,930		
IAB67101-10-Replace MP 5.6-6.1 Charles City BL-MCA-MR			1,490,922		
M521B-20-Replace MP 52.9-53.3 Ogden-Waterloo-MR			1,003,381		
MNB87701-20-PT-MP 19.73-19.77 Elk River BL-MCA-MR			751,276		
MNB75601-12-PT-MP 17.6-17.8 Willmar BL-MCA-MR			501,541		
M500C-30-PT-MP 37.2-37.9 Ventura-Farmington C-MCA-MR			501,223		
M500C-30-PT-MP 80.7-81.3 Ventura-Farmington C-MCA-MR			501,223		
M630C-26-PT-MP 14.1-14.8 Tescott-Clifton C-MCA-MR			500,872		
MNB83201-6-PT-MP 0.0-0.2 Mankato BL from MNM80501-MCA-MR			400,566		
MNB87001-6-Repace Replace Worthington-CLS			274,816		
MNB77701-6-PT-MP 1.0-2.1 Hudson BL-MCA-MR			251,160		
Approved Plan for A7 - 2033				20,037,488	
M450B-24-Replace MP 59.7-61.3 Farmington-NB-MR				14,908,911	
MNB77701-WIB10201-6-Replace MP1-3.1 Hudson BL-MCA				11,500,000	
M450B-24-Replace MP 48-49.3 Farmington-NB-MCA-MR				8,736,067	
IAB71801-10-I-Mods MP 0-7.5 Waverly BL-MCA-MR				6,264,304	
M460B-16-Replace MP 49.5-50.8 Welcome-Mpls 1P-MCA-MR				6,017,223	
M640D-30-PT-MP 30.1-30.8 Bushton-Tescott D-MCA-MR				6,004,781	
MNB86701-8-Replace MP 0.0-2.9 Stillwater Oak Park BL-CLS-MR				5,999,048	
M860B-30-Replace MP 16.4-16.8 Spraberry-Florey-MCA-MR				5,491,404	
M820B-26-Replace MP 6.5-8.1 Hobbs-Plains-MR				5,200,000	
M640C-24-Replace MP 30.0-30.6 Bushton-Tescott-MCA-MR				4,992,186	
M500B-24-Replace MP 64.1-64.6 Ventura-Farmington-MCA-MR				4,767,140	
M500B-26-Replace MP 37.2-37.7 Ventura-Farmington-MCA-MR				4,767,138	
M500C-30-Replace MP 64.4-65.0 Ventura-Farmington-MCA-MR				4,741,782	
M500C-30-Replace MP 80.7-81.3 Ventura-Farmington-MCA-MR				4,741,782	
M500C-30-Replace MP 39.0-39.5 Ventura-Farmington-MCA-MR				4,741,723	
M590B-24-Replace MP 38.5-39.1 Beatrice-Palmyra-MCA-MR				4,500,000	
M590C-26-Replace MP 39.1-39.6 Beatrice-Palmyra-MCA-MR				4,500,000	
M630B-24-Replace MP 14.2-14.8 Tescott-Clifton-MCA-MR				4,500,000	
M820B-26-Replace MP 0.0-0.4 Hobbs-Plains-MCA-MR				4,500,000	
IAB55701-6-Replace MP 13.1-13.3 Tama BL-MCA-MR				4,304,138	
MNB87501-6-Replace MP 3.4-3.6 Sherburn TBS 2 BL-MCA-MR				4,045,593	
WIB18101-6-Replacement Viola				4,033,462	
M471B-20-Replace MP 15.4-15.9 Paullina-Aberdeen-MCA-MR				4,000,000	
M581B-20-Replace MP 13.0-13.4 Palmyra-Hooper-MCA-MR				4,000,000	
WIB14701-4-Replace MP 2.7-5.4 Wisconsin Dells-MCA-MR				3,986,329	
M580B-26-Replace MP 37.9-38.7 Palmyra-Oakland-MCA-MR				3,979,912	
M580C-30-Replace MP 30.6-31.2 Palmyra-Oakland-MCA-MR				3,979,912	
M580B-26-Replace MP 30.6-31.2 Palmyra-Oakland-MCA-MR				3,482,423	
MIB11801-4-Replace MP 1.4-3.6 Hancock-MCA				3,376,733	
MNB81201-8-Replace MP 1.9-2.4 Austin-MCA-MR				3,090,498	
MNB77501-16-Replace MP 31.7-32.1 MN IC BL-MCA-MR				3,025,318	
IAB56901-12-I-Mods MP 0-15 Decorah BL-MCA-MR				3,024,816	
MNB83702-8-Replace MP 8.9-9.2 Springfield 2nd BL-MCA				3,024,816	
M581B-18-Replace MP 61.7-62.1 Palmyra-Hooper-MCA-MR				3,018,312	
MNB72901-8-Replace MP 37.0-37.5 Alexandria BL-MR				3,014,629	
IAB56501-6-Replace MP 19.1-19.3 Vinton BL-MR				3,004,363	
M590D-30-Replace MP 38.9-39.5 Beatrice-Palmyra-MCA-MR				3,002,748	
M471B-20-Replace MP 82.9-83.2 Paullina-Aberdeen-MCA-MR				3,000,000	
M771B-30-PT-MP 3.0-6.4 Dumas-Sunray-MCA-MR				2,999,866	
MNB72901-8-Replace MP 11.9-12.2 Alexandria BL-MCA-MR				2,999,524	
MNB79201-10-Replace MP 9.1-9.8 Winona BL-MCA-MR				2,999,524	
WIB14601-12-Replace MP 18.5-18.9 New Lisbon BL-MCA-MR				2,995,311	
WIB11901-8-Replace MP 8.2-8.6 Tomah BL-MR				2,992,677	
M883B-20-Replace MP 17.3-17.6 Mitchell-Plymouth-MCA-MR				2,989,747	
WIB14601-12-Replace MP 80.3-80.5 New Lisbon BL-MR				2,989,747	
MNB59201-4-Replace MP 24.6-25.5 Paynesville BL-MCA				2,980,448	
IAB54201-6-Replace MP 17.1-17.2 Hampton BL-MCA-MR				2,866,902	
MNB75601-8-Replace MP 101.5-101.9 Willmar BL-MCA-MR				2,499,604	
IAB54001-6-Replace Anamosa-CLS-MR				2,479,366	
MNB61801-4-Replace MP 10-11 Rockford-MCA				2,461,040	
IAB55302-6-Replace MP 1.9-2.0 Clarksville BL-MCA				2,389,085	
IAB61701-6-Replace MP 1.8-2.0 Independence BL-MCA-MR				2,389,085	

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IAB63902-6-Replace MP 5.4 Harlan Loop-MCA				2,389,085	
IAB73701-6-Replacement MP 2.2-2.3 Manchester BL-MC-MR				2,389,085	
IAB52001-8-Replace Savannah BL-MCA-MR				2,299,841	
SDB91901-6-Replace MP 13.6-13.7 Brookings BL-MCA-MR				2,022,797	
WIB14301-6-Replace Portage-MCA-MR				2,021,345	
WIB12801 Platteville 1 Relocation				1,999,683	
MNB92601-4-Replace Ham Lake-CLS				1,911,268	
NEB57901-10-Replace MP 7.6-7.9 Sheldon Pwr Plt BL-MCA-MR				1,694,673	
MNB63101-4-Replace MP 20.8-22.1 Marshall-MCA				1,600,000	
IAB44501-6-Replacement MP 34.2-34.5 Lytton BL-MCA-MR				1,551,636	
MNB86201-6-Replace MP 1.8-2.0 Windom BL-MCA-MR				1,517,097	
WIB13401-6-Replace MP 4.9-5.1 Monroe BL-MCA-MR				1,506,426	
MNB75601-10-Replace MP 54.3-54.6 Willmar BL-MCA-MR				1,504,891	
IAB48401-6-Replace MP 5.0-5.2 Osage BL-MCA-MR				1,500,000	
IAB65601 Des Moines 1A Relocation				1,500,000	
M560B-16-Replace MP 5.29-5.73 S Sioux City-Paullina B-MR				1,500,000	
M560B-16-Replace MP 8.48-8.75 S Sioux City-Paullina B-MR				1,500,000	
IAB90901-6-Replace MP 1.7-1.8 Otter Creek BL-MCA				1,437,532	
MNB62501-6-Replace MP 1.2-1.3 Granite Falls BL-MCA				1,437,532	
IAB53101-3-Replace MP 3.42-3.50 Jesup-MCA-MR				1,364,794	
IAB63901-6-Replace MP 5.2-5.4 Harlan BL-MCA-MR				1,300,000	
SDB95701-8-Replace MP 13.7-14.0 Pipestone BL-MCA-MR				1,250,000	
IAB55701-6-Replace MP 14.6-14.7 Tama BL-MCA-MR				1,200,000	
IAB63901-6-Replace MP 19.7-19.9 Harlan BL-CLS-MR				1,200,000	
WIB10801-4-Replace MP 21.3-21.5 Bloomer-MCA-MR				1,175,801	
IAB66801-8-Replace MP 2.0-2.3 Cedar Falls BL-CLS-MR				1,040,000	
MNB85701-6-Replace MP 9.5-9.7 Luverne BL-MCA-MR				1,011,398	
MNB77001-6-Replace MP 1.7-2.0 Little Falls-CLS-MR				1,007,141	
IAB50901-4-Replace MP 1.0-1.2 Ackley BL-MCA-MR				1,000,916	
WIB12301-6-Replace MP 58.6-58.7 Richland Center BL-MCA-MR				1,000,916	
MNB78401-6-Replace MP 18.4-18.5 Mora BL-CLS-MR				1,000,399	
Cedar Ave FHCA-M460C-26-Replace-MR				1,000,000	
IAB40102-4-Replace Cambridge 2nd-CLS				1,000,000	
IAB62501-10-Replace MP 32.9-33.2 Grinnell BL-MCA-MR				999,841	
IAB66101-10-Replace MP 4.9-5.1 Marshalltown BL-MCA-MR				999,841	
MNB69801-4-Replace MP 5.5-5.7 Winthorp BL-MCA-MR				999,841	
MNB81201-8-Replace MP 6.3-6.6 Austin BL-MCA-MR				999,841	
WIB12301-8-Replace MP 10.5-10.8 Richland Center BL-MCA-MR				999,841	
IAB47601-6-Replace MP 4.9-5.1 Bristow BL-MCA-MR				997,307	
MNB83701-6-Replace MP 8.9-9.2 Springfield BL-MCA-MR				997,307	
SDB92002-10-Replace MP 15.1-15.4 Yankton 2nd BL-MCA-MR				997,307	
IAB72002-12-Replace MP 7.8-8.1 Mason City BL-MCA-MR				996,582	
MNB78501-8-Replace MP 9.5 Lake City BL-MCA-MR				958,354	
WIB14401-4-Replace Sauk City BL-CLS-MR				958,354	
IAB44201-12-Replace Sioux City 1A-MR				800,000	
MNB64301-4-Replace MP 0-0.25 Albany				800,000	
MNB64301-4-Replace MP 18.8-19.3 Albany				800,000	
MNB81201-8-Replace MP 0-0.3 Austin-MCA				800,000	
NEB53001-6-Replace MP 1.8-2.0 Blair BL-MCA-MR				800,000	
M430B-20-Replace MP 0.2-0.62 Carlton-Mesabi Iron Range B-MR				750,000	
M430B-20-Replace MP 10.21-10.55 Carlton-Mesabi Iron Range B-MR				750,000	
M430B-20-Replace MP 6.07-6.26 Carlton-Mesabi Iron Range B-MR				750,000	
MNB77601-20-Replace MP 0.0-0.28 Minneapolis TBS 1D BL-MR				750,000	
MNB86901-6-Replace Coon Rapids-CLS				750,000	
WIB12801-4-Replace MP 0-0.2 Platteville				750,000	
IAB43501-3-Replace MP 1.7-1.8 Jewell BL-MCA-MR				749,881	
IAB55301-4-Replace MP 1.8-2.0 Clarksville BL-MCA-MR				749,881	
IAB51201-3-Replace MP 7.5-8 Monona				507,484	
IAB65601-16-Replace MP 0.02-0.5 Des Moines 1A-MR				500,000	
IAB66001-10-PT MP 4.79-21.48 Ames BL-HCA-MR				500,000	
IAB66002-10-PT MP 4.13-4.24 Ames 2nd BL-MCA-MR				500,000	
IAB71801-10-Replace MP 4.05-4.27 Waverly BL-MR				500,000	
IAB71801-8-Replace MP 11.37-11.54 Waverly BL-MR				500,000	
IAB71801-8-Replace MP 14.74-14.85 Waverly BL-MR				500,000	
IAB71801-8-Replace MP 20.74-20.93 Waverly BL-MR				500,000	
MNB90701-6-Replace MP 0.0-0.03 M500C-MNB8301 TO-MCA-MR				499,921	
MNB87301-6-PT-MP 0.0-2.02 Anoka-Chaplin BL-HCA-MR				301,305	
WIB14301-6-PT-MP 2.00-2.86 Portage BL-HCA-MR				301,305	
MNB75601-24-PT-MP 0.0-1.18 Willmar BL-HCA-MR				300,000	
MNB75601-24-PT-MP 2.78-3.83 Willmar BL-HCA-MR				300,000	
MNB75601-24-PT-MP 4.99-5.89 Willmar BL-HCA-MR				300,000	
MNB75601-24-PT-MP 6.76-7.04 Willmar BL-HCA-MR				300,000	
WIB14301-6-PT-MP 4.52-4.64 Portage BL-MCA-MR				300,000	
Subtotal: MAOP Reconfirmation	**69,151,544**	**44,304,914**	**60,711,289**	**321,701,245**	**495,868,992**
Remote Mitigation Valves					
RCV M432B Marquette ML-BBB08	1,507,536				
RCV IAB79501 Tipton BL-BYB01	496,185				
RCV MNB73201 La Crosse BL-BBB07	3,172,895				
RCV M521B Actuator-Phase II-Marshalltown Takeoff					
RCV M521C Actuator-Phase II-Marshalltown Takeoff					
RCV M521B Feed to Eldora IA 4 TBS					
RCV MIB11601 Lake Linden BL-BYB03	4,274,917				
RCV MNB73201 LaCrosse BL	2,613,971				
RCV MNB75602-16-Willmar C		2,200,214			

Project Description	2024	2025	2026	2027 - 2033	10-Year 2024 - 2033
RCV M521D Ogden-Waterloo D		1,981,483			
RCV M521C Ogden-Waterloo D		1,981,483			
RCV IAB74101 Dyersville BL-BYB01 or 02		1,586,396			
RCV IAB51101 Waukon BL-BYB04 or 05		1,586,273			
RCV MNB95701 Corcaran BL-DYB01		1,493,976			
RCV WIB18692 Blk Rvr Falls 2 and 3 - CYC07			970,821		
RCV WIB18601 Black River Falls - BYB03			970,797		
RCV HCA			2,382,985	16,788,637	
Subtotal: Remote Control Valves	**12,065,505**	**10,829,826**	**4,324,603**	**16,788,637**	**44,008,571**
Asset Modernization Total	**220,919,087**	**267,315,870**	**322,290,270**	**1,871,284,634**	**2,681,809,861**

RCV MIB11601 Lake Linden BL-BYB03

RCV M432B Marquette ML-BBB08-MIM10101

MNB66801 Grand Rapids Branch Line Modifications

RCV M432B Marquette ML-BBB08-Saxon 1 TBS

Wrenshall Vap Replacements A B C

M500B-26-I-Mods24 Ventura-Faribault B-MCA Owatonna Portion

North Branch 1-4 Replacement Compression

RCV M432B Marquette ML-BBB08-WIM15501

MNB65101-6-Replace Morris-CLS

WIB11901-10-Replace MP 3.9-4.2 Tomah BL-MCA-MR

M500B-26-Replace MP 85.7-86.1 Ventura-Farmington-MR

WIB11901-8-Replace MP 10.6-11.0 Tomah BL-MCA-MR -

Huron South Dakota 1 TBS Relocation

M500B-24-Replace MP 80.3-80.9 Ventura-Farmington-MCA-MR

WIB11901-6-Replace MP 26-45 Tomah

RCV MNB73201 LaCrosse BL

SDB92002-8-Repl24 Replace Yankton 2nd-MCA

Garner LNG MCC-4160 Volt

RCV MNB73201 La Crosse BL-BBB07

Garner Replace Cold Box

WIB23601-12-I-Mods24 Beloit-MCA

WIB13401-4-H-Mods MP 0-5 Monroe-MCA

Garner LNG Refrigeration Compressor Motor Replacement

M511B-20-Replace MP 8.7-9.1 Dubuque TBS 4-Galena-MCA-MR

M520C-30-Replace MP 49.6-50.0 Ogden-Ventura-MCA-MR

M520C-30-Replace MP 27.9-28.5 Ogden-Ventura-MCA-MR

M511B-20-Replace MP 6.5-6.7 Dubuque TBS 4-Galena-MCA-MR

NEB43201-12-H-Mods MP 0-0.03 OPPD BL-MCA

RCV IAB79501 Tipton BL-BYB01

M530D-30-I-Mods24 Oakland-Ogden D-MCA Oakland Portion

RCV IAB79501 Tipton BL-Anamosa 1A TBS

Redfield Broderick 16 New Well

RCV IAB79501 Tipton BL-Morley 1A TBS

RCV IAB79501 Tipton BL-Springville 1A TBS

IAB56501-6-Replace MP 16.5-16.9 Vinton BL-MR

IAB69701-6-Replace MP 10.0-10.3 Iowa Falls BL-MCA-MR

Beaver 15-18 Replacement Compression

IAB62501-10-Replace MP 13.7-33.13 Grinnell-MCA-MR

Grinnell Replacement

Eagle Grove Branch Line Replacement

M771B-30-PT-MP 2.9-3.8 Dumas-Sunray B-MCA-MR

M771B Dumas-Sunray ILI Modifications El Paso Dumas 2024

M836B-16-Replace MP 37.8-38.0 Sid Richardson IC-Hobbs Discharge -MCA-MR

M836B-16-I-Mods24 Sid Richardson-Hobbs-MCA

Spraberry Compressor Units 4 and 5 Replacement

Compression Replacement
LNG Replacement
MAOP Reconfirmation
Pipeline Assessments MCA
Remote Control Valves
Underground Storage PHMSA
Vintage Pipeline Replacement
NNG Pipeline

Miles
0 25 50 100 150 200 250

2024 Asset Modernization Projects

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Northern Natural Gas®
A BERKSHIRE HATHAWAY ENERGY COMPANY

MNB78401-6-Replace MP 3.1-3.4 Mora BL-MCA-MR

M450B-24-Replace MP 63.8-65.8 Farmington-NB-MCA-MR

MNB87701-8-PT-MP 20.41-25.0 Elk River BL-MCA-MR

MNB87701-8-PT-MP 19.77-20.28 Elk River BL-MCA-MR

RCV MNB75602-16-Willmar C

RCV MNB95701 Corcaran BL-DYB01

M500D-30-I-Mods25 Ventura-Faribault-MCA

M460C-26-PT-MP 0.0-2.8 MNM80901-Mpls TBS 1-HCA-MR

Lake Mills Vintage Pipe Replacement - IAB73801

MNB75601-12-PT-MP 23.0-23.4 Willmar BL-MCA-MR

Ventura 14-15 Replacement Compression

M460B-20-PT-MP 97.3-97.7 Welcome-Mpls TBS 1P-MCA-MR

New Prague Vintage Pipe Replacement - MNB84501

Mason City Vintage Pipe Replacement - IAB72001

M460B-20-PT-MP 79.6-79.9 Welcome-Mpls TBS 1P-MCA-MR

M521C-26-PT-MP 52.8-53.4 Ogden-Waterloo C-HCA-MR

M500C-30-I-Mods25 Ventura-Faribault C-MCA

RCV IAB51101 Waukon BL-BYB04 or 05

M460B-20-PT-MP 1.9-2.3 Welcome-Mpls TBS 1P-MCA-MR

RCV IAB74101 Dyersville BL-BYB01 or 02

M470B-16-Replace MP 36.7-37.1 Paullina-Welcome-MCA-MR

RCV M521D Ogden-Waterloo D

M560C-24-PT-MP 36.6-36.9 S Sioux City-Paullina C-MCA-MR

RCV M521C Ogden-Waterloo D

Columbus Vintage Pipe Replacement - NEB52901

M520D-30-I-Mods25 Ogden-Vent D-MCA

M119C-20-I-Mods25 Odgen-Redfield C-MCA

M119B-20-I-Mods25 Ogden-Redfield B-MCA

NEB52902-10-I-Mod25 MP 0-28 Columbus 2nd-MCA

M119B-20-PT-MP 14.7-15.2 Ogden-Redfield B-MCA-MR

Redfield McCarthy No. 3 Disposal Well Downhole

Bushton 26-31 Replacement Compression

M530D-30-I-Mods25 Oakland-Ogden D-MCA Ogden Portion

Cunningham Northeast Containment System

M530B-26-Replace MP 22.1-23.2 Oakland-Ogden-MCA-MR

M580B-26-PT-MP 37.8-38.8 Palmyra-Oakland B-MCA-MR

Lyons Underground Storage Treatment Facility

M580B-26-PT-MP 31.8-31.9 Palmyra-Oakland B-MCA-MR

M590D-30-I-Mods25 Beatrice-Palmyra D-MCA

Beaver 15-18 Replacement Compression

Spraberry Compressor Units 4 and 5 Replacement

Spraberry 8 and 10 Replacement Compression

- Compression Replacement
- LNG Replacement
- MAOP Reconfirmation
- Pipeline Assessments MCA
- Remote Control Valves
- Underground Storage PHMSA
- Vintage Pipeline Replacement
- NNG Pipeline

Miles
0 25 50 100 150 200 250

2025 Asset Modernization Projects

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Northern Natural Gas
A BERKSHIRE HATHAWAY ENERGY COMPANY

MNB67702-4-H-Mods MP 3.27-6.3 St Michael 2nd-MCA

MNB77501-16-Replace MP 50.5-50.9 MN IC BL-MCA-MR

MNB75601-10-I-Mods MP 50.6-79.4 Willmar BL-MCA

MNB75601-8-Replace MP 99.8-100.1 Willmar BL-MR

ABA12 and Red Wing 1 - M500A Abandonment

ABA11 and Northfield 1 - M500A Abandonment

ABA09 and Faribault 1 - Faribault 1 - M500A Abandonment

MNB83201-6-PT-MP 0.0-0.2 Mankato BL from MNM80501-MCA-MR

M500C-30-I-Mods25 Ventura-Faribault C-MCA

M471B-20-Replace MP 80.9-81.2 Paullina-Aberdeen-MCA-MR

MNB87001-6-Repace Replace Worthington-CLS

SDB92002-8-Replace MP 10.8-12.8 Yankton 2nd BL-MCA

M500C-30-PT-MP 37.2-37.9 Ventura-Farmington C-MCA-MR

Ventura 14-15 Replacement Compression

IAB67101-10-Replace MP 0.4-0.7 Charles City BL-MCA-MR

IAB67101-10-Replace MP 5.6-6.1 Charles City BL-MCA-MR

M520B-20-Replace MP 27.9-28.3 Ogden-Ventura-MCA-MR

M590D-30-I-Mods25 Beatrice-Palmyra D-MCA

M630C-26-PT-MP 14.1-14.8 Tescott-Clifton C-MCA-MR

Bushton 26-31 Replacement Compression

Wrenshall Liquid Nitrogen Tank Replacement

Wrenshall Vap Replacements A B C

MNB87701-20-PT-MP 19.73-19.77 Elk River BL-MCA-MR

MNB75601-12-PT-MP 17.6-17.8 Willmar BL-MCA-MR

MNB77701-6-PT-MP 1.0-2.1 Hudson BL-MCA-MR

M500C-30-PT-MP 80.7-81.3 Ventura-Farmington C-MCA-MR

RCV WIB18601 Black River Falls - BYB03

RCV WIB18692 Blk Rvr Falls 2 and 3 - CYC07

WIB11901-10-Replace MP 1.1-1.7 Tomah BL-MR

MNB73202-12-I-Mods MP 0-43.8 Iacrosse BL-MCA

ABA07 and Waseca - M500A Abandonment

IAB54001-4-Replace Class 3 Anamosa

IAB79501-6-Replace MP 1.1-3.5 Tipton BL-MR

M510B-16-Replace MP 47.9-48.1 Waterloo-Dubuque TBS 4-MCA-MR

M510B-16-Replace MP 9.1-9.6 Waterloo-Dubuque TBS 4-MCA-MR

IAB67101-10-Replace MP 33.9 -34.3 Charles City BL-MCA-MR

M521B-20-Replace MP 52.9-53.3 Ogden-Waterloo-MR

M521B-20-Replace MP 27.6-28.0 Ogden-Waterloo-MCA-MR

M521C-26-PT-MP 27.5-28.1 Ogden-Waterloo C-MCA-MR

Redfield - New I W Wells - Well 2 2026

Redfield McCarthy No. 3 Disposal Well Surface Facilities

M530C-30-Replace MP 22.3-23.7 Oakland-Ogden-MCA-MR

IAB60501-16-I-Mods MP 0-3.5 NGPL Interconnect-MCA

Lyons Underground Storage Treatment Facility

- Compression Replacement
- LNG Replacement
- MAOP Reconfirmation
- Pipeline Assessments MCA
- Remote Control Valves
- Underground Storage PHMSA
- Vintage Pipeline Replacement
- NNG Pipeline

Miles
0 25 50 100 150 200 250

2026 Asset Modernization Projects

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