

K&M Capital Additions – Project Descriptions & Justifications

A. NSPM-K&M: Aging Technologies

Business Systems supports the operations of the Company with a large and growing IT infrastructure. As with physical assets, information assets are subject to aging, technological obsolescence, and increasing maintenance costs. Business Systems not only completes routine annual refreshes of technology, like replacing computers and printers, but also plans and places in service large IT projects that modernize the Company's IT and address the needs and experiences of our customers and employees. A reasonably up-to-date infrastructure is necessary for the Company to continue to meet increasingly demanding data security, reliability, and compliance requirements, as well as the service expectations of our customers.

Projects to replace aging technologies include:

- Transmission Communication Network program
 - The Company is increasing investments in this as it continues its efforts to privatize the communication network infrastructure across the NSPM service territory to improve SCADA, teleprotection, and remote engineering access, in addition to corporate services.
 - This privatization will also decrease response time for restoring network outages and reduce our exposure to cybersecurity threats through the publicly accessible network provided by third-party telecommunication companies.
- Phase 2 of the Critical Infrastructure Program (CIP)
 - This is needed to enable the Company to monitor changes to cyber assets in an auditable reporting format.
 - This project will replace manual processes and spreadsheets with software automation to support standard CIP compliance requirements.
- Phase 4 of the Dynamic EMS Environment (DEMS)
 - DEMS is the Company's critical system for supporting transmission SCADA, Generation, Generation Dispatch, Market Participation and Reliability Coordination.
 - This project is part of a five-year effort to replace the EMS, which is a critical technology used for the monitoring and management of the bulk electric system by our transmission system.
 - The EMS interfaces with field devices that collect information about the health of the bulk electric system. This real-time, two-way communication provides Transmission and Distribution Operations the ability to remotely control the flow of electricity during outage and maintenance periods, which is a key driver of our ability to maintain efficient and reliable service to our customers.
 - The DEMS project is primarily driven by a contractual agreement with GE to upgrade DEMS to a newer version within six years of the executed contract. Without an upgrade, the Company's DEMS system will not evolve with the GE

product, which may impact the Company's ability to get vendor support for any software system issues.

- Disaster Recovery (DR) Technology refresh
 - This will enable the Company to proactively test and implement a new methodology for system recovery during a disaster such as power outages and other system failures that can result in lost data and system issues.
 - This multi-year project will help ensure business continuity, regardless of the circumstances, and various components of the project will be placed into service as assets are deployed.
 - The project will replace aging disaster recovery hardware and will provide hardware and software solutions to ensure that the Company will be fully prepared to operate during a situation that could negatively impact the operation of the Company's primary systems.
- Replacement of core Human Resources (HR) software systems and vendors at Xcel Energy with a single, integrated software solution
 - HR software systems to be replaced include: PeopleSoft, TIME, myHR, Talent Management, Learning Management System, Workforce Planning, and Workforce Analytics. These applications comprise the core HR system, provide payroll, benefits administration, workforce management, experience layer, and job record tracking to employees and retirees of the Company.
 - The specific solution will be determined upon finalizing the RFP for the project.
 - This project is crucial as the Company is running HR systems that are no longer supported by the vendors. For instance, the version of PeopleSoft the Company uses has not been updated since 2010 and is no longer supported by the vendor, creating risk from a technology and security perspective.
 - Additionally, the Company's TIME entry system runs on the mainframe, which is targeted to be retired in 2023-2024. The TIME application, PeopleSoft, and internal HR processes are tightly integrated and not replacing them at the same time would increase risk and costs to the initiative.
- Replacing Power Costs, Inc. (PCI) software
 - This software is used to facilitate transactions with the Independent System Operators (ISOs), among other uses. The current PCI software support costs have increased, and the technology is nearing end of life.
 - The required market interface capability was evaluated through a request for information (RFI), which determined that Xcel Energy could increase market interface capability and reduce support costs by replacing the technology.
 - The replacement of PCI with the new product will increase processing speeds with real-time market bidding process transactions, enable better asset optimization, and enable a robust analysis and reporting function for settlement for all markets.
- Upgrades to network services
 - This involves upgrading and replace aging components of the network.

- For example, the SCADA circuits that have been in place for many years for transmission and distribution purposes are based on analog technology. That technology is now digital, and those new digital circuits require maintenance to keep current.
- Another example is the Company's investment in expanding the wireless network in its offices and service centers to aid productivity, resulting in new assets placed into service that must be maintained.
- Operational Technology (OT) Modernization
 - This project involves the planned replacement of network devices (switches, routers, radios, channel banks and voice systems) due to aging technology, out-of-support equipment, security vulnerabilities, and/or to enable new required capabilities.
 - Lifecycle management for OT Modernization will help to replace and/or decommission active end of life equipment.
 - The scope of this work includes LMR Radio replacements, UPS (uninterrupted power supply) remediations, and battery replacements.
 - End of life devices leave our network and infrastructure vulnerable, and failure to install updates can increase security risks.

B. NSPM-K&M: Angus Anson Plant

Projects at the Angus Anson Plant include the overhaul of the Unit 4 combustion turbine hot gas path in 2022 and the major overhaul of the Unit 2 combustion turbine hot gas path in 2023.

- Angus Anson Unit 4 combustion turbine hot gas path (HGP) overhaul
 - This overhaul is being performed in 2022 per the Original Equipment Manufacturer (OEM) recommended equivalent operating hours and starts.
 - During a HGP overhaul, combustor parts are replaced, and complete rows of turbine blades and vanes are replaced. Installation work is performed during a planned overhaul.
 - Other components are replaced as required based on inspections, OEM recommendations and prudent utility practice. Significant inspections are also completed to assess the health of the turbine section and look for signs of long-term issues.
 - The project also includes replacing the R0 (1st stage) compressor blades to mitigate a design issue with the OEM blades. The exhaust frame flex seals will be replaced with a set of Inconel seals.
- Overhaul of Unit 2 Combustion Turbine (CT)
 - This overhaul is slated to be performed in 2023 on Angus Anson Unit 2.
 - A major overhaul occurs when a Hot Gas Path (HGP) overhaul coincides with a compressor inspection and other infrequent major inspections.
 - This overhaul is being performed per the Original Equipment Manufacturer (OEM) recommended equivalent operating hours and starts. During the HGP overhaul,

combustor parts will be replaced, installation work will be performed, and complete rows of turbine blades, vanes, and interstage seals will be replaced.

- Other components may be replaced based on inspections, OEM recommendations and prudent utility practice. Significant inspections are also completed to assess the health of the turbine section and look for signs of long-term issues.

C. NSPM-K&M: Black Dog Plant

- Black Dog Unit 5 combustion turbine hot gas path (HGP) overhaul
 - This overhaul is being performed in 2022 per the OEM-recommended equivalent operating hours and starts. During the overhaul, combustor parts and complete rows of turbine blades, vanes, and ring segments will be replaced.
 - Other components are replaced as required based on inspections, OEM recommendations and prudent utility practice.
 - Significant inspections are also completed to assess the health of the turbine section and look for signs of long-term issues.

D. NSPM-K&M: Customer

In an era when customers' expectations are higher than they have ever been, the Company must be prepared to meet our customers' needs to remain a trusted provider of their energy services. As a result, the Company has focused on updating our primary customer touch points and relationship management tools. Projects designed to enhance the customer experience include:

- Delivery of a Distributed Intelligence ("DI"), grid edge computing platform and baseline solutions on the Itron Riva 4.2 meters contracted for delivery as part of the Meter Replacement Program
 - The scope for the project includes the incremental development to support initial Grid Facing and Customer Facing Applications, including those relating to our DI Settlement Commitments in other jurisdictions. Company witness Marty D. Mensen discusses this further in his Direct Testimony.
- Project to Refresh/Upgrade all Contact Center Interactive Voice Response (IVR) and dependent Avaya infrastructure
 - This project will ensure continued IVR business capability across all 3 customer contact centers plus the Business Solution Center.
 - The upgrade impacts all 12 million annual incoming calls, and retains and solves approximately 8 million customer transactions annually.
 - The alternative of using beyond end of life hardware and aging call recoding and call reporting software would put a key business function at risk of failure, exposing Xcel

Energy to a poor customer experience and a real possibility of needing to revert to increased manual staff to provided Customer support.

- CXT
 - CXT is a program utilizing more modern technologies that our customers have come to expect through experiences with other companies. This includes interactive websites, account management options, and smart phone applications.
 - As the Company utilizes more modern technologies for our customers, there will be a need to simultaneously invest in new capabilities like data science, user design, and development.

E. NSPM-K&M: Cyber Security

There are four key cyber security issues the Company must address: (1) keeping hackers out of our systems; (2) detecting hackers if they attempt to gain access to our systems; (3) removing hackers that gain access to our systems; and (4) returning our systems to their original state if hackers gain access. As the number of cyber threats, attacks, and regulatory requirements continues to increase in volume and complexity, it is imperative that the Company establish and maintain the proper tools to protect the integrity and confidentiality of our data and our systems. Given the unpredictability of these threats, it is important that these tools and resources continue to change in response to new threats to our information systems.

The Company's known and measurable capital additions relating to cyber security in 2022 and 2023 include:

- IT Security Technology Refresh
 - The scope of this project is to update critical cyber security technology including perimeter security, internal infrastructure security, application security, and to implement vulnerability management to protect sensitive customer and business information.
 - This is the primary cyber security project that will be put into service in 2023.
- SIEM+SOAR
 - This project will implement and operationalize a combined suite of software products for Security Information and Event Monitoring (SIEM), User Behavior Analytics (UBA), and Security Orchestration, Automation, and Response (SOAR) for the Enterprise Command Center (ECC) that, once implemented, will increase and establish cyber security capabilities.
- Firewall Rule Management
 - This project will implement a new centrally-managed tool to maintain the Company's multi-vendor firewall hygiene program by providing end-to-end security views of firewall policies, rules, and configurations that impact the Company's security posture in an automated fashion.
- OT Shared Services

- The Operational Technology (OT) Shared Services project consists of investments in the operational technology environment that are needed to support meter replacements and operations applications, such as substation, synchrophasor, and the DEMS.
- Vulnerability Scanning Refresh
 - This project will refresh the Company's vulnerability scanning capabilities in accordance with Xcel Energy's Security Standards.
 - This specific refresh project will improve the Company's security posture and reduce the risk of data loss or breach of the Company's systems and is designed to increase the Company's security audit scores by increasing its security posture.
- Service Delivery Security Remediation
 - This project work is necessary to ensure that the Company is compliant with Enterprise Information Security and Technology Standards. This work will consist of security remediation projects that will ensure compliance.
- Other Cyber Security Projects
 - Other cyber security projects include investments that provide prevention, detection, containment, and corrective services to protect the Company from security incidents, and assist in the recovery from any adverse events.
 - Examples of smaller 2022 projects include the Verint Security Camera Server Replacement, Data Loss Prevention work, Mandiant Security Validation, Enterprise File Encryption, Nuclear WiFi expansion, PingFed MDHA, Xcel Energy Nuclear Drone Analysis, Advanced Endpoint Protection and Response, and other smaller cyber security projects.

F. NSPM-K&M: Dakota Range Wind

Company witness Farah L. Mandich supports this adjustment in her Direct Testimony.

G. NSPM-K&M: Enhance Capabilities

The key to enhancing the Company's capabilities is to identify new technologies and to implement only those technologies that can offer efficiency benefits that outweigh their implementation costs. Business Systems works prudently with various business units to evaluate new technologies to determine whether they can be used to improve efficiency in the way tasks are completed, data is used, or in the way communications are conducted within the organization and with external stakeholders, including our customers.

For example, adding land mobile radios at our nuclear facilities and, going forward, within the Twin Cities metropolitan area, enhances our ability to conduct secure communications between work crews across highly sensitive locations. Due to the nature of certain IT investments, some investments overlap between categories. That said, the projects in the Aging Technology category typically involve the replacement of assets that were already in service, while the projects in the

Enhance Capabilities category typically involve implementing systems that are *new* applications or application modules that add to business capability or efficiency.

Projects to enhance capabilities include:

- Prairie Island Operating Cycle
 - This is a capital project designed to allow longer operating cycles for units 1 and 2. The current operating cycle is 18 months with a grace of 6 months for Prairie Island and is, therefore, limited to 24 months maximum.
 - The implementation of this project will result in extending the possible operating cycle length to 24 months with a 6-month grace period, allowing flexibility in operating cycle length which will allow the site outage schedule to meet the needs of the power generation group and allow more efficient fuel burnup.
- Strategic Fiber Project
 - This includes the acquisition of dark fiber optic cable assets in order to support enterprise network connectivity. Dark fiber allows for more control over technology resiliency, capacity, and architecture.
 - The high availability design of the network makes use of diversity in a couple ways: fiber cabling enters the buildings via two physically separate entrances; and buildings have two fibers available to carry traffic, allowing for one fiber to be cut without an impact to the operation.
 - The Strategic Fiber network design is based on a dual entrance topology solution that will use existing and new dark fiber optic cables in order to maintain operational business partner requirements related to latency (speed of transmission), availability and bandwidth for transmission of information through cables.
- EXT Program
 - This program involves building mobile applications for employees, with an initial focus on improving the employee experience for our field workers with apps such as Field Time Entry, Electric Outage Restoration, and Gas Emergency Response.
 - This new platform that will provide “backend” support for all mobile applications within the EXT portfolio and will enhance the Company’s mobile applications capabilities, providing components such as authentication and authorization services, notification services, logging and monitoring services, integrations, and processes for developer operations.
 - By equipping employees with more modern, convenient mobile apps, it allows them to be more effective in their jobs and improve delivery of services for customers.
- Avaya Cloud Voice Deployment
 - This provides voice telephony services at a majority of Xcel Energy’s locations, including corporate offices, service centers, and generation plants.
 - This refresh project upgrades the Voice-over-IP technology that is resiliently hosted within the public cloud. The upgrade will modernize and improve telephone services

by upgrading communications features that will allow for better collaboration among employees.

- Digital Operations Factory
 - This project will deliver a secure multi-tenant cloud platform as a foundational engine for each of the following capabilities: reusable data lake; common integrations; analytics workbench; mobile platforms; dashboard framework, and artificial intelligence models.
 - Once the foundation is built the project examples include predictive modeling, real time scheduling systems, operations work management, routing and screen of data, work dashboards, and profiles.
 - This is a cloud-based, modern data and analytics platform that will enable the Company to make better use of available data to enhance both customer journeys and core operational processes.
- Electronic Work Packages (eWPs)
 - eWPs are electronic, mobile versions of physical work processes, such as documenting maintenance activities, that have the ability to significantly enhance worker productivity, such as at our nuclear facilities, by integrating traditional work flows with electronic work processes.
 - By implementing eWPs into select, labor-intensive work flows, the Company has the opportunity to increase worker efficiency and significantly reduce labor and paper costs.

H. NSPM-K&M: Fleet

The Fleet organization makes decisions on replacing fleet assets across the Company's operational companies using the total cost of ownership model, which takes into account the following inputs: age, the number of miles, total hours, repair costs, maintenance costs, the costs of repair parts, and labor costs for repairs of each fleet unit.

These inputs track all costs associated with owning, operating, repairing, and maintaining our fleet vehicles during their entire life span. Each year, the Company examines the total cost of ownership for each of our existing fleet assets to determine which fleet units need to be replaced in that year. In particular, a fleet unit is identified for replacement when the costs of owning, operating, repairing, and maintaining that unit exceeds the average cost of replacing that unit or when customer service is negatively impacted due to increased instances of breakdowns. Using this information, a budget for Fleet Asset Replacements has been developed for 2022 and 2023.

Older fleet assets are also not as reliable as newer fleet assets and this can impact customer service since our crews rely on these vehicles and equipment to perform their work. Further, older fleet assets are not as safe as newer assets because they are not equipped with the latest safety technology and have a higher risk of catastrophic component failures. Newer fleet assets also have improved fuel economy as compared to older vehicles, thus providing fuel savings.

I. NSPM-K&M: Grand Meadow Wind Repower

Company witness Farah L. Mandich supports this adjustment in her Direct Testimony.

J. NSPM-K&M: Great Plains Area Sub

At the Great Plains substation, a project is being carried out to relieve a High Consequence Risk (HCR) at the Cherry Creek substation in Sioux Falls, South Dakota. Initial construction included site grading, fencing, transmission interconnection, and installation of one 115/13.8 kV 50 MVA transformer with three feeders, and it is planned to include a buildout of three distribution transformers and 10-12 feeders on an as-needed basis.

K. NSPM-K&M: HIBTAC 500kV

The HibTac 500 kV Project involves the removal, replacement, and relocation of 3-miles of a 500 kV transmission line that is located on land owned by Cleveland Cliffs Inc. in order to allow for the continued operations of the Hibbing Taconite mine. Xcel's license agreement includes provisions that require the Company to move the transmission line if requested by the licensor.

L. NSPM-K&M: High Bridge Plant

The Company has planned a Major Combustion Turbine (CT) overhaul including Hot Gas Path Replacement on High Bridge Unit 8 in 2023.

- This overhaul is being performed per the Original Equipment Manufacturer (OEM) recommended equivalent operating hours and starts.
- Combustor parts and complete rows of turbine blades and vanes are replaced, along with interstage seals. Other components may be replaced as required based on inspections, OEM recommendations and prudent utility practice.
- Significant inspections are also completed to assess the health of the turbine section and look for signs of long-term issues.
- This project also includes replacement of the combustion turbine Row 4 blades, vanes, and interstage seals.
- Additionally, the combustion turbine exhaust duct and aft exhaust manifold on High Bridge Unit 8 will be replaced at this time.
- Replacement of Mitsubishi's control system (Diasys) with a more updated system that includes both hardware and software.

M. NSPM-K&M: Huntley Wilmarth

The Huntley-Wilmarth 345 kV Transmission Line involved the construction of an approximately 50 mile, 345 kV transmission line in southern Minnesota and associated substation modifications, in partnership with ITC Midwest, and was placed in-service in 2021. Known and measurable capital costs have been incurred in 2022 as part of broader project close-out.

N. NSPM-K&M: Louise Line and Sub

The Louise Line and Sub project is to install the second distribution transformer at the Louise substation in Sioux Falls, SD. The substation portion of this project will resolve a High Consequence Risk (HCR) at Louise substation and the feeder portion of this project will provide additional capacity to the growing Lincoln County substation area. The project adds one 115/13.8 kV 50 MVA transformer and two distribution feeders.

O. NSPM-K&M: Major Line Rebuild

The Major Line Rebuild program represents projects that rebuild large segments of transmission lines on the NSP Transmission System that have a concentrated number of defects that contribute to poor line performance. These projects are typically required either because the existing line circuits are at risk for increased outage frequency or because the number of structural defects on the circuit makes it unreasonable to refurbish only the defective portions.

A rebuild project scope requires complete wreck-out/removal of the physical line assets, which are then replaced with new line assets (e.g., structures, conductor, switches), either within the existing right-of-way (ROW) or with minor, targeted ROW expansion to accommodate outage constraints and safe construction practices.

These increased investments are driven by both the condition and age of our transmission assets. Until recently we have been able to maintain the majority of our assets through either O&M repairs, replacement of specific components when they are at the end of their service life, or refurbishment projects that extend the life of our assets by 10 to 20 years depending on asset condition and the scope of the refurbishment. Recently, however, our inspections are revealing that lines that were previously refurbished are in need of replacement due to the cumulative condition of the asset (poles, cross-arms, insulators, and conductor), as well as lines where their general composition, like conductor type, framing, and pole sizes would not safely allow for refurbishment. As a result, we need to increase our investments in our Major Line Rebuild programs to rebuild these lines. Major Line Rebuild projects in 2022 and 2023 include:

2022:

- 69kV line 703 between Farmington Substation and Northfield Substation
- 69kV line 790 between Cokato Substation and Howard Lake Substation
- 69kV line 790 between Victoria Substation and Winsted Substation
- 69kV line 790 between Montrose Substation and Delano Substation
- 69kV line 790 between Dassel Substation and Cokato Substation
- 69kV line 5401 between GRE's Maple Lake Substation and Watkins Substations
- 69kV line 790 between Victoria Substation and Switch #4N185

2023:

- 69kV line 723 between Cosmos Substation and Panther Substation
- 69kV line 761 between Lake City Substation and Zumbrota Substation
- 69kV line 730 between West Sioux Falls Substation and Line 729 Tap

- 69kV line 779 between Canisota Junction and Salem Substation
- 69kV line 754 between Becker Substation and Linn Street Substation
- 69kV line 726 between Moon Lake Substation and Currie Substation Tap
- 69kV line 726 between Pipestone Substation and Woodstock Substation
- 69kV line 795 between Wobegon Trail Substation and Albany Substation
- 69kV line 703 between Farmington Substation and Kegan Lake Substation
- 69kV line 795 between St. John's Substation and Watab River Substation

P. NSPM-K&M: Marshall Operations Center

The Marshall Operations Center, a new site development, is being completed in 2022. This project includes the design, engineering, site development, and construction of an approximately 100,000 square foot commercial class B office building near the Riverside Plant. The construction will include lower-level storage, 1st, 2nd, and 3rd floors, and parking for approximately 200 vehicles.

Q. NSPM-K&M: Meter Replacement (and distribution management system)

Company witness Marty D. Mensen supports the meter replacement program in his Direct Testimony. Company witness Laurie J. Wold supports the distribution management system program in her Direct Testimony. For ease of calculating the adjustment we have combined these two programs.

R. NSPM-K&M: MT Cooling Tower Upgrades

Cooling Tower 12 is being disassembled and rebuilt using all new materials and equipment/components. The current concrete basin and input riser pipes are being reused. This project is needed to maintain compliance with our National Pollutant Discharge Elimination System (NPDES) permit. Also, the towers are structurally degraded after nearly 50 years of operation and currently being temporarily supported by scaffolding. The benefits of this project are to reduce long- and short-term O&M costs of maintaining the towers as well as increasing the reliability of the plant. The existing towers were not designed to the current EPU conditions, and this rebuild will allow the plant to avoid down-powers by increasing cooling margin to the plant discharge canal and restore structural integrity to the towers. The materials are also being changed to fiberglass, which has an expected life of 20+ years; as opposed to wood, which has an expected life of 7+ years.

S. NSPM-K&M: Nobles Wind Repower

Company witness Farah L. Mandich supports this adjustment in her Direct Testimony.

T. NSPM-K&M: Northern Wind

Company witness Farah L. Mandich supports this adjustment in her Direct Testimony.

U. NSPM-K&M: PI Cooling Tower Rebuild

There are four cooling towers at the Prairie Island site; this project to rebuild them is a multi-year program with Cooling Tower 121 completed in 2021 and Cooling Tower 122 planned for 2023. The other two cooling towers were completed in previous years. The project addresses long-term material degradations and restores the condition of the Prairie Island cooling towers to support continued plant operations.

The objectives of this project are to: (1) ensure cooling water compliance with state environmental regulations under NPDES permits issued by the Minnesota Pollution Control Agency; and (2) facilitate adequate cooling water availability to continue operation of the plants at 100 percent of output capacity. The project includes: (1) replacement of the horizontal structural members, fill supports, and fill; (2) replacement of the flow distribution headers, valves, and supports; (3) replacement of the hot-water deck and associated supports; (4) partial replacement of the fan deck and supports; (5) replacement of eight fan-motor drive units; (6) replacement of the Outside Louvers; (7) replacement of drift eliminators; (8) replacement of Cooling Tower Lighting; and (9) installation of upper plenum walkway extensions.

This project is essential to ensure compliance with our NPDES permit requirements, which is necessary for the Company to maintain compliance with state and federal environmental laws. This project will also improve cooling equipment reliability for plant operations, eliminate the risks of de-rating the unit in the event of cooling issues from equipment failures, and reduce maintenance repairs that would continue to be necessary without this project. In short, this project keeps us environmentally responsible and puts our cooling equipment in good working condition for the long run.

V. NSPM-K&M: PI Dry Cask Storage

The Prairie Island Casks #48-64 Project includes the procurement, fabrication, loading, and transfer of TN-40HT Dry Fuel Storage Casks 48-64 to the Prairie Island Independent Spent Fuel Storage Installation (ISFSI). This project also includes submission of a number of license amendments to the NRC and a Request for Change filing with the Commission to allow for use of alternate dry fuel storage technologies at Prairie Island. Depending on the results of the Request for Change filing, the project will re-evaluate the dry fuel storage technology to be used for loadings beginning in 2027.

The first cask loading campaign under this project will be in Spring 2022. The Prairie Island Casks #48-64 Project supports the continued operation of Prairie Island Units 1 and 2 through the end of their current licenses, in 2033 and 2034, respectively. These units continue to provide critical efficient and reliable carbon-free resources for our customers.

W. NSPM-K&M-PI Transformer Replacement

This project will replace the Cooling Tower 11 Transformer and Cooling Tower 12 Transformer at Prairie Island, based on Electric Power Research Institute (EPRI) guidance and the estimated service-life of the current transformers. Replacement transformer upgrades include a dissolved gas in oil monitor. Replacement of transformers that have been degraded by age reduces

the likelihood of failure of these transformers. Failure of the transformers impacts cooling tower capability and reliability of power to safety buses.

This project will replace all eight Intake Traveling Screens, which have reached the end of their design life and are experiencing structural degradation of the track support and guide assemblies as well as the concrete foundation for the lower track support. This project is needed to comply with our NPDES permit. The existing screens will be replaced by new screens with an improved design that will take the screens to the end of plant life, improve overall reliability and performance, and also reduce annual maintenance costs.

X. NSPM-K&M: PI Upgrades

This project will replace a portion of the Prairie Island Units 2 baffle-former bolts. These bolts hold the horizontal supports for the core together, and their inspection is required by NRC regulations and our license. Based on the age of the bolts, as well as analysis of worst case predicted conditions, the decision was made to move forward with replacement of the baffle-former bolts in Prairie Island Units 1 and 2 beginning with Unit 2 in 2023.

This will avoid the need for any additional inspection or replacement through the end of the current licenses in both units. This will also allow for predictability in outage scope and duration and eliminates significant contingencies and the potential for delay associated with inspection followed by potential replacement.

Y. NSPM-K&M: PI Wireless Network Expansion

The Prairie Island Nuclear Technology Infrastructure Project will install a permanent wireless communications network throughout the Prairie Island Site – including both units and eight outbuildings. This wireless system will enable the use of electronic work packages, voice over internet protocol (VoIP) communications, remote equipment performance monitoring and potential other future applications. This project will improve worker and plant efficiencies.

Z. NSPM-K&M: Pole Replacement

Company witness Marty D. Mensen supports this adjustment in his Direct Testimony.

AA. NSPM-K&M: Replace Auxiliary Boilers

New auxiliary boilers were installed at Sherco to provide a reliable source of steam for the unit cold start-up for the existing power plant and building heating.

BB. NSPM-K&M: Salem Hwy 34

This is a project to relocate seven miles of overhead feeder line for a highway reconstruction project, at the request of the State of South Dakota, due to the feeder line being located too close to the highway shoulder as the result of the state project to widen the highway. Therefore, relocation is required.

CC. NSPM-K&M: SD Electric Distribution Transformer

Company witness Marty D. Mensen supports this adjustment in his Direct Testimony.

DD. NSPM-K&M: Service Center

Having adequate facilities to support regional operations is critical for efficient operations to facilitate safe and reliable delivery of electricity to customers. The following service center projects are being performed to support the Company's mission.

- Construction of Belgrade Service Center
- Construction of Belle Plaine Service Center
- Expansion of the Sioux Falls Service Center
- Construction of a New Shorewood Service Center consolidating the current Shorewood and Waconia Service Centers
- Replacement of the deteriorating Grand Forks Service Center

EE. NSPM-K&M: UG Extension

Company witness Marty D. Mensen supports this adjustment in his Direct Testimony.