K&M Capital Additions – Project Descriptions & Justifications

A. NSPM-K&M: AGIS

Advanced Grid Information System (AGIS) provides the Company more real-time ability to understand and control the functioning of the system. We previously had only limited information and control as to what happens beyond the substation level. Through AGIS, the Company has more accurate information about what is happening on all portions of the grid, from substations down to each individual customer's meter. These investments provide information, automation, and intelligence to help the company address outages and other problems more efficiently.

B. NSPM-K&M: Customer and Innovation

Technology Services supports the operations of the Company with a large and growing information technology (IT) infrastructure. As with physical assets, information assets are subject to aging, technological obsolescence, and increasing maintenance costs. Technology Services not only completes routine annual refreshes of technology, like replacing computers and printers, but also plans and places into 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 the increasing demands of data security, reliability, and compliance requirements, as well as the service expectations of our customers.

Projects to replace aging technologies include:

- Customer Care Interactive Voice Response (IVR) Upgrades and Depended Avaya Infrastructure
  This project will be upgrading all Contact Center IVR and dependent Avaya infrastructure to ensure continued IVR business capability across all three customer contact centers plus the Business Solutions Center. The upgrade will stabilize the platform to support advancing the IVR menu structure from touch tone to Natural Language Understanding. The upgrade is expected to improve IVR usability, increase customer self-service, and will leverage a higher performing, fault tolerant architecture, cloud technology, and decrease carrier redundancy.
- Asset Life Cycle Management
  This project involves replacement of personal computers (PCs), replacement of data storage hardware that is no longer cost-effective to support, or that presents significant risk to operations due to aging components or lack of vendor support. This project will replace or decommission active end of life equipment including Land Mobile Radio replacements, uninterrupted power supply remediations and battery replacements. End of life devices leave our network and infrastructure vulnerable; updates not installed can increase security risks.
- WAN and LAN Telecommunication Component Upgrades

This project helps ensure reliability for the provision of communication circuits and associated hardware for the connection of transmission and distribution substations. Demand is driven by our end customers and is based on needed expansions and upgrades to the energy grid.

- ISO Interface and Settlement Replacement
  This project will develop requirements and remediate the current PCI solution with a new product to mitigate reliability risk since it is no longer commercially available. The Power Costs, Inc. (PCI) software is used to facilitate transactions with the Independent System Operators (ISOs), among other uses. The current PCI on-premise solution used in the Southwest Power Pool (SPP) Integrated Marketplace (SPPIM) and Midcontinent Independent System Operator, Inc. (MISO) energy markets is no longer commercially available, although it is still being supported by the vendor for a short period of time.

C. NSPM-K&M: Distribution Operations

- City of Harrisburg Relocation
  Harrisburg rebuilt a major intersection; distribution was in the way of the proposed roundabout. Instead of relocating our overhead distribution the City of Harrisburg requested we bury our lines in that area. We were able to safely do so without any interruptions to our current customers.

- Grant Substation to Canistota
  Upgraded facilities from Grant Substation to Canistota. Distribution was underbuilt on some poles. Transmission set new poles, and distribution transferred existing overhead wire to the new poles. No customer outages needed for this project.

- Louise Line
  The Louise Line and Sub project involves installation of a second distribution transformer at the Louise substation in Sioux Falls, SD. The line and substation project were expected to be completed prior to 2025. However, the Company experienced delays acquiring switches, bus fittings, and materials for the weight trap drop. Due to vendor delays in acquiring the necessary building materials, the line is expected to be completed and placed in service during 2025.

- Sioux Falls Relocations
  - The city of Sioux Falls is replacing a bridge on 6th Street. Xcel Energy had underground feeder cable attached to the bridge. It was necessary to re-route multiple feeders so the bridge could be re-built and so we could maintain power to a good portion of downtown Sioux Falls. The second part of that project consisted of relocating overhead lines due to 6th Street reconstruction.
  - The city of Sioux Falls is having Phillips Ave rebuilt from 8th to 10th Streets. This includes water and sewer upgrades. Crews inspected duct line & manholes from 8th to 10th and found duct to be in poor condition with several obstructions and

collapses. It is necessary to replace 2 blocks of 6-way 6" duct and bring manholes up to standard. This will be a high exposure job in downtown Sioux Falls.

- The transmission system in South Sioux falls is being upgraded from 69kV to 115kV. As part of this upgrade, it was determined the South Sioux Falls substation must be relocated. Land is required to construct a new substation on a larger site, enabling the transfer of operations from the existing substation to the new substation.

- South Renner Line and Substation Installation
  Anticipated growth in the Sioux Falls industrial areas near the South Renner substation is expected to cause overloads on existing feeders and reduce the reliability of nearby feeder ties. To meet the area's growing load demands, additional 34.5kV feeders are required, necessitating a new transformer and installation of two new feeder bays.

- System Reliability Projects
  The Company budgets for costs associated with relocations, reinforcements, replacement, rebuilds and conversions to ensure continued system reliability. These projects cover the capital distribution costs for projects that are less than $250,000 per project. Projects typically originate due to mandates, poor reliability, and capacity issues. The Company is required to complete mandates projects, as there are not alternatives. Engineering often identifies reliability and capacity issues from our reliability programs, which identify devices or customers that have experienced multiply interruptions.

D. NSPM-K&M: Energy Supply

- Black Dog Plant
  The combustion turbine modernization project will install components rated for 32,000 fired hours. This includes the replacement of the combustor, compressor blades, hot gas path components, and an exhaust bleed heat system.

- Hennepin Island Hydro Plant
  Install a seepage cutoff wall to control water seepage. The seepage cutoff will be a secant wall or grout wall extending approximately 300 feet along the dam. The wall will span from the ground surface to the underlying limestone bedrock. Depth will vary with the depth to bedrock, which is expected to be up to 20 feet.

- Inver Hills Plant
  Replace exhaust diffusers on Units 1 and 2. The existing exhaust diffusers are over 35 years old and require weld repairs biannually. New diffusers are needed as the current diffuser material are at the end of their useful life. Additionally, it was determined the fire protection at Inver Hills needed to be replaced. The replacement will bring the fire protection system up to code and provide adequate protection for the units.

- Red Wing Plant
  The plant's 1949 vintage Bus 11 and Bus 21 switchgears need to be replaced. Due to the age and type of equipment, all new breaker panels will need to be redesigned to fit the pre-existing space. In addition to the 13.8 kV to 480V transformer and bus 11 to bus 21 tiebreaker would be replaced to have a larger capacity to allow induced draft fan operation.

- Riverside Plant
  The combustion turbine modernization project will install components rated for 32,000 fired hours. This includes the replacement of the combustor and hot gas path with upgraded components.

- Wilmarth Plant
  This project covers emergent work and procuring a greensand filtration system skid (2-4 greensand filter vessels), associated PLC, valves and piping to allow the water going through the existing reverse osmosis system to come from our shallow well source instead of the current city water source.

E. NSPM-K&M: Fleet, Tools, & Communication Equipment

The Fleet organization makes decisions on replacing fleet assets across the Company's operational companies using the total cost of ownership model, which considers 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. 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 2025 and 2026.

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.

F. NSPM-K&M: Monticello Nuclear Generation

- Generating Unit Rebuild and Replacements
  - Replace Control Rod Drives (CRDs). CRDs are used to control the nuclear reactor and its level of reactivity within Monticello's licensed limits. Based in

internal and industry Operating Experience, CRDs degrade over time and fail due to aging effects from harsh humid and radiological environment. It is industry practice to replace a population of drives each cycle. Not performing this Preventative Maintenance of 12 CRD replacements each cycle can adversely affect the capability to operate and control the nuclear reactor, or the ability to safely shutdown the nuclear reactor during an emergency.

- Replace internals stem, disc and as applicable, the pressure seal head of two (2) stop valves, four (4) control valves, two (2) combined intercept valves, and two (2) bypass valves.
- Replace the HP turbine bearings T-2 and T-3. The scope will include disassembling/reassembling the HP turbine to provide access to perform necessary machine alignment associated with bearing replacement.
- Upgrade and replace wide range gas monitoring (WRGM) equipment. WRGM equipment is used for effluent monitoring. It monitors the air that is going out of the plant via the reactor building vent or the off-gas stack. The Company has two units that monitor each of these flow paths. We are procuring four new skids to replace the current four. Associated control room indicators will also be upgraded as well as the interface with the plant process computer. The software that is used for offsite dose projections is also being upgraded to be compatible with the new WRGM equipment.

- Generating Unit Maintenance
  The Company budgets for maintenance costs at our nuclear sites. The maintenance budgets are used for strictly maintenance with minimal engineering involvement. Many of these funds are used for preventative maintenance work required to ensure continued operation of critical equipment.

G. NSPM-K&M: PI Nuclear Generation

- Generating Unit Rebuild and Replacements
  - Replace 12 nuclear instrumentation drawers (power range, intermediated range, source range, and miscellaneous drawers) through 2025 for both Prairie Island Units 1 and 2. This project is being done with minimal changes to the operational interface under our design equivalent change process to minimize licensing risk and associated costs with these replacements. The equipment is being installed during planned refueling outages.
  - Replace approximately ~700' of 4" carbon steel piping in the water box air ejector suction line like-for-like. This is the entire run of piping for both the inner and outer water boxes. The consequences of not having a full water box include reduced condenser efficiency and increased scaling due to upper tubes being uncovered - vacuum degradation and loss of MWe output and potential for increased outage scope cleaning tubes.
- Generating Unit Maintenance

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H. NSPM-K&M: Service Centers

Having adequate facilities to support regional operations is critical for efficient operations to provide safe and reliable delivery of electricity to customers. To ensure this, the Company performs routine upgrades and maintenance to its' service centers. Planned maintenance and upgrades include outbuilding construction, the buildout of office space and renovations, and the installation of a generator lift. Also, included are the anticipated window, gutter and door replace replacements occurring at the service centers at Newport, Red Wing, Rice Street, and Wyoming.

I. NSPM-K&M: Sherco Coal

- Emergent Projects
  These projects cover costs that are less than $1M in total spend and are considered "emergent projects". These projects are necessary in maintaining a properly functioning generating facility. The anticipated emergent projects include elevator modernization, groundwater pump outs, and several pump and valve replacements.

- Pond Expansion
  This project covers the design, permitting and construction of a 30-foot vertical expansion of pond 4. The pond 4 will consist of earthen embankments and composite liner on dike slopes.

- Unit 3 Replacements
  Replace L-0, the last stage of the turbine, buckets on the Unit 3's low-pressure Turbines A (LPA) and B (LPB) turbines. An inspection during the 2023 overhaul indicated erosion in the L-0 buckets that necessitates a replacement during the 2026 overhaul.

J. NSPM-K&M: Sherco Solar I/II

The Company will develop, own, and operate 460 MW of grid-scale photovoltaic (PV) capacity at the Company's Sherburne County (Sherco) generation facility site. The Company acquired approximately 1,654-acre solar site, Sherco Solar I, under development by National Grid Renewables (NGR) and located northwest of the Sherco generation facility. The Sherco I site will be combined with a site, Sherco Solar II, that has been under development by the Company and located southeast of the Sherco generation facility, or Sherco Solar II. We will construct a collector substation at each block and two 345-kilovolt (kV) generation-tie transmission lines to connect the collector substations to the point of interconnect at the existing Sherburne County Substation.

We expect the electricity generated by the Sherco Solar Project to generate enough energy to power approximately 100,000 homes in the Upper Midwest each year and to partially replace the generation of Sherco Unit 2, which ceased operation in 2023. Constructing new solar generation at the Sherco site to meet identified capacity needs in the mid-2020s allows the Company to reutilize our transmission interconnection rights as our coal units cease operations. To ensure our reuse of these interconnection rights is least cost, the Company issued a Request for Proposals (RFP) and conducted a competitive solicitation for solar projects at the Sherco site. The collaboration with NGR was selected through this process.

Sherco Solar I was placed into service in October 2024. The Company anticipates placing Sherco Solar II into service in October 2025. The passage of the Inflation Reduction Act of 2022 (IRA) increased the benefits to the projects through the creation of a solar production tax credit (PTC). South Dakota's portion of PTCs generated at Sherco I and Sherco II would be returned to customers in the South Dakota Infrastructure Rider.

K. NSPM-K&M: Sherco Solar III

The Sherco Solar III project is a 250 MW solar facility that will use the retired Sherco Unit 2 interconnection to provide renewable generation to the system. The project is located northwest of the Sherco coal units near Clear Lake, Minnesota. This solar facility includes approximately 1,700 acres of bifacial PV modules mounted on single-axis trackers, a collector system, access roads, and a collector substation. The addition of this solar facility into the Xcel Energy generating portfolio is a significant step in meeting our renewable energy goals.

The Company anticipates placing Sherco Solar III into service in August 2026. The passage of the IRA increased the benefits to the project through the creation of a solar PTC. South Dakota's portion of PTCs generated at Sherco III would be returned to customers in the South Dakota Infrastructure Rider.

L. NSPM-K&M: Technology Services

- Customer Experience Enhancement
  - My Energy Connection 2.0 is a customer-facing program designed to provide customers with disaggregated energy data, which will help them shift their energy consumption behaviors to align with the price and carbon intensity of grid resources. This program aims to expand customer engagement across various products and services and provide insights into Electric Vehicle (EV) charging patterns to assist with grid management.
  - The Payment Arrangement project is aimed to create a more consistent and efficient user experience across channels to improve the existing payment arrangement process by consolidating screens required to complete a payment arrangement task, enabling new self-service options for commercial customers, and enabling new customers notifications regarding payment arrangements.

- IT Security Technology Renewals
  The scope of these projects is to update critical technology security software and renew software application licenses. These refreshes are necessary to establish and maintain the proper tools to protect the integrity and confidentiality of our data and our systems. Given the unpredictability of cyber security threats, it is important that these tools and resources continue to change in response to new threats to our information system.

- PLTE
  The Company is in the process of deploying its own private LTE wireless network across its service area, which will supplement the LTE communications network that is currently provided by a third-party telecommunications company.

- Satisfy Compliance Standards
  - This includes a project to construct, test, and deploy a Software Bill of Materials (SBOM) solution. This will meet the federal requirement for vendors to provide SBOM information, which is a machine-readable inventory of software components.
  - Deploy an Ambient Adjustment Rating (AAR) to comply with the FERC issued Order 881 requiring all transmission providers to use real-time and forecasted ambient adjusted rating for transmission lines. The purpose of AAR is to replace static seasonal ratings with ratings based on actual or near-term forecasted air temperatures which is expected to increase the capacity of some facilities.

- Upgrade Aging Technology/Enhancement of Technology
  - Modernize the Enterprise Service Bus (ESB) middleware system. This project will stabilize, modernize and improve the resiliency of the ESB architecture. The ESB sits between the operating system and all the applications that are run on it. The ESB needs enhancements to modernize the communication interconnects.

- Implement a software to improve Supply Chain data accuracy and transparency, providing insights into spend, supplier transaction and metrics. This will enable the Company to automate vendor management by using data management tools such as cost modeling, category analytics, spend control dashboard, contract labor management, supplier management, performance dashboards, and process automation.
- Implement an end-to-end Work Management System, a software solution designed to integrate and enhance multiple applications like Databricks/UDP, SAP S/4 HANA, and PowerBI. The system will provide predictive scheduling capabilities that do not currently exist, allowing Electric and Gas Distribution employees to manage their work more efficiently. The project will introduce new processes, creating a work portfolio that can be broken down into detailed plans and execution schedules. This will extend scheduling visibility, currently at 2-3 weeks, to up to a year, improving labor efficiency, aiding in cost control, and improving resource utilization for field crews in various types of work such as maintenance, pole replacements, and fleet utilization.
- Replace legacy communications systems and upgrade to more modern VoIP (Voice over Internet Protocol) communication systems. This project will support core day-to-day voice communication functions by upgrading the delivery of voice communications over the internet.
- The Enterprise Corrective Action Program (CAP) will develop a standard framework, technology, and intelligence systems that enable improved corrective action plan processes in Operations. The project intends to reduce operational risk and improve corrective action plan decision making by capturing unplanned issues, identifying resolution strategies, and implementing preventative activities informed by Artificial Intelligence (AI) analytics. New capabilities include providing the ability for users to enter, search, view and update CAPs, thereby addressing the pain points that currently exist across multiple processes in Operations. The solution will automate, streamline and bring AI to CAP processing with intelligent screening, prioritization, predictive trending, risk assessment, cause evaluation, resolution recommendation, and cost-benefit analysis.

M. NSPM-K&M: Transmission

- <u>Envis Switching Station</u>
  Xcel is constructing a new (4) bus breaker-and-a-half 115kV switching station to support a data center being constructed in Rosemount. (2) new 115kV lines will be constructed along with (2) line extensions to provide four unique sources to the site. Construction began in 2024 and the site will be ready to energize in August 2025.

- <u>Transmission Line Refurbishment/Repair</u>
  The Company has both planned and unplanned line refurbishments and repairs. The Company plans to refurbish 4 miles of lines between Sherco and Coon Creek by

replacing 24 wooden H-frames with weathering steel H-frames. Unplanned repairs are often in response to storm or emergency projects to repair damaged assets. The Company needs to have equipment and materials available to respond quickly to remedy damaged assets.

N. NSPM-K&M: Saver Switches

Saver's Switch is a demand management program that helps the company manage the load on the grid during system peaks. Participating residential and commercial customers receive annual incentives for allowing the company to temporarily cycle AC units off during times of congestion on the grid. The program has been offered since around 1990. A subset of switches are past their useful life and the systems used to control them is nearing end of life. Investments needed seek to replace approximately a third of the switches located on customer premises. The replacement switches would be operated via the networks built for carrying meter data in AGIS.