Direct Testimony and Schedule
Allen D. Krug

Before the Minnesota Public Utilities Commission
State of Minnesota

In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for a Certificate of Need for Additional Dry Cask Storage at the Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation

Docket No. E002/CN-24-68
Exhibit___(ADK-1)

Policy

February 10, 2025

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Schedule

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND TITLE.

A. My name is Allen D. Krug. I am Associate Vice President, State Regulatory Policy for Northern States Power Company, d/b/a Xcel Energy (Xcel Energy or the Company).

Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS AND EXPERIENCE.

A. I have worked for Xcel Energy since 1998, initially as a Manager of Renewable Energy and Energy Contract Coordinator. I then served as a Regulatory Consultant for a number of years before becoming Regional Vice President, Regulatory Administration in 2008. I began my current position in 2013. Prior to joining the Company, I worked for over a decade at the Minnesota Department of Commerce, first as a Statistical Analyst and later as a Supervisor in the Electric Regulatory Unit. My statement of qualifications is provided as Exhibit___(ADK-1), Schedule 1.

Q. WHAT ARE YOUR CURRENT RESPONSIBILITIES?

A. In my current role, I develop regulatory strategy for Xcel Energy across North Dakota, South Dakota, and Minnesota.

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

A. I am the Company's policy witness in this proceeding, and in that role, I present the Company's overall case to the Minnesota Public Utilities Commission (Commission) in support of our Certificate of Need Application (Application), requesting additional dry cask storage at the Prairie Island Nuclear Generating Plant (Prairie Island Plant or PINGP) Independent Spent

Fuel Storage Installation (ISFSI). To support our request and inform the Commission's decision, I provide a general overview of the Company's proposal, briefly introduce the Company's other witnesses in this proceeding, and explain why the Prairie Island Plant remains a vital generation resource for the Company. To extend the life of the Plant, the Company will need to expand the existing ISFSI site and apply for a 20-year Subsequent License Renewal (SLR) with the Nuclear Regulatory Commission (NRC). My testimony supports the conclusion that expansion of the ISFSI, allowing the Prairie Island Plant to continue playing a critical role in the Company's long-term carbon-free generation resource mix, will benefit Xcel Energy customers and meets the Commission's criteria for granting a Certificate of Need.

Q. DO YOU ALSO SPONSOR ANY SECTIONS OF THE COMPANY'S APPLICATION, FILED ON FEBRUARY 7, 2024 IN THIS DOCKET?

A. I am sponsoring the following Application sections:

- The Executive Summary
- Section 1.1, Overview
- Chapter 2, General Information
- Chapter 3, Schedule of Other Filings and Section 3.1, Certificate of Need
- Section 4.1, Adequacy, Reliability, Safety and Efficiency of Energy Supply, portions of which will also be addressed by other witnesses.
- Section 4.3.1, discussing the Prairie Island Plant's role in meeting Minnesota's energy needs, also addressed by Company witnesses Pamela Prochaska and Christopher Shaw.
- Section 5.1, Socially Beneficial Uses of the Output of the Facility.

Q. HOW IS THE REMAINDER OF YOUR TESTIMONY STRUCTURED?

A. My testimony covers the following topics:

- *Section II*: I provide background information on the Prairie Island Plant.
- *Section III*: I address the resource planning implications of extending the operation of the Prairie Island Plant.
- *Section IV*: I discuss the ISFSI Expansion and the Relicensing of the Prairie Island Plant.
- *Section V*: I discuss how our application meets the Certificate of Need criteria.
- *Section VI*: I introduce the Company's other witnesses.
- *Section VII*: Conclusion.

II. BACKGROUND

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

A. In this section, I provide a brief background of the Company's Prairie Island Plant and the Plant's recent operating history.

Q. PLEASE PROVIDE A GENERAL OVERVIEW OF THE PRAIRIE ISLAND PLANT.

A. The Prairie Island Plant is a two-unit, nuclear-powered, pressurized water reactor, electric generating station located in Red Wing, Minnesota. Since it began operations in 1973 and 1974, the Plant has played a critical role in the fleet of resources Xcel Energy uses to serve our customers, generating over 400 million megawatt-hours (MWh) of electricity. The Plant provides baseload service, operating 24 hours a day, seven days a week for extended periods of time to meet steady demand for electric power. The Company's Prairie Island Plant and Monticello Plant are the only generating stations in Xcel Energy's

system that provide this level of consistent, reliable, carbon-free energy and capacity.

Q. WHAT IS THE CURRENT LICENSURE STATUS OF THE PRAIRIE ISLAND PLANT?

A. The NRC regulates the operation of nuclear power plants. It granted the Prairie Island Plant its initial 40-year licenses in 1973 and 1974, which allowed Unit 1 to operate until August 9, 2013 and Unit 2 to operate until October 29, 2014. In 2011, the NRC approved 20-year license extensions, which expire on August 9, 2033 and October 29, 2034. As detailed further in witness Prochaska's and witness Shaw's testimony, the Company has determined that it can continue to operate the Plant safely, reliably, and economically beyond 2033/34. The Company anticipates submitting a subsequent license renewal application in the fourth quarter of 2026. If granted, Units 1 and 2 would be licensed to run until 2053 and 2054, respectively.

Q. HOW DOES THE PRAIRIE ISLAND PLANT OPERATE?

A. Company witness Pamela Prochaska provides details on the technical operations of the Plant in her Direct Testimony. But in general terms, the Prairie Island Plant operates using two pressurized water reactors, which use pressurized water to carry the heat generated by the reactors to the steam generators to produce steam, which is then directed to turbine generators to produce electrical power. The steam is cooled in a condenser and returned to the steam generators.

The reactor cores, which provide the heat that generates the steam in the steam generators, are made up of nuclear fuel assemblies. Each assembly contains fuel rods, consisting of high-density ceramic uranium dioxide fuel

pellets, each about the size of a thimble, stacked in a tube made of a special steel alloy called Zircaloy. A fission reaction between two particles in the fuel rods creates heat, powering the reactor core. The Company's nuclear engineers and operators carefully monitor and control the reaction within the core to provide the steady baseload power the Company's customers rely on.

Q. HOW LONG DOES THE FUEL LAST?

A. Each nuclear fuel assembly provides heat over about a four-to-six-year period before its output declines to the point that it becomes ineffective. Approximately every two years, Xcel Energy shuts down each Unit at the Prairie Island Plant to refuel approximately 40 percent of the fuel in the reactor. Refueling of Unit 1 and Unit 2 occurs on alternate years.

Q. HOW DOES THE PRAIRIE ISLAND PLANT PROVIDE VALUE TO MINNESOTA CUSTOMERS?

A. The Prairie Island Plant offers customers cost-effective and carbon-free generating capacity that powers hundreds of thousands of homes in the Company's service territory nearly every day of the year. The value proposition for the Plant has several components.

Reliable Energy—The Prairie Island Plant is among the most reliable generation resources in the Company's fleet. In 2022, the Plant's two reactors operated at a combined 96 percent capacity factor, and have achieved an average capacity factor of 90 percent over the past five years between 2019 and 2023. No other generation source in the Company's fleet can be depended on like its nuclear reactors, because plants like Prairie Island are designed to run at nearly full capacity year-round due to their lower marginal costs when

compared to other baseload generation resources. The Prairie Island Plant and the Monticello Plant provide the constant baseload output that remains an important and necessary part of the Company's overall generation portfolio. Witnesses Prochaska and Shaw further discuss the reliability benefits of the Prairie Island Plant in their Direct Testimonies.

Cost-Effective Resource—The Company's nuclear fleet can deliver carbon-free energy at a competitive cost. Witness Christopher Shaw discusses the Company's resource planning and economic analysis and the recent Settlement Agreement resolving the Company's 2024-2040 Upper Midwest Integrated Resource Plan filing (2024 IRP) in Docket No. E002/RP-24-67. The Settlement Agreement includes the Settling Parties' agreement that extension of the Prairie Island Plant Units 1 and 2 to 2053 and 2054, respectively, is in the public interest. The Settlement Agreement was filed on October 3, 2024, and the Commission will consider the Settlement Agreement during its February 18 and 20, 2025 agenda meetings.

Fuel Diversity—The Company's nuclear facilities also provide the Company and its customers a hedge against changes in resource availability and fossil fuel prices. Witness Shaw discusses the importance of fuel diversity from a resource planning and reliability perspective, respectively.

Clean Energy—As discussed further by witness Shaw, the Prairie Island Plant is critical to achieving the Company's carbon reduction initiatives and to achieving Minnesota's standard requiring 100 percent "carbon-free" electricity in the State by 2040.

Q. HAS THE PLANT OPERATED RELIABLY AND EFFICIENTLY?

A. Yes. Witness Prochaska discusses the Plant's history in more detail. I would note that the Plant has historically been one of the system's most dependable generation resources. Most recently during the summer of 2024, one of the hottest northern summers on record, the plant achieved capacity factors of 95.9 and 99.9 percent for Units 1 and 2, respectively.

Q. HOW IS SAFETY REGULATED AND MAINTAINED AT THE PRAIRIE ISLAND PLANT?

A. As noted above, the NRC regulates nuclear power production in the United States, including implementing regulations and conducting oversight to ensure the safety of operations at the Plant. With respect to spent fuel storage, the NRC oversees the design, manufacturing, and use of dry casks to ensure licensees and designers follow safety and security requirements, meet the terms of their licenses, and implement quality assurance programs. The NRC also enforces strict security requirements to protect stored fuel, including the ability to detect, assess, and respond to an intrusion.

The NRC and plant processes require continuous evaluation of plant and human performance and correction of issues as they are identified. Every two years, the NRC performs an inspection at all commercial nuclear facilities in the United States. The inspections include evaluating station processes and corrective actions for use of industry and NRC operating experience as well as the effectiveness of the stations' audits and self-assessments. In the last inspections at both the Prairie Island Plant and the Monticello Plant, the NRC determined that there was no evidence of challenges to the organization's safety-conscious work environment.

Q. HAS THE PRAIRIE ISLAND PLANT RECEIVED POSITIVE EVALUATIONS FOR ITS SAFETY STANDARDS?

A. Yes. The Plant is currently Column 1 status[1] from the NRC Reactor Oversight Process, and all NRC performance indicators are green as well.

III. THE PRAIRIE ISLAND PLANT AND THE COMPANY'S INTEGRATED RESOURCE PLAN

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

A. In this section, I discuss the importance of the Prairie Island Plant to the Xcel Energy system from a resource planning perspective, as well as the economic analysis that the Company performed on the potential Prairie Island Plant extension in the 2024 IRP docket. I also discuss the reliability benefits of the Prairie Island Plant to the Company and our customers. Finally, I discuss the impacts to the transmission system that would occur should the Prairie Island and Monticello Plants be retired.

Q. PLEASE DESCRIBE THE PRAIRIE ISLAND PLANT'S CONTRIBUTION TO THE XCEL ENERGY SYSTEM.

A. The Prairie Island Plant is a key part of the baseload backbone of the Company's system, operating just outside of the Company's largest load center. The Prairie Island Plant provides approximately 1,100 MW of capacity and has historically been among the most reliable generators in the Company's

[1] Per NRC Reactor Oversight Process (ROP): Column I means that performance indicators and inspection findings all fall in baseline expected ranges (very low significance). This reflects that the licensee takes responsibility for addressing these minor problems and the NRC continues with its normal inspections. This is the highest graded performance out of Columns I – V.

fleet. I discuss the reliability impacts of the Prairie Island Plant in the next section.

Q. HOW DID THE COMPANY ANALYZE THE POTENTIAL EXTENSION OF THE PRAIRIE ISLAND PLANT?

A. As discussed in detail by witness Shaw, the Company analyzed the potential extension of the Prairie Island Plant as part of its broader analysis of various resource portfolios in the 2024 IRP docket. The Company performed additional modeling specific to the extension of the Prairie Island Plant.

Q. AT A HIGH LEVEL, WHAT WERE THE RESULTS OF THE COMPANY'S ECONOMIC ANALYSIS?

A. The Company's resource planning analyses generally found that extending the life of the Prairie Island Plant is cost effective from both a present value of revenue requirements (PVRR) and present value of societal cost (PVSC) perspective, supports achievement of our carbon reduction goals, and ensures that we maintain a robust share of firm and/or dispatchable generation relative to peak load across seasons. Taking into account the constraint that Minnesota law now requires that 100 percent of the electricity generated or procured by the Company in 2040 must be carbon-free, the Company's resource plan that was agreed to in the IRP Settlement Agreement, which includes an extension of the Prairie Island Plant through 2053/54, results in $200 million in PVRR savings (from 2024-2040) relative to a "business as usual" reference case based on the prior 2019 Resource Plan.

Q. DID THE COMPANY DRAW ANY HIGH-LEVEL CONCLUSIONS ABOUT THE CONTINUED OPERATION OF THE PRAIRIE ISLAND PLANT FROM ITS ANALYSES IN THE 2024 IRP DOCKET?

A. Yes. In general, the resource plan scenarios analyzed in which the Prairie Island Plant continued operation past 2033/34 resulted in expected savings for Company customers.

Q. HOW WOULD THE COMPANY REPLACE THE PRAIRIE ISLAND PLANT IF IT WAS REQUIRED TO SHUT DOWN IN 2033/34?

A. If Xcel Energy could not run the Plant beyond 2033/34, the Company would need to make up the substantial levels of capacity and energy provided by the Prairie Island Plant to the system. As witness Shaw discusses in more detail, this would mean the addition of firm dispatchable capacity starting in 2027.

Q. WHAT OTHER FACTORS SHOULD THE COMMISSION CONSIDER ASIDE FROM THE MODELED COSTS OF THE PROPOSED EXTENSION?

A. The Prairie Island Plant provides important resource diversity benefits that are crucial to maintaining reliability on the Xcel Energy system. Combined with Monticello, the Prairie Island Plant generates nearly 30 percent of the total electricity generation in the Upper Midwest and 40 percent of the carbon-free generation, making it a critical component of the Company's overall generation fleet. As discussed above, the Prairie Island Plant also operates nearly every day of the year at a high capacity factor, and is less vulnerable to fuel supply issues, price volatility, and severe weather.

Q. BEYOND ITS INHERENT RELIABILITY, DOES THE PRAIRIE ISLAND PLANT PROVIDE OTHER RELIABILITY BENEFITS TO THE COMPANY'S SYSTEM?

A. Yes. As a large, "always-on" baseload resource, the Prairie Island Plant provides a range of essential reliability services that support system strength and system stability. In general, this means that the Prairie Island Plant supports the grid's ability to maintain stable voltages and respond to disturbances on the grid that can affect balance, frequency, or other conditions.

Q. IF THE PRAIRIE ISLAND PLANT WERE RETIRED AND REPLACED WITH COMBUSTION TURBINES, WOULD THOSE RESOURCES PROVIDE THE SAME RELIABILITY BENEFITS?

A. Not entirely. While combustion turbines can provide some of the same essential reliability services as synchronous generators, these essential reliability services are only provided when the generator is operating. Because any combustion turbine that replaces the Prairie Island Plant would have a much lower capacity factor than the Prairie Island Plant, the replacement resource would be less likely to provide the same essential reliability services as the Plant. Because those units only run during certain periods of the year or during peak periods due to economic forces, they would not be able to provide the same year-round essential reliability services as the Prairie Island Plant.

Q. HOW DOES MAINTAINING NUCLEAR AS PART OF A DIVERSE MIX OF GENERATING RESOURCES SUPPORT OVERALL RELIABILITY?

A. As discussed further by witness Shaw, the Company considers the attributes of different resources in its planning processes, as it is important to maintain a mix of large and small generating resources that have different operational attributes. By maintaining a diverse mix of resources including nuclear, the

Company can hedge not only against fuel price volatility but also the uncertainty of technological development, future renewable pricing, and the future of renewable capacity values.

IV. THE ISFSI EXPANSION PROJECT AND RELICENSING

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

A. This section of my testimony introduces both the ISFSI expansion, which is the subject of this Certificate of Need, and the NRC relicensing process that, together with the ISFSI expansion, will allow the Plant to continue providing safe, reliable, efficient carbon-free energy for our customers.

A. The ISFSI Expansion

Q. WHAT IS THE ISFSI?

A. The ISFSI is an area at the Plant site west of the Plant's cooling towers where the Company currently stores spent fuel in vertical bolted-lid canisters on a reinforced concrete support pad. In 2026, additional spent fuel at the Plant will be stored in a new dry fuel storage (DFS) technology approved by the Commission in 2022. Concrete approach pads surround the support pad to allow for the placement of DFS systems. Witness Prochaska discusses spent fuel storage at the Prairie Island Plant and the proposed ISFSI expansion in more detail.

Q. HOW MUCH FUEL IS CONTAINED IN THE ISFSI NOW?

A. As of January 17, 2025, the ISFSI contains 2,080 spent fuel assemblies. Additionally, the Company currently stores 981 spent fuel assemblies in its spent fuel pool for a total of 3,061 spent fuel assemblies stored at the Prairie Island Plant.

Q. IF THE PLANT CONTINUES TO OPERATE PAST 2033/34, WOULD THERE BE SUFFICIENT SPACE AT THE CURRENT ISFSI FOR ADDITIONAL SPENT FUEL RODS?

A. No. Additional dry storage for spent fuel rods is needed for the Plant to continue operations past 2033/34. However, the Company will need to plan for additional on-site storage even if the Plant begins decommissioning in 2033/34. As part of the decommissioning process, Xcel Energy will remove all fuel currently in the spent fuel pool inside the Plant to dry storage at the ISFSI. This process would require the Company to either expand its existing ISFSI facility during decommissioning to accommodate the fuel rods already being stored in the spent fuel pool or move fuel to an off-site facility.

Q. HAS THE COMPANY BEEN ABLE TO IDENTIFY ANY OFF-SITE FACILITIES THAT COULD ECONOMICALLY AND RELIABLY STORE OR REPROCESS ADDITIONAL SPENT FUEL?

A. No. The Company has determined that expanding the ISFSI facility is the most economical and reliable method for storing additional spent fuel rods. The Company analyzed six other potential options for disposal of the additional fuel rods: (1) reprocessing spent nuclear fuel, (2) contracting for additional spent fuel storage capacity at an existing offsite spent fuel storage facility, (3) contracting for additional spent fuel storage capacity at an offsite

interim spent fuel storage facility in the future, (4) the availability of a federally-sponsored permanent repository for spent fuel at Yucca Mountain, (5) the Department of Energy (DOE) consent-based siting program, and (6) increased storage pool capacity. Ultimately, the Company has concluded that none of these alternatives represent a viable strategy to support continued operation of the Prairie Island Plant after it exhausts its current storage capacity. Witness Prochaska's testimony further details the Company's analysis on each of these alternative options and why ISFSI expansion is the least-cost solution for additional spent fuel storage.

Q. PLEASE PROVIDE A HIGH LEVEL OVERVIEW OF THE PROPOSED ISFSI EXPANSION PROJECT.

A. The Company's proposal involves the construction of a second (and possibly a third) concrete pad and modular concrete storage system within the existing ISFSI to support additional storage casks, which will store sufficient spent fuel to allow the Prairie Island Plant to continue operating past 2033/34. The largest part of the project would be the construction of an additional concrete pad or pads at the site. The Company would also purchase additional DSF systems to hold the spent fuel rods.

Q. HOW DOES THE ISFSI EXPANSION PROJECT BENEFIT XCEL ENERGY'S MINNESOTA CUSTOMERS?

A. With additional spent fuel storage capacity, the Plant can continue providing reliable, baseload and carbon-free electricity, without exposing customers to the same fuel price or availability concerns as other resource types. Expanding the storage capacity of the ISFSI is necessary to keep this important resource on the system. Once the expansion is complete, the Company will have the

ability to run the Plant economically and reliably at least until 2053/54, representing a long-term hedge against volatile fuel prices and helping the Company and the State of Minnesota meet its carbon reduction goals.

B. The SLR Application

Q. WHY DOES THE PRAIRIE ISLAND PLANT REQUIRE A LICENSE RENEWAL?

A. The Plant's licenses will expire on August 9, 2033 and October 29, 2034. Therefore, to operate the plant past this date, along with the Certificate of Need to allow for additional dry cask storage, the Company will need to obtain a license renewal. The proposed SLR would be the Plant's second license renewal and would extend the Plant's life from 60 to 80 years, with new expiration dates in 2053 and 2054.

Q. HAS THE COMPANY SUBMITTED SLRS FOR OTHER NUCLEAR FACILITIES?

A. Yes. The Company submitted an SLR for the Monticello Plant on January 9, 2023 seeking to allow that plant to operate through 2050. That application was granted by the NRC on December 30, 2024. Prior to this latest submission, the Company completed an SLR process for its Monticello Plant in 2006, and the Prairie Island Plant in 2011. We expect that the Company's institutional expertise in the relicensing process will help expedite the process for the Prairie Island Plant's second SLR. Furthermore, the Company has studied other operators' experiences with second SLR processes to help learn what issues could arise for the Prairie Island Plant during the relicensing.

Q. HAS THE COMPANY FILED THE SLR APPLICATION?

A. No. The Company anticipates filing the SLR application during the fourth quarter of 2026. NRC rules required the SLR application to be filed no later

than 2028, but by submitting the SLR application earlier, the Company will minimize the potential for changing regulatory expectations to impact the project.

Q. PLEASE DESCRIBE THE RELICENSING PROCESS AT A HIGH LEVEL.

A. Witness Prochaska explains the relicensing process in more detail, but in brief, the SLR process includes all of the requirements imposed on an initial 40-year license plus new equipment evaluations and equipment replacement frequencies to mitigate the effects of aging. The Company expects that its previous relicensing efforts will help with many of the relicensing requirements for the Prairie Island Plant for the second SLR.

V. CERTIFICATE OF NEED CRITERIA

Q. HOW DOES THE COMPANY'S PROPOSAL FOR ADDITIONAL DRY CASK STORAGE CONFORM WITH THE COMMISSION'S CRITERIA FOR GRANTING A CERTIFICATE OF NEED?

A. Xcel Energy's proposal satisfies all four of the Commission criteria set forth in Minnesota Rules 7855.0120, as outlined in our Application at Chapter 4. Those criteria are as follows:

A. the probable direct or indirect result of denial would be an adverse effect upon the future adequacy, reliability, safety, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states;

B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record by parties or persons other than the applicant;

C. it has been demonstrated by a preponderance of the evidence on the record that the consequences of granting the certificate of need for the proposed facility, or a suitable modification thereof, are more favorable to society than the consequences of denying the certificate; and

D. that it has not been demonstrated on the record that the design, construction, operation, or retirement of the proposed facility will fail to comply with those relevant policies, rules, and regulations of other state and federal agencies and local governments.

With regard to Criterion A, denial of our application for a Certificate of Need would result in an adverse impact on the future adequacy, reliability and efficiency of energy supply, as demonstrated by the Settlement Agreement submitted in the Company's 2024 IRP docket and as further discussed by witness Shaw. And as witness Prochaska discusses, the Prairie Island Plant has historically been one of the most reliable plants on the Xcel Energy system. In order for the Company to continue providing an adequate and reliable supply of electricity to our customers, we need the electricity provided by the Plant. Without the Plant available, its output would have to be replaced by other sources, adding costs, carbon emissions, or both.

Regarding Criterion B, the Company examined available alternatives to provide the capacity and energy of the Prairie Island Plant in the 2024 IRP docket and, as demonstrated by the Settlement Agreement in that document and as discussed by Company witnesses Christopher Shaw and Jessica Peterson, those alternatives, including the alternative of increased conservation efforts, are either insufficient to replace the capacity and energy supplied by the Prairie Island Plant or are not superior to continued operation of the Plant. In addition,

Xcel Energy examined storage alternatives that may be possible, in lieu of adding dry cask storage capacity at the ISFSI. None of those alternatives provide a more reasonable option to additional dry cask storage at the ISFSI, as discussed by witness Prochaska.

With respect to Criterion C, the consequences of providing additional dry cask storage that allows the Plant to continue operating are more favorable to society than the consequences of denying the Certificate of Need and closing the Prairie Island Plant in 2033/34. The reliability and efficiency advantages associated with granting the Certificate of Need help foster a strong regional economy, as discussed in the Nuclear Leave Behind Study performed as part of the 2024 IRP and discussed in greater detail by Company witness Shaw, while any radiological impacts are minimal, as discussed by Company witness Samuel Hobbs. In addition, as I discussed above, the carbon-free energy provided by the Plant helps the Company and the State achieve the ambitious carbon reduction goals that have been set.

Finally, regarding Criterion D, the Company will comply with all applicable laws and regulations, including the rigorous federal framework in place to ensure safe operation of nuclear power plants and ISFSIs, as discussed by witness Prochaska.

Given that each of the Commission's Certificate of Need criteria has been demonstrated, the Certificate of Need should be granted.

VI. INTRODUCTION OF WITNESSES

Q. PLEASE INTRODUCE THE WITNESSES PROVIDING TESTIMONY FOR THE COMPANY IN THIS PROCEEDING.

A. In addition to my Policy Testimony, the Company sponsors the following witnesses:

- *Pamela Prochaska,* who sponsors testimony on nuclear operations and nuclear policy.
- *Christopher J. Shaw*, who sponsors testimony on resource planning and the role of the Prairie Island Plant in the Xcel Energy System.
- *Britta Bergland,* of Merjent, Inc., who sponsors testimony on environmental impacts.
- *Samuel P. Hobbs,* who sponsors testimony on radiological impacts.
- *Jessica K. Peterson*, who sponsors testimony on the Company's conservation programs and the impacts of those programs on the Company's capacity and energy needs.

Together, these witnesses provide the information needed to evaluate and approve our Application.

VII. CONCLUSION

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. The Company's proposal for additional dry cask storage at the Prairie Island Plant is necessary to allow the Plant to continue providing Company customers with efficient, reliable and carbon-free baseload power as the system continues to shift to more variable, non-dispatchable resources. This

benefit will help the Company maintain reliability during winter storms and seasonal peaking events, with less reliance on market purchases or high marginal cost dispatchable generators. By maintaining the Prairie Island Plant as a baseload generator beyond 2033/2034, the Company and our customers will benefit from the Plant's ability to provide low marginal cost power as it continues to develop new low-cost generation sources to replace the Plant when it eventually retires.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Al Krug

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EDUCATION

1980	University of California, Los Angeles MA, Economics
1978	Queens College, City University of New York BA, Economics

WORK EXPERIENCE

2013-Present

Xcel Energy Services, Inc., Minneapolis MN
Associate Vice President, State Regulatory Policy
- Develop regulatory strategy for NSPM.

2008-2013

Xcel Energy Services, Inc., Minneapolis MN
Regional Vice President, Regulatory Administration
- Coordinate regulatory compliance and strategy for NSPM.

2003-2008

Xcel Energy Services, Inc., Denver, Colorado
Regulatory Consultant
- Develop regulatory strategy for Commercial Operations.
- Coordinate compliance activity.
- Coordinate internal and external audits of trading activity.

1998-2003

Xcel Energy Services, Inc., Minneapolis, MN
Manager Renewable Energy/Regulatory Contract Coordinator
- Develop corporate strategies for renewable energy development.
- Represent Company at state regulatory and legislative proceedings regarding renewable energy issues.
- Negotiate purchased power contracts for renewable energy.
- Manage Energy Market's regulatory interactions with internal and external stakeholders.

1994-1998

Minnesota Department of Commerce, St. Paul, MN
Supervisor, Electric Regulatory Unit

- Manage regulatory staff to participate in state regulatory proceedings before the Minnesota Public Utilities Commission.
- Submit expert testimony in regulatory proceedings.
- Represent the Department of Commerce before the Minnesota legislature.

1982-1994

Minnesota Department of Commerce, St. Paul, MN
Principal Statistical Analyst

- Submit expert testimony in regulatory proceedings.
- Perform economic and statistical analysis to support regulatory and energy policy initiatives.