



AGENDA REPORT

DATE: December 13, 2021

TO: The Honorable Mayor, City Council Members and Stakeholders

FROM: Administrative Business Department

RE: Agenda Item 7.C. – Xcel Energy presentation on its request to the Minnesota Public Utilities Commission (“PUC”) for a change in spent-fuel storage technology.

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**ACTION REQUESTED:**

Provide Xcel Energy an opportunity to provide the Mayor, City Council, and community a presentation regarding its request to the PUC for a change in spent-fuel storage technology at the Prairie Island Nuclear Generating Plant.

**BACKGROUND:**

The City Council requested that Xcel Energy provide this presentation as an additional opportunity for the City Council and community to learn more about the proposal and to address some of the comments the City had filed with the Minnesota Department of Commerce (“DOC”).

We extend our appreciation to Xcel Energy for accepting this request and for providing a timely response to the City’s questions and concerns.

**ATTACHMENTS:**

1. Xcel Energy’s presentation.
2. Xcel Energy’s filing with the PUC requesting a change in spent-fuel storage technology (April 30, 2021).
3. The City’s comments regarding the filing as submitted to the DOC (October 20, 2021).
4. Xcel Energy’s response to the City’s comments.
5. DOC’s Notice of Preparation of a Supplemental Environmental Impact Statement.

**DISCUSSION:**

Xcel Energy's has a request before the PUC proposing a change in the spent-fuel technology it utilizes at the Prairie Island Nuclear Generating Plant.

The purpose of this item is in general to obtain more information, provide an opportunity for discourse, and provide additional transparency. More specifically, this item provides an opportunity to obtain additional relevant information regarding Xcel Energy's request, to receive information responding to the questions and concerns presented in the City's comments, and to provide an opportunity for the City Council to ask any additional questions it may have.

**ALTERNATIVES:**

Permit or don't permit Xcel Energy the opportunity to provide its presentation.

**RECOMMENDATION:**

Permit Xcel Energy the opportunity to provide its presentation and direct staff regarding any follow up the City Council may want.

# Prairie Island Nuclear Generating Plant

## Proposed Cask Design/Technology Change

# Summary of Proposed Change

- Xcel Energy proposes to allow a different cask design to be used at the Prairie Island Nuclear Plant for loading of future spent fuel casks (last 9)
  - Approval of this change is through the State of Minnesota via a Certificate of Need granted by the MN PUC
- Different cask designs are available & widely used in the industry that result in options to move fuel offsite at the earliest possible date
- All designs being considered are approved and Certified by the Nuclear Regulatory Commission (NRC) and meet the same rigid safety standards
- Change would NOT impact existing operating licenses of two units

# Why the Change?

- Capacity of other cask designs, such as canister-based, have increased over time
- Canister-based designs have become industry standard
  - Over 3,000 canister-based systems in use today, including the Xcel Energy Monticello Nuclear Plant
- Proposed Central Interim Storage Facilities' initial license applications would initially only accept canister-based design casks
- Bolted lid casks (currently used at Prairie Island) have increased in cost relative to other designs such as canister-based; Prairie Island is the only site still loading bolted lid casks in USA

# Current Dry Storage Design

- TN-40 and TN-40HT Design (TN = Transnuclear, Inc.)
- In use at Prairie Island since 1995; Currently 47 casks
- Bolted steel lid with redundant metallic seals
- Two-layer steel walled cask (over 10 inches thick combined)
- TN-40 model is licensed for transport
- TN40HT transport application submitted in 2021
- Prairie Island licensed for up to 64 casks to support operation to end of current NRC operating licenses for two units (2033, 2034)

# Current Cask Technology – TN-40



# Proposed: Canister-Based Designs

- These systems are in widespread use throughout the United States and world with over 3,000 in use today, including at Monticello
- Consists of a steel canister with two welded closure lids
- The sealed, steel canisters are placed in a vertical concrete overpack or horizontal concrete vault
- The concrete module portion provides additional radiation shielding and protects the canister from external hazards, similar to the outer steel layer of the TN-40 (and the Prairie Island containment domes)

# Proposed: Canister-Based Designs

## Vertical Canister System



- Similar appearance to TN-40
- Somewhat wider; concrete vs metal exterior
- Over 2,200 in use

## Horizontal Canister System



- System in use at Monticello
- Over 1,200 in use

# Current Cask Design vs. Proposed Design

	<b>TN-40 (current)</b>	<b>Proposed Systems</b>
<b>Fuel Confinement</b>	Steel shell	Steel shell
<b>Sealing</b>	Bolted lid with two metal o-rings	Two welded steel lids
<b>Shielding/ Protection from Hazards</b>	Outer steel layer	Reinforced concrete
<b>Storage License</b>	NRC Part 72	NRC Part 72
<b>Transport License</b>	NRC Part 71	NRC Part 71

# Canister Loading Process

- Process similar to existing casks, except that lids are welded vs bolted
- A steel “transfer cask” is used to handle the canister during loading operations in the plant
- Loaded, sealed canister is then transferred to final configuration
- Transfer cask performs same function as TN-40 outer shell
  - Trunnions for lifting
  - Radiation shielding for workers
  - Protection from hazards – Tornadoes, etc.

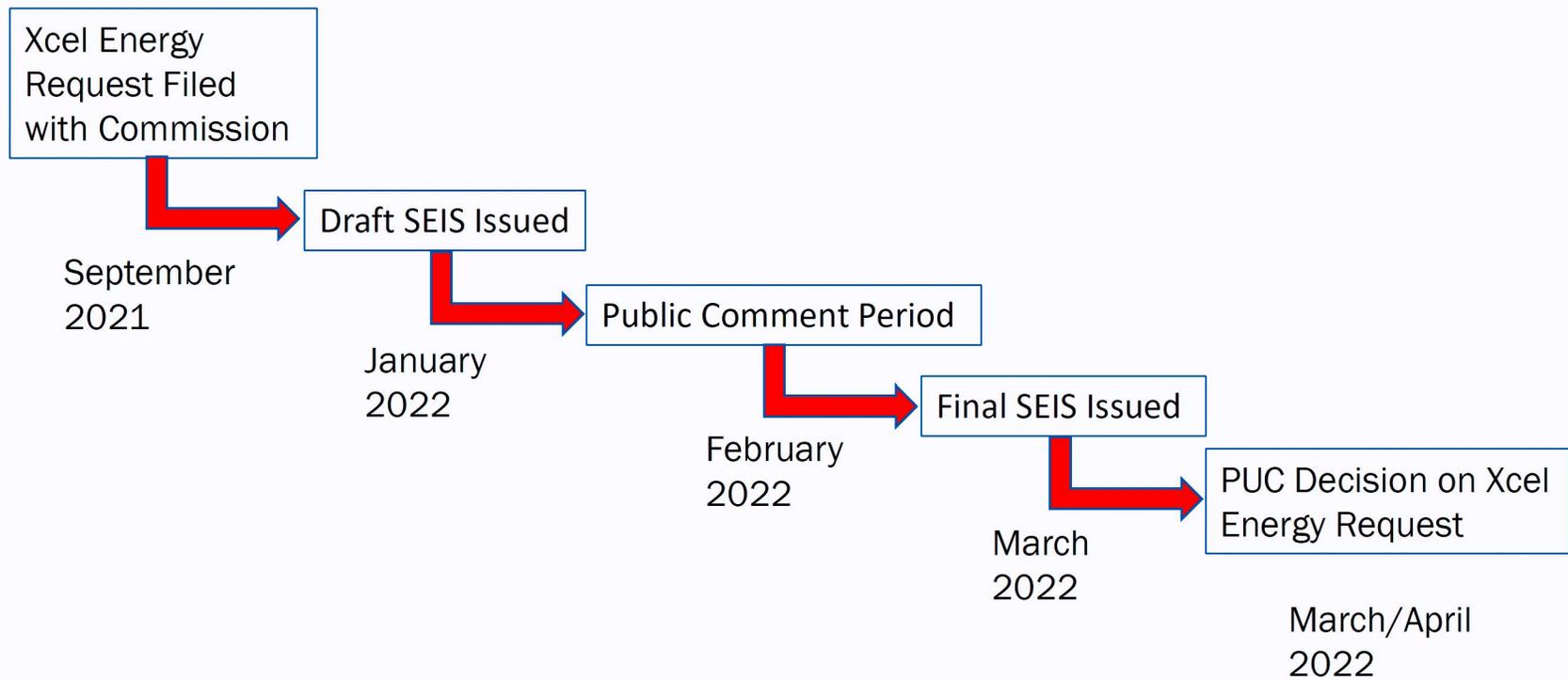
# Monticello Transfer Cask



# NRC General Licensing Process for Cask Designs

- Cask designs are Certified by NRC for storage and/or transport
- All designs undergo same lengthy safety review process
- Once Certified, operating reactor sites are licensed to use
- Prior to use, sites must perform an evaluation of the design to ensure their use at the selected site would be consistent with conditions of NRC Certification
- The evaluation is retained and subject to NRC inspection
- 65 reactor sites use General Licensed Cask Designs

# State Review Schedule



STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
Joseph K. Sullivan	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE PETITION OF  
NORTHERN STATES POWER COMPANY  
D/B/A XCEL ENERGY FOR  
CERTIFICATION OF NEED FOR  
ADDITIONAL DRY CASK STORAGE AT  
PRAIRIE ISLAND NUCLEAR GENERATING  
PLANT

DOCKET NO. F002/CN-08-510

**REQUEST FOR CHANGE IN SPENT-  
FUEL STORAGE TECHNOLOGY**

**INTRODUCTION**

Northern States Power Company, doing business as Xcel Energy (Xcel Energy or the Company), submits this Request for Change in Spent-Fuel Storage Technology, informing the Minnesota Public Utilities Commission (Commission) of a planned change regarding the Certificate of Need authorizing spent fuel storage at the Prairie Island Nuclear Generating Plant at the Independent Spent Fuel Storage Installation.

Specifically, the Certificate of Need, approved in 2009, authorizes the Company to store spent fuel using a specific number of a specific type of storage cask called a TN-40, which was the best available storage technology at the time. Since the Certificate of Need was issued, however, other spent-fuel storage casks approved by the United States Nuclear Regulatory Commission (NRC) have become more cost effective. Additionally, since those proceedings, several private storage facilities have sought approval from the NRC to temporarily store used fuel away from reactor sites until the federal government takes possession of the fuel. And neither of these proposed facilities is designed to include the TN-40 cask in their initial license.

As a result, we believe it is in our customers' interest to allow the Company to consider NRC-approved storage alternatives that will lower costs and potentially facilitate earlier shipments of spent fuel to offsite locations. We, therefore, propose to change storage technology, replacing the Certificate of Need's authorization to acquire TN-40 casks with an authorization to utilize any NRC-approved storage technology.

Approving this change will allow the Company to select the most economical technology and facilitate shipment to an offsite location at the earliest possible date.

We are asking the Commission approve this request prior to our selection of a particular cask technology so that we can run a competitive bid process designed to obtain the best option for our customers and stakeholders. By changing the authorization to any NRC-approved technology, we can ensure the broadest range of options is considered and the optimal technology is selected.

To be clear, we are not asking to run the Prairie Island plant any longer than currently authorized, nor are we seeking approval of an operational change for the plant. The new storage casks will facilitate the storage of an equivalent number of spent-fuel assemblies so will not expand the authorized storage. Through this filing, we seek only a determination from the Commission that the use of NRC-approved cask designs other than the existing TN-40 casks currently in use does not require recertification.

This request is consistent with Minnesota rules regarding changes in size, type, or timing of facilities authorized for construction pursuant to a previously-issued Certificate of Need. Under these rules, the Commission is authorized to consider whether such a change can be made without recertification. Without this proposed change, the Company will be required to acquire TN-40 casks. Because, as discussed below, allowing consideration of a broader array of NRC-approved cask technology is in our customers' interest, we request the Commission approve this proposed change without requiring recertification.

## **I. SUMMARY OF FILING**

A one-paragraph summary is attached to this filing pursuant to Minn. R. 7829.1300, subp. 1.

## **II. SERVICE ON OTHER PARTIES**

Pursuant to Minn. R. 7829.1300, subp. 2, the Company has served a copy of this filing on the Office of the Attorney General – Antitrust and Utilities Division. A summary of the filing has been served on all parties on the enclosed service list.

## **III. GENERAL FILING INFORMATION**

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

**A. Name, Address, and Telephone Number of Utility**

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

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

Matt Harris  
Lead Assistant General Counsel  
Xcel Energy  
414 Nicollet Mall, 401 – 8<sup>th</sup> Floor  
Minneapolis, MN 55401  
(612) 330-7641

**C. Date of Filing**

The date of this filing is April 30, 2021.

**D. Statute Controlling Schedule for Processing the Filing**

Commission Rules define this filing as a “miscellaneous filing” under Minn. R. 7829.0100, subp. 11 since no determination of Xcel Energy’s overall revenue requirement is necessary. In the absence of an alternative schedule, Minn. R. 7829.1400, subp. 1 and 4 permit comments in response to a miscellaneous filing to be filed within 30 days and reply comments to be filed no later than 10 days thereafter.

We note that, in general, modifications to certificates of need are governed by a different schedule. For example, under Minn. R. 7849.0400, Subp. 2(H):

*If an applicant determines that a change in size, type, timing, or ownership . . . is necessary for a large generation or transmission facility previously certified by the commission, the applicant must inform the commission of the desired change and the reasons for the change. A copy of applicant’s submission to the commission must be sent to each intervenor in the certificate of need hearing proceeding on the facility. Intervenors may comment on the proposed change within 15 days of being notified of the change. The commission shall evaluate the reasons for and against the proposed change and, within 45 days of receipt of the request, notify the applicant whether the change is*

*acceptable without recertification.*

Minn. R. 7851.0400 and Minn. R. 7853.0800 provide similar procedural schedules for modifications of certificates of need for gas storage and pipelines, and petroleum facilities, respectively.

Minn. R. 7855, however, which provides applicable rules for certificates of need for nuclear waste storage, among other things, does not include a particular rule governing modifications to covered facilities. Without such a rule, the Commission may want to consider this filing under the miscellaneous filing procedures under Minn. R. 7829.0100, or it may wish to do so under the analogous certificate of need rules.

**E. Utility Employee Responsible for Filing**

Bria E. Shea  
Director, Regulatory & Strategic Analysis  
Xcel Energy  
414 Nicollet Mall, 401 – 7<sup>th</sup> Floor  
Minneapolis, MN 55401  
(612) 330-6064

**IV. MISCELLANEOUS INFORMATION**

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

Matt Harris  
Lead Assistant General Counsel  
Xcel Energy  
414 Nicollet Mall, 401 – 8<sup>th</sup> Floor  
Minneapolis, MN 55401  
[Matt.b.harris@xcelenergy.com](mailto:Matt.b.harris@xcelenergy.com)

Lynnette Sweet  
Regulatory Administrator  
Xcel Energy  
414 Nicollet Mall, 401 – 7<sup>th</sup> Floor  
Minneapolis, MN 55401  
[regulatory.records@xcelenergy.com](mailto:regulatory.records@xcelenergy.com)

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

**V. DESCRIPTION AND PURPOSE OF FILING**

**A. Overview**

The Company is seeking a determination from the Commission that the use of designs certified by the NRC under their rules for dry cask storage contained in 10 CFR Part 72 (other than the existing TN-40 casks currently in use) does not require recertification under Minn. Stat. 216B.243. Developments in dry cask storage technology since the Certificate of Need approval in 2009 suggest other available technologies may be in the best interest of our customers and other stakeholders by reducing costs and facilitating shipment to an offsite facility at the earliest date possible. Our initial estimate is that the hardware costs for alternate cask designs is approximately 40-50% of the cost of TN-40 casks.

The storage capacity of alternate cask designs varies slightly from the TN-40 cask, generally holding 37 rather than 40 spent-fuel assemblies. As a result, in order to store the amount of spent-fuel assemblies authorized under the Certificate of Need using an alternate cask design, we likely would need one additional cask. Given the substantially lower cost of alternate designs, however, we expect changing technologies would be cost effective and beneficial for our customers.

## **B. Basis for Existing Certificate of Need**

Dry cask storage at Prairie Island was initially approved by the Commission in 1992 (Docket No. E002/CN-91-19). The cask design considered in this proceeding was a steel cask design with a bolted lid and redundant metallic seals designed by the Transnuclear Corporation (TN-40 cask). The Company selected the TN-40 cask<sup>1</sup> after a detailed evaluation of the available cask technologies and determining it was the best option for the storage facility. While individual TN-40 casks were understood to be more expensive than the other designs available at the time, the higher capacity of the TN-40 (40 fuel assemblies vs 24) made up for this difference and resulted in a lower overall cost.

The Company then applied for a license with the NRC and a Certificate of Need from the Commission. The NRC issued Prairie Island a site-specific license<sup>2</sup> in 1993 for up to 48 casks. The Certificate of Need was approved in 1992 for the use of 17 TN-40 casks.

In 2009, the Commission approved a request to increase the number of casks to 64 in order to allow plant operation to the 2033/2034 timeframe under Docket E002/CN-08-510. The request for up to 64 casks was based on the TN-40 cask capacity combined with fuel management plans for the two reactors, which determines the

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<sup>1</sup> There are two variations of the TN-40 cask approved and in use at Prairie Island, the TN-40 and TN-40HT. Both are referred to as “TN-40” in this petition.

<sup>2</sup> The NRC rules granting a general license for reactor sites to use pre-certified casks was not available at that time.

amount of additional storage that was required. When this request was made and approved, the Company and Commission determined that the TN-40 design was still the best technology to use at Prairie Island.

### **C. Changed Circumstances**

In the years since the 2009 approval, several developments have occurred that suggest a different dry cask technology may be the best option for the future. They are related to cost increases in TN-40 fabrication compared to competing designs as well as developments in the licensing of proposed offsite storage facilities. Each of these is described below.

#### *1. Cost of Cask Technologies*

When the TN-40 was initially selected for use at Prairie Island, it was determined to be the most economical choice of the cask designs available at that time. While the per unit cost was somewhat higher than the competing designs, the larger capacity (40 used fuel assemblies versus 24) made the TN-40 the best choice. The TN-40 is an all metal bolted lid design dry cask technology. In this design, the thick-walled steel cask provides both confinement of the fuel and shielding from the radiation emitted from the fuel. Competing dry cask systems use a thinner walled steel canister with a welded lid for confinement and partial radiation shielding, which is then placed in a thick walled concrete vault or overpack that provides the bulk of the radiation shielding.

For many years, the TN-40 was the best overall technology, in spite of increasing costs, in part due to the initial cost that would be incurred in changing technologies. This was true in 2009, as shown during the proceedings for the Company's request for a Certificate of Need. Due to a number of factors that have changed since the Certificate of Need proceedings, however, we no longer believe that the TN-40 bolted cask design is the most economical technology for storing used fuel at Prairie Island. These factors include the relative fabrication costs of different storage technologies, increased capacity of competing welded canister based systems, which now can hold up to 37 spent-fuel assemblies, and the increased use of welded canister dry cask systems. We discuss each factor in turn below.

#### *2. Relative Fabrication Costs*

Fabrication costs of the TN-40 bolted cask design relative to other technologies have risen to the point that we believe it is prudent to consider other designs for future storage. We believe this to be true based on our experience with actual TN-40

fabrication costs, as well as recent dry cask storage costs for the canister-based system used at our Monticello plant.

There are several reasons for the increase in TN-40 fabrication cost relative to canister-based systems. The TN-40 design incorporates both the confinement and radiation shielding aspects into a single, 10.5-inch-thick walled steel component, resulting in a final assembly weighing 100 tons. This requires a specialized facility to handle and fabricate such a large and heavy component. There are a limited number of facilities capable of manufacturing a component of this size.

In contrast, a typical canister-based system uses a confinement shell less than one-inch thick. This is then placed in a concrete overpack or storage module that provides the majority of the radiation shielding. Fabrication of the relatively thin-walled and much lighter canisters requires less infrastructure at a fabricator and results in lower costs. There are also far more facilities that are capable of manufacturing this type of component, leading to greater price competition. As mentioned above, all of these systems are certified for safe storage by the Nuclear Regulatory Commission (NRC).

### *3. Increased capacity of canister systems*

When the TN-40 was selected, canister-based system designs were limited in capacity to 24 fuel assemblies of the type used at Prairie Island. The 40-fuel assembly capacity of the TN-40 provided a significant benefit in overall cost due to the smaller number of casks required to provide the needed storage. Since that timeframe, canister-based systems have made advances in capacity and are now capable of storing between 32 and 37 Prairie Island fuel assemblies. This increased capacity is a notable advance and significantly reduces the previous cost advantage of the TN-40.

### *4. Widespread use of canister systems*

Canister-based storage systems have now been adopted by the nuclear industry as the standard way to store used fuel. Prairie Island is the only remaining site in the United States using the TN-40 design, and no other sites are currently ordering or loading a bolted cask design similar to the TN-40. Being an outlier in design reduces efficiencies in fabrication expense, loading operations, and technology advances available to sites using the far more common canister-based systems. Advances in canister system loading operations (welding, testing, etc.) can be shared throughout sites using these systems and are not available or applicable to the TN-40 design.

## **D. Potential for Off-Site Shipment**

There are currently two applications for Consolidated Interim Storage Facilities (CISF) under active review by the NRC. These are private ventures designed to temporarily store used fuel away from reactor sites until the federal government takes possession of the fuel as mandated by the Nuclear Waste Policy Act. One of these facilities is proposed by Interim Storage Partners LLC (ISP), a joint venture of Waste Control Specialists LLC (WCS) and Orano CIS LLC (a subsidiary of Orano USA), at a site in Andrews County, Texas, adjacent to WCS's existing low-level radioactive waste and hazardous waste storage and disposal facilities. The second facility is proposed by Holtec International (Holtec) to construct and operate the HI-STORE CISF, in Lea County, New Mexico. Both facility applications are advancing in the NRC process and expect to receive a Safety Evaluation Report and final Environmental Impact Statement from the NRC sometime in 2021.

Each of these proposed CISF applications are based on a specific welded canister design for storage. Their license applications under review request permission for specific designs, and do not include the TN-40 cask. An amendment to their license would be required in order to store a TN-40 cask in the future.

## **E. Nuclear Regulatory Commission Regulations**

The dry cask storage site at Prairie Island has a site-specific license<sup>3</sup> issued by the NRC under 10 CFR Part 72. This license allows up to 64 TN-40 casks to be stored in the facility. Although changes to most aspects of the license generally require NRC review and approval, use of a different NRC-certified cask design would not require prior NRC approval.

The NRC has a general license process where a cask design receives an NRC Certificate of Compliance allowing for use at nuclear sites without further review and approval by the NRC. Any reactor site licensed by the NRC under either 10 CFR Part 50 or Part 52 is granted a General License to store used fuel in a Certified cask without further NRC approval, including Prairie Island. An example of this is the Monticello dry cask storage site, which uses the Certified NUHOMS storage system. Prior to use of a Certified cask a site must notify the NRC and document a thorough evaluation that the use is consistent with the conditions of the NRC approval.

A change of technology at Prairie Island would be implemented using a cask certified by the NRC. The site would be required to notify the NRC and perform the

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<sup>3</sup> NRC Materials License SNM-2506

evaluation described above prior to use. No NRC approval would be required beyond the existing cask Certificate of Compliance issued to the cask design. In addition to being licensed for on-site storage, any cask selected would be designed for transportation to an offsite location as well.

## **F. Requested Change to Certificate of Need**

In 2009, the Commission authorized an additional 35 casks, for a total of 64, providing the Company with “sufficient capacity to hold the additional spent fuel that the Prairie Island Plant would generate if Units 1 and 2 continued to operate until 2033 and 2034, respectively.”<sup>4</sup> Based on the assumption of the continued use of the TN-40 cask design, this equates to a capacity of 2,560 spent-fuel assemblies.<sup>5</sup> The Company seeks to maintain this authorized capacity for spent fuel storage, but requests elimination of any tie to a specific number of casks or a specific type of cask design. We are not requesting approval of any operational or life change—only a change in the type of storage technology we are authorized to pursue for storing spent-fuel assemblies at the plant. This would allow the Company to bid for and select the best cask technology for future storage.

The Company would select from NRC-certified cask designs based on considerations including price and compatibility with potential or real offsite storage facilities. The designs envisioned are similar to the design previously approved by the Commission for use at Monticello. They consist of a welded, sealed metal canister stored in an overpack that protects the metal canister and provides the bulk of the shielding from radiation. These systems are certified by the USNRC for both on-site storage and transportation. These metal canisters can be transferred to a shipping overpack and placed directly on a rail car for offsite transport to another facility.

Following the selection of a particular cask technology, the Company would provide the Commission with information regarding its selection process. This information would include the technologies considered and details regarding how the Company selected a particular cask type, including cost.

This change is consistent with state law. Under Minn. Stat. §116C.776, “[i]f the Public Utilities Commission determines that casks or other containers that allow for transportation as well as storage of spent nuclear fuel exist and are economically feasible for storage and transportation of spent fuel generated by the Prairie Island

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<sup>4</sup> *Order Accepting Environmental Impact Statement, and Granting Certificates of Need and Site Permit With Conditions* at 7, Dec. 18, 2009, Dockets Nos. E-002/CN-08-509, E-002/CN-08-510, E-002/GS-08-690.

<sup>5</sup> *See Application to the Minnesota Public Utilities Commission for Certificates of Need for the Prairie Island Nuclear Generating Plant for Additional Dry Cask Storage Docket No. E002/CN-08-510 and Extended Power Uprate Docket No. E002/CN-08-509*, at 5-12, May 16, 2008.

nuclear power generating plant, the Commission shall order their use to replace use of the casks that are only usable for storage, but not transportation.” In the event that alternative casks to the TN-40 design are used, Minn. Stat. § 116C.776 requires—consistent with the Company’s proposal herein—“that the total cask storage capacity . . . not exceed the capacity of the TN-40 casks authorized under section 116C.77.” This statute recognizes (1) that that other cask designs may have less capacity than the TN-40, (2) that spent-fuel storage authorization under a certificate of need is based on the amount of storage required to support plant operations through a specific time period, not a set number of casks, and (3) that cost-effective alternatives to the TN-40 casks that facilitate transportation and storage of spent fuel are preferred.

Minn. Stat. § 116C.777, also is instructive. That statute requires that spent fuel be “moved immediately upon the availability of another site for storage of the spent fuel that is not located on Prairie Island or at Monticello.” This language is designed to ensure movement of spent fuel to an offsite location at the earliest possible time. As noted earlier, two potential offsite facilities are under NRC review and could be licensed in 2021. Neither of these facilities are designed to accept the TN-40 cask in their initial license. Allowing the use of alternative technologies will support this goal by allowing the use of casks that have the ability to ship directly offsite at the earliest possible date.

## CONCLUSION

For the foregoing reasons, we respectfully request that the Commission determine the Company’s proposed change to use alternative NRC-approved spent-fuel containers is acceptable without recertification.

Dated: April 30, 2021

Northern States Power Company



October 20, 2021

Mr. Raymond Kirsch  
Environmental Review Manager  
Minnesota Department of Commerce  
85 – 7<sup>th</sup> Place East, Suite 280  
St. Paul, Minnesota 55101

**BY E-MAIL AND U.S. MAIL**  
[raymond.kirsch@state.mn.us](mailto:raymond.kirsch@state.mn.us)

**RE: Scoping Comments from the City of Red Wing, Minnesota for Supplemental Environmental Impact Statement In the Matter of the Petition of Northern States Power Company D/B/A Xcel Energy for a Certificate of Need for Additional Dry Cask Storage at Prairie Island Nuclear Generating Plant (“PINGP”), Docket Number: MPUC Docket: E-002/CN-08-510.**

Dear Mr. Kirsch:

The purpose of this letter is to provide the Department of Commerce (the “DOC”) with comments pertaining to the scope and focus of a Supplemental Environmental Impact Statement (the “SEIS”) for the above-referenced docket. These comments are submitted on behalf of the City of Red Wing (the “City”). It is the City’s understanding that it will also have the opportunity to comment on the draft SEIS once the DOC provides such. The City reserves all rights, after reviewing the draft SEIS, to further expound on the comments set forth in this letter or to add additional or expanded comments based on the draft SEIS.

This matter arises as a result of a petition of Northern States Power Company D/B/A Xcel Energy (“Xcel”) for a Certificate of Need for Additional Dry Cask Storage at Prairie Island Nuclear Generating Plant (“PINGP”) that proposes a change in spent fuel storage technology used at the PINGP’s independent spent fuel storage installation (“ISFSI”). Xcel proposes to replace the type spent fuel cask storage system from the approved TN-40 and TN-40HT to an unidentified spent fuel storage technology that is approved by the Nuclear Regulatory Commission (the “NRC”). As part of its application for a power upgrade and a request for additional dry cask storage in 2008 (as well as additional 20 year license), the Minnesota Public Utilities Commission ordered that a site specific Environmental Impact Statement (the “EIS”) be completed on the PINGP ISFSI and



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provided as part of the record for its consideration on whether to approve the 2008 petitions. The EIS is separated into two parts: Chapter One, which addressed the Application for an Extended Power Uprate and Chapter Two, which addressed the Application for Additional Dry Cask Storage at the PINGP site (“site specific”).

In response to Xcel’s most current application, the PUC, at the request of the DOC and other stakeholders, has ordered that the EIS be supplemented to analyze the proposed (but undefined) spent fuel storage technology changes. While the SEIS would arguably focus on Chapter Two of the EIS, the SEIS should consider the EIS in its entirety as it examines the economic and environmental implications of the proposed technology changes.

As the DOC is well aware of, the purpose of the SEIS is to advise the PUC and other policy and decision makers on the environmental impacts of proposed Application, appropriate alternatives and certain mitigation steps or efforts that can be taken relative to such. *See, Minn. Stat. §116D.04 Subd. 2a (2008)*. The EIS, and by implication the supplement, is to be analytical and detailed and not simply “an encyclopedic document”. *Id.*

In preparing the SEIS, the DOC should avoid the issues that plagued the EIS: that the information provided by the Application is complete and accurate. The SEIS should strive to be an independent analysis of the request, taking into consideration and evaluating the health, safety and welfare factors that Minnesota policy makers should consider when evaluating the Application. This includes, at a minimum, not assuming that the NRC’s approval of certain casks implies any or all of those approved casks are in the best interests of Minnesota stakeholders. The SEIS and the evaluation of the Application should be based on Minnesota’s unique circumstances.

Accordingly, the City believes that the following, which is not an exhaustive or complete list of subjects, should be addressed in the SEIS:

1. The request to by Xcel Energy to change spent fuel storage technology is too vague and undefined.
  - a. Precisely, what new spent fuel storage technologies are being considered and proposed?
    - i. What are each of their characteristics?
  - b. What is the industry experience with each of those specific technologies?
  - c. What is the useful life and warranty period for the current casks?
  - d. What is the useful life and warranty period for each alternative spent fuel storage technology Xcel is considering?



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- e. What are the alternate spent fuel storage technology manufacturer's recommendations on use and storage?
  - f. What is the industry experience with each proposed alternate spent fuel technology Xcel is considering?
  - g. What additional monitoring and maintenance can be anticipated with the new casks and how does this differ from the current casks?
  - h. What is the replacement cycle for each of the proposed new spent fuel storage technologies?
  - i. How do the alternate storage technologies compare with the purported "robustness" of the current casks as Xcel presented in 2008? For example, what are the components that make up the alternatives?
  - j. From a temperate zone standard (e.g. South Carolina v. Minnesota) how does the proposed spent fuel storage technology alternative and storage facilities hold up?
2. Is Xcel proposing to remove the spent fuel from the current TN-40 and TN-40HT cask and repack that spent fuel into a different and undefined substitute spent fuel technology?
  - a. If Xcel is proposing to remove the spent fuel and re-cask it in a new spent fuel technology what will happen to the current TN-40 and TN-40HT casks and will they be disposed of off-site or will they remain in the ISFSI or elsewhere on the PINGP's property?
    - i. If not disposed of off-site how long will the irradiated current casks remain on-site?
    - ii. What is the plan and timing for their final disposition?
  - b. Is Xcel proposing to continue using the currently packed TN-40 and TN-40HT casks and employ a different and undefined spent fuel technology for spent fuel coming out of the spent fuel pool in the future?
    - i. If so, what are the implications of such?
3. What is the industry's experience with the TN-40 and TN-40T cask?
  - a. Has the industry attempted to replace any component parts of a TN-40 or TN-40HT?
  - b. What issues arose?
  - c. Was the replacement of component parts successful?
4. What is the industry's experience with re-casing spent nuclear fuel in general and more specifically with the TN-40 and TN-40T casks?
  - a. What is the industry's experience recasing spent nuclear fuel from one type of cask to another alternate type of cask?
  - b. Has the industry attempted to recask a TN-40 or TN-40HT?
  - c. What issues arose?



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- d. Was the re-casking successful?
5. How long is it anticipated that the storage will continue at PINGP's ISFSI? Spent fuel storage has existed for nearly 30 years already. This is halfway to the 60-year Waste Confidence Rule that the NRC has used as a guideline for the temporary storage and unfortunately there does not appear to be a viable off site storage alternative in sight yet.
6. Have the proposed new spent fuel storage technologies been approved for acceptance and final disposition by the US Department of Energy ("DOE")?
7. Have the new technologies been approved for transportation to long-term/permanent storage?
  - a. If not, what is the transfer process to an approved canister?
8. What is the impact of the new technology on the utility personal property tax revenue that is received by the County, City and local school district?
9. If the new technology creates a departure from the life expectancy and robustness of the current casks how will this impact our current emergency response plans?
  - a. What additional burdens would this place on the City as the primary responder to any incident at the ISFISI or the PINGP?
10. In the event that the PINGP ceases operations, how is the emergency response going to be impacted by reduction in property tax revenues that support the City's emergency response services?
11. What is the impact of the social justice implications of the continued and new storage casks on the City and the Prairie Island Indian Community and the other stakeholders?
12. The SEIS, in addition to considering and evaluating the PINGP site-specific EIS, should also include an analysis of and incorporate parts of the Generic EIS (completed by the NRC regarding temporary spent fuel storage in general) as well as the Yucca Mountain EIS (completed by the DOE. This is important as these documents pertain to and build off one another.
13. The incorporation of the Generic EIS and the Yucca Mountain EIS should specifically address the other considerations and recommendations regarding cask selection (including but not limited to Part 72).

For each of the foregoing, the economic and policy implications should be clearly articulated and carefully evaluated. The analysis should include alternatives and an assumption that the storage of spent nuclear fuel at the PINGP will continue indefinitely.

The site specific EIS has a number of deficiencies and assumptions that the SEIS can address and evaluate, For example, the site specific EIS identifies a potential 200 year period in which the spent fuel may be stored at the PINGP. Yet, there is no analysis on how that spent fuel is going to be monitored, maintained, and safeguarded during that period of time. While there is



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reference to a maintenance program relative to current spent fuel storage there is scant little that identifies how this will be accomplished and controlled over a 200 year timeframe. There is no reference to the Yucca Mountain EIS and its analysis of above-ground spent fuel storage systems and the concrete pads upon which they are placed. These issues should also be addressed along with the scoping suggestions above.

In the site specific EIS, there is a discussion of the 60-year Waste Confidence Rule, and the 200-year period in which the spent fuel is anticipated to be stored at the ISFSI. However, there is no analysis that ties these together or reconciles the gap in the time frames. For example, there is no cost evaluation of the monitoring, inspection, and/or maintenance of spent fuel storage for either the 60-year period or the anticipated 200-year period. These issues clearly need to be further developed, evaluated, and addressed. See, *Rule 7855.0600C* (an obligation to disclose whether the storage is permanent or temporary).

Lastly, in regard to the continued storage of spent fuel at the PINGP, there must be an effective analysis of that continued storage during the timeframe that the site specific EIS itself has established. This must include a timeline and robust plan for funding, maintenance, inspection, repair, and when necessary the replacement of the casks and other support systems.

Thank you for your service to our State and your consideration of these comments. Please contact Marshall Hallock, CPA, at 651-385-3602 or [marshall.hallock@ci.red-wing.mn.us](mailto:marshall.hallock@ci.red-wing.mn.us) with questions about these comments or to coordinate future discussions.

Respectfully submitted,

CITY OF RED WING, MINNESOTA

A handwritten signature in black ink, appearing to read "Becky Norton", written over a horizontal line.

Becky Norton, Council President

A handwritten signature in black ink, appearing to read "Michael Wilson", written over a horizontal line.

Michael Wilson, Mayor

*1. The request to by Xcel Energy to change spent fuel storage technology is too vague and undefined.*

*a. Precisely, what new spent fuel storage technologies are being considered and proposed?*

**Response:** Xcel Energy is proposing to use different spent fuel cask designs from the current TN-40 model in use today (TN-40s were selected in 1989). The designs being considered are typically referred to as welded canister-based storage systems versus the TN-40 bolted metal cask design. Designs we are considering are all safety-related approved by the NRC.

*i. What are each of their characteristics?*

**Response:** The TN-40 design is a two-layer steel design, with an inner steel shell that provides confinement of the spent fuel and an integral outer steel shell that provides additional shielding of the radiation emitted by the fuel and provides protection from external hazards to the inner confinement shell. A lid with two metallic seals is bolted to the inner confinement shell.

The canister-based designs we are considering also uses two layers, one for confinement and a second for shielding and protection. The primary differences are 1) the outer layer is concrete vs steel, and 2) two separate lids are welded to the inner confinement shell vs one lid and two seals as on the TN-40s.

Both designs provide redundant sealing of the spent fuel from the atmosphere.

*b. What is the industry experience with each of those specific technologies?*

**Response:** The canister-based designs have become the industry standard for the dry storage of spent fuel. They are currently in use at over 60 U.S. nuclear power plants (roughly 3,000 canisters in U.S.). While other sites have used the bolted cask designs, like the TN-40, no other sites are currently loading fuel into a bolted cask.

The two major suppliers of canister-based systems are Holtec International with 1,657 Holtec casks in use, and Orano with 1,205 NUHOMS canisters in use today.

As a comparison there are currently 203 TN-type metal casks in use (TN-32, TN-40, and TN-68).

*c. What is the useful life and warranty period for the current casks?*

**Response:** All cask designs have a similar initial NRC license for up to 40 years. After 40 years, continued use is allowed via an NRC license renewal process that examines age related effects and places the appropriate monitoring program in effect based on the cask design.

*d. What is the useful life and warranty period for each alternative spent fuel storage technology Xcel is considering?*

**Response:** Same as 1.b. above.

*e. What are the alternate spent fuel storage technology manufacturer's recommendations on use and storage?*

**Response:** Each manufacturer provides detailed procedures for loading their cask design. Details regarding the specific operations vary slightly, but all follow a similar general sequence for use and storage. Critical parameters that must be maintained are identified in the NRC license.

*f. What is the industry experience with each proposed alternate spent fuel technology Xcel is considering?*

**Response:** See 1.b. above.

*g. What additional monitoring and maintenance can be anticipated with the new casks and how does this differ from the current casks?*

**Response:** Typical monitoring for canister systems involves verifying air ducts used to remove heat are free from obstruction. This is normally accomplished either by visual observation or monitoring of temperature sensors placed at the outlets.

Casks usually have no expected routine maintenance other than periodic monitoring of the exterior for any damage or degradation, which would then be repaired using standard concrete maintenance practices. This is similar to the TN-40 monitoring requirements.

*b. What is the replacement cycle for each of the proposed new spent fuel storage technologies?*

**Response:** Casks do not have a specific life cycle defined. They are monitored for aging through an NRC mandated aging management program.

The NRC has assessed cask life and reached the following conclusion:

*“Based on currently available information, the 100-year replacement cycle provides a reasonably conservative assumption for a storage facility that would require replacement at a future point in time. However, this assumption does not mean that dry cask storage systems and facilities need to be replaced every 100 years to maintain safe storage.”*

*i. How do the alternate storage technologies compare with the purported “robustness” of the current casks as Xcel presented in 2008? For example, what are the components that make up the alternatives?*

**Response:** All designs meet the same stringent NRC requirements and would be considered equally “robust.” Both use high quality steel for the primary confinement of the fuel. The TN-40 uses additional steel for radiation shielding and protection from external hazards, while canister-based designs use concrete for shielding and protection from hazards. Concrete is a common material for this function and is widely used in the nuclear industry. The concrete containment domes at Prairie Island are an example of shielding and protection from external hazards.

*j. From a temperate zone standard (e.g., South Carolina v. Minnesota) how does the proposed spent fuel storage technology alternative and storage facilities hold up?*

**Response:** The alternate designs to be considered all have been generally licensed for use by the NRC and can be used at any NRC licensed reactor site in the country. This means they have been evaluated for all temperature extremes in the US, from the cold of Minnesota to the heat of Arizona.

*2. Is Xcel proposing to remove the spent fuel from the current TN-40 and TN-40HT cask and repack that spent fuel into a different and undefined substitute spent fuel technology?*

**Response:** Xcel Energy is NOT proposing to repackage the fuel contained in the existing TN-40 cask.

Our request only relates to the last nine (9) TN-40 casks currently authorized, i.e., cask numbers 56 through 64. We are requesting permission to consider other cask designs to potentially use in place of the TN-40 casks for these last nine casks.

*a. If Xcel is proposing to remove the spent fuel and re-cask it in a new spent fuel technology what will happen to the current TN-40 and TN-40HT casks and will they be disposed of off-site or will they remain in the ISFSI or elsewhere on the PINGP's property?*

**Response:** As noted above, we are not proposing to remove any fuel from existing TN-40 casks.

*i. If not disposed of off-site how long will the irradiated current casks remain on-site?*

*ii. What is the plan and timing for their final disposition?*

*b. Is Xcel proposing to continue using the currently packed TN-40 and TN-40HT casks and employ a different and undefined spent fuel technology for spent fuel coming out of the spent fuel pool in the future?*

**Response:** See answer 1.a.

*i. If so, what are the implications of such?*

*3. What is the industry's experience with the TN-40 and TN-40T cask?*

*a. Has the industry attempted to replace any component parts of a TN-40 or TN-40HT?*

**Response:** Prairie Island is the only site to use the TN-40 model and has not replaced any cask components. There are similar models to the TN-40 (TN-32, TN-68) in use at other sites. We are aware of TN casks at two sites that were required to replace the metallic seals: one cask at the first site and five casks at the second site. The casks at those sites were transported to the plant auxiliary buildings and the seals were replaced successfully. The casks were then returned to the storage locations at these sites.

*b. What issues arose?*

**Response:** The above-described replacement of the cask lid seals was accomplished without any known issues at those sites.

*c. Was the replacement of component parts successful?*

**Response:** Yes

*4. What is the industry's experience with re-casking spent nuclear fuel in general and more specifically with the TN-40 and TN-40T casks?*

*a. What is the industry's experience recasking spent nuclear fuel from one type of cask to another alternate type of cask?*

**Response:** We are not aware of any industry experience with “recasking” of fuel from one cask to another alternate type of cask at a nuclear power plant. We are NOT asking to recask any fuel with this filing.

*b. Has the industry attempted to recask a TN-40 or TN-40HT?*

**Response:** No, not from one cask to a different cask. At one site during a seal replacement of a TN-68 cask, the fuel in the cask was removed for inspection. The fuel was then returned to the same cask for continued storage after the inspections were completed.

*c. What issues arose?*

**Response:** No issues. The fuel removal and return to the same cask was performed successfully.

*d. Was the re-casking successful?*

**Response:** See responses 4.a., b., and c.

*5. How long is it anticipated that the storage will continue at PINGP's ISFSI? Spent fuel storage has existed for nearly 30 years already. This is halfway to the 60-year Waste Confidence Rule that the NRC has used as a guideline for the temporary storage and unfortunately there does not appear to be a viable off site storage alternative in sight yet.*

**Response:** Xcel Energy continues to work with State and Federal officials to facilitate removal of fuel from Prairie Island and all other sites around the country at the earliest time possible.

The reference to the Waste Confidence Rule is somewhat out of date. The NRC has generically determined that the environmental impacts of continued storage of spent nuclear fuel in NUREG-2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel." This study analyzes potential environmental impacts over three possible timeframes: a short-term timeframe, which includes 60 years of continued storage after the end of a reactor's licensed life for operation; an additional 100-year timeframe (60 years plus 100 years) to address the potential for delay in repository availability; and a third, indefinite timeframe to address the possibility that a repository never becomes available.

*6. Have the proposed new spent fuel storage technologies been approved for acceptance and final disposition by the US Department of Energy ("DOE")?*

**Response:** At this point the DOE has not made a determination on the acceptability of any cask or canister design for final disposal, as these designs have an NRC license for transportation. The designs would be acceptable to transport the fuel to a DOE repository site. Depending on the final repository design, the DOE may or may not repackage the fuel into different containers.

*7. Have the new technologies been approved for transportation to long-term/permanent storage?  
a. If not, what is the transfer process to an approved canister?*

**Response:** The designs we select will all have been Certified by the NRC for transportation. This would include transportation to a long-term storage facility, interim storage facility or a repository.

*8. What is the impact of the new technology on the utility personal property tax revenue that is received by the County, City and local school district?*

**Response:** While we expect different cask designs would be less expensive, substitution of the last 9 TN-40 casks with a different design would have minimal to no impact on the overall site valuation.

*9. If the new technology creates a departure from the life expectancy and robustness of the current casks how will this impact our current emergency response plans?*

*a. What additional burdens would this place on the City as the primary responder to any incident at the ISFISI or the PINGP?*

**Response:** The new casks have similar life expectancies and robustness and will have no impact on emergency planning.

*10. In the event that the PINGP ceases operations, how is the emergency response going to be impacted by reduction in property tax revenues that support the City's emergency response services?*

**Response:** This cask design filing and Supplemental EIS is not related to the above question.

*11. What is the impact of the social justice implications of the continued and new storage casks on the City and the Prairie Island Indian Community and the other stakeholders?*

**Response:** The different cask design would have no impact to off-site stakeholders when compared to the current design.

*12. The SEIS, in addition to considering and evaluating the PINGP site-specific EIS, should also include an analysis of and incorporate parts of the Generic EIS (completed by the NRC regarding temporary spent fuel storage in general) as well as the Yucca Mountain EIS (completed by the DOE). This is important as these documents pertain to and build off one another.*

**Response:** The NRC Generic EIS for continued storage is useful as a model to the extent it is independent of any specific cask design. The environmental impacts are similar for all cask designs and the NRC EIS uses this fact to make their determinations.

*13. The incorporation of the Generic EIS and the Yucca Mountain EIS should specifically address the other considerations and recommendations regarding cask selection (including but not limited to Part 72).*

**Response:** As noted in Response 12, the NRC Generic EIS for continued storage provides insights to the extent it does not rely on a specific cask design. The Yucca Mountain EIS is for permanent underground disposal and is unlikely to have much in common with the SEIS for Prairie Island.



## NOTICE OF PREPARATION OF A SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

### Xcel Energy's Proposed Change in Spent Fuel Storage Technology at the Prairie Island Nuclear Generating Plant

Issued: December 7, 2021

Docket Number: E002/CN-08-510

**PLEASE TAKE NOTICE** that the Minnesota Department of Commerce (Department) is preparing a supplemental environmental impact statement (SEIS) for Xcel's Energy's proposed change in spent fuel storage technology at the Prairie Island nuclear generating plant (PINGP). The SEIS will supplement the July 31, 2009, Prairie Island final environmental impact statement for Xcel Energy's proposed power uprate and request for additional draft cask storage at the PINGP (2009 Prairie Island EIS).

On April 30, 2021, Xcel Energy requested that the Minnesota Public Utilities Commission (Commission) authorize a change in spent fuel storage technology at the PINGP. Xcel Energy requested that it be authorized to use any spent fuel storage technology approved by the Nuclear Regulatory Commission (NRC), rather than being limited solely to the TN-40HT cask that was approved by the Commission in 2009.

After reviewing Xcel Energy's request, and as the responsible governmental unit, the Department concluded that the request represented substantial new information that affects the potential environmental effects at the PINGP such that the 2009 Prairie Island EIS must be supplemented. The Department found that the request affected potential radiological and non-radiological impacts at the PINGP. Further, the Department found that potential impacts raised environmental justice concerns with respect to the Prairie Island Indian Community.

The SEIS will be prepared in accordance with the attached scoping decision. A draft SEIS is anticipated to be completed and available in February 2022. Public meetings and a comment period on the draft SEIS will follow. Timely and substantive comments on the draft SEIS will be responded to in a final SEIS. The final SEIS is anticipated to be available in April 2022. The Commission will use the final SEIS in making a decision on Xcel Energy's request.

### How to Learn More

**Full Case Record.** See all documents filed in this matter via the Commission's website at [mn.gov/puc](https://mn.gov/puc), select *eDockets*, enter the year (08) and the docket number (510), and select *Search*.

**Subscribe to the Docket.** To receive email notification when new documents are filed in this matter visit: <https://www.edockets.state.mn.us/EFiling>, select *Subscribe to Dockets* and follow the prompts.

**Project Mailing List.** Sign up to receive notices about project milestones and opportunities to participate or to change your mailing preference. Email [docketing.puc@state.mn.us](mailto:docketing.puc@state.mn.us) or call Leesa Norton at 651-201-2246 with the docket number (08-510), your name, mailing address, and email address.

**Department of Commerce Website.** Visit [mn.gov/commerce/energyfacilities](http://mn.gov/commerce/energyfacilities), select *Power Plants*, and then scroll down to select *Prairie Island Nuclear Plant Spent Fuel Storage*.

## Project Contacts

### Department of Commerce

Ray Kirsch, Environmental Review Manager, [raymond.kirsch@state.mn.us](mailto:raymond.kirsch@state.mn.us) or 651-539-1841.

### Public Utilities Commission

Michael Kaluzniak, Energy Facilities Planner, [mike.kaluzniak@state.mn.us](mailto:mike.kaluzniak@state.mn.us) or 651-201-2257.

### Xcel Energy

Jon Kapitz, Manger, Spent Nuclear Fuel Projects, [jon.k.kapitz@xcelenergy.com](mailto:jon.k.kapitz@xcelenergy.com) or 612-330-5893.



In the Matter of the Petition of Northern States Power Company D/B/A Xcel Energy for a Certificate of Need for Additional Dry Cask Storage at Prairie Island Nuclear Generating Plant

**SUPPLEMENTAL ENVIRONMENTAL  
IMPACT STATEMENT  
SCOPING DECISION**

**DOCKET NO. E002/CN-08-510**

The above matter has come before the Commissioner of the Department of Commerce (Department) for a decision on the scope of the supplemental environmental impact statement (SEIS) that will be prepared for Xcel Energy's proposed change in spent fuel storage technology at the Prairie Island nuclear generating plant in the city of Red Wing, Minnesota.

### **Introduction and Background**

The Prairie Island nuclear generating plant (PINGP) is a 1,100 megawatt (MW), two-unit, electric generating plant in Red Wing, Minnesota. Unit 1 has been in operation since 1973; Unit 2 since 1974. Spent nuclear fuel from the plant is stored on-site in an independent spent fuel storage installation (ISFSI).

On May 16, 2008, Xcel Energy applied to the Minnesota Public Utilities Commission (Commission) for a certificate of need (CN) to expand the Prairie Island ISFSI by 35 casks, to accommodate a total of 64 spent fuel storage casks. Department of Commerce, Energy Environmental Review and Analysis (EERA) staff prepared an EIS that analyzed the proposed ISFSI expansion (2009 Prairie Island EIS). On December 18, 2009, the Commission issued a CN authorizing Xcel Energy to expand the Prairie Island ISFSI by 35 casks. At that time, Xcel Energy proposed that these casks be Transnuclear TN-40HT casks.

On April 30, 2021, Xcel Energy requested that the Commission authorize a change in the spent fuel storage technology at Prairie Island.<sup>1</sup> Xcel Energy requested that it be authorized to use any spent fuel storage technology approved by the Nuclear Regulatory Commission (NRC), rather than being limited solely to the TN-40HT cask. On May 14, 2021, the Commission issued a notice soliciting comments on Xcel Energy's proposed change in fuel storage technology and on the appropriate processes for considering Xcel Energy's request.<sup>2</sup>

After reviewing Xcel Energy's request, EERA staff concluded that the request represented substantial new information that affects the potential environmental effects at the Prairie Island ISFSI such that the 2009 Prairie Island EIS must be supplemented.<sup>3</sup> EERA staff recommended that the Commission take no action on Xcel Energy's request until EERA staff

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<sup>1</sup> Request for Change in Spent-Fuel Storage Technology, Prairie Island Fuel Storage, April 30, 2021, eDockets Number [20214-173680-01](#) [hereinafter Xcel Energy Request].

<sup>2</sup> Notice of Comment Period, May 14, 2021, eDockets Number [20215-174178-01](#).

<sup>3</sup> Minnesota Rule 4410.3000.

could supplement the 2009 Prairie Island EIS in accordance with Minnesota Statutes section 116D.04 and Minnesota Rule 4410.3000.<sup>4</sup> On October 1, 2021, the Commission concurred with EERA staff's recommendation.<sup>5</sup>

## **Project Description**

Xcel Energy proposes to use any NRC-approved fuel storage cask for the ISFSI, rather than being limited to the TN-40HT casks approved by the Commission in 2009. Xcel Energy indicates that they would select from NRC-approved cask designs based on considerations including price and compatibility with future offsite storage facilities. Xcel Energy envisions that the cask designs would be similar to the welded, canister design used at the Monticello nuclear generating plant ISFSI.

Xcel Energy indicates that it is not seeking to store more spent fuel than was approved by the Commission in 2009. Xcel Energy notes that it still seeks to store the 2,560 spent-fuel assemblies anticipated by the Commission's 2009 certificate of need. Xcel Energy's request is that it not be limited to storing these assemblies in 64 TN-40HT casks, but rather storing them in any NRC-approved spent fuel storage casks.

## **Project Purpose**

Xcel Energy indicates that its proposed change in spent fuel storage technology would likely result in lower customer costs. Further, Xcel Energy indicates that a change in technology could potentially facilitate earlier shipments of spent nuclear fuel from Prairie Island to offsite storage facilities.

## **Regulatory Background**

An EIS for a project must be supplemented if the responsible governmental unit determines that any of the following situations exist:

- A. Whenever after a final EIS has been determined adequate, but before the project becomes exempt under part 4410.4600, subpart 2, item B or D, the RGU determines that either:
  - (1) substantial changes have been made in the proposed project that affect the potential significant adverse environmental effects of the project; or
  - (2) there is substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project that have not been considered in the final EIS or that significantly affect the availability of prudent and feasible alternatives with lesser environmental effects;

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<sup>4</sup> EERA Comments and Recommendations, May 27, 2021, eDockets Number [20215-174578-01](#).

<sup>5</sup> Commission Order, October 1, 2021, eDockets Number [202110-178440-01](#).

- B. Whenever an EIS has been prepared for an ongoing governmental action and the RGU determines that the conditions of item A, subitem (1) or (2), are met with respect to the action; or
- C. Whenever an EIS has been prepared for one or more phases of a phased action or one or more components of a connected action and a later phase or another component is proposed for approval or implementation that was not evaluated in the initial EIS.<sup>6</sup>

EERA staff has concluded that Xcel Energy's request represents substantial new information that significantly affects the potential environmental effects at the Prairie Island ISFSI such that the 2009 Prairie Island EIS must be supplemented.<sup>7</sup> EERA staff believes that the request affects potential radiological and non-radiological impacts at the PINGP. Further, staff believes that potential impacts raise environmental justice concerns with respect to the Prairie Island Indian Community (PIIC).

### **Scoping Process**

Scoping is the first step in the development of the SEIS. The scoping process has two primary purposes: (1) to gather public input as to the impacts and mitigation measures to study in the SEIS and (2) to focus the SEIS on those impacts and mitigation measures that will aid in the Commission's decision on Xcel Energy's request for a change in spent fuel storage technology.

EERA staff gathered input on the scope of the SEIS through public meetings and an associated comment period.<sup>8</sup> Staff also gathered input through a community meeting with the PIIC.

This scoping decision identifies the impacts and mitigation measures that will be analyzed in the SEIS.

### **Public Scoping Meetings**

EERA staff held a public meeting regarding Xcel Energy's proposed change in spent fuel storage technology on October 5, 2021, in Red Wing, Minnesota. Approximately 15 persons attended this meeting; six persons provided public comments.<sup>9</sup> Comments addressed a range of topics including the type of technology that Xcel Energy might select for the project, licensing requirements, transportation of casks, and changes in spent nuclear fuel regulation since the 2009 Prairie Island EIS. The following evening, October 6, 2021, EERA staff held a virtual public meeting. Approximately 10 persons attended this meeting; two persons provided public comments.<sup>10</sup> Comments addressed coordination with the PIIC regarding Xcel Energy's proposal and the potential relicensing of the PINGP.

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<sup>6</sup> Minnesota Rule 4410.3000, Subp. 3.

<sup>7</sup> Minnesota Rule 4410.3000, Subp. 3.B.

<sup>8</sup> Minnesota Rule 4410.3000, Subp. 5; Notice of Scoping Meetings for Supplemental Environmental Impact Statement, September 14, 2021, eDockets Number, [20219-177940-01](#).

<sup>9</sup> Oral Public Meeting Comments on Scope of SEIS, eDockets Number [202110-179270-01](#).

<sup>10</sup> Id.

### ***Written Public Comments***

Following the public scoping meetings, written comments were received from the PIIC, the city of Red Wing, and three citizens.<sup>11</sup> The PIIC noted that there is a regulatory framework in place for the transportation of spent nuclear fuel. The PIIC recommended that the SEIS discuss the potential impacts associated with the transportation of spent nuclear fuel. The PIIC also recommended that the SEIS discuss a 2019 table-top spent fuel transportation exercise that was conducted at Prairie Island.

The city of Red Wing requested additional detail on the types of spent fuel storage technology that might be selected by Xcel Energy for the PINGP ISFSI. The city also requested additional information regarding the possible repackaging of any spent nuclear fuel at the PINGP. The city noted that a potential change in casks could impact tax revenues and the city's emergency response plan for the PINGP. The city also raised concerns regarding the planning, inspection, and maintenance necessary for long-term storage of spent nuclear fuel at the PINGP.

Several citizens requested additional information regarding the types of spent fuel storage technology that could be selected by Xcel Energy. Citizens also commented on licensing requirements, environmental justice, climate change, and long-term storage of spent nuclear fuel at the PINGP.

### ***Meeting with Prairie Island Indian Community***

In coordination with the PIIC, EERA staff held a community meeting with PIIC members on November 10, 2021. Approximately 10 persons attended this meeting in person with a similar number joining on-line; five community members provided comments.<sup>12</sup> Comments addressed several topics including the sealing of casks, cask transportation, potential impacts due to earthquakes and low temperatures, and the integrity of spent fuel rods.

Following the community meeting, written comments could be submitted to EERA staff through November 22, 2021. No written comments were received.

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Having reviewed the matter, consulted with EERA staff, and in accordance with Minnesota Rule 4410.3000, I hereby make the following scoping decision:

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<sup>11</sup> Written Public Comments on Scope of SEIS, eDockets Number [202110-179270-02](#).

<sup>12</sup> Oral Comments on Scope of SEIS, Prairie Island Indian Community Meeting, eDockets Number [202111-180174-01](#).

## MATTERS TO BE ADDRESSED

The issues outlined below will be analyzed in the SEIS for Xcel Energy's proposed change in spent fuel storage technology at the Prairie Island ISFSI. The analysis will be limited to impacts and mitigation measures related to Xcel Energy's proposed change that were not addressed in the 2009 Prairie Island EIS.

### **I. GENERAL DESCRIPTION OF THE PROJECT**

- A. Project Description
- B. Project Purpose
- C. Project Costs

### **II. REGULATORY FRAMEWORK**

- A. Federal Approvals
  - 1. Licensing of spent fuel storage technology
  - 2. Licensing for spent fuel transportation
- B. State Approvals
  - 1. Requirement for casks to facilitate storage and transportation, Minnesota Statutes § 116C.776.
- C. Local Approvals

### **III. ENGINEERING, DESIGN, AND CONSTRUCTION**

- A. Cask and Canister Systems for Spent Fuel Storage
  - 1. The types of spent fuel storage technology that could be selected by Xcel Energy for the project.
- B. Cask and Canister Handling
- C. Cask and Canister Monitoring
- D. Readiness of Casks and Canisters for Transportation
- E. Prairie Island Independent Spent Fuel Storage Installation

### **IV. POTENTIAL IMPACTS AND MITIGATIVE MEASURES – NON-RADIOLOGICAL**

The SEIS will include a discussion of human and environmental resources potentially impacted by the project. The SEIS will discuss potential non-radiological impacts related to the proposed change in spent fuel storage technology.

- A. Environmental Setting
- B. Human Environment
  - 1. Tax revenues
- C. Natural Environment

### **V. POTENTIAL IMPACTS AND MITIGATION MEASURES – RADIOLOGICAL**

The SEIS will discuss potential radiological impacts related to the proposed change in spent fuel storage technology.

- A. Natural Background Radiation and Radiation Exposure

- B. Potential Impacts to the Public
  - 1. Emergency response plan
  - 2. Climate change impacts on casks
- C. Potential Impacts to Workers
- D. Environmental Justice

**VI. TRANSPORTATION OF SPENT NUCLEAR FUEL**

The SEIS will discuss the regulatory framework for transportation of spent nuclear fuel in the United States. Potential impacts associated with the transportation of spent nuclear fuel will be discussed through reference to existing studies.

- A. 2019 Table-Top Transportation Exercise at Prairie Island

**VII. LONG-TERM STORAGE OF SPENT NUCLEAR FUEL**

- A. Changes in Spent Fuel Storage Regulation Since the 2009 Prairie Island EIS
- B. Funding for Long-Term Storage of Spent Nuclear Fuel at the PINGP

**VIII. DATA AND ANALYSIS**

Data and analysis in the SEIS will be commensurate with the importance of potential impacts and the relevance of the information to consideration of the need for mitigation measures.<sup>13</sup> EERA staff will consider the relationship between the cost of data and analyses and the relevance and importance of the information in determining the level of detail of information to be prepared for the SEIS.

If relevant information cannot be obtained within timelines prescribed by statute and rule, or if the costs of obtaining such information is excessive, or the means to obtain it is not known, EERA staff will include in the SEIS a statement that such information is incomplete or unavailable and the relevance of the information in evaluating potential impacts.<sup>14</sup>

**IX. ALTERNATIVE SITES TO BE EVALUATED**

The SEIS will evaluate the storage of spent nuclear fuel at the PINGP ISFSI. No other sites will be evaluated in the SEIS.

**X. STUDIES TO BE UNDERTAKEN**

No studies will be undertaken in preparation of the SEIS.

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<sup>13</sup> Minnesota Rule 4410.2300.

<sup>14</sup> Minnesota Rule 4410.2500.

### ISSUES OUTSIDE THE SCOPE OF THE SEIS

The SEIS will not address the following topics:

- A. Potential Impacts and mitigation measures that are addressed in the 2009 Prairie Island EIS.
- B. Potential impacts associated with operation of the PINGP.
- C. The appropriateness of NRC regulations for spent nuclear fuel storage technology.
- D. Potential impacts associated with the nuclear fuel cycle.
- A. The appropriateness of NRC regulations and standards for radiation exposure. The SEIS may reference certain standards promulgated by the NRC; however, the SEIS will not address the adequacy of these standards.

### SCHEDULE

A draft SEIS is anticipated to be completed and available in February 2022. A public meeting and comment period on the draft SEIS will follow. Timely and substantive comments on the draft SEIS will be responded to in a final SEIS. The final SEIS is anticipated to be available in April 2022.

Signed this 7<sup>th</sup> day of December, 2021

STATE OF MINNESOTA  
DEPARTMENT OF COMMERCE



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Katherine Blauvelt, Assistant Commissioner

## **CERTIFICATE OF SERVICE**

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce  
Notice of Preparation of a Supplemental Environmental Impact Statement**

**Docket No. E002/CN-08-510**

Dated this 7<sup>th</sup> day of **December 2021**

**/s/Sharon Ferguson**

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