BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, Minnesota 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
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In the Matter of the Application of Xcel Energy for a Certificate of Need for Additional Dry Cask Storage at the Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation

OAH Docket No. 25-2500-39971
MPUC Docket No. E-002/CN-24-68

STIPULATED PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS

May 14, 2025

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STATE OF MINNESOTA
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APPEARANCES

This matter came before Administrative Law Judge Megan J. McKenzie for an informal conference held by videoconference on Thursday, April 17, 2025. The parties requested a conference in lieu of an evidentiary hearing because the matters in dispute were resolved through the filing of surrebuttal testimony. During the conference the parties discussed the final details regarding completing the record in this matter and the submission of Stipulated Proposed Findings of Fact and Conclusions of Law.

Eric F. Swanson, Elizabeth H. Schmiesing, and Christopher J. Cerny, Winthrop & Weinstine, P.A., and Riley Conlin, Principal Attorney, appeared on behalf of the Applicant, Northern States Power Company d/b/a Xcel Energy (Applicant, the Company, or Xcel Energy).

Katherine Arnold, Richard Dornfeld and Amrit Hundal, Assistant Attorneys General, appeared on behalf of the Division of Energy Resources and the Energy Environmental Review and Analysis Unit of the Minnesota Department of Commerce (the Department).

Craig Janezich, Energy Facilities Permitting Unit, appeared on behalf of the staff of the Minnesota Public Utilities Commission (Commission Staff).

STATEMENT OF ISSUES

1. Is the final environmental impact statement (final EIS) prepared by the Department of Commerce – Energy Environmental Review and Analysis (DOC-EERA) section adequate under the criteria established under Minn. R. 4410.2800?

2. Has Xcel Energy satisfied the requirements of Minn. Stat. § 116C.83 and Minn. Stat. § 216B.243, the criteria set forth in Minn. R. 7855.0120, and other applicable

legal requirements for a Certificate of Need for Additional Dry Cask Storage at the Prairie Island Nuclear Generating Plant (Prairie Island Plant or Plant) Independent Spent Fuel Storage Installation (ISFSI) in Goodhue County?

SUMMARY OF CONCLUSION

1. The Administrative Law Judge concludes that the final EIS prepared by DOC-EERA satisfies the criteria set forth in Minn. R. 4410.2800. Therefore, the Administrative Law Judge respectfully recommends the Commission find the final EIS adequate.

2. The Administrative Law Judge concludes that Xcel Energy has satisfied the criteria set forth under Minnesota law for a Certificate of Need for Additional Dry Cask Storage at the Prairie Island Plant ISFSI in Goodhue County. Therefore, the Administrative Law Judge respectfully recommends the Commission grant Xcel Energy's Application for a Certificate of Need.

Based on information in the Certificate of Need Application submitted by Xcel Energy, the final EIS prepared by the DOC-EERA, information presented during the public hearings, testimony and evidence admitted to the record in this proceeding, and other evidence in the record, the Administrative Law Judge makes the following:

FINDINGS OF FACT

I. INTRODUCTION

A. Procedural Background

1. On February 7, 2024, Xcel Energy (Xcel Energy, Company or Applicant) filed an Application for a Certificate of Need (CN) for additional dry cask spent fuel storage at the Prairie Island Nuclear Generating Plant (Prairie Island Plant or Plant) to facilitate continued operation of the Prairie Island Plant until 2053/54 (Application).[1]

2. On February 16, 2024, the Minnesota Public Utilities Commission (Commission) issued a notice to potentially interested parties requesting comments on six questions: (1) does the certificate of need application contain the information required under Minnesota Rules 7855.0230 to 7855.0280 and 7855.0600 to 7855.0670; (2) are there any contested issues of fact with respect to the representations made in the application; (3) should the application be evaluated using the Commission's informal process or referred to the Office of Administrative Hearings for contested case proceedings; (4) what are the implications, if any, on the timing and procedures to be used in processing this application in relation to Xcel Energy's pending 2024-2054 Upper Midwest Integrated Resource Plan in Docket No. E002/RP-24-67; (5) should the Commission direct the Executive Secretary to issue an authorization to the applicant to initiate consultation with the Minnesota State Historic Preservation Office (SHPO); and (6) are there any other issues or concerns related to this matter.

3. By March 8, 2024, Initial Comments were received from:

- Minnesota Department of Commerce, Division of Energy Resources (DOC-DER or the Department);[2]
- DOC-EERA;[3] and
- Communities United for Responsible Energy (CURE).[4]

[1] Ex. XE-100 (Initial Filing).
[2] Ex. DOC-201 (Comments of the Minnesota Department of Commerce, Division of Energy Resources).
[3] Ex. DOC-200 (Comments of the Minnesota Department of Commerce, Energy Environmental Review and Analysis).
[4] Comments of Communities United for Responsible Energy (CURE) (Mar. 8, 2024) (eDocket No. 20243-204191-01).

4. By March 15, Reply Comments were received from:

   - Xcel Energy.[5]

5. On March 20, 2024, the Department provided Supplemental Comments.[6]

6. On April 8, 2024, CURE provided additional comments after the close of the comment period.[7]

7. On May 2, 2024, the Commission issued an Order accepting the Company's Application as substantially complete and referred the matter to the Office of Administrative Hearings (OAH) for a contested case proceeding.[8]

8. Because the Commission is the responsible governmental unit for the environmental review of CN applications for spent nuclear fuel storage it must prepare an EIS.[9] Consistent with this responsibility, on February 29, 2024, DOC-EERA staff notified the Commission that it would prepare an EIS for Xcel Energy's CN Application on behalf of the Commission.[10]

9. The initial parties, and ultimately the only parties, to the contested case proceeding were Xcel Energy and the Department.[11]

10. On June 3, 2024, the Administrative Law Judge (ALJ) Megan J. McKenzie issued the First Prehearing Order and established the following schedule of proceedings:[12]

Event	Due Date
Deadline for Submission of Proposed Protective Order	July 31, 2025
Deadline for Direct Testimony	February 10, 2025
Deadline for Rebuttal Testimony	Monday, March 17, 2025

[5] Ex. XE-101 (Reply Comments).
[6] Ex. DOC-202 (Supplemental Comments of the Minnesota Department of Commerce, Division of Energy Resources).
[7] Comments of CURE (Apr. 8, 2024) (eDocket No. 20244-205057-01).
[8] Ex. PUC-302(Order Accepting Application).
[9] Minn. Stat. § 116C.83, subd. 6(b).
[10] Ex. DOC-200 (Minnesota Department of Commerce, Energy Environmental Review and Analysis Certificate of Need Application Comments).
[11] Ex. PUC-302 at 6 (Order Accepting Application).
[12] FIRST PREHEARING ORDER (June 3, 2024) (eDocket No. 20246-207332-01).

Event	Due Date
Deadline for Surrebuttal Testimony	Monday, March 31, 2025
All Parties File Final Witness List and Exhibit List	Thursday, April 17, 2025
Evidentiary Hearing	Tuesday and Wednesday, April 22-23, 2025
Initial Brief and Applicant's Proposed Findings of Facts	Wednesday, May 7, 2025
Reply Brief and Responding Parties' Proposed Findings of Fact	Wednesday, May 21, 2025
ALJ Report Issued	Tuesday, July 1, 2025

11. On February 10, 2025, the Company and the Department filed Direct Testimony.[13]

12. On March 10, 2025, the Commission issued a notice of public hearings for the public to provide their input on whether the final EIS is adequate; whether the Commission should grant a CN to the Company for additional dry cask storage at the Prairie Island Plant; and what additional conditions or requirements should be considered for inclusion in the CN if granted.[14]

13. On March 17, 2025, the Company filed Rebuttal Testimony.[15]

14. Public hearings were held virtually on March 24, 2025 and in-person at the Red Wing Ignite Building in Red Wing, Minnesota on March 25, 2025.[16]

15. On March 31, 2025, the Department filed Surrebuttal Testimony.[17]

[13] Exs. XE-104 (Filing Letter for Direct Testimony), XE-105 (Krug Direct), XE-106 (Prochaska Direct), XE-107 (Shaw Direct), XE-108 (Bergland Direct), XE-109 (Hobbs Direct), XE-110 (Peterson Direct); DOC-244 (Dietz Direct), DOC-245 (Rakow Direct), DOC-246 (Shah Direct), DOC-247 (Zwick Direct).
[14] Ex. PUC-305 (Notice of Public Hearing).
[15] Exs. XE-112 (Rebuttal Cover Letter), XE-113 (Krug Rebuttal), XE-114 (Shaw Rebuttal), XE-115 (Standing Rebuttal).
[16] Ex. PUC-305 (Notice of Public Hearing).
[17] Exs. DOC-252 (Rakow Surrebuttal), DOC-253 (Zwick Surrebuttal).

16. On April 18, 2025, based upon the submissions of the parties, the contents of the hearing record, and the parties' agreement regarding the Company's CN Application, the ALJ issued an Order cancelling the evidentiary hearing, ordering the parties to file a Stipulation as to the admission of exhibits, and ordering the parties to file Stipulated Findings of Fact and Conclusions of Law.[18]

17. On April 30, 2025, the ALJ issued an Order admitting the exhibits listed on the Master Exhibit List.[19]

18. On May 14, 2025, the parties filed a Revised Master Exhibit List.[20]

19. On May XX, 2025, the ALJ issued an Order admitting the exhibits listed on the Revised Master Exhibit List.[21]

II. ENVIRONMENTAL REVIEW

20. On April 9, 2024, DOC-EERA issued a notice of Environmental Impact Statement (EIS) scoping meetings and the availability of the scoping Environmental Assessment Worksheet (EAW).[22] DOC-EERA also made its Draft Scoping Decision document available on that date.[23]

21. Public scoping meetings for the EIS were held virtually on Wednesday, April 24, 2024, and in-person at the Red Wing Ignite Building in Red Wing, Minnesota on Thursday, April 25, 2024.[24]

22. One oral comment was received from the public during the virtual EIS scoping public meeting. That commenter referenced information that she contended should be included in the record; commented on additional generation alternatives; commented that cost information should be addressed in the EIS; commented on alternative storage options; commented that the Plant's emergency plan should be provided in the record; commented on a cable-cut incident at the Plant that resulted

[18] ORDER, (Apr. 18, 2025)(eDocket No. 20254-217904-01).**]**
[19] ORDER ADMITTING EXHIBITS (Apr. 30, 2025) (eDocket No. 20254-218405-01).
[20] Stipulation as to Entry of Exhibits and Order and Attachment (May 14, 2025) (Stipulation eDocket No. 20255-218950-01; Attachment A eDocket No. 20255-218950-02).
[21] ORDER ADMITTING EXHIBITS (May XX, 2025) (eDocket No. XXXXXX).
[22] Ex. DOC-208 (Scoping Notice).
[23] Ex. DOC-204 (Draft Scoping Decision).
[24] Ex. DOC-208 at 1 (Scoping Notice).

in an outage; and commented that the maps included in the Application should cover a broader geographic area.[25]

23. Three oral comments were received from the public during the in-person EIS scoping public meeting in Red Wing:

- The first commenter also provided comments at the virtual meeting. In addition to following up on many of the same comments, this commentor stated that socioeconomic issues should be addressed in the EIS; that the leave behind study included in the Application should be addressed in the EIS; contended that the Company's engagement with the Red Wing City Council constituted promotional activity that should be addressed by the Commission; and raised questions about the impact of the Integrated Resource Plan (IRP) on the CN. This commentor also submitted a number of written materials in connection with those comments.[26]

- The second commenter stated that the Application for the CN should not be considered until the license has been extended; expressed concern about the possibility of an accident and referenced a cable-cut incident at the Plant; commented that the scope should consider a more broad scope of impacts from radiation, including mining of uranium in other states; and expressed general opposition to the expansion of the ISFSI.[27]

- The third commenter commented on the potential for nuclear reprocessing facilities to be built and expressed a preference for other alternatives to the Project.[28]

24. On April 25, 2024, a commenter provided a written comment generally supporting continued operation of the Plant.[29]

25. On May 2, 2024, Goodhue County (County) submitted comments stating that Xcel Energy has been an outstanding private partner to the County and that it supports continued Plant operation. The County commented that the scope of the EIS should

[25] Ex. DOC-215, April 24, 2024 Transcript at 13-25 (EIS Scoping Public Meeting Transcripts).
[26] Ex. DOC-215 April 25, 2024 Transcript at 11-16 (EIS Scoping Public Meeting Transcripts); Ex. DOC-217 (Public Comments Submitted at EIS Scoping Meeting).
[27] Ex. DOC-215 April 25, 2024 Transcript at 18-24 (EIS Scoping Public Meeting Transcripts).
[28] Ex. DOC-215 April 25, 2024 Transcript at 25-26 (EIS Scoping Public Meeting Transcripts).
[29] Ex. DOC-216 (Written Public Comments – EIS Scoping).

include the socioeconomic impacts of prolonged spent fuel storage and how a revision of the utility property assessment could address those impacts.[30]

26. On May 9, 2024, the Minnesota Pollution Control Agency (MPCA) submitted comments stating that it reviewed the scoping EAW and did not have comments at the time.[31]

27. An additional written public comment was submitted that provided documents related to the 2009 Certificate of Need consideration in Docket No. CN-08-510. That commenter also commented that the scope of the EIS should discuss temporary versus long-term storage of spent nuclear fuel at the Plant; the Plant's emergency plan; alternatives for ongoing oversight of spent fuel storage at the Plant; and the impacts of climate change on long-term storage of spent nuclear fuel at the Plant.[32]

28. On June 14, 2024, the Company filed the Plant Emergency Plans in the docket in response to comments on the scope of the EIS.[33]

29. On July 11, 2024, DOC-EERA issued its EIS Scoping Decision (Scoping Decision) and established the issues to be analyzed in the EIS.[34]

30. On October 31, 2024, DOC-EERA issued a notice of the availability of the draft EIS and information for public meetings regarding the same.[35]

31. Public informational meetings regarding the draft EIS were held in-person at the Red Wing Ignite Building in Red Wing, Minnesota on Tuesday, November 19, 2024, and virtually on Wednesday, November 20, 2024.[36]

32. Three oral comments were received from the public during the in person draft EIS public informational meeting:

- The first commenter, a representative of organized labor, expressed support for the Project and stated that the Project was "a great idea."[37]

[30] Ex. DOC-216 (Written Public Comments – EIS Scoping).
[31] Ex. DOC-216 (Written Public Comments – EIS Scoping).
[32] Ex. DOC-218 (Public Comment on EIS Scope).
[33] Ex. XE-102 (PINGP Emergency Plans).
[34] Ex. DOC-219 (Final EIS Scoping Decision).
[35] Exs. DOC-221 (Draft EIS Availability In EQB Monitor), DOC-232 (Corrected EQB Monitor Notice of Draft EIS Availability and Public Meetings).
[36] Exs. DOC-221 (Draft EIS Availability In EQB Monitor), DOC-232 (Corrected EQB Monitor Notice of Draft EIS Availability and Public Meetings).
[37] Ex. DOC-236 at 9-10 (Oral Comments on Draft EIS).

- The second commenter asked a question regarding the costs and safety features associated with the change in cask technology; expressed support for the additional storage of spent nuclear fuel and continued operation of the Plant; and urged a lift of the statewide moratorium on development of nuclear generation.[38]

- The third commenter, a member of organized labor, expressed support for the continued operation of the plant.[39]

33. One oral comment was received from the public during the virtual draft EIS public informational meeting. The commenter raised questions about the discussion of the eventual transport of spent nuclear fuel; the impacts of climate change; and the potential for floodplain change in the draft EIS.[40]

34. On December 2, 2024, the MPCA submitted written comments on the draft EIS and indicated that it had no comments.[41]

35. On December 6, 2024, the Prairie Island Indian Community (PIIC) submitted comments on the draft EIS. PIIC commented that the final EIS should provide additional information regarding the difference between a site-specific and general ISFSI license from the Nuclear Regulatory Commission (NRC); elaborate on certain issues with respect to transport of spent nuclear fuel; provide some correction and clarification regarding the location of residences close to the ISFSI; include mitigation related to construction traffic; revise its description of payments made by the Company to PIIC; include a specific analysis of radiological monitoring information; consider the mental, emotional, and spiritual components of human health as well as physical health; address the potential for impacts from a derailment on a nearby railroad transporting flammable or hazardous cargo; include information from the federal Department of Energy regarding the safety and reliability of transporting spent nuclear fuel; include more recent data on fish kills near the Plant; analyze the Plant's National Pollution Discharge Elimination System permit; and include an analysis of the Company's next triennial Decommissioning Report in December 2024. The PIIC also discusses the draft EIS's consideration of potential radiological impacts on human health and emphasizes the importance of ensuring compliance with federal regulations and standards. PIIC states its appreciation for the Department's recognition of the unique burden borne by PIIC with respect to the ongoing storage of spent nuclear fuel at the Plant and expresses skepticism as to the availability of a permanent repository for spent nuclear fuel

[38] Ex. DOC-236 at 10-11 (Oral Comments on Draft EIS).
[39] Ex. DOC-236 at 12 (Oral Comments on Draft EIS).
[40] Ex. DOC-236 at 27-29 (Oral Comments on Draft EIS).
[41] Ex. DOC-235 at 2 (Written Public Comments on Draft EIS).

within the next 60 years. Finally, the PIIC agrees with the draft EIS's statement that alternatives to additional onsite storage of spent nuclear fuel are not viable.[42]

36. Eight additional public written comments were received regarding the draft EIS:[43]

- The first comment expressed that tribal members should be paid an extremely large amount of money in compensation for environmental damage associated with the spent nuclear waste storage.

- The second comment expressed that the decision as to whether additional spent nuclear storage should be allowed at the Plant should be left to the PIIC.

- The third comment expressed strong opposition to any expansion of spent nuclear fuel storage on health and safety grounds.

- The fourth comment expressed opposition to any expansion of spent nuclear fuel storage on environmental, health and safety grounds, and recommended consideration of Traditional Ecological Knowledge in connection with the decision.

- The fifth comment expressed that an expansion of spent nuclear fuel storage poses risks to the PIIC, especially its future and youth.

- The sixth comment expressed that expansion of spent nuclear fuel storage increases the chance that storage of spent nuclear fuel will be permanent and that a nuclear disaster would severely negatively impact the PIIC people's land in the future.

- The seventh comment asked for additional explanation as to the Company's agreement with the PIIC and a potential agreement with the City of Red Wing; takes issue with the use of certain language in the draft EIS regarding the need for the Project; comments on the use of the word "minimal" to describe certain impacts of the Project; takes issue with the characterization of utility personal property tax as "stable"; comments that the EIS should address risk and potential for liquid releases of radioactive material into the Mississippi River; states that additional information should be considered in connection with assessment of radiological impacts; and provides documentation in support of the comments.[44]

[42] Ex. DOC-235 at 4-11 (Written Public Comments on Draft EIS).
[43] Ex. DOC-235 (Written Public Comments on Draft EIS).
[44] *See also* Ex. DOC-233 (Comments of CURE on Draft EIS).

- The eighth comment states that the draft EIS provides insufficient documentation to support a conclusion of no or minimal impacts; recommends additional consultation with environmental quality board personnel; recommends additional review of the 2009 Supplement EIS related to spent fuel storage at Prairie Island and incorporation of Chapter 7 in the 2022 supplement to the 2009 EIS; recommends consideration of a combined cycle modular gas turbine conversion of the Plant that was considered in 2009; asks whether Xcel Energy submitted a draft EIS document and for an explanation of how any such document was used in the preparation of the draft EIS; and provides documentation in support of the comments.

37. An additional comment filed in e-Dockets expressed that the draft EIS was complete and accurate and adequately analyzes the human and environmental impacts of the proposed additional spent fuel storage.[45]

38. On February 7, 2025, DOC-EERA submitted the final EIS.[46]

39. On February 11, 2025, the Notice of Availability of the final EIS was published in the EQB Monitor.[47]

40. On March 3, 2025, the Commission requested an extension of time to determine the adequacy of the final EIS established by Minn. R. 4410.2800, subd. 3.[48]

41. On March 5, 2025, the MPCA submitted comments on the final EIS indicating that it had no comments.[49]

42. On March 7, 2025, the Company agreed to extend the time for the Commission's determination of adequacy for the final EIS until September 18, 2025.[50]

43. On March 10, 2025, the Commission issued a Notice of Public and Evidentiary Hearings and Availability of final EIS.[51]

44. On April 7, 2025, the PIIC submitted a comment proposing two record corrections with respect to the final EIS, first with respect to the timing of the Company's

[45] Ex. DOC-234 (Comments of IUOE Local 49 and NCSRC of Carpenters on Draft EIS).
[46] Ex. DOC-237 (Final EIS).
[47] Ex. DOC-248 at 2 (Final EIS Availability, EQB Monitor).
[48] Ex. PUC-304 (PUC Extension Request for EIS Adequacy Determination).
[49] Ex. DOC-251 (Minnesota Pollution Control Agency Comments on Final EIS).
[50] Ex. XE-111 (Response to PUC Extension Request for EIS Adequacy Determination).
[51] Ex. PUC-305 (Notice of Public Hearing).

subsequent license renewal application with the NRC and second with respect to the number of casks in place at the ISFSI.[52]

45. On April 11, 2025, the PINGP Study Group (Group) submitted a comment recommending a finding that the final EIS is inadequate because the commenter disagrees with certain assumptions used in the final EIS; the final EIS considered restricted information; the final EIS's alternatives analysis was improperly restricted; and the final EIS lacks discussion of mitigation.[53]

III. SUMMARY OF PUBLIC COMMENTS

46. Public comments were received at various stages of these proceedings, in addition to the comments from governmental entities discussed in the Procedural History and Environmental Review.

47. On March 26, 2025, the Minnesota Land and Liberty Coalition submitted a comment supporting the issuance of a CN.[54]

48. On April 11, 2025, the Group submitted a comment opposing approval of the CN because the storage of spent nuclear fuel at the Plant is likely to be permanent; raising environmental justice concerns; and expressing the commentor's dissatisfaction with the transfer of responsibility for spent nuclear waste matters from the environmental quality board.[55]

49. One question was raised by a member of the public during the virtual public hearing held on March 24, 2025.[56] The commentor asked about monitoring of the spent nuclear fuel 100 years in the future.

50. Five public comments were received at the public hearing held on March 25, 2025 at the Red Wing Ignite Building in Red Wing, Minnesota:

- The first commenter expressed some skepticism regarding the need for power and raised questions regarding the location of transmission as compared to the location of generation. That commentor asked additional questions about the number of casks on site; whether seals had been replaced on any casks; the status of Department of Energy funding for nuclear spent

[52] Ex. DOC-254 (Prairie Island Indian Community Comments on Final EIS).
[53] PINGP Study Group Comments (Apr. 11, 2025) (eDocket No. 20254-217494-01).
[54] Minnesota Land & Liberty Coalition Public Comment (Mar. 26, 2025) (eDocket No. 20253-216833-01).
[55] PINGP Study Group Comments (Apr. 11, 2025) (eDocket No. 20254-217494-01).
[56] Virtual Public Hearing Transcript at 17 (Mar. 24, 2025) (eDocket No. 20255-218846-01).

fuel storage; whether a natural gas replacement option was still under consideration; and health impacts from the ISFSI and Plant.[57]

- The second commentor expressed dissatisfaction with the amount of renewable energy (specifically solar) that had been developed by the Company and expressed strong concern about the generation of additional waste from the Plant.[58]

- The third commentor asked about the total number of casks that would be stored at the Plant, about funding for future cask replacement, and when the first casks were placed at the Plant. This commentor expressed concerns about institutional control and long-term maintenance. This commentor also asked whether the Commission's decision on the IRP had predetermined the outcome of the CN and how the scope of the alternatives analysis in the EIS was determined.[59]

- The fourth commentor asked whether the EIS addressed continued operation of the Plant, about the EIS's consideration of costs of various types of resources, about the EIS's analysis of radiological impacts, and whether the EIS considered the impacts of mining additional uranium. This commentor expressed opposition to granting of the CN and also expressed concerns with the IRP process in Minnesota.[60]

- The fifth commentor asked about the potential to have to transfer spent fuel to new casks as a result of aging casks.[61]

IV. THE PRAIRIE ISLAND NUCLEAR GENERATING PLANT AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION

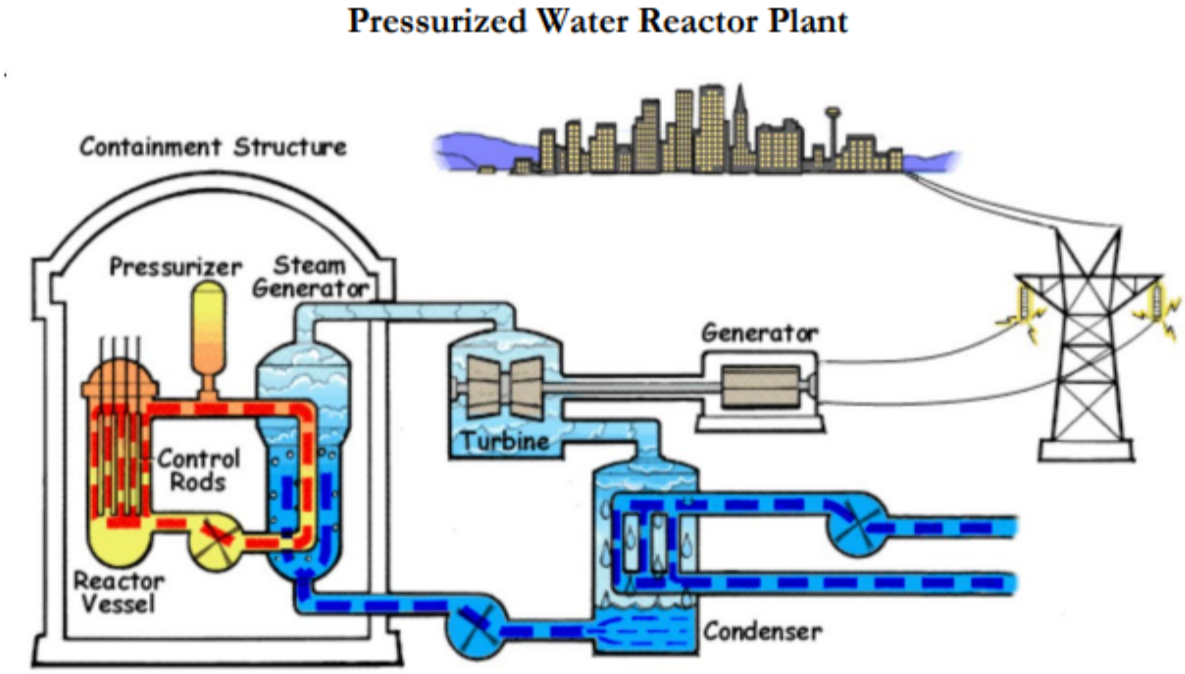
A. Overview of Prairie Island Plant

51. The Prairie Island Plant is a dual-unit, approximately 1,100-megawatt (MW), nuclear powered, electric generating station using two pressurized water reactors, located in Red Wing, Minnesota. In a pressurized water reactor, such as those at the Prairie Island Plant, pressurized water carries the heat generated by the reactors to the steam generators to produce steam, which is then directed to turbine generators

[57] Red Wing Public Hearing Transcript (Red Wing Tr.) at 16-19, 42-48 (Mar. 25, 2025) (eDocket No. 20255-218846-02).
[58] Red Wing Tr. at 19-22, 48-49 (Mar. 25, 2025).
[59] Red Wing Tr. at 22-29, 49-51 (Mar. 25, 2025).
[60] Red Wing Tr. at 29-37, 51-54 (Mar. 25, 2025).
[61] Red Wing Tr. at 37-42 (Mar. 25, 2025).

to produce electrical power. The steam is cooled in a condenser and returned to the steam generators.[62]

52. The Company provided the following figure illustrating the process:[63]



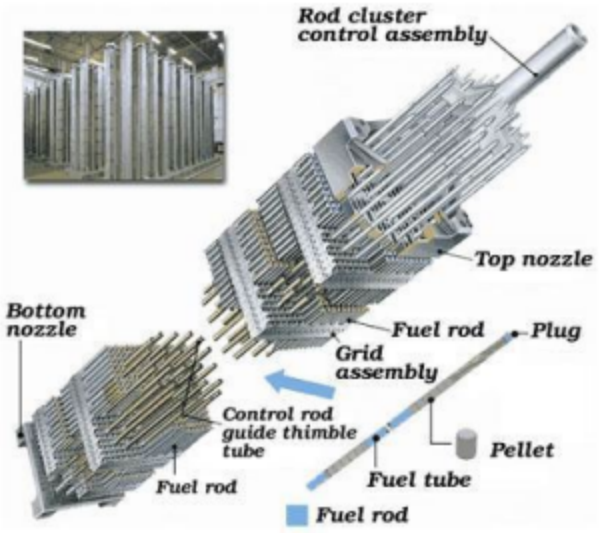
53. The reactor core is made up of 121 fuel assemblies. Each fuel assembly is arranged in a square with 14 rod locations per side. This arrangement provides a total of 196 rod locations per assembly. Of the 196 rod locations, 179 locations are occupied by fuel rods, 16 locations are occupied by control rods which are used to control power, and the remaining location is occupied by incore nuclear instrumentation which monitors power. Each fuel assembly contains a top nozzle, a bottom nozzle, and seven grid assemblies. Fuel rods consist of high-density ceramic uranium dioxide fuel pellets, each about the size of a thimble, stacked in a tube made of a special alloy called Zircaloy. The air in the filled tube is evacuated, helium (an inert gas) is backfilled, and the fuel rod is sealed by welding in Zircaloy plugs at each end. Fuel assemblies also contain spacers, springs, and other components. A Zircaloy guide thimble holds the top and bottom nozzles in place and provides guide channels for the insertion and withdrawal of the control rods. The guide thimble also permits control of coolant flow, and provides mechanical support and protection during fuel handling operations. Fuel rods are supported axially and laterally by seven grid

[62] Ex. XE-106 at 5-6 (Prochaska Direct).
[63] Ex. XE-106 at 7 (Prochaska Direct).

assemblies spaced at set intervals. The grid assemblies allow axial thermal expansion of the fuel rods without causing fuel distortion.[64]

54. The Company provided the following figure illustrating a fuel assembly and a fuel rod:[65]

Fuel Assembly



55. A fission reaction between two particles creates heat. A neutron collides with a Uranium-235 atom in a fuel pellet. That extra neutron creates unstable Uranium-235 isotopes, which split almost instantly. The splitting of Uranium-235 atoms, or fission, produces heat, and also produces neutrons, which continue the process by colliding with other Uranium-235 atoms. This process results in a chain reaction. Nuclear engineers carefully monitor and control the reaction within the core. To temper the reaction, control rods absorb excess neutrons.[66]

56. 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, the Company shuts down each reactor for refueling. Prairie Island Units 1 and 2 are refueled in alternate years. During each refueling operation, approximately 40 percent of the fuel assemblies in the reactor core are replaced with new assemblies. Spent fuel is first placed in the Plant's spent fuel pool, and then

[64] Ex. XE-106 at 7-8 (Prochaska Direct).
[65] Ex. XE-106 at 8 (Prochaska Direct).
[66] Ex. XE-106 at 8-9 (Prochaska Direct).

later is transferred to dry fuel storage (DFS) systems and the ISFSI for longer-term storage.[67]

57. The spent fuel pool is a water-filled repository located within the fuel pool enclosure in the auxiliary building at the Plant. It is filled with storage racks that hold spent fuel assemblies and other irradiated reactor components. The water in the pool has a depth of 37 feet, nine inches. The pool is equipped with redundant cooling systems to remove the heat that the assemblies continue to generate, and filtration systems that maintain the pool water chemistry and remove suspended particles. In addition to its cooling function, the water in the pool also provides shielding from radiation.[68]

58. The Company does not store spent fuel in the spent fuel pool indefinitely. The Company eventually transfers spent fuel assemblies to the ISFSI for storage in DFS systems.[69]

B. Overview of Independent Spent Fuel Storage Installation

59. The ISFSI is an approximately 720-foot long, 340-foot wide, five and a half acre area of the Plant where the Company stores spent fuel in DFS systems (currently TN-40/40HT DFS systems) on a reinforced concrete pad. The ISFSI is surrounded by two fences with a monitored clear zone between them. The ISFSI and the storage vaults within are monitored with cameras, other security devices, and temperature sensors.[70]

60. Spent fuel assemblies are transferred to the ISFSI in a multi-stage process that takes approximately one week. First, a steel canister within a steel transfer cask is placed into the spent fuel pool. Then, the spent fuel assemblies are placed into the canister, and the transfer cask containing the canister is removed from the pool. Next, the canister is dried out, air is removed and replaced with helium, and the canister is welded shut. Finally, the transfer cask is transported to the ISFSI where the canister is removed and placed inside the storage module.[71]

61. As of January 17, 2025, 3,061 spent fuel assemblies have been discharged from the Plant's reactors. 981 spent fuel assemblies are currently stored in the spent fuel pool and 2,080 spent fuel assemblies are stored in the ISFSI.[72]

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[67] Ex. XE-106 at 9 (Prochaska Direct).
[68] Ex. XE-106 at 19 (Prochaska Direct).
[69] Ex. XE-106 at 19 (Prochaska Direct).
[70] Ex. XE-106 at 20 (Prochaska Direct).
[71] Ex. XE-106 at 21 (Prochaska Direct).
[72] Ex. XE-106 at 22 (Prochaska Direct).

C. The Prairie Island Plant's Role in Energy Supply to Minnesota and the Region

62. 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 its 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. 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.[73]

63. The Prairie Island Plant is expected to provide financial and reliability benefits to customers in the future. Company witness Mr. Krug explained that 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.[74] Further, the Plant's fuel source provides a hedge against changes in other generation resource availability and fossil fuel prices.[75]

64. Mr. Krug further explained that 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.[76]

D. Current Licensure Status

65. The NRC regulates the operation of nuclear power plants. It granted the Prairie Island Plant its initial 40-year license in 1973/74, 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.[77]

66. Xcel Energy plans to file an application with the NRC in 2026 to renew the operating licenses for the Prairie Island Plant for an additional 20 years. With such an extension, the Plant would be licensed until 2053/54. The Company anticipates receiving an approved Subsequent License Renewal (SLR) application in 2028 because the NRC review process typically occurs over an 18- to 24-month period.

[73] Ex. XE-105 at 3-4 (Krug Direct).
[74] The Plant's capacity factor was reduced by an unscheduled outage that began in October 2023. That outage is being addressed in other dockets.
[75] Ex. XE-105 at 5-6 (Krug Direct).
[76] Ex. XE-105 at 6 (Krug Direct).
[77] Ex. XE-106 at 9-10 (Prochaska Direct).

This timeline ensures the Company can address any required outage inspections during the four years prior to the operating period of subsequent license renewal.[78]

67. As part of the SLR process, the NRC will impose additional regulatory requirements to further extend the life of the Plant, including all of the requirements imposed during the first 40 years of operation and also include new equipment evaluations and equipment replacement frequencies to mitigate the effects of aging. Company witness Ms. Pamela Prochaska explained that the Company has made investments over the last decade plus that will significantly mitigate the scope of future investments that Xcel Energy will need to make to relicense the Plant, however the Prairie Island Plant may nevertheless require additional modifications to meet future best practices and other needs.[79]

68. One such component of the additional evaluations and replacements is the implementation of Aging Management Programs (AMPs). Company witness Ms. Prochaska explained that Xcel Energy already implements a number of AMPs. These AMPs manage the aging effects for certain mechanical, electrical, and structural components to maintain those intended functions that operators rely upon during and following design-basis events and specific safety analysis. The Company expects that most of the existing AMPs will need only minor changes to achieve full compliance with NRC guidance, and that some additional AMPs may be implemented.[80]

E. Need to Expand Storage to Operate Beyond Current License

69. The Company analyzed the potential life extension of the Prairie Island Plant as part of its analysis of various resource portfolios in the Company's 2024 IRP Docket, Docket No. E-002/RP-24-67. Company witness Mr. Krug explained that the Company's resource planning analyses in that docket determined 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 when environmental externalities are considered, supports achievement of the Company's carbon reduction goals and ensures that the Company maintains a robust share of firm and/or dispatchable generation relative to peak load across seasons, and results in expected savings for Company customers.[81]

[78] Ex. XE-106 at 10, 31-32 (Prochaska Direct).
[79] Ex. XE-106 at 32 (Prochaska Direct).
[80] Ex. XE-106 at 32-33 (Prochaska Direct).
[81] Ex. XE-105 at 9-10 (Krug Direct).

70. The Commission's Order in the Company's IRP Docket permitted Xcel Energy to pursue extending the operating life of the Prairie Island Plant by 20 years.[82]

71. Company witness Mr. Christopher Shaw explained that while the standards for approval of an IRP are not identical to the criteria for approval of a CN, both standards take into consideration the adequacy and reliability of energy supply, cost, and socioeconomic and environmental effects, and that while the Commission's decision in the 2024 IRP Docket does not approve the expansion of the ISFSI or the extension of the Prairie Island Plant's operating life, it does indicate that the extension of the Plant's life is an essential piece of the Company's plan that was found to satisfy the IRP criteria.[83]

72. Company witness Ms. Prochaska explained that if the Prairie Island Plant continues to operate past 2033/34, there would be insufficient space in the existing ISFSI for spent fuel assemblies.[84]

73. The only significant capital project identified as necessary to allow the Plant to continue operating past 2033/34 is the addition of spent fuel storage capacity at the ISFSI that is under consideration in this proceeding.[85]

V. THE PROJECT AND ALTERNATIVES

A. Project Overview

74. The ISFSI Expansion Project involves construction of a fourth (and potentially a fifth) concrete pad and modular concrete storage system within the existing ISFSI to support additional DFS systems, which will store sufficient spent fuel to allow the Prairie Island Plant to continue operating past 2033/34. Assuming approval to continue operation through 2053/54, Xcel Energy estimates that approximately 1,200 additional spent fuel assemblies would be discharged from the Plant's reactor, compared to ceasing operation of the Plant in 2033/34. The Project provides for the necessary additional storage capacity for those assemblies.[86]

75. The Company previously sized the ISFSI footprint to allow for additional storage capacity without the need to change the outer dimensions of the ISFSI. In addition, the soil under where the additional storage would be added was previously removed

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[82] *In the Matter of Xcel Energy's 2024-2040 Upper Midwest Integrated Resource Plan*, MPUC Docket No. E-002/RP-24-67, ORDER APPROVING SETTLEMENT AGREEMENT WITH MODIFICATIONS (Apr. 21, 2025).
[83] Ex. XE-114 at 3 (Shaw Rebuttal).
[84] Ex. XE-106 at 22 (Prochaska Direct).
[85] Ex. XE-106 at 32 (Prochaska Direct).
[86] Ex. XE-106 at 22-23 (Prochaska Direct).

and replaced with engineered soil to support the weight of an additional pad and storage modules. As such, the Project will involve the construction of a new concrete pad or pads and the installation of new horizontal storage modules. Future maintenance is not required on the storage modules.[87]

76. Additional DFS systems would also be purchased to store the fuel rods. The exact number of DFS systems needed will be determined by the specific amount of nuclear fuel required to run the Plant for the remainder of its useful life and how much fuel is loaded each cycle. The Company estimates that it will need approximately 34 additional DFS systems to continue operation through 2053/54.[88]

77. In 2022, the Commission approved the Company's request to change the DFS system technology in use at the Plant.[89] Since that approval, the Company has entered into a contract with Orano TN Americas LLC to use the NUHOMS EOS37PTH DFS system through the end of the current operating license. If the SLR and ISFSI expansion are granted by the NRC and the Commission, respectively, it is anticipated that this technology will be used through the extended license period. In this type of system, the spent fuel assemblies are loaded into a metal canister with welded lids that provide a leak-tight containment of the spent fuel. After the interior of the canisters are dried of any water and filled with helium, they are placed in a horizontal concrete overpack.[90]

78. The Company has estimated the installation cost of the additional storage at the ISFSI to be $173.8 million, in 2020 dollars. Table 1 below is a breakdown of the major component costs:[91]

Table 1

Major Component Costs – ISFSI Additional Storage

Category	Estimated Cost (2020 Dollars)
Regulatory Processes	$3.5M
Engineering, Design, and Construction	$9.4M
Canisters/Storage Modules/Loading	$160.9M
Total	**$173.8M**

[87] Ex. XE-106 at 23 (Prochaska Direct).
[88] Ex. XE-106 at 23 (Prochaska Direct).
[89] *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 the Prairie Island Nuclear Generating Plant in Goodhue County*, MPUC Docket No. E-002/CN-08-510 ORDER APPROVING PETITION (Oct. 5, 2022).
[90] Ex. XE-106 at 24 (Prochaska Direct).
[91] Ex. XE-106 at 24 (Prochaska Direct).

79. If the CN is approved, the Company stated that it would begin construction between 2027 and 2029 and would begin storing spent fuel in the expanded ISFSI in 2030 to support operation of the Prairie Island Plant beyond 2033/34.[92]

B. Alternatives Considered

80. The Company provided an analysis of alternative storage locations, so as to not require on-site storage expansion, and generation alternatives, so as to not require an extension to the operating life of the Prairie Island Plant.

1. Storage Alternatives

81. As discussed in greater detail in Section VIII.B below, there are currently no viable off-site or on-site storage alternatives to expansion of the ISFSI.

2. Generation Alternatives

82. The Company provided an evaluation of two replacement cases that examined the costs and feasibility of replacing the Prairie Island Plant's generation with other resources. These replacement cases essentially function as no-action alternatives.

VI. ADEQUACY OF FINAL ENVIRONMENTAL IMPACT STATEMENT

83. Pursuant to Minn. R. 4410.2800, subp. 4, a final EIS shall be determined adequate if it:

A. addresses the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can be reasonably obtained have been analyzed in conformance with part 4410.2300, items G and H;

B. provides responses to the substantive comments received during the draft EIS review concerning issues raised in scoping; and

C. was prepared in compliance with the procedures of the act and parts 4410.0200 to 4410.6500.[93]

[92] Ex. XE-100 at Ch. 8, pp. 29-30 (Initial Filing).
[93] Minn. R. 4410.2800, subp. 4.

A. Minn. R. 4410.2800, subp. 4.A

84. The Scoping Decision identified a number of issues to be addressed in the EIS: (1) general description of the project; (2) regulatory framework; (3) engineering, design and construction; (4) potential impacts and mitigative measures (non-radiological); (5) potential impacts and mitigative measures (radiological); (6) transportation of spent nuclear fuel; (7) ISFSI alternatives; and (8) alternatives to continued operation of the Prairie Island Plant. The Scoping Decision also addressed the level of data and analysis that would be used in the EIS and that no additional studies would be taken in preparation of the EIS.[94]

85. The Scoping Decision provides that the following topics will not be addressed in the EIS: (1) the appropriateness of NRC regulations governing spent nuclear fuel storage technology; (2) potential impacts associated with the nuclear fuel cycle; (3) ISFSI sites located outside the Prairie Island Plant boundary; (4) economic analysis of generation alternatives; and (5) the appropriateness of NRC regulations and standards for radiation exposure.[95]

86. With respect to non-radiological impacts and mitigation, the EIS considered impacts on: (1) the environmental setting; (2) human settlements (including noise, traffic, aesthetics, socioeconomics, land use, public health and safety, and archaeological and historic resources); (3) the natural environment (including water resources, flora, fauna, geology and soils, rare and unique natural resources, and climate change and greenhouse gases); and (4) cumulative impacts (including potential human and environmental impacts of operation of the Prairie Island Plant through 2054 and potential human and environmental impacts of using the ISFSI to facilitate decommissioning of the Plant).[96]

87. With respect to radiological impacts and mitigation, the EIS considered impacts related to: (1) natural background radiation and radiation exposure; (2) radiological monitoring at the Prairie Island Plant and the ISFSI; (3) potential impacts to the public under normal and incident conditions; (4) potential impacts to workers under normal and incident conditions; (5) environmental justice; and (6) cumulative impacts under normal and incident conditions.[97]

88. Minn. R. 4410.2300, item G provides:

> Alternatives: the EIS shall compare the potentially significant impacts of the proposal with those of other reasonable alternatives to the proposed project.

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[94] Ex. DOC-219 at 4-6 (Scoping Decision).
[95] Ex. DOC-219 at 6-7 (Scoping Decision).
[96] Ex. DOC-219 at 4-5 (Scoping Decision).
[97] Ex. DOC-219 at 5 (Scoping Decision).

> The EIS must address one or more alternatives of each of the following types of alternatives or provide a concise explanation of why no alternative of a particular type is included in the EIS: alternative sites, alternative technologies, modified designs or layouts, modified scale or magnitude, and alternatives incorporating reasonable mitigation measures identified through comments received during the comment periods for EIS scoping or for the draft EIS. An alternative may be excluded from analysis in the EIS if it would not meet the underlying need for or purpose of the project, it would likely not have any significant environmental benefit compared to the project as proposed, or another alternative, of any type, that will be analyzed in the EIS would likely have similar environmental benefits but substantially less adverse economic, employment, or sociological impacts. Alternatives included in the scope of the EIS as established under part 4410.2100 that were considered but eliminated based on information developed through the EIS analysis shall be discussed briefly and the reasons for their elimination shall be stated. The alternative of no action shall be addressed.[98]

89. The final EIS addressed alternatives to expansion of the ISFSI and alternatives to the continued operation of the Prairie Island Plant.[99]

90. With respect to alternatives to expansion of the Prairie Island ISFSI, the final EIS considered the potential impacts of a no action alternative, the alternative of additional spent fuel pool storage, alternative spent fuel technologies, and alternatives to on-site storage.[100]

91. The no action alternative required consideration of alternatives to continued operation of the Prairie Island Plant.[101]

92. Additional spent fuel pool storage would involve either re-racking the spent fuel in the existing pool or constructing a new spent fuel pool. Consolidation or re-racking would not support operation of the Prairie Island Plant through 2053/54 and is therefore not a feasible option. Construction of a new spent fuel pool would be more expensive than the proposed project and could lead to increased radiation exposure to workers due to the increase in number of times spent fuel would need to be moved.[102]

93. The final EIS evaluated different types of DFS systems, including cask and canister systems and horizontal and vertical storage systems. The final EIS concludes that

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[98] Minn. R. 4410.2300 G.
[99] Ex. DOC-237 at Chs. 7 and 8 (Final EIS).
[100] Ex. DOC-237 at Ch. 7 (Final EIS).
[101] Ex. DOC-237 at 87-88 (Final EIS).
[102] Ex. DOC-237 at 88-89 (Final EIS).

canister systems have been adopted as the predominant method for storing spent nuclear fuel and that horizontal systems have more advantages.[103]

94. The final EIS analyzed the feasibility of several alternatives to on-site storage, including recycling spent nuclear fuel, the Yucca Mountain federal repository, and interim off-site storage facilities, concluding that none of them were feasible.[104]

95. With respect to alternatives to continued operation of the Prairie Island Plant, the final EIS discussed a replacement scenario for the capacity and energy generated by the Prairie Island Plant. The model optimized a portfolio of new resources to address system needs, including the model's use of the 100 percent carbon free by 2050 sensitivity. The replacement scenario added natural gas-fired combustion turbines (4,488 MW), wind turbines (11,200 MW), solar farms (3,858 MW), and standalone storage (2,220 MW).[105]

96. The final EIS analyzed the potential impacts to the human environment of the replacement scenario and determined that the replacement scenario would be more costly from a social cost basis.[106]

97. The final EIS analyzed the potential impacts to the natural environmental of the replacement scenario, and determined that it would impact additional acres of land, relatively more birds and bats, and relatively more greenhouse gases, potentially exacerbating climate change impacts.[107]

98. The final EIS analyzed associated infrastructure impacts resulting from the replacement scenario and determined that the replacement scenario would require more transmission lines than would continued operation of the Plant.[108]

99. Minn. R. 4410.2300, item H provides:

> Environmental, economic, employment, and sociological impacts: for the proposed project and each major alternative there shall be a thorough but succinct discussion of potentially significant adverse or beneficial effects generated, be they direct, indirect, or cumulative. Data and analyses shall be commensurate with the importance of the impact and the relevance of the information to a reasoned choice among

[103] Ex DOC-237 at 90-91 (Final EIS).
[104] Ex. DOC-237 at 91-95 (Final EIS).
[105] Ex. DOC-237 at 98 (Final EIS).
[106] Ex. DOC-237 at 98-100 (Final EIS).
[107] Ex. DOC-237 at 100-101 (Final EIS).
[108] Ex. DOC-237 at 101 (Final EIS).

> alternatives and to the consideration of the need for mitigation measures; the RGU shall 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 EIS. Less important material may be summarized, consolidated, or simply referenced. The EIS shall identify and briefly discuss any major differences of opinion concerning significant impacts of the proposed project on the environment.[109]

100. The final EIS addressed potential non-radiological impacts to the human environment associated with the Project, including aesthetics, noise, traffic, land use, public health and safety, socioeconomics, environmental justice, and archaeological and historic resources. The final EIS determined that the aesthetic, noise, and traffic impacts from the Project would be minimal; there would be no land use impacts from the Project; there would be no increased or new non-radiological risks to public health and safety from the Project; there would be negative socioeconomic impacts from a shutdown of the Prairie Island Plant; non-radiological environmental justice impacts would be minimal; and impacts to archaeological and historic resources are expected to be minimal.[110]

101. The final EIS addressed potential non-radiological impacts to the natural environment associated with the Project, including water resources, flora and fauna, geology and soils, rare and unique natural resources, and greenhouse gases and climate change. The final EIS determined that the impact on water resources would be minimal; there would be no impacts on flora and fauna; impacts on geology and soils would be minimal; no impacts on rare and unique resources are anticipated; the Project is anticipated to have a minimal impact on climate change and that climate change is not anticipated to impact non-radiological functioning of additional spent fuel storage at the ISFSI.[111]

102. Minnesota Statute 116C.83, Subd. 6(b), requires that, prior to finding the final EIS adequate, the Commission must find that Xcel Energy has demonstrated that the Prairie Island Plant ISFSI is designed to provide a reasonable expectation that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).

103. Minnesota Statute 116C.76, Subd. 1, requires that the Prairie Island Plant ISFSI be designed to provide a reasonable expectation that the undisturbed performance of

[109] Minn. R. 4410.2300 H.
[110] Ex. DOC-237 at 25-36 (Final EIS).
[111] Ex. DOC-237 at 36-41 (Final EIS).

the ISFSI will not cause groundwater radionuclide concentrations, averaged over any year, to exceed:

(1) five picocuries per liter of radium-226 and radium-228;

(2) 15 picocuries per liter of alpha-emitting radionuclides including radium-226 and radium-228, but excluding radon; or

(3) the combined concentrations of radionuclides that emit either beta or gamma radiation that would produce an annual dose equivalent to the total body of any internal organ greater than four millirems per year if an individual consumed two liters per day of drinking water from the groundwater.

104. Potential doses from ingesting or inhaling radionuclides are estimated based on sampling near the Prairie Island Plant and are calculated using an NRC-required dose calculation manual. To demonstrate that doses are within NRC standards, Xcel Energy must file an annual radioactive effluent release report and an annual radiological environmental operating report with the NRC. Estimated radiation doses to the general public from radioactive effluents from the Prairie Island Plant are minimal.[112]

105. The final EIS also determined that cumulative potential effects from continued operation of the Plant are anticipated to be minimal.[113]

106. Potential impacts resulting from use of the Prairie Island Plant ISFSI to facilitate decommissioning are anticipated to be minimal, provided that monitoring and maintenance of the ISFSI continues until such time as the spent fuel can be transported to an off-site facility. If monitoring and maintenance do not continue, radiological impacts are anticipated to be significant.[114]

107. With respect to radiological impacts, the final EIS evaluated potential radiological impacts to the public by considering a dose study for potential radiological impact of the Project conducted by a third party, NRC data in Radioactive Effluent Release Reports, Minnesota Department of Health Environmental Monitoring Reports, and the National Cancer Institute. Health impacts to the general public resulting from ISFSI skyshine radiation is anticipated to be minimal.[115]

108. The final EIS also evaluated potential radiological impacts to the public from off-normal conditions, including earthquake, tornado, flood, fire or explosion, transfer

[112] Ex. DOC-237 at 74-75 (Final EIS).
[113] Ex. DOC-237 at 41-43 (Final EIS).
[114] Ex. DOC-237 at S-2 (Final EIS).
[115] Ex. DOC-237 at 51-54 (Final EIS).

cask mishandling, and terrorism. The final EIS stated that all NRC-certified spent fuel technologies meet design criteria that include protection against such occasions, and that therefore, potential radiological impacts to the general public during off-normal conditions are anticipated to be minimal and within NRC standards.[116]

109. The final EIS also discussed the NRC's analysis of potential impacts associated with a hypothetical release of spent fuel from an ISFSI. That analysis determined that the impacts of a dose to an off-site member of the public from such a release would be minimal. This section of the final EIS also discusses the Plant's emergency plan and letters of agreement with organizations having an emergency response role in the area.[117]

110. The final EIS also discusses the impact of the eventual transport of spent nuclear fuel, indicating that the impacts are expected to be minimal.[118]

111. The final EIS also discussed the radiological impacts of the Plant on plant workers. The final EIS discusses that doses to workers at the Plant are within NRC standards for occupational exposure and that impacts from this dose are anticipated to be minimal. The final EIS also explains that doses to workers during off-normal conditions would be managed by the Company to remain within NRC standards. The final EIS also considers the impacts associated with workers responding to a hypothetical accidental release from the DFS systems and states that doses would be monitored and managed using time, distance, and shielding.[119]

112. The final EIS discusses radiological impacts to the natural environment, stating that radiation impacts to tall nearby flora, specifically trees along the Mississippi River, are anticipated to be minimal but unavoidable, and that because there is no habitat for fauna within the ISFSI or within the Plant site and because ISFSI operating procedures preclude use of the ISFSI by nesting animals, radiation impacts to fauna are also anticipated to be minimal.[120]

113. The ALJ concludes that the final EIS addressed the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can be reasonably obtained were analyzed in conformance with Minn. R. 4410.2300, items G and H.

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[116] Ex. DOC-237 at 54-58 (Final EIS).
[117] Ex. DOC-237 at 58-59 (Final EIS).
[118] Ex. DOC-237 at 59-61 (Final EIS).
[119] Ex. DOC-237 at 61-63 (Final EIS).
[120] Ex. DOC-237 at 63 (Final EIS).

B. Minn. R. 4410.2800, subp. 4.B

114. Comments to the draft EIS and DOC-EERA's responses to those comments are set forth in Appendix E to the final EIS. DOC-EERA responded to each substantive comment, including making changes that are shown as redlines in the final EIS.[121]

115. The ALJ finds that the final EIS provided responses to the substantive comments received during the draft EIS review concerning issues raised in scoping.

C. Minn. R. 4410.2800, subp. 4.C

116. Based on the Findings above, the ALJ concludes that the final EIS was prepared in compliance with the procedures of the Minnesota Environmental Policy Act (MEPA) and Minn. R. parts 4410.0200 through 4410.6500.

117. The ALJ finds that the final EIS has met the adequacy criteria under Minn. R. 4410.2800, subp. 4.

VII. CERTIFICATE OF NEED CRITERIA

118. Authorization of any additional dry cask storage or expansion of an ISFSI at a nuclear generation facility in Minnesota is subject to approval of a CN by the Commission.[122]

119. The Commission rules incorporate statutory requirements for a CN and specify the criteria the Commission is to apply in determine whether to grant a CN for additional dry cask storage or expansion of an ISFSI. Those rules provide:

> A certificate of need shall be granted to the applicant if it is determined that:
>
> 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, considering:
>
> (1) the accuracy of the applicant's forecast of demand for the energy or service that would be supplied by the proposed facility;

[121] Ex. DOC-242 (Appendix E to Final EIS).
[122] Minn. Stat. § 116C.83 subd. 2.

(2) the effects of existing or expected conservation programs of the applicant, the state government, or the federal government;

(3) the effects of promotional practices in creating a need for the proposed facility, particularly promotional practices that have occurred since 1974;

(4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and

(5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

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, considering:

(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

(3) the effect of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

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, considering:

(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

> (2) the effect of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effect of not building the facility;
>
> (3) the effects of the proposed facility or a suitable modification thereof, in inducing future development; and
>
> (4) socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and
>
> D. 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.[123]

120. As the Applicant, Xcel Energy bears the burden of demonstrating the need for the Project by the preponderance of the evidence.[124]

VIII. APPLICATION OF CERTIFICATE OF NEED CRITERIA

A. The Future Adequacy, Reliability, or Efficiency of Energy Supply

121. The first of the four criteria established by the Commission for the granting of a CN calls for an examination of whether:

> 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.[125]

122. Minn. R. 7855.0120 does not assign greater or lesser importance to the factors of adequacy, reliability, or efficiency of energy supply, and the plain language of the rule provides that a probable adverse impact on any one of these factors is a consideration in granting a CN.[126]

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[123] Minn. R. 7855.0120; *see also* Minn. Stat. § 216B.243, subd. 3.
[124] Minn. Stat. § 216B.243, subd. 3; Minn. R. 1400.7300, subd. 5.
[125] Minn. R. 7855.0120(A).
[126] *See* Minn. R. 7855.0120(A).

123. Under this criterion, the Commission considers: (1) an applicant's forecast of demand for the energy or services that would be supplied by the proposed facility; (2) its conservation programs and state and federal conservation programs; (3) its promotional practices; (4) the ability of current or planned facilities not requiring certificates of need to meet the future demand; and (5) the facility's ability to make an efficient use of resources.[127]

1. Demand for Energy

124. The Commission must consider "the accuracy of the applicant's forecast of demand for the energy or service that would be supplied by the proposed facility."[128]

125. Xcel Energy witness Mr. Shaw explained that the Company's forecasts of energy and capacity needs, and the role of extending the life of the Prairie Island Plant until 2053/54 to meet those needs, were discussed extensively in the Company's IRP Docket, Docket No. E-002/RP-24-67.[129]

126. In that docket, the Company proposed its Preferred Plan, in which Prairie Island is extended to 2053/54 and Monticello is extended to 2050. The Commission approved the Company's Preferred Plan for planning purposes, including extending the life of the Prairie Island Plant until 2053/54.[130]

127. Although not perfectly aligned with the standards for a CN, the standards that govern the Commission's consideration of an IRP also take into account the adequacy and reliability of energy supply, cost, and socioeconomic and environmental effects,[131] directing the Commission to evaluate resource options and resource plans on their ability to:

> A. maintain or improve the adequacy and reliability of utility service;
>
> B. keep the customers' bills and the utility's rates as low as practicable, given regulatory and other constraints;
>
> C. minimize adverse socioeconomic effects and adverse effects upon the environment;

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[127] Minn. R. 7855.0120(A).
[128] Minn. R. 7855.0120(A)(1).
[129] Ex. XE-107 at 5 (Shaw Direct).
[130] *In the Matter of Xcel Energy's 2024-2040 Upper Midwest Integrated Resource Plan*, MPUC Docket No. E-002/RP-24-67, ORDER APPROVING SETTLEMENT AGREEMENT WITH MODIFICATIONS (Apr. 21, 2025).
[131] Ex. XE-114 at 3 (Shaw Rebuttal).

> D. enhance the utility's ability to respond to changes in the financial, social, and technological factors affecting its operations; and
>
> E. limit the risk of adverse effects on the utility and its customers from financial, social, and technological factors that the utility cannot control.[132]

128. The Commission's approval of the Company's Preferred Plan, while not an approval of the expansion of the ISFSI or the extension of the Prairie Island Plant's operating life, does indicate that such an expansion and extension is a necessary piece of the IRP and satisfies the IRP criteria.[133]

129. Department witness Sachin Shah testified that the Department found that the Company's demand and energy forecast in the IRP Docket were reasonable for planning purposes and that the Company's forecast could also be used in the present docket.[134]

130. The ALJ finds that the record shows that the Commission has had the opportunity to evaluate the Company's forecasts of energy and capacity needs. The ALJ agrees with the Company that although the IRP standards and the CN standards are not completely aligned, they both take into account reliability, cost, and socioeconomic and environmental factors that make the IRP analysis and Commission decisions relevant and compelling in this proceeding. The ALJ further finds that the record in the IRP Docket demonstrates, at a minimum, that the Commission considered the need to extend the Prairie Island Plant's operating life, which requires the expansion of the ISFSI, when it accepted the Company's IRP Preferred Plan.

2. Effect of Conservation Programs

131. The Commission must consider "the effects of existing or expected conservation programs of the applicant, the state government, or the federal government."[135]

132. Company witness Ms. Jessica Peterson stated that the Company offers more than 40 business, residential, income qualified, and pilot energy efficiency and demand response programs in Minnesota. Based on 2023 data, these conservation programs have saved nearly 13,072 GWh of energy and 4,535 MW of demand since 1990.

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[132] Minn. R. 7843.0500, subp. 3.
[133] Ex. XE-117 at 3 (Shaw Rebuttal).
[134] Ex. DOC-246 at 3-4 (Shah Direct).
[135] Minn. R. 7855.0120(A)(2).

These savings avoided the need to build approximately 18 medium-sized (250 MW) power plants.[136]

133. The Company's current IRP proposes a goal of an additional 8,547 GWh and 1,659 MW of cumulative savings for the 2024-2040 planning period, including growing its Demand Response portfolio to over 1,385 MW by 2034, resulting in 780 GWh of annual savings. However, the Company's IRP projects an increase in customer load over time and the Company's conservation programs are unable to both offset the need for new generation to meet this projected increase in demand and to replace generation from the Prairie Island Plant if it is retired in 2033/34.[137]

134. Department witness Dr. Steve Rakow further explained that the Company's conservation programs were included in the IRP modeling process, and that the model had the option to select additional conservation. The effects of existing or expected conservation programs were considered during the IRP process, and the result of that analysis determined that pursuit of any additional level of energy efficiency would increase system costs.[138]

135. The ALJ finds that there is no evidence in the record that conservation programs could replace the generation from the Prairie Island Plant if it retired in 2033/34.

3. Effect of Promotional Activities

136. The Commission must consider "the effects of promotional practices in creating a need for the proposed facility."[139]

137. Company witness Ms. Peterson explained that the Prairie Island Plant is an essential part of the Company's electrical supply system and has been for 50 years. The need for additional storage is a simple necessity caused by extending the life of the Plant beyond 2033/34.[140]

138. Department witness Ms. Diane Dietz concluded that there is no evidence to suggest that the Company employed promotional practices that created a need for the ISFSI.[141]

139. The ALJ finds that there is no evidence in the record that promotional activities undertaken by Xcel Energy have created a need for the ISFSI expansion.

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[136] Ex. XE-110 at 3-4 (Peterson Direct).
[137] Ex. XE-110 at 3-4 (Peterson Direct).
[138] Ex. DOC-245 at 11 (Rakow Direct).
[139] Minn. R. 7855.0120(A)(3).
[140] Ex. XE-110 at 5 (Peterson Direct).
[141] Ex. DOC-244 at 25 (Dietz Direct).

4. Ability of Current and Planned Facilities not Requiring Certificates of Need to Meet State and Regional Energy Needs

140. The Commission must consider "the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand."[142]

1) Existing Facilities

141. The Company explained that there are no alternative facilities that do not require a CN that could replace the Prairie Island Plant's storage capacity or generation if it were to cease operations in 2033/34.[143]

142. Department witness Dr. Rakow explained that the Company's IRP analysis found that extending Prairie Island tended to be the least cost way of meeting future demand. The Department's IRP analysis produced similar results as Xcel's analysis. Dr. Rakow concluded that the effects of current facilities and planned facilities were considered and could not replace Prairie Island.[144]

143. The ALJ finds that there is no evidence in the record that existing facilities that do not require a CN could meet future demand in the absence of the Prairie Island Plant.

2) Other Alternatives

144. The Company explained that, absent an exemption via a resource planning process pursuant to Minn. Stat. § 216B.2422, subd. 5, there are no alternative facilities that can either provide the needed additional storage capacity or replace the Prairie Island Plant's generating capacity. As discussed below in section VIII.B, the alternatives analysis, and due to the requirement under Minn. Stat. § 116C.83, subd. 4 that any waste generated by a nuclear generation facility be stored on-site until it can be shipped out-of-state as soon as it is feasible, the lack of permanent of interim out-of-state facilities accepting spent nuclear fuel means there are no viable storage alternatives.[145]

145. The Company also explained that if the Prairie Island Plant were to cease operations in 2033/34, substantial new generation resources would be required to replace the baseload electricity generated by the Plant.[146]

146. Department witness Dr. Rakow agreed that there are no reasonable alternatives, on their own, that could replace the Prairie Island Plant. Although baseload

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[142] Minn. R. 7855.0120(A)(4).
[143] Ex. XE-100 at Ch. 4, p. 6 (Initial Filing).
[144] Ex. DOC-245 at 12 (Rakow Direct).
[145] Ex. XE-100 at Ch. 4, pp. 6-7 (Initial Filing); Ex. XE-106 at 25-28 (Prochaska Direct).
[146] Ex. XE-100 at Ch. 4, p. 7 (Initial Filing).

alternatives, such as new nuclear- or coal-powered generation could replace the Prairie Island Plant's capacity, these are unreasonable alternatives. Minn. Stat. § 216B.243, subd. 3b prohibits the construction of new nuclear generating units. A new coal plant has not been considered in Minnesota since 2005, and a review of the Midcontinent Independent System Operator (MISO) generation interconnection queue includes only a single nuclear unit (in Louisiana) and a single 20 MW coal unit (in Arkansas).[147]

147. The ALJ finds that there is no evidence in the record that there are alternative generation resources that can replace the energy and capacity from the Prairie Island Plant if it were to cease operations in 2033-34.

5. Effect of the Project in Making an Efficient Use of Resources

148. The Commission must consider "the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources."[148]

149. Company witnesses Ms. Prochaska and Mr. Shaw provided information regarding the Prairie Island Plant's operating efficiency. Both Company witnesses explained that the Plant is one of Xcel Energy's most dependable resources, with a capacity factor of approximately 96 percent in 2022 and 90 percent over the past five years. Company witness Mr. Shaw explained that Prairie Island Unit 1 completed a record run of 670 days of continuous operation in 2020 and Unit 2 completed a record run of 704 days of continuous operation in 2021.[149]

150. Company witness Ms. Prochaska further explained that the Company has achieved these efficiency results while reducing Operations and Maintenance (O&M) costs relative to 2014 by over $89 million, which represents a 25 percent improvement compared to 2014 results. In terms of production cost per MWh, the Company achieved a nearly 30 percent decrease between 2015 and 2021.[150]

151. Finally, Company witness Ms. Prochaska explained that although nuclear generation plants have traditionally been considered "must-run" baseload power, the Company is developing a more flexible power operations strategy that would allow the Plant to reduce power output during periods when other resources are providing large amounts of low-cost energy relative to customer demand. This flexibility would provide a more efficient energy portfolio.[151]

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[147] Ex. DOC-245 at 13-14 (Rakow Direct).
[148] Minn. R. 7855.0120(A)(5).
[149] Ex. XE-106 at 12 (Prochaska Direct); Ex. XE-107 at 13 (Shaw Direct).
[150] Ex. XE-106 at 12 (Prochaska Direct).
[151] Ex. XE-106 at 13-14 (Prochaska Direct).

152. The ALJ finds that the Prairie Island Plant makes efficient use of resources. The Plant's efficiency record demonstrates a steady level of highly efficient output. The Company's flexible power option further demonstrates the ability to rely on alternative resources when appropriate.

153. The ALJ finds that the record demonstrates that the denial of a CN, and therefore the Company's inability to extend the life of the Prairie Island Plant, would adversely affect the future adequacy, reliability, or efficiency of energy supply to the Applicant, to the Applicant's customers, and to the people of Minnesota and neighboring states. The ALJ concludes that the Company has adequately met the first criteria for a CN.

B. Analysis of Alternatives

154. The second criteria established for the granting of a CN requires the Commission to evaluate reasonable alternatives to the proposed facility.[152]

155. The Commission will only consider alternatives proposed before the close of the public hearing and which are supported by substantial evidence on the record with respect to each criteria.[153]

156. When evaluating whether there exists a more reasonable or prudent alternative to the proposed facility, the Commission will compare the proposed facility to reasonable alternatives, considering: (1) the appropriateness of the size, type, and timing; (2) the cost of the proposed facility and alternatives, and the costs of energy they will supply; (3) the effects on the natural and socioeconomic environments; and (4) the expected reliability of the proposed facility and alternatives.[154]

1. Off-Site Storage Alternatives

157. Minnesota law requires that spent nuclear fuel in a spent fuel pool or in dry casks at a nuclear generating plant must be managed to facilitate the shipment of waste out of state to a permanent or interim storage facility as soon as feasible. However, Minnesota law further requires that until shipment out of state can be facilitated, spent nuclear fuel generated by a Minnesota nuclear generation facility must be stored on the site of that facility.[155]

158. The Company examined four off-site storage alternatives for spent nuclear fuel that would not require an expansion of the ISFSI. The Company addressed each

[152] Minn. R. 7855.0120(B).
[153] Minn. R. 7855.0110.
[154] Minn. R. 7855.0120(B).
[155] Minn. Stat. § 116C.83, subd. 4.

alternative and provided sufficient explanation for the impracticability or impossibility of each alternative.[156] Due to these impracticabilities and impossibilities, it is unnecessary to engage in the four comparison factors.

1) Reprocessing Spent Nuclear Fuel

159. Reprocessing involves recovering unused uranium and plutonium from used nuclear fuel and recycling it for use in new reactor fuel. The process does not eliminate all nuclear wastes, but reduces the volume of high-level waste that must be stored. Company witness Ms. Prochaska explained that President Jimmy Carter banned commercial reprocessing of spent nuclear fuel, and despite a reversal of the ban, no private companies have invested in constructing or operating reprocessing facilities.[157]

160. Company witness Ms. Dietz agreed that reprocessing is not a viable spent fuel storage alternative.[158]

161. As such, the ALJ finds that reprocessing is not an available or viable alternative to expansion of the ISFSI.

2) Existing Off-Site Storage Facilities

162. The only facility storing spent fuel on a contractual basis from commercial nuclear power reactors is the General Electric Morris Facility in Morris, Illinois, but that the facility is no longer accepting additional spent fuel from commercial nuclear power plants.[159]

163. Department witness Ms. Dietz agreed that existing spent fuel storage facilities are not a viable spent fuel storage alternative.[160]

164. As such, the ALJ finds that utilizing off-site contractual storage facilities is not an available or viable alternative to expansion of the ISFSI.

3) Private Centralized Interim Storage

165. The Company pursued an interim spent fuel storage project in Utah as part of the Private Fuel Storage (PFS) consortium. During the lengthy NRC licensure process, many of the consortium members constructed onsite DSFs, and additional

[156] Ex. XE-106 at 25-28 (Prochaska Direct).
[157] Ex. XE-106 at 25-26 (Prochaska Direct).
[158] Ex. DOC-244 at 7-9 (Dietz Direct).
[159] Ex. XE-106 at 26 (Prochaska Direct).
[160] Ex. DOC-244 at 10 (Dietz Direct).

regulatory obstacles remain making the PFS proposal infeasible as an alternative to ISFSI expansion.[161]

166. Two companies, Interim Storage Partners and Holtec International, have proposed interim storage facilities in Texas and New Mexico. However, neither facility has commenced construction and significant work remains before either facility could become operational. Company witness Ms. Prochaska explained that due to the extended timelines for construction and due to ongoing litigation over the licensure of these facilities, these two interim storage projects are not viable options at this time.[162]

167. The Department agreed that it does not appear that any of these facilities will be available for use by 2033, when the Company expects to need additional storage space for spent nuclear fuel.[163]

168. The ALJ agrees with the Company that private centralized interim storage is not yet a proven concept, that private centralized interim storage facilities have not yet begun construction, at which point they would still be years away from being ready to receive spent nuclear fuel, and that interim storage is not a viable alternative to expansion of the ISFSI.

4) Permanent Off-Site Storage

169. Yucca Mountain is a site in Nevada identified in federal statute as the permanent deep geological storage repository for commercial spent nuclear fuel. The application to license the Yucca Mountain permanent nuclear fuel repository is pending before the United States NRC, but the adjudicatory hearings on the application before the NRC Atomic Safety and Licensing Board remain suspended.[164]

170. The Department further explained that even if the site were available in the 2028 timeframe, Xcel Energy may not be allotted storage space for all of its spent fuel.[165]

171. The ALJ recognizes that the lack of progress in licensing for Yucca Mountain renders permanent off-site storage an unavailable and unviable alternative to expansion of the ISFSI.

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[161] Ex. XE-106 at 26-27 (Prochaska Direct).
[162] Ex. XE-106 at 27-28 (Prochaska Direct).
[163] Ex. DOC-244 at 10-13 (Dietz Direct).
[164] Ex. XE-106 at 28 (Prochaska Direct); Ex. DOC-244 at 13-14 (Dietz Direct).
[165] Ex. DOC-244 at 14 (Dietz Direct).

172. The ALJ finds that there are no viable off-site storage alternatives available to receive spent nuclear fuel from the Prairie Island Plant. Further, the ALJ concludes that Minnesota law requires that spent nuclear fuel must be stored on the Prairie Island Plant site in the absence of available out of state permanent or interim storage facilities. Finally, as demonstrated below, the ALJ concludes that the Company has demonstrated that the expansion of the current ISFSI is the most viable on-site option, and the alternative on-site locations would result in greater environmental impacts.

2. On-Site Storage Alternatives

173. The Company examined three on-site storage alternatives for spent nuclear fuel that would not require an expansion of the ISFSI. The Company addressed each alternative and provided sufficient explanation for the impracticability, impossibility, or premature nature of each alternative.[166] Due to these impracticabilities and impossibilities, it is unnecessary to engage in the four comparison factors.

1) New On-Site Location

174. Company witness Ms. Britta Bergland explained that the Company did not consider an alternative location for a second ISFSI within the Prairie Island Plant, because there is sufficient room within the footprint of the existing ISFSI to support the needed storage and greater environmental impacts would result from construction in some other location on the Prairie Island property.[167]

175. The Department agreed with the Company that it is not necessary to evaluate alternative ISFSI locations within the Prairie Island Plant site. Department witness Ms. Dietz explained that the DOC-EERA staff noted in the final EIS that whether using the expanded ISFSI site or an alternative site within the Prairie Island Plant site, the construction process would be similar and the impacts would likely be minimal.[168]

176. The ALJ finds that the record demonstrates that the chosen on-site storage location is the most viable and reasonable option, as it results in the least environmental impact.

[166] Ex. XE-100 at Ch. 9 (Initial Filing).
[167] Ex. XE-108 at 8-9 (Bergland Direct).
[168] Ex. DOC-244 at 23-24 (Dietz Direct).

2) Non-Cask Alternatives

177. Xcel Energy considered three non-cask alternatives for on-site storage: (1) fuel rod consolidation, (2) re-racking the existing spent fuel pool, and (3) constructing a new spent fuel pool.[169]

178. The Company explained that fuel rod consolidation is not widely used within the domestic nuclear industry. Further, the Company explained that when it conducted a fuel rod consolidation demonstration project at Prairie Island in 1987, it resulted in numerous difficulties, lower-than-predicted volume reductions, and higher-than-predicted radiation exposure for workers.[170]

179. The Department agreed that fuel rod consolidation is not a feasible strategy for creating additional space in a spent fuel pool, and that it is an unviable alternative.[171]

180. The ALJ agrees with the parties that fuel rod consolidation is not a viable alternative to expansion of the ISFSI.

181. The Company explained that it could gain 790 spent fuel storage spaces by rearranging the storage racks in the spent fuel pool. However, 790 spaces is not sufficient to support 20 years of extended operations.[172]

182. The Department agreed that if the objective is to operate the Prairie Island Plant until 2053/54, re-racking would not produce adequate spent fuel storage capacity.[173]

183. The ALJ agrees with the parties that re-racking the existing spent fuel pool is not a viable alternative to expansion of the ISFSI.

184. The Company explained that to design, obtain approvals, and construct a new on-site spent fuel pool would take approximately five years, would be prohibitively expensive, and would triple the number of times the spent fuel assemblies are handled.[174]

185. Department witness Ms. Dietz determined that the costs associated with building a new pool and increased risk to personnel due to the increased number of times spent

[169] Ex. XE-100 at Ch .9, pp. 8-11 (Initial Filing).
[170] Ex. XE-100 at Ch. 9, pp. 8-9 (Initial Filing).
[171] Ex. DOC-244 at 16 (Dietz Direct).
[172] Ex. XE-100-1 at Ch. 9, pp. 9-10; Ex. DOC-244 at 16-17 (Dietz Direct).
[173] Ex. DOC-244 at 17 (Dietz Direct).
[174] Ex. XE-100 at Ch. 9, pp. 10-11 (Initial Filing).

fuel would have to moved, make an additional spent fuel pool prohibitively expensive and infeasible.[175]

186. The ALJ agrees with the parties that costs concerns alone render construction of a new spent fuel pool an unviable alternative to expansion of the ISFSI.

3) Dry Cask Alternatives

187. The Company considered three dry-cask alternatives for on-site storage: (1) horizontal canister storage system, (2) vertical canister storage system, and (3) non-canister (bolted cask) storage system.[176]

188. The Company recently completed a competitive bidding process to select a new DFS system technology, selecting a NUHOMS horizontal welded canister DFS system. In its Initial Filing, the Company identified the advantages and disadvantages of horizontal canister storage.[177]

189. The Company also provided an analysis of vertical canister storage, which functions similarly to horizontal canister storage and has many of the same advantages. However, due to the orientation of the cask in a vertical position, the Company identified additional disadvantages that may increase radiation dosage to workers.[178]

190. The Company also provided an analysis of the one available non-canister storage system, which is currently in use at the Prairie Island Plant. Unlike horizontal or vertical canister storage, the non-canister system utilizes a cask as the primary containment boundary. The cask is made of steel or a steel and lead combination and stores spent fuel in an internal basket or cells dispersed throughout the cask. The cask is bolted, not welded, shut and are stored on a concrete pad without being housed in a concrete overpack. The Company identified disadvantages of continuing to use this technology, including that the cost of the system has risen significantly, a pressure monitoring system is required to ensure no leakage of O-ring seals in bolted storage cask lid and that neither of the two private consolidated interim storage facilities include the technology in their licenses.[179]

191. The Company selected a horizontal canister-based system through the end of current license and to support license extension.[180]

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[175] Ex. DOC-244 at 19 (Dietz Direct).
[176] Ex. XE-100 at Ch. 9, p. 11 (Initial Filing).
[177] Ex. XE-100 at Ch. 9, pp. 11-13 (Initial Filing).
[178] Ex. XE-100 at Ch. 9, pp. 14-16 (Initial Filing).
[179] Ex. XE-100 at Ch. 9, pp. 16-18 (Initial Filing).
[180] Ex. XE-100 at Ch. 9, p. 18 (Initial Filing).

192. The Department agreed with the Company's evaluations of the advantages and disadvantages of the three systems and agreed with the Company's preference for the horizontal canister systems.[181]

193. The ALJ agrees with the parties' assessment of the advantages and disadvantages of the three dry cask alternatives available to store spent nuclear fuel and finds that the Company's selection of a horizontal cask system was reasonable.

3. Generation Alternatives

194. The Prairie Island Plant is a 1,040 MW baseload unit, meaning that it generates electricity 24 hours a day for weeks at a time. The CN would allow the Prairie Island Plant to continue generating electricity until August 9, 2053 (unit 1) and October 29, 2054 (unit 2). Department witness Dr. Rakow explained that there are no reasonable alternatives, on their own, that could replace the Prairie Island Plant in terms of size, type, and timing.[182]

195. For purposes of analyzing the Prairie Island Plant extension individually, the Company compared the IRP Preferred Plan, which has now been approved by the Commission, with two alternative scenarios. The alternative scenarios utilize a model to evaluate replacing the Prairie Island Plant's energy and capacity with a mix of resources.[183]

196. The Company provided the following tables illustrating the metrics of the Company's IRP Preferred Plan as compared to the two alternative scenarios:[184]

[181] Ex. DOC-244 at 19-23 (Dietz Direct).
[182] Ex. DOC-245 at 13-14 (Rakow Direct).
[183] Ex. XE-107 at 7 (Shaw Direct). Xcel Energy permitted the model to choose wind, solar, storage, firm dispatchable resources (modeled as combustion turbines), and reciprocating engines. Ex. XE-100 at Ch. 9, p. 23 (Initial Filing).
[184] Ex. XE-107 at 11-12 (Shaw Direct).

Scenario PVSC/PVRR Deltas in Net Present Values (NPV) from Reference Case ($2024 millions)

PVSC Production Cost	Delta in NPV ($m) 2024-2040	NPV ($m) 2024-2040	Delta in NPV ($m) 2024-2047	NPV ($m) 2024-2047	Delta in NPV ($m) 2024-2050	NPV ($m) 2024-2050
Scenario 1 PVSC	$0	$51,037	$0	$63,635	$0	$68,788
Scenario 2 PVSC	($413)	$50,624	($437)	$63,198	($513)	$68,275
Scenario 3 PVSC	($785)	$50,252	($941)	$62,695	($1,025)	$67,762
PVRR Production Costs	Delta in NPV ($m) 2024-2040	NPV ($m) 2024-2040	Delta in NPV ($m) 2024-2047	NPV ($m) 2024-2047	Delta in NPV ($m) 2024-2050	NPV ($m) 2024-2050
Scenario 1 PVRR	$0	$34,678	$0	$44,948	$0	$48,927
Scenario 2 PVRR	($97)	$34,581	$291	$45,239	$391	$49,317
Scenario 3 PVRR	($464)	$34,215	$46	$44,994	$239	$49,166

NPV Savings Under 100 Percent Carbon-Free by 2050 Constraint ($2024 millions)

PVSC Production Cost	Delta in NPV ($m) 2024-2040	NPV ($m) 2024-2040	Delta in NPV ($m) 2024-2047	NPV ($m) 2024-2047	Delta in NPV ($m) 2024-2050	NPV ($m) 2024-2050
Scenario 1 PVSC	$0	$50,703	$0	$62,974	$0	$70,930
Scenario 2 PVSC	($298)	$50,406	($385)	$62,589	($1,003)	$69,927
Scenario 3 PVSC	($662)	$50,041	($931)	$62,042	($1,850)	$69,080
PVRR Production Costs	Delta in NPV ($m) 2024-2040	NPV ($m) 2024-2040	Delta in NPV ($m) 2024-2047	NPV ($m) 2024-2047	Delta in NPV ($m) 2024-2050	NPV ($m) 2024-2050
Scenario 1 PVRR	$0	$34,819	$0	$46,314	$0	$54,273
Scenario 2 PVRR	($200)	$34,619	($323)	$45,991	($947)	$53,326
Scenario 3 PVRR	($612)	$34,207	($941)	$45,373	($1,865)	$52,407

1) Size, Type, and Timing

197. The Reference Case (Scenario 1) considered retiring Prairie Island and Monticello at their currently scheduled dates and utilized the resource planning model to

optimize the most cost-effective replacements needed to fill the energy and capacity needs created by the 2033/34 retirement with no constraints on resource type.[185]

198. Scenario 2 extends the retirement dates of Prairie Island to 2053/54 and leaves the retirement date of Monticello unchanged (2040). This scenario is designed to test the economics of extending the operational life of Prairie Island by 20 years and Monticello by 10 years. Similarly, the model was not required to choose any specific resource type to replace the Plant. Scenario 3, the Company's Preferred Plan from the IRP, extends the retirement dates of Prairie Island to 2053/54 and moves the retirement date of Monticello to 2050. [186]

199. The Department agreed that the scenarios and the alternatives made available provided a reasonable spectrum of alternatives for the alternatives analysis.[187]

200. The ALJ finds that the Company's alternative scenarios and the alternatives made available are reasonable test cases by which to compare the cost of extending the life of the Prairie Island Plant.

2) Cost

201. From a cost perspective, the Reference Case (Scenario 1) results in incrementally higher costs relative to Scenario 2 on a PVSC basis. The additional costs to replace the capacity and energy of the Prairie Island Plant in 2033/34 relative to extending the retirement date to 2053/54 is approximately $500 million on a PVSC basis from 2024 to 2050.[188]

202. When the cost of emissions is not considered in the PVRR sensitivity, the replacement capacity needed to replace Prairie Island at the end of extension plan in Scenario 2 significantly impacts overall cost from 2024 to 2050 due to the model making significant additions of firm dispatchable resources in the late 2040s in anticipation of the Prairie Island Plant retirement, coupled with the fact that the PVRR assumptions do not take into consideration the costs of carbon emissions from these additional resources.[189]

203. The Company expects that technological advancements will provide additional resource options that are not currently available by the time the Prairie Island Plant reaches the end of the extended operating license in Scenario 2. As a result, the firm dispatchable additions in the late 2040s in Scenario 2 may be overstated and

[185] Ex. XE-107 at 7-8 (Shaw Direct).
[186] Ex. XE-107 at 8 (Shaw Direct); Ex. XE-100 at Ch. 9, pp. 22-28 (Initial Filing).
[187] Ex. DOC-245 at 15 (Rakow Direct).
[188] Ex. XE-107 at 9 (Shaw Direct).
[189] Ex. XE-107 at 10 (Shaw Direct).

therefore may not provide a reliable indication of the costs so far out in time. In comparison and using the same modeling, extension of the Prairie Island Plant results in approximately $100 million in savings as compared to the Reference Case from 2024 to 2040, when resource cost assumptions are most known, even when the benefits of avoided emissions are not included.[190]

204. Further, the Company conducted numerous additional sensitivities on the baseload scenarios considered in its 2024 IRP. One such sensitivity incorporated the Company's goal to generate 100 percent carbon-free energy by 2050 (100x50). When applying this sensitivity analysis to the Reference Case, Scenario 2 results in savings of approximately $1 billion on both a PVSC and PVRR basis from 2024 to 2050.[191]

205. As part of the IRP, the Company also conducted a Nuclear Leave Behind Study to determine transmission impacts of the retirements of the Company's nuclear plants. Simply put, the study shows that to maintain system stability under a system fault post-retirement of the nuclear plants, additional generation must be turned on or load shed. The study determined that significant replacement generation is needed, resulting in significant costs. Additional significant costs would be incurred due to transmission line upgrades and voltage support needed to mitigate voltage violations.[192]

206. The ALJ finds that the Company's alternative scenarios are reasonable test cases by which to compare the cost of extending the life of the Prairie Island Plant. The ALJ also finds that the cost considerations weigh in favor of extending the Prairie Island Plant and granting the CN.

3) Effects Upon the Natural and Socioeconomic Environments

207. The Company's analysis shows that although advances in technology will be critical to achieving the Company's 100x50 goal, the extension of the Prairie Island Plant provides critical, and certain, carbon-free generation, and the extension of the Company's nuclear fleet provides an overwhelmingly cost-effective source of carbon-free energy when compared to existing technologies. The two scenarios contemplating extension of the Prairie Island Plant considerably better position the Company to comply with the 2023 legislation, codified at Minn. Stat. § 216B.1691, requiring the Company to generate or procure 100 percent carbon-free electricity

[190] Ex. XE-107 at 10 (Shaw Direct).
[191] Ex. XE-107 at 10-11 (Shaw Direct); Minn. Stat. § 216B.2422, subd. 3.
[192] Ex. XE-107 at 12 (Shaw Direct).

for its Minnesota retail customers by 2040. Extending the life of the Prairie Island Plant is therefore crucial to meeting these requirements.[193]

208. Department witness Dr. Rakow explained that continued operation of the Prairie Island Plant through 2053/54 is expected to create minimal impacts to the natural and socioeconomic environment. On the other hand, the alternatives analyzed would likely generate more significant impacts through additional greenhouse gas emissions, and flora and fauna impacts.[194]

209. The ALJ finds that the Company's two alternative scenarios are reasonable test cases by which to compare the environmental impacts of extending the life of the Prairie Island Plant. The ALJ also finds that environmental considerations weigh in favor of extending the Prairie Island Plant and granting the CN, as compared to the Company's two alternative scenarios.

4) Reliability

210. Company witness Mr. Shaw explained that the Prairie Island Plant is a significant baseload resource on the Northern States Power system that has generated over 400 million MWh of energy and avoided 405 million tons of carbon emissions since it has commenced operations. The Plant operates at full capacity 24 hours a day, seven days a week to meet base demand for electrical power.[195]

211. Company witness Mr. Shaw explained that the Plant has achieved an average capacity factor of approximately 90 percent between 2019 and 2023 (including a record-setting 99.98 percent in 2022 on Unit 2). In 2020, Prairie Island Unit 1 completed a record run of 670 days of continuous operation, and Unit 2 completed a record run of 704 days of continuous operation in 2021. Combined with the Monticello Plant, the Prairie Island Plant represents almost 30 percent of the total electric energy and 40 percent of the carbon-free energy of the total electricity generation in the Upper Midwest.[196]

212. The Company's analysis shows that firm dispatchable capacity is needed starting in 2027, and that if the Prairie Island Plant is retired in 2033/34, additional firm dispatchable resource additions are needed in 2028, 2030, 2032, 2033, and 2035 to meet baseload serving needs. In Scenario 2, in which the Prairie Island Plant is extended, firm dispatchable capacity is still required starting in 2027, but the firm dispatchable additions in 2033 and 2035 in Scenario 1 are not needed in Scenario 2.

[193] Ex. XE-107 at 10-11 (Shaw Direct).
[194] Ex. DOC-245 at 18-19 (Rakow Direct).
[195] Ex. XE-107 at 3-4 (Shaw Direct).
[196] Ex. XE-107 at 13 (Shaw Direct).

Further, the extension of Prairie Island offsets the need for other resource additions including wind, solar, and storage.[197]

213. The Company's Nuclear Leave Behind Study shows that if the Prairie Island Plant was shut down in 2033/34, additional generation must be turned on, or load shed, to maintain transmission system stability. The study determined that significant replacement generation would be needed.[198]

214. The ALJ finds that the Company's two replacement scenarios are reasonable test cases by which to compare the reliability impacts of extending the life of the Prairie Island Plant. The ALJ also finds that reliability considerations weigh in favor of extending the Prairie Island Plant and granting the CN.

215. The ALJ concludes that 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. Consequences of Granting the CN Compared to Consequences of Denying the CN

216. The third criteria established for a granting of a CN requires an examination of whether the consequences of granting the certificate are more favorable to society than the consequences of denying the certificate.[199]

217. The Commission will consider: (1) the relationship of the proposed facility to overall state energy needs; (2) the effects upon the natural and socioeconomic environments as compared to not building the facility; (3) the effects in inducing future development; and (4) the socially beneficial uses of the output of the proposed facility, including its uses to protect or enhance environmental quality.[200]

1. Overall State Energy Needs

218. The Department reviewed the most recent IRP dockets from three investor-owned utilities in Minnesota and concluded that all three utilities showed the likelihood of increased capacity and energy needs during the 2025-2030 timeframe. These three utilities' IRPs, along with Great River Energy's IRP filed in 2023, as well as the four utilities' Minnesota Electric Utility Annual Reports filed in 2024, led

[197] Ex. XE-107 at 8 (Shaw Direct).
[198] Ex. XE-107 at 12 (Shaw Direct).
[199] Minn. R. 7855.0120(C).
[200] Minn. R. 7855.0120(C).

Department witness Mr. Ari Zwick to further conclude that the State needs more capacity and energy during the 2025-2030 timeframe.[201]

219. The Department also pointed to the Company's IRP Docket to explain planned and recent decreases in the Company's capacity and energy generation and acquisitions, including:[202]

- retirement of the Sherburne County Generating Station (Sherco) Unit 2 (682 MW) in 2023;
- retiring the Allen S. King Generation station (511 MW) in 2028;
- retiring the Sherco Unit 3 (517 MW) in 2030;
- retiring Sherco Unit 1 (680 MW) in 2026;
- expiration of Power Purchase Agreement (PPA) with Manitoba Hydro (835 MW) in 2025;
- expiration of PPA with Cottage Grove (226 MW) in 2027;
- expiration of PPA with Mankato Energy Center Unit 1 (314 MW) in 2028; and
- expiration of PPA with Cannon Falls (317 MW) in 2028.

220. As discussed, the Prairie Island Plant is capable of operating 24 hours a day, seven days a week and provides 1,100 MW of capacity year-round. The Company's Monticello Plant and Prairie Island Plant are the only generation in Xcel Energy's system that provides this level of consistent, reliable, carbon-free energy and capacity. The removal of the Prairie Island Plant from the Company's supply system would create an over 1,000 MW capacity deficit and a several million MWh deficit in the region in 2031, if not replaced with other generation resources.[203]

221. The Department concluded that the proposed Project will have a positive impact in meeting the State's energy needs.[204]

222. The ALJ agrees that, in light of the State's projected capacity and energy needs and the Company's generation retirements and PPA expirations, the ISFSI Expansion Project will have a positive impact in meeting the energy needs of Minnesota.

2. Effect of the Project on the Natural and Socioeconomic Environments Compared to the Effect of Not Granting the CN

223. The ISFSI Expansion Project involves construction of a fourth (and possibly a fifth) concrete pad and a modular concrete storage system within the existing enclosed,

[201] Ex. DOC-247 at 16 (Zwick Direct).
[202] Ex. DOC-247 at 18-19 (Zwick Direct).
[203] Ex. XE-105 at 3-4 (Krug Direct); Ex. XE-107 at 3-4 (Shaw Direct).
[204] Ex. DOC-247 at 19 (Zwick Direct).

secure boundaries of the ISFSI.[205] As such, construction impacts are projected to be minimal and mostly temporary.

224. The Company's fleetwide nuclear generation reduces carbon emissions by approximately 12.5 million metric tons annually, or the equivalent of removing 2.8 million gas-powered cars from the road. The Prairie Island Plant contributes two-thirds of these benefits. The Prairie Island Plant's carbon-free generation has led to over 405 million tons of CO_2 emissions avoided since it commenced operations. The Company explained that this generation will be critical for the Company to achieve its own carbon-reduction initiatives and the recently-enacted State goal of 100 percent carbon-free electricity by 2040.[206]

225. There are socioeconomic impacts that would result from not granting the CN. Economically, the Plant provides a constant flow of financial activity within the surrounding communities. The Plant employs approximately 550 individuals who live in the surrounding area and, therefore, spend their money in the local communities. The Company's nuclear fleet generates $1 billion in economic activity annually and Prairie Island Plant, specifically, pays $22 million in State and local taxes.[207]

226. The ALJ finds that not granting the CN could have negative environmental and socioeconomic impacts.

3. Induced Future Developments

227. During the six-month construction period, the Project will employ an estimated 40 construction workers, with a peak of 12 at any one time and an average of eight workers. No full-time staff will be required during operation of the expanded ISFSI beyond current Plant personnel. The Project will have minimal impact on other factors required to be considered, such as traffic, utilities and public services or water usage levels.[208]

228. The ALJ finds that granting the CN will not induce additional development.

4. Socially Beneficial Uses of the Output of the Facility

229. The Project enables Xcel Energy to continue to supply reliable and reasonably priced baseload power, important for both residential and business customers. The

[205] Ex. XE-106 at 22-23 (Prochaska Direct); Ex. XE-100 at Ch. 4, p. 18.
[206] Ex. XE-107 at 4 (Shaw Direct); Ex. XE-105 at 6 (Krug Direct); Ex. XE-100 at Ch. 5, p. 1 (Initial Filing).
[207] Ex. XE-100 at Ch. 4, p. 19 (Initial Filing).
[208] Ex. XE-100 at Ch .4, p. 19, Ch. 14 (Initial Filing).

Project enables Xcel Energy to provide carbon-free energy. The extension of the Prairie Island Plant is a crucial part of the Company's plan to achieve compliance with the state's carbon-free generation mandate.[209]

230. Replacing the 1,100 MW of generation offered by the Prairie Island Plant would have wide ranging impacts, including the loss of the inherent stability and reliability of maintaining a significant baseload resource like the Prairie Island Plant on the Company's system; the impact of alternatives on the Company's ability to reach its goal of carbon-free generation by 2050; the impact on the State's ability to meet its own carbon reduction goals; the diversity of resources available to meet customers' needs; the incremental risk to customers; the land requirements and associated impacts of any new generation resources; and other societal issues, including the economic benefits generated by the provision of highly skilled jobs and tax revenues to local communities.[210]

231. The ALJ finds that the social benefits associated with the output of the facility weigh in favor of granting the CN.

D. The Project will Comply with Relevant Policies, Rules, and Regulations of Other State and Federal Agencies and Local Governments

232. The final criteria for the granting of a CN requires that it has not been demonstrated in the record that the proposed facility will fail to comply with all relevant policies, rules, and regulations of other federal, state, and local agencies.[211]

233. A CN applicant must demonstrate compliance with a variety of portfolio standards as part of its CN showing.[212]

234. In his Direct Testimony, Department witness Zwick requested additional explanation as to how Xcel Energy was in compliance with Minn. Stat. § 216B.2425, subd. 7, which pertains to necessary transmission additions to support various other portfolio requirements.[213]

235. In his Rebuttal Testimony, Company witness Mr. Jason T. Standing explained that the Company did not anticipate any transmission shortfall with respect to generation required under the various portfolio standards.[214]

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[209] Ex. XE-100 at Ch. 4, p. 19 (Initial Filing).
[210] Ex. XE-100 at Ch. 9, p. 21 (Initial Filing).
[211] Minn. R. 7855.0120(D).
[212] Minn. Stat. § 216B.243, subd. 3(10).
[213] Ex. DOC-247 at 14-15 (Zwick Direct).
[214] Ex. XE-115 at 4-5 (Standing Rebuttal).

236. The Department determined that on the basis of Mr. Standing's testimony, Xcel Energy had demonstrated compliance with Minn. Stat. § 216B.2425, subd. 7 for purposes of this CN proceeding.[215]

237. With respect to compliance with other local state and federal policies, rules and regulations, the Company explained in its Initial Filing that:

> The additional storage will comply with relevant local, state, and federal policies, rules and regulations. In particular, the Plant and ISFSI are designed, operated and monitored in strict compliance with all requirements set forth by the United States Nuclear Regulatory Commission.[216]

238. The Company further explained that the Project supports the State of Minnesota's energy policy as set forth in Minnesota Statutes, including Minn. Stat. § 216H.02, subd. 1, which sets a goal of reducing statewide greenhouse gas emissions to a level of net zero by 2050 when compared to 2005 emissions levels, and Minn. Stat. § 216B.1691, subp. 2g, the State's carbon reduction requirement. The Project is consistent with and is an integral part of Xcel Energy's Resource Plan. The Project also complies with Minn. Stat. 116C.83, subd. 4 by continuing to provide a flexible, modular storage system, facilitating transportation when out-of-state, offsite storage becomes available.[217]

239. No party raised an objection to the Company's assertion.

240. The Department concluded that the record did not demonstrate that the proposed facility would fail to comply with applicable local, state, and federal policies, rules and regulations.[218]

241. The ALJ agrees that the record does not demonstrate that the Company or the proposed facility would fail to comply with all necessary policies, rules and regulations.

E. CN Conditions

242. The Department recommended that the Commission apply the same conditions to the Prairie Island Plant and the ISFSI as it did in the recent CN Docket related to the expansion of the ISFSI at the Monticello Plant, Docket No. E-002/M-21-668.

[215] Ex. DOC-253 at 7 (Zwick Surrebuttal).
[216] Ex. XE-100 at Ch. 1, p. 2 (Initial Filing).
[217] Ex. XE-100 at Ch. 4, p. 20 (Initial Filing).
[218] Ex. DOC-244 at 28 (Dietz Direct).

Specifically, the Department recommends that point 2 of the Commission's Order approving the CN be applied, which includes:[219]

> A. Xcel Energy must justify any costs, including those of operations and maintenance, ongoing capital expense, revenue requirements related to capital including in the rate base, insurance expense, land-lease expense, and property tax expense.
>
> B. The Commission will otherwise hold Xcel Energy accountable for the price and terms used to evaluate the project.
>
> C. Ratepayers will not be put at risk for any assumed benefits that do not materialize.
>
> D. Xcel Energy's customers must be protected from risks associated with the non-deliverability of accredited capacity, energy, or both, from the project. The Commission may adjust Xcel's recovery of costs associated with this project in the future if actual production varies significantly from assumed production over an extended period.
>
> E. The Commission's decision does not address the operations of the Prairie Island Nuclear Generating Plant beyond 2053/54, which will be subject to review in future resource planning proceedings.
>
> F. Xcel Energy shall comply with various reporting requirements.[220]

243. Company witness Mr. Krug agreed with the Department's recommendation, stating in Rebuttal Testimony that:[221]

> Xcel Energy views these conditions as reasonably requiring the Company to report and justify variances from the Project's predicted costs and benefits, in order to recover the costs of the Project from customers. The Company understands and agrees

[219] Ex. DOC-245 at 25, SR-D-4 (Rakow Direct); Ex. DOC-252 at 1-2 (Rakow Surrebuttal). These conditions have been updated to reflect application to the Prairie Island Plant, rather than the Monticello Plant.
[220] *See* Ex. DOC-245 at Order Point 2.F, SR-D-4 (Rakow Direct) (identifying specific reporting requirements).
[221] Ex. XE-113 at 2-3 (Krug Rebuttal).

> that it will bear the burden of proof in any future regulatory proceeding related to the recovery of the costs associated with the Project and will need to demonstrate the reasonableness of those costs. Moreover, the Company agrees to clearly account for all costs incurred for the Project.

244. In Surrebuttal Testimony, the Department noted Xcel's agreement in rebuttal testimony to the Department's recommended conditions.[222]

245. The ALJ agrees with the Department's proposed conditions and the Company's response to those conditions.

CONCLUSIONS OF LAW

1. The Commission has general jurisdiction over Xcel Energy under Minn. Stat. §§ 216B.01 and 216B.02. The Commission has specific jurisdiction over the CN for additional dry cask spent fuel storage requested by the Company under Minn. Stat. § 116C.83 and Minn. Stat. § 216B.243.

2. The case was properly referred to the OAH under Minn. Stat. §§ 14.48-14.62 and Minn. R. 1400.0200, et seq.

3. The Commission has the authority to determine the adequacy of the final EIS for the Applicant's CN application. The Commission, Department and the Applicant have complied with all applicable procedural requirements, including the preparation of an EIS that complies with MEPA and Minn. R. Ch. 4410.0200 to 4410.6500.

4. Minn. R. 4410.2800, subp. 4 provides that a final EIS shall be determined adequate if it:

> A. addresses the potentially significant issues and alternatives raised in scoping so that all significant issues for which information can be reasonably obtained have been analyzed in conformance with part 4410.2300, items G and H;
>
> B. provides responses to the substantive comments received during the draft EIS review concerning issues raised in scoping; and
>
> C. was prepared in compliance with the procedures of the act and parts 4410.0200 to 4410.6500.

[222] Ex. DOC-252 at 2 (Rakow Surrebuttal).

5. The final EIS adequately addresses of each of the factors listed in Minn. R. 4410.2800, subp. 4 supports a determination that the final EIS is adequate.

6. The Commission must determine that Xcel Energy has demonstrated that the Prairie Island ISFSI is designed to provide a reasonable expectation that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).

7. The final EIS supports the conclusion that Xcel Energy has demonstrated that the design of the ISFSI is such that it can be reasonably expected that the operation of the ISFSI will not result in groundwater contamination in excess of the standards established in Minnesota Statute 116C.76, Subd. 1, clauses (1) to (3).

8. Minn. R. 7855.0120 sets forth the criteria used by the Commission to determine the need for large energy projects, including expansion of the ISFSI. The Rule states that the Commission shall grant a certificate of need if the record demonstrates, by a preponderance of the evidence, that:

> A certificate of need shall be granted to the applicant if it is determined that:
>
> 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, considering:
>
> (1) the accuracy of the applicant's forecast for demand for the energy or service that would be supplied by the proposed facility;
>
> (2) the effects of existing or expected conservation programs of the applicant, the state government, or the federal government;
>
> (3) the effects of promotional practices in creating a need for the proposed facility, particularly promotional practices that have occurred since 1974;
>
> (4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and
>
> (5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;

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, considering:

(1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;

(2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

(3) the effect of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

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, considering:

(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

(2) the effect of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effect of not building the facility;

(3) the effects of the proposed facility or a suitable modification thereof, in inducing future development; and

(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; 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.

9. The record in this proceeding and in the Company's most recent IRP Docket demonstrate the reasonableness of Xcel Energy's forecast for energy demand.

10. Conservation efforts have been considered by the Company and cannot replace the need for the Project.

11. No promotional activities have given rise to the need for the Project.

12. There are no current or planned facilities not requiring a certificate of need that can meet the needs met by the Project.

13. The Project makes efficient use of resources by generating reliable, carbon-free energy with minimal physical environmental footprint.

14. The Project will enhance the future adequacy, reliability, and efficiency of energy supply in Minnesota and the region.

15. An evaluation of alternatives demonstrated that there is not a more reasonable or prudent alternative to the Project, considering the Project size, type and timing.

16. The record demonstrates that the consequences to society of granting the CN are expected to be more favorable than the consequences of denying the CN.

17. The record demonstrates that the Project can be constructed and operated in compliance with all applicable federal, state, and local policies, rules and regulations.

18. Application of each of the factors listed in Minn. R. 7855.0120 supports granting of the requested CN.

RECOMMENDATION

1. It is recommended that the Minnesota Public Utilities Commission issue to Northern States Power Company d/b/a Xcel Energy a Certificate of Need for Additional Dry Cask Storage at the Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation in Goodhue County, with the following conditions:

a. Xcel Energy must justify any costs (including operations-and-management expense, ongoing capital expense—including revenue requirements related to capital included in rate base—insurance expense, land-lease expense, and property/production tax expense) that are higher than forecasted in this proceeding. Xcel Energy bears the burden of proof in any future regulatory proceeding related to the recovery of costs above those forecasted in this proceeding.

b. The Commission will otherwise hold the Company accountable for the price and terms used to evaluate the Project.

c. Ratepayers will not be put at risk for any assumed benefits that do not materialize.

d. Xcel Energy's customers must be protected from risks associated with the non-deliverability of accredited capacity and/or energy from the Project. The Commission may adjust Xcel Energy's recovery of costs associated with this Project in the future if actual production varies significantly from assumed production over an extended period.

e. Xcel Energy shall file Prairie Island Nuclear Generating Plant reports as follows:

    i. Content: The reports shall contain —

        1. Xcel Energy's estimate of the number of casks required to run the Prairie Island Plant through 2053/54;

        2. the amount of fuel being loaded each cycle;

        3. the capacity of the cask selected; and

        4. a summary of all proceedings before federal regulatory authorities in the past two years regarding licensure of the facility and removal of waste.

ii. Recipients: Xcel Energy shall file the reports with —

1. the Commission and

2. the chairs of the committees with jurisdiction over energy and environmental policy issues in both the Minnesota House of Representatives and Senate.

iii. Timing: Xcel Energy shall file the reports on or before January 15, 2031, and by January 15 of odd-numbered years thereafter until either —

1. a new certificate of need application has been filed for additional storage for the Prairie Island Plant to operate beyond 2053/54 or

2. the plant has begun the process of decommissioning.

NOTICE

Notice is hereby given that exceptions to this Report, if any, by any party adversely affected must be filed under the time frames established in the Commission's rules of practice and procedure, Minn. R. 7829.2700 and 7829.3100, unless otherwise directed by the Commission. Pursuant to Minn. R. 7829.2700, subp. 3, the parties will be granted an opportunity for oral argument before the Commission prior to its decision. The Commission will make the final determination of the matter after the expiration of the period for filing exceptions, or after oral argument, if an oral argument is held. The Commission may, at its own discretion, accept, modify, or reject the ALJ's recommendations. The recommendations of the ALJ have no legal effect unless expressly adopted by the Commission as its final order.

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