

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION AND BACKGROUND

NRC

“Each application must include a supplement to the environmental report that complies with the requirements of Subpart A of 10 CFR 51.” 10 CFR 54.23

“...The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decisionmakers...” (NRC 1996a, Section 1.3; NRC 1996b, Page 28472).

“...The NRC’s NEPA decision standard for license renewal would require the NRC to determine whether the environmental impacts of license renewal are so great that preserving the option of license renewal for future decisionmakers would be unreasonable.” (NRC 1996b, Page 28471)

The U.S. Nuclear Regulatory Commission (NRC) licenses the operation of domestic nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and NRC implementing regulations. Nuclear Management Company (NMC) operates Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2, pursuant to NRC Operating Licenses DPR-42 and DPR-60. The license for PINGP Unit 1 will expire August 9, 2013, and the license for PINGP Unit 2 will expire October 29, 2014 (NRC 2000a).

NMC has prepared this environmental report (ER) in conjunction with its application to NRC to renew the PINGP operating licenses, in accordance with the following NRC regulations:

- Title 10, Energy, Code of Federal Regulations (CFR), Part 51, Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions, Section 51.53, Postconstruction Environmental Reports, Subsection 51.53(c), Operating License Renewal Stage [10 CFR 51.53(c)].
- Title 10, Energy, CFR, Part 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants, Section 54.23, Contents of Application-Environmental Information (10 CFR 54.23).

1.2 STATEMENT OF PURPOSE AND NEED

NMC adopts for this ER the following NRC general definition of purpose and need for the proposed action, as stated in NRC's *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437 (NRC 1996a, Section 1.3; NRC 1996b, page 28472):

The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decision makers.

The proposed action would provide the option to operate PINGP Unit 1 and PINGP Unit 2 for an additional 20 years.

1.3 ENVIRONMENTAL REPORT SCOPE AND METHODOLOGY

NRC regulations for domestic licensing of nuclear power plants require environmental review of applications to renew operating licenses. The NRC regulation 10 CFR 51.53(c) requires that an applicant for license renewal submit with its application a separate document entitled *Applicant's Environmental Report - Operating License Renewal Stage*. In determining what information to include in the PINGP ER, NMC has relied on NRC regulations and the following supporting documents that provide additional insight into the regulatory requirements:

- NRC supplemental information in the *Federal Register* (NRC 1996b, NRC 1996c, NRC 1996d, and NRC 1999a)
- Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS) (NRC 1996a and 1999b)
- Regulatory Analysis for Amendments to Regulations for the Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (NRC 1996e)
- Public Comments on the Proposed 10 CFR Part 51 Rule for Renewal of Nuclear Power Plant Operating Licenses and Supporting Documents: Review of Concerns and NRC Staff Response (NRC 1996f)

NMC also obtained general guidance regarding format and content of the ER from the following NRC documents:

- Supplement 1 to NRC Regulatory Guide 4.2, *Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses* (NRC 2000b)
- Supplement 1 to NUREG-1555, *Standard Review Plans for Environmental Reviews for Nuclear Power Plants (Operating License Renewal)* (NRC 1999c)

Table 1-1 indicates where the ER responds to each requirement of 10 CFR 51.53(c). In subsequent chapters of this ER, each section is prefaced by a boxed quote of the regulatory language and applicable supporting document language.

1.4 PRAIRIE ISLAND NUCLEAR GENERATING PLANT LICENSEE AND OWNERSHIP

PINGP is owned by Northern States Power Company (NSP), which is a wholly owned utility operating subsidiary of Xcel Energy Inc. (Xcel Energy). As the plant's owner, NSP has the exclusive right to the energy generated by PINGP. NMC, which is wholly owned subsidiary of Xcel Energy, operates and maintains PINGP on behalf of NSP. NSP is licensed by NRC to own PINGP, while NMC is licensed to use and operate the facility (65 FR 98, pp. 31935-36).

The *Nuclear Power Plant Operating Service Agreement* (NPPOSA) between NSP and NMC established NMC as the sole operator of PINGP and defines the owner-operator relationship. The NPPOSA provides for owner services and assistance to NMC for safe, economic, and efficient operation of PINGP. Implementation of the NPPOSA is achieved by continuance of functional relationships among owner/operator organizations regarding environmental matters. These functional relationships provide for close coordination among corporate and plant staff for efficient and effective environmental management (NSP 1999). NMC and its employees are obligated to comply with all corporate policies listed in Exhibit D of the NPPOSA, including Xcel Energy's Code of Conduct and Environmental Policy (Xcel Energy 2006).

**TABLE 1-1
ENVIRONMENTAL REPORT RESPONSES TO LICENSE RENEWAL
ENVIRONMENTAL REGULATORY REQUIREMENTS**

Regulatory Requirement	Responsive ER Section(s)
10 CFR 51.53(c)(1)	Entire Document
10 CFR 51.53(c)(2), Sentences 1 and 2	3.0 The Proposed Action 3.2 Refurbishment Activities 3.3 Programs and Activities for Managing the Effects of Aging
10 CFR 51.53(c)(2), Sentence 3	7.3 Environmental Impacts of Alternatives
10 CFR 51.53(c)(2) and 10 CFR 51.45(b)(1)	4.0 Environmental Consequences of the Proposed Action and Mitigating Actions
10 CFR 51.53(c)(2) and 10 CFR 51.45(b)(2)	6.3 Unavoidable Adverse Impacts
10 CFR 51.53(c)(2) and 10 CFR 51.45(b)(3)	7.0 Alternatives to the Proposed Action 8.0 Comparison of Environmental Impacts of License Renewal with the Alternatives
10 CFR 51.53(c)(2) and 10 CFR 51.45(b)(4)	6.5 Short-Term Use Versus Long-Term Productivity of the Environment
10 CFR 51.53(c)(2) and 10 CFR 51.45(b)(5)	6.4 Irreversible and Irrecoverable Resource Commitments
10 CFR 51.53(c)(2) and 10 CFR 51.45(c)	4.0 Environmental Consequences of the Proposed Action and Mitigating Actions 6.2 Mitigation 7.3 Environmental Impacts of Alternatives 8.0 Comparison of Environmental Impacts of License Renewal with the Alternatives
10 CFR 51.53(c)(2) and 10 CFR 51.45(d)	9.0 Status of Compliance
10 CFR 51.53(c)(2) and 10 CFR 51.45(e)	4.0 Environmental Consequences of the Proposed Action and Mitigating Actions 6.3 Unavoidable Adverse Impacts
10 CFR 51.53(c)(3)(ii)(A)	4.2 Surface Water and Groundwater Use Conflicts 4.2.1 Impact on Mississippi River Flows and Water Levels 4.2.2 Indirect Impacts from Surface Water Use
10 CFR 51.53(c)(3)(ii)(B)	4.3 Entrainment of Fish and Shellfish in Early Life Stages 4.4 Impingement of Fish and Shellfish 4.5 Heat Shock
10 CFR 51.53(c)(3)(ii)(C)	4.2.3 Groundwater Use Conflicts (Plants Using >100 gpm of Groundwater) 4.2.4 Groundwater Use Conflicts (Plants Using Ranney Wells)
10 CFR 51.53(c)(3)(ii)(D)	4.2.5 Degradation of Groundwater Quality

**TABLE 1-1 (CONTINUED)
ENVIRONMENTAL REPORT RESPONSES TO LICENSE RENEWAL
ENVIRONMENTAL REGULATORY REQUIREMENTS**

Regulatory Requirement	Responsive ER Section(s)	
10 CFR 51.53(c)(3)(ii)(E)	4.6	Impacts of Refurbishment on Terrestrial Resources
	4.7	Threatened and Endangered Species
10 CFR 51.53(c)(3)(ii)(F)	4.8	Air Quality During Refurbishment (Non-Attainment or Maintenance Areas)
10 CFR 51.53(c)(3)(ii)(G)	4.9	Impact on Public Health of Microbiological Organisms
10 CFR 51.53(c)(3)(ii)(H)	4.10	Electromagnetic Field – Acute Effects
10 CFR 51.53(c)(3)(ii)(I)	4.11	Housing
	4.12	Public Utilities: Public Water Supply Availability
	4.13	Education Impacts from Refurbishment
	4.14	Offsite Land Use
10 CFR 51.53(c)(3)(ii)(J)	4.15	Transportation
10 CFR 51.53(c)(3)(ii)(K)	4.16	Historic and Archaeological Resources
10 CFR 51.53(c)(3)(ii)(L)	4.17	Severe Accident Mitigation Alternatives
10 CFR 51.53(c)(3)(iii)	4.0	Environmental Consequences of the Proposed Action and Mitigating Actions
	6.2	Mitigation
10 CFR 51.53(c)(3)(iv)	5.0	Assessment of New and Significant Information
10 CFR 51, Appendix B, Table B-1, Footnote 6	2.5.3	Minority and Low-Income Populations

CFR = Code Of Federal Regulations

1.5 REFERENCES

- NRC (U.S. Nuclear Regulatory Commission). 1996a. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*. NUREG-1437, Volumes 1 and 2, Office of Nuclear Regulatory Research. Washington, DC. May.
- NRC (U.S. Nuclear Regulatory Commission). 1996b. "Environmental Review for Renewal of Nuclear Power Plant Operating Licenses." *Federal Register*. Vol. 61, No. 109. (June 5, 1996): 28467-97.
- NRC (U.S. Nuclear Regulatory Commission). 1996c. "Environmental Review for Renewal of Nuclear Power Plant Operating Licenses; Correction." *Federal Register*. Vol. 61, No. 147. (July 30, 1996): 39555-6.
- NRC (U.S. Nuclear Regulatory Commission). 1996d. "Environmental Review for Renewal of Nuclear Power Plant Operating Licenses." *Federal Register*. Vol. 61, No. 244. (December 18, 1996): 66537-54.
- NRC (U.S. Nuclear Regulatory Commission). 1996e. *Regulatory Analysis for Amendments to Regulations for the Environmental Review for Renewal of Nuclear Power Plant Operating Licenses*. NUREG-1440. Office of Nuclear Regulatory Research. Washington, DC. May.
- NRC (U.S. Nuclear Regulatory Commission). 1996f. *Public Comments on the Proposed 10 CFR Part 51 Rule for Renewal of Nuclear Power Plant Operating Licenses and Supporting Documents: Review of Concerns and NRC Staff Response*. Volumes 1 and 2. NUREG-1529. Office of Nuclear Regulatory Research. Washington, DC. May.
- NRC (U.S. Nuclear Regulatory Commission). 1999a. "Changes to Requirements for Environmental Review for Renewal of Nuclear Power Plant Operating Licenses; Final Rule." *Federal Register*. Vol. 64, No. 171. (September 3, 1999): 48496-507.
- NRC (U.S. Nuclear Regulatory Commission). 1999b. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS)*. Section 6.3, "Transportation" and Table 9-1, "Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants." NUREG-1437. Volume 1, Addendum 1. Office of Nuclear Reactor Regulation. Washington, DC. August.
- NRC (U.S. Nuclear Regulatory Commission). 1999c. *Standard Review Plans for Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal*. NUREG-1555, Supplement 1. Washington, D.C. October.
- NRC (U.S. Nuclear Regulatory Commission). 2000a. *Northern States Power Company and Nuclear Management Company, LLC; Docket No. 50-263; Prairie Island Nuclear Generating Plant, Units No. 1 and 2; Facility Operating License, Amendments 153 and 144*. August.

NRC (U.S. Nuclear Regulatory Commission). 2000b. *Supplement 1 to NRC Regulatory Guide 4.2, Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses*. Office of Regulatory Research. Washington D.C. September.

NSP (Northern States Power Company). 1999. "Nuclear Power Plant Operating Service Agreement Between Northern States Power Company and Nuclear Management Company for the Prairie Island Nuclear Generating Plant." November.

Xcel Energy. 2006. "Xcel Energy Code of Conduct." August 22.