

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

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Chair  
Commissioner  
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ADMINISTRATIVE  
HEARINGS

In the Matter of the Application of Northern States  
Power Company, d/b/a Xcel Energy, for a  
Certificate of Need to Establish an Independent  
Spent Fuel Storage Installation at the Monticello  
Generating Plant

ISSUE DATE: October 23, 2006

DOCKET NO. E-002/CN-05-123

ORDER GRANTING CERTIFICATE OF  
NEED FOR INTERIM INDEPENDENT  
SPENT FUEL STORAGE INSTALLATION

12-2500-16407-2

**PROCEDURAL HISTORY**

**I. Initial Proceedings**

On January 18, 2005, Northern States Power Company, d/b/a Xcel Energy, filed an application for a certificate of need to build a nuclear waste storage facility at its Monticello generating plant. The facility is intended to store spent fuel from the Monticello generating plant until the federal Department of Energy transports it to a permanent or temporary national nuclear storage facility. The waste would be stored in dry casks in an above-ground facility.

On April 7, 2005, the Commission issued its order finding the application substantially complete and its notice and order for hearing. The Commission required a supplementary filing, which the Company made on June 15, 2005.

On February 2 and 16, 2006, public hearings were conducted in Monticello and St. Paul.

On March 20, 2006, the Department of Commerce (the Department) issued its Final Environmental Impact Statement (EIS). On August 1, 2006, the Department issued a notice indicating that the Commissioner of the Minnesota Department of Commerce determined the Final EIS to be adequate.

The case was assigned to Administrative Law Judge (ALJ) Steve Mihalchick, who conducted contested case proceedings. The ALJ issued his Findings of Fact, Conclusions of Law and Recommendations (the ALJ's Report) on August 4, 2006.

The Commission met on September 26 and 28 to consider the matter.

## **II. The Parties and their Representatives**

The following parties filed testimony or memoranda in this case:

- Xcel Energy, represented by B. Andrew Brown, Dorsey and Whitney LLP, 50 S. Sixth Street, Minneapolis, Minnesota 55402.
- The Minnesota Department of Commerce, represented by Linda Jensen and Valerie Smith, Assistant Attorneys General, 445 Minnesota Street, Suite 1400, St. Paul, Minnesota 55101.
- The Minnesota Center for Environmental Advocacy (MCEA) and Minnesotans for an Energy-Efficient Economy (ME3) as intervenors, represented by Thomas P. Harlan and Katherine Becker Madigan, Madigan, Dahl & Harlan, P.A., 701 Fourth Avenue South, Suite 1700, Minneapolis, Minnesota 55415. Elizabeth Goodpaster, Attorney at Law, 26 East Exchange Street, Suite 206, St. Paul, Minnesota 55101, also appeared for and on behalf of MCEA.
- North American Water Office (NAWO), represented by George Crocker, P.O. Box 174, Lake Elmo, Minnesota 55042.

## **III. Proceedings Before the Administrative Law Judge**

The Administrative Law Judge issued a Prehearing Order establishing time frames for pre-filed testimony. Parties filed direct, rebuttal, and surrebuttal testimony in writing and Judge Mihalchick held evidentiary hearings on February 21-23, 2006 in St. Paul. The parties filed initial and reply post-hearing briefs and proposed findings and conclusions for his consideration.

The Administrative Law Judge held public hearings on the Company's application at two locations: Monticello on February 2, 2006, and St. Paul on February 16, 2006. The Administrative Law Judge heard oral comments and admitted several exhibits from the non-party public into the record.

On August 4, 2006, the Administrative Law Judge issued his report. In brief, he recommended that the Commission issue a certificate of need to Xcel for the construction and operation of a dry cask spent fuel storage facility at the Monticello nuclear generating plant. The ALJ recommended that the certificate of need authorize up to 30 spent fuel containers, vaults, and associated equipment necessary to allow the plant to continue in operation through 2030.

## **IV. Proceedings Before the Commission**

On August 21, 2006, NAWO filed exceptions to the report of the ALJ, and the Department filed a letter supportive of the ALJ's report, but identifying three areas as needing clarification. On August 22, 2006, ME3/MCEA filed its exceptions.

The Commission heard argument from all parties on September 26 and 28, 2006, and the record closed under Minn. Stat. § 14.61, subd. 2 on September 28.

Having reviewed the entire record herein, and having heard the arguments of all parties, the Commission makes the following findings, conclusions, and order.

## **FINDINGS AND CONCLUSIONS**

### **V. Factual Background**

#### **A. The Monticello Generating Plant**

The Monticello generating plant has been in operation since 1970. It is licensed by the Nuclear Regulatory Commission (NRC) to operate through 2010. The plant operates a single unit boiling water reactor powered by nuclear fuel. The plant produces approximately 10 percent of Xcel Energy customers' electric energy requirements.

The Monticello generating plant has a history of reliable power production. The reliability of baseload generating facilities is usually measured in terms of capacity factor – the ratio between the plant's average load and its peak load during a given period of time. Monticello has an average capacity factor of 88.3%.

The Monticello plant also has an excellent operating record, receiving the General Electric Outstanding Plant Performance Award for boiling water reactors annually for the past 10 years and in 17 of the last 22 years. The plant also has "green" indicators from the Nuclear Regulatory Commission's Reactor Oversight Process, the highest performance indicator given by the NRC.

Each nuclear fuel assembly provides heat constantly over about a six-year period before its output declines to the point it is no longer useful. Currently, spent nuclear fuel assemblies are removed from the reactor and stored on racks in the Monticello plant's spent fuel pool. The plant is now running out of storage space. The existing spent fuel storage capacity at Monticello will be exhausted by 2010.

In March 2005, Xcel filed an application with the NRC to renew the operating license for an additional 20 years, or until 2030.

#### **B. The Storage Facility Proposed by the Company**

Under Xcel's proposal, up to 30 spent fuel storage canisters would be placed in horizontally configured concrete storage vaults and arranged in rows on a concrete pad within the storage facility. The storage facility and 30 containers would enable the Monticello plant to operate through 2030.

Xcel proposed to store the spent fuel from the Monticello facility in a system manufactured by Transnuclear, Inc. (Transnuclear). The storage site and storage vaults will be monitored with cameras, other security devices, and temperature sensors. The storage vaults are made of reinforced concrete and are designed to provide radiological shielding, protection from environmental conditions, structural integrity, and heat removal.

Two fences will surround the facility, with a monitored, clear zone between them. Within the storage area, spent fuel will be encased in a canister, placed in a transfer cask for removal to modular concrete vaults, then removed from the transfer cask and stored in the vault, which will be placed on a reinforced concrete support pad, 18 - 24 inches thick.

The proposed facility is designed for relatively long-term interim storage, based upon the legal obligation of the federal Department of Energy to develop a permanent repository at Yucca Mountain, Nevada, or provide other permanent repositories. The date when Yucca Mountain will open, however, remains uncertain.

Xcel proposed to begin construction of the proposed storage facility in July 2007, and begin storage of spent fuel beginning in July 2008.

### **C. Parallel Proceedings**

Different units of government have jurisdiction over different aspects of Xcel's proposal for the Independent Spent Fuel Storage Installation (ISFSI). Accordingly, the Company has been and continues to be a party to proceedings in several other forums.

#### **1. The EIS**

Xcel has completed proceedings commenced before the Environmental Quality Board (EQB) in November 2004, which at that time had responsibility for preparing the environmental review for the proposal under Minn. Stat. §§ 116C.83, subd. 6(b), and 116D, the Minnesota Environmental Policy Act. The Legislature transferred the authority to prepare the Environmental Impact Statement from the EQB to the Department effective July 1, 2005.

On August 1, 2006, the Department issued a notice indicating that the Commissioner of the Department of Commerce determined the Final Environmental Impact Statement to be adequate.

#### **2. Proceedings Before the NRC**

The Company filed an application with the NRC to renew its operating license for the Monticello plant for an additional 20 years on March 24, 2005. The re-licensing application is still pending.

As part of the re-licensing process, the NRC prepared a Generic Environmental Impact Statement (GEIS), which applies to all facilities. Xcel has also prepared an individual supplement for the Monticello facility, a Specific Environmental Impact Statement (SEIS).

The NRC has established requirements for the design, construction and operation of an ISFSI and the use of storage containers as part of an ISFSI and memorialized these requirements in 10 C.F.R. Part 72. The storage technology proposed by Xcel, the Transnuclear NUHOMS 61 BT spent nuclear fuel container, storage vault, and transport system, already has been licensed by the NRC in 2001.

## **VI. Public Opinion**

The certificate of need statute requires the Commission to hold at least one public hearing at a time and place convenient for the public to obtain public opinion on the application. The statute also requires the Commission to designate a Commission employee to facilitate public participation in the hearing process. Minn. Stat. § 216B.243, subd. 4.

The Commission, through the Administrative Law Judge, held afternoon and evening public hearings on this application - on February 2, 2006, in Monticello; and on February 16, in St. Paul. The Commission designated David L. Jacobson as its liaison with the public. The Commission encouraged the public to express opinions on the application by attending the public hearings or by filing written comments with the Administrative Law Judge. In addition to receiving oral comments, the Administrative Law Judge admitted several exhibits from the public into the record.

At the hearings, over 30 persons testified. Numerous public and private citizens testified in favor of extending the Monticello generating plant's operating license. A number of speakers stressed the socioeconomic benefits to the state and local economies arising from the operation of the plant, which provides reliable, reasonable cost electricity and associated employment and contributions to the tax base in the area.

Thirteen private citizens living in close proximity to the plant appeared and spoke at the public hearings. One resident expressed concern that environmental data regarding the facility was not reliable because of the financial interests involved. Two residents expressed concern over the potential health impacts of dry cask storage, in addition to the potential impacts of living near the plant. Another resident questioned whether there was any longer-term solution available for the disposal of spent fuel. A fourth person expressed concern that other producers could ship spent fuel to Monticello.

Nine citizens living in the Monticello area expressed opinions in favor of granting the certificate of need. One described the positive impact of Xcel on the community, as an employer and private citizen. The Nuclear Director for Wright County supported the dry cask storage proposal as meeting the safety concerns of her board. The Superintendent of Schools for Monticello expressed his support for approval to maintain low energy costs, and described the disaster planning arranged with Xcel to provide for student safety. Other citizens cited the benefits of nuclear power, such as a healthy tax-base, improved employment, and the absence of airborne pollutants compared to gas or coal.

Other private citizens, as well as Citizens United for Responsible Energy (CURE), the Sierra Club, and State Senator Ellen Anderson of St. Paul expressed opposition to the requested certificate of need, citing the length of time that the spent fuel remains toxic, the continued absence of a long-term storage facility, and the dangers inherent in transporting the spent fuel.

The Consumer Affairs unit at the Public Utilities Commission received two comments from the public expressing concern about safety issues at the Monticello plant.

## **VII. Summary of Major Issues**

The major issue to be determined in this proceeding is whether Xcel has demonstrated need for the proposed facility, as need is defined in the certificate of need statute, Minn. Stat. § 216B.243, and its implementing rules, Minn. Rules, Chapter 7855.

## **VIII. Summary of Commission Action**

The Commission has reviewed the record, examined the Report of the Administrative Law Judge, and heard the arguments of all parties. The Findings of Fact, Conclusions of Law, and Recommendations of the Administrative Law Judge are comprehensive, thoughtful, and thorough. The Report carefully reviews the arguments of all parties and the evidence.

The Commission reaches the same conclusion for the same reasons. The Commission finds that Xcel has demonstrated need for a certificate of need for the proposed facility – an interim spent fuel storage installation for thirty dry cask storage canisters. Thirty storage canisters will allow the Company and its ratepayers to reap the benefits of full power production at Monticello through 2030.

Until then, dry cask storage remains the most prudent, cost-effective option for meeting the load currently served by the Monticello generating plant. All of the alternatives examined by the Company or proposed by other parties would cost Xcel, and its ratepayers, more than dry storage canisters.

Allowing Xcel to continue dry cask storage until 2030 at the Monticello generating facility will enable it to continue to provide clean, reliable, and low cost energy to the citizens of Minnesota and neighboring states. No other form of generation considered for meeting current load compared favorably to this option.

The Commission therefore accepts, adopts, and incorporates by reference the Report of the Administrative Law Judge.

**IX. The Company has Demonstrated Need for the Proposed Facility Under the Certificate of Need Statute and Rules**

**A. The Legal Standard**

**1. The Statute**

The certificate of need statute, Minn. Stat. § 216B.243, subds. 3 and 3a, requires the Commission to establish criteria for assessing the need for large energy facilities and list factors the Commission must take into account:

Subd. 3. **Showing required for construction.** No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures and unless the applicant has otherwise justified its need. In assessing need, the commission shall evaluate:

- (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;
- (2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;
- (3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18 or, in the case of a high-voltage transmission line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;
- (4) promotional activities that may have given rise to the demand for this facility;
- (5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;
- (6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;
- (7) the policies, rules, and regulations of other state and federal agencies and local governments;

(8) any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically;

(9) with respect to a high-voltage transmission line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

(10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7;

(11) whether the applicant has made the demonstrations required under subdivision 3a; and

(12) if the applicant is proposing a nonrenewable generating plant, the applicant's assessment of the risk of environmental costs and regulation on that proposed facility over the expected useful life of the plant, including a proposed means of allocating costs associated with that risk.

**Subd. 3a. Use of renewable resource.** The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

## **2. Certificate of Need Rules**

The Commission's certificate of need rules incorporate and expand on the statutory factors. Those rules require the Commission to issue a certificate of need when the following requirements have been met:

- 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;



- (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 effects 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 effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects 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.

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.

Minn. Rules, part 7855.0120.

The rule's criteria are interrelated, but will be addressed individually, since the rule requires written findings on each of them. Minn. Rules, part 7855.0100. All four criteria have been met.

**B. The Effect of Denying the Certificate on the Adequacy, Reliability, Safety, or Efficiency of Future Energy Supply**

The Commission concurs with the Administrative Law Judge that denying the certificate of need would cause an adverse effect on the future adequacy, reliability, safety or efficiency of energy supply to Xcel's customers, the people of Minnesota, and the people of neighboring states.

**1. Efficiency**

The rule requires that denying the certificate of need not adversely affect the efficiency of future energy supply. Denying this certificate, and forcing the retirement of the Monticello generating plant in 2010, would adversely affect the efficiency of future energy supply. With the exception of the Prairie Island generating plant, Monticello is Xcel's most cost-efficient plant. The economic benefits to Xcel ratepayers of re-licensing Monticello is consistently in the range of \$1.8 to \$1.9 billion dollars in Present Value of Revenue Requirements (PVR). Many of the efficiencies of continued operation arise from the fact that the fixed costs associated with the Monticello plant have already been incurred. In contrast, new installations would require both new capital investment as well as variable operating costs.

**2. Reliability**

The Commission finds the reliability of the Company's energy supply would be negatively affected by the alternatives to dry cask storage proposed by the parties. As will be discussed, renewable technologies such as wind, and conservation efforts have not yet been shown to be sufficiently reliable and cost-effective to completely replace the energy produced at the Monticello generating plant.

**3. Other Factors**

The Commission is required to consider several issues when considering the "effect on future energy supply." The Commission concurs with the Administrative Law Judge that Xcel will experience a capacity deficit by 2010 if the Monticello generating plant is closed. Replacing the facility would require approximately 600 MW of baseload capacity and associated energy, nearly continuously, beginning in October 2010.

The Commission, like the Administrative Law Judge, finds that Xcel's conservation programs can slow the growth in demand for electricity, but cannot reduce demand in a way that would replace Monticello. The Commission also agrees with the Administrative Law Judge that Xcel has not engaged in promotional programs that have created the need for spent fuel storage. Nor does the

Commission find anything in the record to support a finding that facilities not requiring certificates of need could eliminate the need for the proposed facility.

### **C. The Existence of More Reasonable Alternatives**

The certificate of need rules require the applicant to outline in its application all reasonable alternatives to the proposed facility and the applicant's reasons for declining to propose each alternative. Minn. Rules, part 7855.0610. The rules anticipate that intervenors will both support alternatives identified by the applicant and advance alternatives of their own. The Commission is required to give all alternatives careful scrutiny. Minn. Rules, part 7855.0120, clause B.

There are two aspects to a consideration of alternatives to the ISFSI: 1) alternatives to the ISFSI as a storage medium for spent fuel; and 2) alternatives to the Monticello generating plant for the supply of electric power until 2030.

#### **1. Alternative Means of Handling Spent Fuel**

The record includes discussion of the following methods of handling spent fuel other than dry cask storage: on-site storage of spent fuel in other types of facilities, reprocessing of spent fuel, use of existing off-site storage facilities, the proposed Private Fuel Storage Initiative (PFSI) in Skull Valley, Utah, and Yucca Mountain.

The Administrative Law Judge found as a fact that on-site non-cask storage alternatives -- including rod consolidation, increasing storage pool capacity, re-racking and construction of a new on-site pool -- do not provide viable, cost-effective, alternatives to dry cask storage. The Commission accepts and adopts those conclusions.

The Commission also agrees with the Administrative Law Judge's rejection of the remaining methods of handling spent fuel considered by the ALJ. Several other alternatives must be quickly dismissed as essentially unworkable. Reprocessing remains next to impossible, since commercial reprocessing facilities do not currently exist in the United States. Nor are there off-site storage locations currently accepting spent fuel.

The proposed PFSI in Skull Valley, Utah is currently on hold. An application has been filed with the NRC, an EIS has been prepared, regulatory reviews have been completed, and a license has been issued. The state of Utah has opposed the project, however, and there is no certainty as to when, or if, construction and eventual operation of the project will occur. Moreover, even if the facility is eventually completed, it will not eliminate the need for some storage at the Monticello plant.

Intervenors ME3 and MCEA submitted testimony questioning the likelihood that Yucca Mountain would ever open, whether it will be safe, and whether it will have the capacity for the spent fuel generated by the Monticello plant from 2010 to 2030. Intervenors' expert, Dr. Gordon Thompson, testified that there are no other viable federal disposal options, and that the most likely scenario

would be that the federal government would “take title” to the spent fuel, and leave it on-site at the generating facility indefinitely.

The federal government has affirmed its commitment to construct a repository for spent nuclear fuel from commercial reactors at Yucca Mountain, Nevada. Concerns do remain, however, both in terms of the timing of construction and/or eventual acceptance of spent fuel. The current schedule proposed by the Department of Energy does not ensure that the facility would be available early enough to prevent the need for on-site storage expansion at Monticello. The Department of Energy has notified commercial operators that due to fiscal and other issues at Yucca Mountain, it could not resume its delivery commitment schedule to give commercial operators a place in line for receipt of spent fuel.

The Department considered an Innovative Energy Project.<sup>1</sup> No such project currently exists in Minnesota. However, the Department evaluated a hypothetical integrated gasification combined cycle unit, and found that it would not meet the availability or timing criteria necessary to serve as an alternative to the ISFSI. The Commission rejects this alternative for the same reasons.

Finally, the Administrative Law Judge found, after evaluation, that the no-build alternative must also be rejected. The ALJ found that if the ISFSI is not approved and built, Xcel will have to buy replacement power when the Monticello plant ceases operations in 2010. The no-build alternative is not viable because it would exacerbate the capacity deficit Xcel would have at that time.

Intervenors ME3 and MCEA argued that the record in this case is inadequate to prove the need for the ISFSI. Intervenors argued that the most glaring omission is the failure of Xcel to provide any support for the contention that the facility would be temporary, and its failure to present any analysis of how the proposed facility can be maintained responsibly for the duration of its use.

Intervenors, however, acknowledged that there is no presently available off-site alternative to ISFSI storage. Intervenors also did not dispute that there is no presently available or reasonable on-site alternative to ISFSI storage.

The Administrative Law Judge concluded upon review of the entire record that the certificate of need should be granted, allowing continued operation of the Monticello plant until 2030.

After thorough and careful review of all alternatives considered, the Commission accepts and adopts the Administrative Law Judge’s findings and recommendations that no more reasonable and prudent alternative to the Monticello generating plant has been demonstrated to exist and that construction and operation of on-site storage at the Monticello plant is the best alternative for meeting the spent fuel storage needs of the Monticello plant.

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<sup>1</sup> Minn. Stat. § 216B. 1694, sub. 2(7).

## **2. Generation Alternatives**

### **a. Parties' Positions**

Xcel argued that denying the certificate of need would likely result in the construction of a new fossil fuel baseload plant, because none of the renewable energy alternatives evaluated by the Company or the Department could replace the Monticello plant at a reasonable cost.

Xcel and the Department examined multiple alternatives to provide a replacement for the electricity generated by the Monticello generating plant. Xcel examined six scenarios consisting of distributed generation (DG) alternatives, as well as six community based options involving demand-side management (DSM), wind and other DG sources that would use small generation sources. The Department also evaluated three "central station alternatives" as alternative forms of generation.<sup>2</sup>

Distributed generation alternatives were evaluated by the Company and the Department. For the EIS, the Department invited 20 experts to participate in a collaborative process to identify possible DG combinations and scenarios, including renewables such as wind, biomass, biodiesel, ethanol, hydro-power, digesters, and DSM, that might serve as alternatives to extension of the Monticello operating license.

The Department calculated the cost of renewable DG alternatives to exceed the cost of extension of the Monticello operating license by \$2.708 billion. Further, Xcel presented evidence that each of the DG sources create negative environmental effects, including consumption of land, fuel and impact on natural ecosystems. Biomass and bio-diesel require significant crop acreage and produce substantial air emissions. Ethanol and digesters pose significant supply limitations. Wind power currently remains limited by technological efficiency and available sites.

Xcel argued that the DSM programs and increased conservation programs proposed simply cannot counter the overall growing demand for electricity and cannot replace a large, continuously operated plant such as Monticello, which generates approximately 600 MW of power. DSM can contribute only approximately 100 MW of power under reasonable assumptions.

Intervenors, relying on testimony of their expert, Michael Michaud, argued that the modeling conducted by the Department: 1) underestimated the benefits of distributed ownership of generation assets; 2) underestimated the benefits of avoided transmission costs; 3) improperly limited the analysis of externalities to those approved by the Commission; 4) improperly excluded generation units smaller than 10 kW; 5) under-estimated savings from reduced transmission losses; and 6) underestimated wind capacity factors.

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<sup>2</sup> These included renewables on a stand-alone basis, a combination of renewables and non-renewable sources, and non-renewable alternatives.

Intervenors' expert did not calculate the individual or cumulative economic costs of the claimed errors. Mr. Michaud proposed an alternative mix of renewable sources to replace the power generated at the Monticello plant, but did not provide an estimate of the associated costs of the proposal.

Department and Xcel witnesses rebutted intervenors' expert as follows:

- 1) The computer modeling utilized by the Department and Xcel, the Strategist program, specifically included generation sources from small, locally owned projects;
- 2) While disputing the premise that transmission costs can necessarily be avoided, the Department re-ran cost estimates using the most favorable set of assumptions to intervenors, resulting in a modest decline in the cost of renewables of \$265 million. This amount was deemed insufficient by the Department and Xcel to alter their position with respect to continued use of the nuclear generating plant;
- 3) Expansion of the list of externalities made renewables less advantageous compared to nuclear power, because many renewables generate air emissions or other environmental harms that nuclear power does not;
- 4) The modeling used did not utilize a 10 kW cutoff as intervenors claims;
- 5) Any benefits of reduced transmission losses from dispersed generation would be offset by the investment required to ensure standby service; and
- 6) The Department and Xcel revised cost estimates to reflect the higher wind capacities asserted, but the extreme cost differential remained.

The Department also screened alternatives for "central station generation," ultimately including a coal-fired facility with an interim or bridge source, a wind/gas combination, an integrated gasification combined cycle plant, and DG options in their analysis.

Computer modeling of these central station generation alternatives utilized by Xcel and relied upon by the Department indicated that the present value revenue requirements necessary to meet customer demand for electricity would be at least \$395 million higher if Monticello is shut down in 2010 compared to continuing operation through 2030. Computer modeling also predicted that the costs of gas plants or a gas/wind alternative would be even higher.

The Department also performed "uncertainty analyses" to assess the potential impact of three factors that could not be predicted with adequate certainty: future natural gas prices; continued ownership of Monticello by Xcel; and the length of the storage of nuclear waste at Monticello.

The Department's analysis found that the costs related to natural gas had, if anything, been underestimated. Thus, the cost of the natural gas combined cycle plant would also have been underestimated.

Uncertainties regarding a possible change in ownership or control of Monticello was raised by the Department, but resolved to its satisfaction by Xcel's commitment to provide adequate notice to the Department and the Commission in advance of any proposed sale or transfer of the facility.

Finally, the effect of a longer period of storage at Monticello than expected was evaluated by the Department, but found to result in changes too small to alter the ranking of alternatives. Thus, the Department concluded that uncertainties affecting the three economic analyses raised do not affect its conclusion that the ISFSI is the most economical option.

Intervenors ME3 and MCEA argued that the record in this case is legally inadequate to prove the need for the proposed facility. Intervenors argued that Xcel had failed to consider adequately the numerous available alternative means of meeting Minnesota's energy needs and to introduce evidence of compliance with Minn. Stat. §116C.83, subd. 3<sup>3</sup> and the Minnesota Environmental Rights Act.

**b. The Administrative Law Judge's Recommendation**

The Administrative Law Judge concluded that no alternative to Xcel's at-reactor cask storage has been shown to be more reasonable or prudent than Xcel's proposed storage facility. Replacing the Monticello plant with any form of alternative generation would result in significantly higher costs for Xcel to produce electrical power, potentially less reliability, and significantly negative air quality impacts if coal or natural gas fueled facilities were utilized.

The Administrative Law Judge found that the collective savings of all quantifiable adjustments urged by NAWO expert witness Michaud regarding distributed generation would result in a net savings of at most \$625 million from the original \$2.708 billion cost differential estimate.

The Administrative Law Judge found that incremental nuclear externality costs do not significantly change the financial impact of re-licensing. The ALJ found with respect to the uncertainty analysis performed by the Department that:

- 1) it is likely that future natural gas prices have been under-estimated, if anything, resulting in an understated cost of the natural gas combined cycle plant;
- 2) Xcel agreed to advise the Department and the Commission in advance of any proposed change in ownership or control of Monticello; and
- 3) the costs associated with a possible longer period of storage at Monticello (from 50 - 200 years) would not change the ranking of alternatives.

The ALJ found that Xcel and the Department's analysis demonstrates that the externality cost of off-site exposure impacts and/or economics attributable to radioactive emissions from routine operations is zero, due to below detectable off-site radiation levels.

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<sup>3</sup> Minn. Stat. §116C.83 sets forth the means for commission authorization for additional dry cask storage and imposes a requirement of legislative review of any decision by the commission on an application for a certificate of need.

c. **Commission Action**

The Commission accepts and adopts the findings of the Administrative Law Judge, that the alternatives considered are not cost competitive with continued operation of the Monticello generating plant and ISFSI.

No alternative was shown to be more reasonable and prudent than the proposed storage facility. Xcel adequately demonstrated that it is approximately \$1 billion less expensive for ratepayers than any alternative analyzed in the record: 1) a partially renewable distributed generation option would cost about \$1.2 - \$1.3 billion more; 2) a fully renewable DG replacement would cost about \$2.6 - \$2.7 billion more; and 3) a central station natural gas combined cycle unit would cost between \$715 million to \$823 million more PVRR than the proposed storage facility.

The Administrative Law Judge also examined externality values, or environmental cost factors, in this proceeding. However, as recognized by the Administrative Law Judge, while the Commission has established externality values for the emission of certain air pollutants – SO<sub>2</sub>, PM<sub>10</sub>, CO, NO<sub>x</sub>, PB and CO<sub>2</sub><sup>4</sup> – the Commission has not quantified an externality value for emissions of radioactivity from nuclear facilities. The Commission concurs with the Administrative Law Judge's handling of externalities in this matter.

Xcel has demonstrated its firm commitment to increased use of wind power, as well as other renewables, in meeting its renewable energy objectives. In the course of its recently completed resource plan,<sup>5</sup> Xcel determined that it could expand its reliance on wind generation by 1,680 megawatts over the 15-year planning period (2005 - 2019), as recommended by the Department and environmental intervenors to that proceeding. Xcel also committed to adding 300 megawatts of wind under the new community-based energy-development (C-BED) program by 2007, and a total of 500 megawatts of C-BED wind by 2010.

While increased reliance on wind generation is a cornerstone of Minnesota energy policy, wind alone, or in conjunction with other renewables, is not yet a reliable, affordable means by which to replace the 600 MW of generation necessary from continued operation of the Monticello plant.

For all the reasons set forth above, the Commission concludes the most reasonable action on this application is to grant the certificate of need to build a nuclear waste storage facility at the Monticello generating plant to store up to 30 canisters.

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<sup>4</sup> See, e.g., *In the Matter of the Quantification of Environmental Costs Pursuant to Laws of Minnesota 1993, Chapter 356, Section 3*, E-999/CI-93-583, Order Establishing Environmental Cost Values (December 16, 1996). The Commission has issued four different Orders on externalities.

<sup>5</sup> *In the Matter of Northern States Power Company d/b/a Xcel Energy's Application for Approval of its 2005-2019 Resource Plan*, E-002/ RP-04-1752, Order Approving Resource Plan as Modified, Finding Compliance with Renewable Energy Objectives Statute, and Setting Filing Requirements (July 28, 2006).



#### **D. Consequences to Society of Granting or Denying Certificate**

The certificate of need rules require the Commission to weigh the social consequences of granting the certificate against the social consequences of denying it. In making this analysis the Commission is to consider the relationship of the facility to the state's overall energy needs, the effects of the facility on the natural and socioeconomic environments, the effects of the facility in inducing future development, and the socially beneficial uses of the facility's output, including the protection or enhancement of environmental quality. The Commission is convinced the benefits of granting the certificate of need outweigh the benefits of denying it.

It is clear from the record that denying the certificate of need for the proposed facility would mean the closure of the Monticello plant in 2010, which would result in a four to five million megawatt hours per year loss of electrical supply that would have to be replaced. This amount of power could only be replaced by baseload plant or plants with 600 megawatts of capacity, powered by coal or natural gas, with their consequent costs and disadvantages. Denial of the certificate would therefore have an adverse effect upon the future adequacy, reliability, safety and efficiency of the energy supply.

Denial of the certificate of need would also harm those with more direct economic ties to the Monticello plant -- the approximately 414 permanent plant employees and their families, as well as long term contractors and temporary workers, Wright County and the City of Monticello, whose economies benefit from Monticello salaries and property taxes; the local school district, which benefits from the property taxes and increased prosperity the plant brings.

Granting the certificate of need, on the other hand, would continue the positive benefits enjoyed by those with direct economic ties to the plant, as well as to Minnesota citizens generally. Numerous witnesses at the public hearings stressed the benefits to the state and local economies from the operation of the Monticello plant and its clean, reliable supply of low cost electricity. Members of the public expressed concern that the current state of alternative energy sources was insufficiently reliable to meet the needs of Xcel's industrial customers. Business leaders urged the Commission to avoid taking actions that would increase the cost of electricity.

Granting the certificate of need and ensuring Monticello's continued operation would be a cost effective and efficient use of existing resources. Over the years Xcel has invested significant resources to continue adherence to regulatory requirements, perform maintenance and address component aging. Only limited major capital investments will be necessary to keep the plant operating efficiently beyond 2010.

Some members of the public opposed adding additional storage at the Monticello plant. One witness suggested that allowing additional on-site storage would delay implementation of alternative energy sources, and urged implementation of renewable technologies to exceed current levels and mandated minimum requirements. State Senator Ellen Anderson commented that nuclear waste has been generated for more than 50 years with no realistic plan for permanent

storage. Other witnesses commented critically on the assumptions built into the analytical framework utilized with respect to the life span of the storage facility proposed.

The Commission is satisfied from the record and the findings by the Administrative Law Judge, that the Monticello plant's continued operation will have a minimal impact on environmental resources over the period of ISFSI operation.

The federal Nuclear Regulatory Commission, of course, has primary responsibility for ensuring that nuclear plants pose no significant health or safety risks, and that agency has primary jurisdiction over health and safety issues relating to nuclear operations. Still, this Commission has examined those issues as they relate to Minnesota law and concurs with the ALJ that there is no reasonable likelihood of adverse health or safety impacts from the proposed facility.

As the ALJ noted, the final EIS points to widespread consensus among medical experts that any public health risk from the regulated use of radioactive materials is very small. Any increased cancer risk posed by the facility was calculated to be so small as to be negligible. And the amount of radiation exposure that would result from the facility was determined to be indistinguishable from the amount of background radiation always present in the environment. Under normal operating conditions, then, the facility does not raise significant health or safety issues.

The EIS also examined disaster scenarios – from operational accidents to terrorist attacks to earthquakes and floods – and found that the risks they presented ranged from low to very low. And the Monticello plant's consistently outstanding safety record lends additional support to these conclusions.<sup>6</sup>

Further, the Company has agreed to work with the Minnesota Department of Health to establish an additional radiation monitoring system, similar to the one used at the Prairie Island ISFSI, to provide continuous, real-time radiation readings for Health Department use. The system will use two pressurized ion chambers located on the perimeter of the storage facility that will provide precise radiation measurements twenty-four hours per day. This additional measure of protection, designed and operated for Minnesota-specific use, demonstrates the high value the Company places on public health and safety and its willingness to work with state and local authorities to address public concerns in these areas.

For all these reasons, the Commission concurs with the ALJ that the proposed facility poses no health or safety risks requiring denial of the proposed certificate of need.

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<sup>6</sup> See e.g., ALJ Finding 28, which notes the Monticello plant's exemplary safety record.

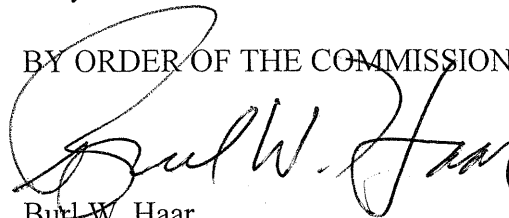
**E. Company Compliance with Requirements Imposed by Other Units of Government**

As found by the Administrative Law Judge, Xcel has demonstrated that the ISFSI will comply with applicable state and federal laws and policies, including but not limited to license requirements imposed by the Nuclear Regulatory Commission.

**ORDER**

1. The Commission accepts, adopts, and incorporates the findings, conclusions, and recommendations of the Administrative Law Judge in this matter.
2. Xcel's application for a certificate of need to construct the proposed interim spent fuel storage installation to store up to 30 canisters is granted.
3. Xcel shall provide adequate notice to the Commission and the Department in advance of a proposed sale or transfer of the spent fuel storage facilities at the Monticello generating plant.
4. Within 30 days of the date of the Order, Xcel shall file a report of its discussions with the Minnesota Department of Health and the NRC, including any agreements reached for monitoring radiation from the independent spent fuel storage installation at the Monticello generating plant.
5. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION



Burl W. Haar  
Executive Secretary

(S E A L)

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