



# **Report on Nuclear Plant Decommissioning**

**Pursuant to  
Minnesota Statutes, Section 216B.2445**

**July 31, 2019**

## **Legislative Report – Generally Required Information**

Minnesota Public Utilities Commission  
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Minnesota Statutes, Section 216B.2445, subdivision 3, requires the Minnesota Public Utilities Commission (Commission) to report on the costs of decommissioning Minnesota nuclear power plants and related issues within 180 days of the Commission's orders on its periodic review of nuclear decommissioning costs.

Pursuant to Minnesota Statutes, Section 3.197, the Commission estimated costs for preparing this Report are minimal as most of the information contained in this Report is developed in the normal course of business. Special funding was not appropriated for the costs of preparing this Report.

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## BACKGROUND

Minnesota Statutes, Section 216B.11, Depreciation Rates and Practices, directs the Minnesota Public Utilities Commission (Commission) to set depreciation, amortization, or depletion rates for utility property which every public utility is required to follow. Commission rules require utilities to file for depreciation certification at least every five years.

Nuclear facilities present the need to plan for very large end-of-life decommissioning costs compared to other types of electric power facilities, due to the costs of handling and removing radioactive plant elements, related equipment, and spent fuel. The Commission first addressed nuclear decommissioning issues independent of normal depreciation methods in its February 26, 1981 Order in Docket No. E-002/D-79-956. In its October 27, 1987 Order in Docket E-002/D-86-604, the Commission determined that future comprehensive reviews of Xcel Energy's decommissioning costs and financial parameters would occur every three years instead of every five years, and the Commission has continued that practice.

In 2011, Minnesota Statutes, Section 216B.2445, was enacted, pertaining specifically to nuclear power plant decommissioning and storage of used nuclear fuel.

Subdivision 1 requires the Commission to evaluate Minnesota government entities' and tribal communities' costs related to storing used nuclear fuel following the cessation of nuclear plant operations. It also requires Xcel to provide costs estimates for storing such fuel in the state for 60, 100, and 200 years after the nuclear plants cease operations.

Subdivision 3 requires the Commission to submit a Report to the Legislature after each periodic review that includes the following:

- (1) an explanation of the commission's funding decisions regarding nuclear decommissioning;
- (2) the progress of the United States Department of Energy to remove from Minnesota spent fuel produced by nuclear generating plants in Minnesota;
- (3) an analysis of the financial and other obligations related to decommissioning and storage of used fuel of the utility holding title to spent nuclear fuel to the state and to host communities, including affected tribal communities; and
- (4) any recommendations to the legislature on legislation or other actions that may be necessary for addressing long-term or indefinite storage costs.

This Report covers the Commission's most recent review of Xcel Energy's nuclear decommissioning accruals, for the period 2019 through 2021, in Docket E-002/D-17-828.

The Commission's *Order Approving Decommissioning Study, Decommissioning Accrual, and Taking Other Action*, was issued on January 7, 2019. The Order included a requirement that Xcel make a filing by July 15, 2019 updating certain calculations. The Order is attached to this Report.

Xcel Energy's next full triennial decommissioning plan is due December 1, 2020.

## **COMMISSION'S FUNDING DECISIONS REGARDING NUCLEAR DECOMMISSIONING**

### **Introduction**

The Commission's triennial nuclear decommissioning reviews examine Xcel Energy's decommissioning planning and assumptions and establish accrual rates to be collected in its electric utility rates necessary to fund the post-operation decommissioning costs of its Monticello and Prairie Island nuclear generating plants. All nuclear decommissioning amounts are deposited into a Nuclear Decommissioning Trust Fund (NDT). In addition to the federal Nuclear Regulatory Commission (NRC) requirements related to nuclear decommissioning trusts and investments, the Commission also examines Xcel's NDT's financial parameters, returns and investment safety/risks.

When establishing the accrual amounts to be collected in Xcel Energy's rates, the Commission attempts to arrive at a reasonable cost estimate for decontamination and removal of nuclear facilities at the end of their operating lives and to set an accrual to accumulate funds sufficient to pay those decommissioning costs.

### **Timeframe for Storage and Removal of On-site Spent Fuel**

Due to the delays in the Federal Government's ability to take ownership of the spent nuclear fuel, the Commission, starting in docket E-002/M-11-939, began using a 60-year post-operation assumption for the storage and removal of the spent nuclear fuel. The 2019 Order continued to base the accrual amounts on the 60-year assumption. However, as required by statute, the record also contains analysis of 100- and 200-year assumptions.

### **Decommissioning Cost Assumptions**

The Commission's Order in docket E-002/M-14-761 approved an annual decommissioning cost accrual of \$14,030,861 and an end-of life nuclear fuel accrual of \$2,020,602. These accruals were to be reflected in rates for the period of January 1, 2016 to December 31, 2018.

Xcel Energy recommended leaving the annual nuclear decommissioning accrual rate at the approximately \$14 million approved by the Commission in docket 14-761, while planning decisions on the future of the nuclear units were under consideration in Xcel's Resource Plan. The three nuclear reactors will reach the end of their respective license lives during the fifteen-

year planning period covered by the then-upcoming 2019 Integrated Resource Plan, (2019 IRP)<sup>1</sup>.

Xcel Energy presented an array of possible decommissioning scenarios for each plant along with their respective accrual, including early shutdown and life extensions, and under two different methods of decommissioning. Under these scenarios, and assuming spent fuel stored on site for 60 years and no re-casking, the results ranged from annual accruals of \$115.9 million to negative \$16.0 million.

Xcel Energy originally calculated a \$45.6 million accrual amount using the same assumptions made in its 2014 study. Xcel Energy attributed most of the annual accrual increase from \$14.0 million to \$45.6 million to changes in anticipated financial returns on funds in the NDT. Subsequently, Xcel Energy calculated a \$44.4 million annual accrual after correcting for jurisdictional allocators. Additionally, Xcel's initial 2017 filing calculated the revised end-of life nuclear fuel accrual to be \$2,040,887, which was subsequently revised to \$2,003,526. These are the amounts recommended by the Department of Commerce.

The Department of Commerce recommended increasing the annual accrual to approximately \$45 million which reflects Xcel Energy's calculation of the annual accrual under the same assumptions used in the 2014 study updated for current conditions. The Department stated using this information would reflect the best information available at the time as to the annual accrual needed.

In its comments, the Prairie Island Indian Community encouraged the Commission to adopt whatever decommissioning scenario and methods result in the fastest completion of the Prairie Island nuclear facility's decommissioning.

The Commission's January 7, 2019 Order set the January 1 to December 31, 2019 annual decommissioning and the end-of life nuclear fuel accruals to remain at \$14,030,861 and \$2,020,602, respectively. However, beginning in 2020, the two accruals change to \$44,400,000 and \$2,003,526 respectively. The Commission agreed with the Department's recommendation to start using the higher accrual amounts to be the most conservative and reasonable approach.

The Commission also directed Xcel Energy to make a filing on July 15, 2019 updating financial inputs and other considerations that could possibly result in modification of the accrual amounts. Xcel has now made this filing, which is currently out for comment by interested parties.

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<sup>1</sup> Electricity generated by the Monticello and Prairie Island Nuclear Generating Plants comprise nearly 30% of the electricity used by Xcel Energy's customers in the upper Midwest. Xcel Energy filed its 2020-2035 resource plan on July 1, 2019. Among many other proposals, Xcel Energy's preferred resource plan includes a license extension of 10 years for the Monticello plant.

In addition, the Commission set the due date for the next triennial decommissioning plan for December 1, 2020, and set out some specific issues to be addressed.

### **Decommissioning Fund Investments and Performance**

The increase in the annual accrual from approximately \$14.0 to \$44.4 million is primarily the result of changes to investment assumptions which highlight the impact of the NDT's financial performance.

To better examine Xcel's investment assumptions and the NDT's financial performance, the Commission's February 27, 2017 Order in the 2014 docket instructed Xcel to retain a third-party expert to evaluate the NDT's investment strategy. On August 25, 2017, Xcel filed the third-party's evaluation that found Xcel's investment strategy to be reasonable. On July 2, 2018, the Commission issued an Order accepting Xcel's strategy as reasonable.

## **STATUS OF PROGRESS BY THE UNITED STATES DEPARTMENT OF ENERGY TO REMOVE SPENT NUCLEAR FUEL FROM MINNESOTA**

### **Background on Federal Program for Disposal of Spent Nuclear Fuel**

The Nuclear Waste Policy Act (NWPA) of 1982 established a federal program to dispose of spent nuclear fuel and other high-level radioactive wastes. The NWPA set a deadline of January 31, 1998 for the United States Department of Energy (DOE) to begin removal and disposal of spent nuclear fuel and other high-level nuclear waste from commercial nuclear reactors. The NWPA also set out procedures and standards for licensing a selected repository through independent review by the federal Nuclear Regulatory Commission (NRC).

The NWPA established a nuclear waste fund (NWF) to pay for the program, through a one mil (one-tenth of a cent) per kilowatt-hour charge for electricity generated from nuclear plants. DOE entered into contracts with commercial reactor operators to take the waste in exchange for payment of the nuclear waste fees. The NWPA also included provisions intended to ensure that there would be adequate on-site interim storage of spent fuel, including the development of dry cask storage facilities.

By 1986, DOE had studied nine potential nuclear waste repository sites in six states, narrowed the list to three sites, and found Yucca Mountain, Nevada to be the highest-ranking site. In 1987, the NWPA was amended to direct the DOE to consider only the Yucca Mountain site for a permanent repository. In 2002, the DOE Secretary recommended Yucca Mountain for the development of repository, and a joint resolution of Congress affirming the selection was passed into law, over the objections of the state of Nevada.

In 2008, DOE submitted its license application to the NRC for the repository. In 2009, the then Administration announced plans to terminate DOE's Yucca Mountain project and funding related to the project was significantly reduced for both the DOE and NRC.

In 2010, the Administration effectively shut down the Yucca Mountain project, and established a Blue Ribbon Commission (BRC) to recommend a new approach for the nuclear waste program. The BRC presented its *Report to the United States Secretary of Energy on America's Nuclear Future* in January of 2012, containing specific recommendations to use a consent-based, incremental approach to implementing the federal waste management program and siting disposal facilities.

In January 2013, the DOE responded to the BRC's report and committed to apply a consent-based process for its spent fuel disposal program, with the intent to:

- license a pilot-scale interim storage facility to be operational by 2021,
- license a larger consolidated interim storage facility by 2025, and
- establish a permanent geologic repository with license and design by 2042 and operations starting in 2048.

Since 2014, the NRC staff has completed the Yucca Mountain Safety Evaluation Report (SER), in which it concluded that, with exceptions relating to ownership of land and water rights that DOE had not yet secured, safety requirements were met. On May 16, 2016, the NRC staff issued a Supplement to DOE's Environmental Impact Statement addressing certain Yucca Mountain ground water issues. An adjudicatory hearing on both DOE's safety analysis and the SER, which is a prerequisite for the NRC's licensing decision, remains in suspension.

### **Current Status of Federal Program for Disposal of Spent Nuclear Fuel**

No appropriations were enacted in fiscal years 2016 or 2017 for the DOE nuclear waste management program, or for the NRC to continue the Yucca Mountain licensing process and secure the necessary land rights.

The current Administration included funds to restart DOE's Yucca Mountain licensing in its FY 2018 and FY 2019 budget submissions to Congress. The FY 2018 funding was approved by the House of Representatives but not enacted. The Administration's FY 2019 budget request included \$120 million for Yucca Mountain.

At least two private sector entities have recently proposed interim storage facilities while a permanent repository solution is finalized.

- On April 28, 2016, Waste Control Specialists LLC (WCS) submitted a license application to the NRC for a consolidated interim storage facility in West Texas. On April 18, 2017, WCS asked the NRC to temporarily suspend work on its application while the sale of the company to EnergySolutions is pending.

- On March 31, 2017, Holtec International submitted a license application with the NRC for a consolidated interim storage facility in New Mexico.

In addition to funding considerations, several important policy considerations for a comprehensive spent nuclear fuel disposal program remain unresolved.

Both proponents and opponents of the Yucca Mountain deep geologic repository remain resolute in their positions. While Yucca Mountain remains the sole legally-designated deep geologic repository for spent nuclear fuel, its entire capacity is fully subscribed such that it could not accept all spent nuclear fuels in the country. As a result, additional unspecified infrastructure is required to fulfill the NWPA disposal requirements.

The degree to which siting decisions should be consent-based remains unsettled. There is a lack of unanimity over which government representatives could (or should) grant consent for siting approvals.

Several bills have been brought before Congress to address these issues and further a spent nuclear fuel disposal system including:

- The Nuclear Waste Policy Amendments Act of 2019 was introduced on May 14, 2019 as HR 2699 to establish a new organization to manage nuclear waste, provide a consensual process for siting nuclear waste facilities, and ensure adequate funding for managing nuclear waste.
- The Storage and Transportation of Residual and Excess Nuclear Fuel Act was introduced on June 6, 2019 to authorize an interim spent nuclear fuel storage program.
- The Spent Fuel Prioritization Act of 2019 would prioritize the acceptance of high-level radioactive waste or spent nuclear fuels

### **Status of the Federal Nuclear Waste Fund**

The NWPA established a nuclear waste fund (NWF) to pay for the DOE civilian nuclear waste disposal program, through a one mil (one-tenth of a cent) per kilowatt-hour charge to utility nuclear plant operators for electricity generated from nuclear plants. The fee became effective in 1983. Utilities collected the federally-mandated fees from their ratepayers as part of their cost of energy.

After protracted legal battles, which included active participation by the National Association of Regulatory Utility Commissions (NARUC), nuclear utilities, and others, the U.S. Court of Appeals ruled in November 2013 that DOE must, within six months, do a thorough assessment of whether continuing to collect the one-mil/kWh nuclear waste fee was necessary. The Court put DOE on notice that if DOE did not suspend the fees after its evaluation, the Court had authority to suspend the fees and find that they could not be reinstated unless the DOE complied with the NWPA or Congress enacted an alternative program. The DOE suspended the fees on May 16, 2014.



Xcel stopped collecting the one-mill/kWh nuclear waste fee from its customers through its fuel clause effective May 16, 2014, reflected on bills starting in June 2014.

U.S. ratepayers have paid in more than \$20 billion to the NWF, and when including accumulated interest, the fund had a balance at the time of suspension of more than \$30 billion. Minnesota ratepayers have paid more than \$457 million (not including interest earned on those funds) into the NWF. In theory, these monies are still in the NWF and continue to earn interest.

### **DOE Settlement Payments to Xcel**

The NWPA required the DOE and the utilities to enter into a standard contract for the disposal of the reactor sites' spent nuclear fuel. Starting no later than January 31, 1998, the DOE was required to take title to, transport, and dispose of the nuclear fuel; however, the DOE not only did not meet the deadline but the spent fuel still remains stranded at the utilities' facilities. As a result, several utilities, including Xcel Energy (Xcel), filed federal lawsuits against the DOE for breach of contract.

The lawsuits sought to recover damages for the resulting on-site spent fuel's on-site storage costs. In July 2011, Xcel and the U.S. Government agreed to settle both lawsuits (Settlement). The Settlement included payment for the spent fuel's 1998 through 2008 costs and a mechanism to recover damages, without further litigation, through 2013.<sup>2</sup> The Settlement has subsequently been extended to cover damages through December 31, 2019.

The Government's initial \$100 million payment, \$74.4 million attributable to Minnesota ratepayers,<sup>3</sup> was made to Xcel to cover costs through December 31, 2008. The Commission's December 16, 2011 Order (2011 Order) in Docket E-002/M-11-807 found the settlement to be reasonable and approved Xcel's proposal to refund to ratepayers the \$74.4 million, less \$2 million for legal fees and \$2 million to fund the Power On program for low-income customers. Starting in mid-January 2012, the one-time refunds to Minnesota ratepayers' bills began. Xcel has now received nine refunds that cover expenses through December 31, 2017. Subsequent refunds have been used in a variety of ways: one-time ratepayer refunds, deposits into the nuclear decommissioning fund and rate increase moderation in rate cases. Table 1 summarizes the Minnesota-jurisdiction amounts of all DOE refunds to date and the Commission-approved usage of those funds.

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<sup>2</sup> As with other claims against the federal government, damages payments come from general federal funds and not from the NWF.

<sup>3</sup> The difference was allocated to North and South Dakota ratepayers and wholesale customers.

**Table 1 – Historical Usage of DOC Settlement Funds**

Payment No.	Damage Period	Initial Notice of Payment Compliance Filing Date	MN Allocated \$ Amount, in millions	Bill Credit to Customers	Nuclear Decommissioning Trust Account Deposits	Rate Moderation	PUC- Approved Expenses
1	Jan 31, 1998 - Dec 31, 2008	August 5, 2011	\$74.122	\$70.516	\$0.000	\$0.000	\$3.900 <sup>4</sup>
2	Jan 1, 2009 - Dec 31, 2010	April 3, 2012	\$13.671	\$13.671	\$0.000	\$0.000	\$0.000
3	Jan 1, 2011 - Dec 31, 2011	November 14, 2012	\$15.321	\$0.000	\$14.189	\$0.000	\$0.000
4	Jan 1, 2012 - Dec 31, 2012	December 6, 2013	\$31.544	(\$0.267)	\$14.189	\$17.622	\$0.000
5	Jan 1, 2013 - Dec 31, 2013	January 12, 2015	\$24.392	\$2.090	\$14.189	\$8.113	\$0.000
6	Jan 1, 2014 - Dec 31, 2014	December 31, 2015	\$9.742	\$9.742	\$0.000	\$0.000	\$0.000
7	Jan 1, 2015 - Dec 31, 2015	November 21, 2016	\$13.831	\$13.831	\$0.000	\$0.000	\$0.000
8	Jan 1, 2016 - Dec 31, 2016	December 8, 2017	\$11.207	\$11.207	\$0.000	\$0.000	\$0.000
9	Jan 1, 2017 - Dec 31, 2017	November 21, 2018	\$11.353	\$11.353	\$0.000	\$0.000	\$0.000

## **THE OBLIGATIONS OF THE UTILITY HOLDING SPENT NUCLEAR FUEL TO STATE AND LOCAL HOST COMMUNITIES RELATED TO DECOMMISSIONING AND STORAGE**

In Docket 11-939, the Commission required Xcel to work with the host communities and the Prairie Island Indian Community prior to the next triennial filing to address the requirement to evaluate the cost, if any, arising from the storage of spent nuclear fuel to the state, tribal, and local governments once the plants are no longer operating. The Commission required Xcel to file periodic status reports on those discussions.

Xcel Energy asserted that once the nuclear plants cease operations and the fuel is stored on-site, there is no "design-based accident" that would result in radioactive releases that would exceed federal Environmental Protection Agency (EPA) guidelines, and that no off-site radiological emergency plan would be required by the NRC. In 2014, the NRC issued a decision that the Kewaunee nuclear plant in Wisconsin will no longer be required to maintain off-site radiological emergency preparedness plans.

<sup>4</sup> As ordered in Docket No. E-002/M-11-807, \$2 million was set aside for the Power On program (Order Point No. 5) and \$1.9 million was used for litigation expense (Order Point No. 9). Order Establishing Refund Plan, December 16, 2011

The concerns raised by the host communities for long-term storage of nuclear fuel after the plants cease operations included: lost property tax revenues from the lower tax base, the need to provide emergency services, and the impact on the ability of a city to grow. The Prairie Island Indian Community also stated that it would need to continue to be involved in and monitor NRC proceedings and activities.

In Docket 14-761, the Commission required Xcel to continue working with its host communities, and that in its next nuclear decommissioning filing, Xcel develop 60, 100, and 200-year plans for the City of Red Wing to enable better communications with the City and foster an understanding of the long-term safety-related costs of spent fuel storage on host communities.

The Prairie Island Indian Community (Community) filed comments in the most recent docket, 17-828. The Community expressed strong concern that spent nuclear fuel will remain at the Prairie Island Independent Spent Fuel Storage Facility (ISFSI) for many years following discontinuation of generation from the plant, with little assurance of a specific timeline given the Federal government's inaction on permanent storage. The Community stated it has spent considerable resources over the last 20 years to remind members of the Minnesota Congressional delegation of its obligation to fund Yucca Mountain in accordance with the NWPA, and suggests that the State of Minnesota should have the same interest and take action to help assure that spent nuclear fuel is not left in the state for hundreds of years.

## **RECOMMENDATIONS OF THE COMMISSION TO THE MINNESOTA LEGISLATURE**

The Commission is a member of the National Association of Regulatory Utility Commissioners (NARUC), which is comprised of state commissions from all states and territories which regulate industries including energy, telecommunications, water, and transportation. Its mission is to serve the public interest by improving the quality and effectiveness of public utility regulation. The Commission is active in many NARUC committees and activities, including the Subcommittee on Nuclear Issues-Waste Disposal.

Minnesota was a founding member of the Nuclear Waste Strategy Coalition (NWSC), formed in 1993 to advocate for a comprehensive federal solution to the issue of nuclear waste storage. The NWSC now has members from 18 states, and has evolved into an ad hoc organization representing the interest of state utility regulators, state attorneys general, consumer advocates, electric utilities, local governments, tribes, and other stakeholders on resolving nuclear waste policy issues. Minnesota members include the Commission, Xcel Energy, the City of Red Wing, and the Prairie Island Indian Community. The mission of the NWSC is to reform and adequately fund the U.S. civilian high-level nuclear waste transportation, storage, and disposal program that ensures timely and safe waste removal from operating and decommissioned nuclear power plants and that protects ratepayers' substantial investment in the program.

As part of its August 10, 1992 Order granting a limited certificate of need to Xcel Energy for construction of a spent fuel storage facility at its Prairie Island nuclear plant, the Commission required the company to file an annual report on its spent fuel storage program at both Prairie Island and Monticello. These reports, now filed in Docket 09-36, are required to include a description of company initiatives to expedite DOE compliance with its responsibilities to remove and dispose of spent nuclear fuel.

The Commission does not have specific recommendations for the Minnesota Legislature at this time. The situation with respect to the storage of spent nuclear fuel is in a continuous state of change. The Commission will continue to monitor the situation through participation in NARUC and the NWSC, and through other means, including future Xcel Energy triennial nuclear decommissioning filings.

Attachments:

*Order Approving Decommissioning Study, Decommissioning Accrual, and Taking Other Action,*  
Docket E-002/D-17-828, issued on January 7, 2019.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Dan Lipschultz  
Matthew Schuerger  
Katie J. Sieben  
John A. Tuma

Commissioner  
Commissioner  
Commissioner  
Commissioner

In the Matter of the Petition of Northern  
States Power Company for Approval of the  
2019-2021 Triennial Nuclear  
Decommissioning Study and Assumptions

ISSUE DATE: January 7, 2019

DOCKET NO. E-002/M-17-828

ORDER APPROVING  
DECOMMISSIONING STUDY,  
DECOMMISSIONING ACCRUAL,  
AND TAKING OTHER ACTION

**PROCEDURAL HISTORY**

Every three years since 1987, the Commission has reviewed the financial plan to decommission the Monticello and Prairie Island Nuclear Generating Facilities operated by Northern States Power Company d/b/a Xcel Energy (Xcel).<sup>1</sup> In the years between triennial filings, Xcel files an annual letter discussing the financial performance of funds accrued for the eventual decommissioning, known as the Nuclear Decommissioning Trust fund (NDT).

On October 5, 2015, the Commission issued an Order Approving Nuclear Decommissioning Study, Assumptions, and Annual Accrual, and Setting Filing Requirements in Docket No. E-002/M-14-761. The Commission set a \$14,030,861 annual accrual rate effective January 1, 2016 to December 31, 2018, and required Xcel to address a number of specific issues.

On December 1, 2017, Xcel filed its 2019-2021 Triennial Nuclear Plant Decommissioning Accrual petition. On April 1, 2018, Xcel filed corrections to the filing.

On June 1, 2018, the Department of Commerce (the Department) filed comments recommending approval with modifications and seeking additional information.

On June 6, 2018, the Prairie Island Indian Community (the Community) filed comments.

On July 2, 2018, Xcel filed reply comments.

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<sup>1</sup> Minn. Stat. § 216B.11, Depreciation Rates and Practices, directs the Commission to set depreciation rates for utility property. Commission rules require utilities to file for depreciation certification at least every five years. The Commission required periodic reviews prior to 1987, but less frequently than every three years. *In the Matter of the Petition of Northern States Power Company for Depreciation Certification for Expected Decommissioning Costs for the Monticello and Prairie Island Nuclear Steam Generating Facilities*, Docket No. E-002/D-86-604, Findings of Fact, Conclusions of Law, and Order.

On October 1, 2018, the Department filed a response to Xcel's reply comments.

On October 10, 2018, Xcel filed supplemental calculations based on the Department's recommendations in its October 1 filing.

On November 29, 2018, the Commission met to consider the matter.

## **FINDINGS AND CONCLUSIONS**

### **I. Background**

Xcel operates three nuclear generating units in Minnesota for which the Commission requires periodic review of the utility's plans for the plants' eventual decommissioning. The Monticello Nuclear Generating Plant has been operating since September 8, 1970, under a license that is set to expire in 2030. The Prairie Island Nuclear Generating Plant (Units 1 and 2) is operated under licenses that expire in 2033 for Unit 1 and 2034 for Unit 2.

Xcel seeks Commission approval of its triennial nuclear decommissioning study, and of accrual and investment plans for its nuclear decommissioning fund for 2019-2021. This filing closely precedes the filing of the Company's 2019 Integrated Resource Plan (resource plan or IRP).<sup>2</sup>

The primary purpose of the periodic review is to determine a reasonable estimate of the cost to decontaminate and remove the nuclear facilities at the end of their operating lives. Based on that cost estimate, the Commission approves accrual and investment plans intended to establish a fund sufficient to pay decommissioning costs when incurred. Historically, the Commission has sought to ensure that rates charged for generation reasonably reflect the expected cost to decontaminate and decommission the facilities, spread over the expected lives of the plants.

In 2011, the Minnesota Legislature directed the Company to include in its decommissioning accrual filings a cost analysis assuming used nuclear fuel will be stored in the state for 60 years, 100 years, and 200 years.<sup>3</sup> This is the third decommissioning filing subject to this requirement.

### **II. Summary of Commission Findings**

In this order, the Commission will approve the decommissioning study and annual accruals for 2019-2021. The Commission will also approve, beginning in 2020, a \$44.4 million Annual Decommissioning Accrual, subject to possible revision based on a subsequent accrual filing to be made on July 15, 2019, which will update inputs and considers the possible implications of:

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<sup>2</sup> Xcel expects to consider the long-term future of its nuclear plants in the 2019 resource plan (as all three units will reach the end of their respective license lives during the fifteen-year planning period), including continued operation through the end of their licensed lives, possible early retirements of one or more units, and/or possible life extensions.

<sup>3</sup> Minn. Stat. § 216B.2445, subd. 1(b).

- Department of Energy continuing refunds for dry cask storage during the decommissioning process;
- The use of the SAFSTOR decommissioning method;<sup>4</sup> and
- The possible use of third-party contractors for nuclear decommissioning.

Further, the Commission will approve Xcel's proposed NDT investment mix, which the Commission has concluded is appropriate for the nuclear decommissioning fund, and the NDT's transition of investments to bonds five years before decommissioning cash flows are planned to occur. And the Commission will require Xcel to return to ratepayers the Department of Energy (DOE) settlement funds for spent nuclear fuel storage damages for 2017. Finally, the Commission will establish requirements for future triennial filings.

### **III. Xcel's Triennial Decommissioning Filing**

In its current triennial decommissioning filing, Xcel requested that the Commission:

- Approve the Company's decommissioning study and assumptions as compliant with the Company's obligations under Minnesota statutes, Commission rules, and prior Commission precedent;
- Continue the current approved annual accrual of \$14.0 million, to meet the needs of the Company's 60-year spent fuel scenario with no re-casking of the fuel, for 2019 through 2021, while strategic decisions about the future of the nuclear units are decided in Xcel's 2019 IRP;<sup>5</sup>
- Approve an annual accrual of \$2.0 million for end-of-life (EOL) nuclear fuel for the calendar year 2019 through 2021; and
- Permit the Company to hold settlement payments received from the DOE in an interest-bearing account until the 2019 IRP is resolved, at which time the Commission can decide whether to apply those funds to the nuclear development trust fund or return the funds to customers.

Xcel also requested that the Commission approve the following changes to fund-investment assumptions:

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<sup>4</sup> The NRC defines SAFSTOR as a method of decommissioning in which a nuclear facility is placed and maintained in a condition that allows the facility to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use.

<sup>5</sup> Since the three nuclear units will reach the end of their respective license lives during the fifteen-year planning period to be evaluated in the 2019 IRP, Xcel also discussed possible alternatives to be considered in that docket, including early retirements, life extensions, and different decommissioning approaches such as the DECON or SAFSTOR approach.



- Transitioning investments to bonds five years before decommissioning rather than the six years as previously assumed; and
- Changing the investment mix to reduce allocations to certain alternative asset classes and increase allocations to fixed income investments.

Consistent with prior triennial plan orders, the Company included discussions of the DOE settlements funds, recovery of spent-fuel management costs, the financial risk of premature decommissioning, and investment performance of decommissioning fund investments.

The 2014 triennial filing order required Xcel to analyze various decommissioning scenarios and their respective accruals. Compared to 2014, all estimates have risen significantly. Xcel analyzed a range of 20 scenarios, ten based on the decommissioning accrual increasing in 2019 and ten based on the accrual remaining unchanged until 2021. Xcel evaluated the impacts of the assumptions used in each scenario, including those relating to engineering costs, spent fuel storage after plant shutdown, decommissioning fund earnings rates, and length of recovery period.<sup>6</sup>

Finally, in this filing Xcel considered, for the first time since 2002, use of the SAFSTOR approach for removal and decontamination of radiological components as well as the DECON<sup>7</sup> alternative it has used in the past. Xcel predicted that a shift to the SAFSTOR approach would defer a large majority of expense farther into the future, which would allow the NDT to continue to grow.

#### **IV. Overview of Parties' Comments**

##### **A. The Department**

The Department recommended that the Commission approve Xcel's decommissioning study, and generally agreed with the Company's trust fund investment strategies and assumptions. The Department also proposed certain changes to Xcel's end-of-life nuclear fuel accrual inputs. As recalculated to account for the updates to Xcel's jurisdictional allocators in various riders, the Department recommended an end-of-life nuclear fuel accrual of \$2,003,526.

The Department confirmed Xcel's decommissioning cost estimates, but disagreed with Xcel's recommendation to leave the annual nuclear decommissioning accrual rate at \$14 million. Instead, the Department recommended that the annual accrual rate should be increased to approximately \$45 million (\$31.6 million higher than the present accruals) as of January 1, 2019. The Department added that should the Commission adopt this recommendation, the Company

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<sup>6</sup> The scenarios included an assumption that following cessation of operations, spent fuel would be stored in Minnesota for 32, 60, 100, and 200 years, with casks being replaced every 50 years. The Company also included a 60-year scenario that does not include re-casking based on the NRC assumption that casks can be used for 100 years.

<sup>7</sup> The NRC defines DECON as a method of decommissioning in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed and safely buried in a low-level radioactive waste landfill or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations.



should use the projected DOE settlement refunds to reduce the decommissioning accrual. And since the NDT's anticipated returns are higher than those received in an interest bearing account (as recommended by Xcel and the Community), depositing the funds into the NDT would likely benefit both ratepayers and the Company.

## **B. Prairie Island Indian Community**

The Community explained that due to their close proximity to Prairie Island Units 1 and 2, they have a significant interest in ensuring that sufficient funds are available to pay the plants' and the storage facilities' future decommissioning costs. The Community questioned some of Xcel's underlying assumptions on the timelines for removing spent fuel from the site. The Community also raised concerns that nothing is currently being done to remove spent nuclear fuel from sites across the United States, and no funding has been appropriated for either a federal or interim storage facility. Finally, the Community recommended that Xcel be required to plan for the DECON alternative for decommissioning, which would result in a shorter decommissioning period than the SAFSTOR method, and to investigate use of third-party contractors for decommissioning.

## **V. Annual End-of-Life Nuclear Fuel Accrual and Decommissioning Accrual**

### **A. Annual End-of-Life Nuclear Fuel Accrual**

#### **1. Positions of the Parties**

Xcel explained that any unused remaining fuel at the time a nuclear plant shuts down will be casked, which is referred to as end-of-life (EOL) nuclear fuel. This unused fuel cannot be transferred to another facility, so the expense must be amortized at the end of operations. Xcel estimated the costs to be \$122.9 million, lower than the amount projected in 2014 due to changes to the Prairie Island refueling cycles, changes to Monticello's fuel management strategy, and final cycle uranium enrichment assumptions. Due to the anticipated decrease in end-of-life costs, Xcel proposed a reduction in the Minnesota jurisdictional annual accrual recovery from \$2,413,289 to \$2,040,887, based on Xcel's allocators from its 2016 test year in its multi-year rate case.

The Department reviewed Xcel's calculations and initially recommended a \$2,015,395 annual accrual based on the following changes it recommended be made to the Company's inputs:

- Use of a 28.11% tax rate instead of the 41.37% used in Xcel's initial filing;
- Use of Xcel's 2019 capital structure approved in the multi-year rate case instead of that used by the Company; and
- A return on equity of 8.99% instead of Xcel's 9.83%.

In its reply comments, the Department recommended basing the 2019 accrual on 2019 allocators, which would further reduce the end-of-life nuclear fuel accrual to \$2,003,526.

## **2. Commission Action**

The Commission notes that the parties' calculations are not widely disparate, but finds the Department's analysis based on Xcel's 2019 allocators to be more persuasive. The Commission will therefore set an annual end-of-life nuclear fuel accrual of \$2,003,526 beginning in 2020.

### **B. Decommissioning Accrual**

#### **1. Positions of the Parties**

Xcel explained that the objective of the decommissioning docket is to reach a reasonable cost estimate for decontamination and removal of nuclear facilities at the end of their operating lives and to set an accrual to accumulate sufficient funds to pay the decommissioning costs. Xcel asserted that decisions to be considered in the Company's upcoming IRP docket could have a significant impact on the decommissioning analysis and accrual calculation, and that the accrual set in the 2014 triennial filing should be maintained until a decision is reached in the 2019 IRP.

Xcel recommended that the information in this docket be used to inform the IRP docket, and requested that the Company be allowed to file its next decommissioning petition shortly after decisions are made in the 2019 IRP.

In reply comments, Xcel argued that due to the wide range of scenarios and accrual levels that could result from the 2019 IRP, maintaining the current accrual is the most reasonable approach and is in the public interest. Xcel also argued that since its initial filing it has learned that utilities going through nuclear decommissioning have been able to recover dry cask storage costs from the DOE rather than from decommissioning funds.

Further, Xcel argued that utilities are beginning to use third-party contractors to handle decommissioning, at significantly reduced decommissioning costs. Finally, Xcel argued that over the next three years it anticipates collecting some \$45 million in DOE refunds. Maintaining those funds in an interest-bearing account would cover approximately two years of the Department's recommended annual increase.

The Department reviewed Xcel's Monticello and Prairie Island (Units 1 and 2) accrual calculations for all decommissioning scenarios (using the 60-year DECON assumption), and found them to be reasonable. The Department, however, eliminated consideration of a license extension and SAFSTOR related scenarios from its analysis, and concluded that Monticello's accrual would be either \$21.4 million or \$23.7 million. Using the same reasoning for Prairie Island Unit 1 as for Monticello, the Department recommended an annual \$15.0 million increase from the present \$0.05 million accrual. Finally, for Prairie Island Unit 2, the Department recommended an annual accrual of \$9.1 million beginning in 2019, for a total accrual starting in 2019 of \$45.6 million, subsequently updated to \$44.4 million.

Finally, the Department recommended requiring Xcel to use the annual DOE settlement refunds to reduce its recommended increase in the decommissioning accrual.

## **2. Commission Action**

The Commission notes that the decommissioning accrual based on the 60-year scenario used by the parties has more than tripled in the last three years. Based on this, the Commission finds that the Department's recommendation to commence a higher accrual by 2020 to be the most conservative and reasonable approach. Xcel has indicated that it plans to file a new rate case in late 2019. If the Company were again to file a multi-year rate plan, implementation of the higher decommissioning accrual could coincide with an increase in electric rates. However, if the next decommissioning study were to result in a lower accrual, then that reduction could be used to help offset the impact of any rate increases.

Based on these factors, beginning in 2020 the Commission will approve;

- A. An Annual End of Life Nuclear Fuel Accrual of \$2,003,526; and
- B. A \$44.4 million Annual Decommissioning Accrual subject to possible revision based on a subsequent accrual filing to be made on July 15, 2019, that updates inputs and considers the possible implications of:
  - Department of Energy continuing refunds for dry cask storage during the decommissioning process;
  - The use of the SAFSTOR decommissioning method, and
  - The possible use of third-party contractors for nuclear decommissioning

## **VI. Department of Energy Settlement Proceeds**

### **A. Positions of the Parties**

Through contracts with Xcel, the federal government was to assume responsibility for spent nuclear fuel and high-level radioactive waste. Xcel entered a Settlement Agreement with the Department of Energy (DOE) allowing Xcel to recover damages for the federal government's failure to take possession of spent nuclear fuel as agreed. The Commission has authorized different uses of the settlement funds over time, including rate relief in 2013 and 2014, and a bill refund in 2015 and 2016.

In this proceeding, the parties offered alternative uses for the settlement proceeds. Xcel and Community recommended that the 2017 DOE settlement amount be held in an interest bearing account. The Department disagreed, recommending that the 2017 settlement funds be used to reduce the annual decommissioning accrual, which it projects to increase significantly over time.

### **B. Commission Action**

In addressing this issue, the Commission found guidance in the testimony offered by Xcel in its recent multi-year rate case,<sup>8</sup> a position which differs from what the Company has proposed in

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<sup>8</sup> *In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota*, Docket No. E-002/GR-15-826, Perkett Direct at 47-50.

this docket. In her direct testimony in the Company's multi-year rate case, Xcel witness Lisa H. Perkett was asked how Xcel proposed to handle the use of the settlement payments received from the DOE. In response, witness Perkett stated that the Company proposes that settlement payments received from the DOE related to spent nuclear fuel storage costs be refunded to ratepayers at the time the amount is known. Perkett further explained that the Company believes this approach addresses the Commission's order point 9 in Docket 14-761 which states:

Within 120 days of the date of this order or in the next rate case, Xcel shall make a filing to enable the Commission to determine the appropriate method for crediting any future Department of Energy Settlement proceeds resulting from the Settlement extension.

The Commission finds that the Company's approach as stated in the multi-year rate case is preferable to that recommended in this docket. Returning the settlement funds to ratepayers is reasonable, and consistent with the previous practice used to return the DOE settlement refunds to benefit ratepayers.

## **VII. Escalation Rates for Accrual Calculation**

The NDT's investment adviser, Goldman Sachs Asset Management (GSAM) and TLG Services, Inc. (TLG), prepared a forecast analysis for the escalation/inflation rates used in the triennial filing's accrual calculations. Based on this analysis, Xcel recommended escalation rates of 4.05% for the decommissioning labor component and a 2.85% for the non-labor components.

The Department noted that the methodology used by Xcel's consultant, GSAM, differed from the methodology used in Xcel's last triennial report; however, the Department found that the new methodology is reasonable. The Department recommended that in the future Xcel use a consultant to prepare the necessary escalation analysis, rather than the Company preparing it, and the Company agreed.

The Commission agrees with the parties, and will approve Xcel's proposed escalation rate of 4.05% for the decommissioning labor component and 2.85% for the non-labor components, subject to possible change in the July 15, 2019 filings.

## **VIII. Nuclear Decommissioning Trust Investment Mix and Investment Strategy**

### **A. Positions of the Parties**

The Commission's February 27, 2017 order in the previous triennial docket required Xcel to reevaluate the NDT's investment mix with the purpose of reducing the investment management fees and increasing the portfolio's annual return. Xcel proposed an investments mix that removes the commodities and hedge fund real assets (commodities) categories and reallocates those funds to the fixed income category,<sup>9</sup> resulting in a 60% total equity, 30% fixed income, and 10% private real estate mix.

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<sup>9</sup> This is demonstrated in Staff Briefing papers at p. 11, Table 6.

Xcel also requested approval to do an investment reallocation five years before decommissioning—the previous assumption had been that reallocation would occur six years before decommissioning. Xcel explained that if approved, the Company would convert only enough investments to cover each annual cash outflow, and that the change will provide greater returns without adding significant additional risk.

In its March 1, 2018 comments, the Department stated that while returns under the agency's proposed investment portfolio continue to be higher than Xcel's, the differential has decreased over time in this proceeding. The Department concluded that Xcel's performance has improved.

At the Commission meeting, the Department stated that it still did not agree with Xcel's proposed investment changes in this triennial filing, and that it continued to support small changes to the Company's proposed investment mix, including increasing the small cap allocation to 15%, eliminating the real estate holdings, and reducing the high yield bond holdings to 2.4%.

## **B. Commission Action**

The Commission will approve the Company's proposed investment mix strategies and recommended changes to its investment allocation. The Company stated that it has recently discussed the best investment mix with the Department, and the Commission agrees that such discussions are sound policy. The Commission will require the Company to continue discussions with the Department regarding the agency's recommended changes to Xcel's investment portfolio.

The Commission also finds reasonable Xcel's proposal to begin the NDT's transition of investments to bonds five years before decommissioning cash flows are planned to occur is reasonable, and will approve it. Further, the Commission will require Xcel to continue using a consultant to calculate escalation rates in future triennial decommissioning filings. And the Commission will authorize escrow fund reporting requirements to be discontinued in future triennial decommissioning filings.

## **IX. Future Triennial Filing Requirements**

Finally, the Commission will establish requirements for the contents of the next triennial filing to address issues left unresolved in this proceeding due in part to the timing of Xcel's upcoming IRP and to ensure the focus, depth, and quality of information is appropriate for the next comprehensive periodic review.

The Commission will continue to require Xcel to provide balance sheet accounts for Statement of Financial Accounting Standards No. 143 (SFAS 143) in its next triennial decommissioning filing with a brief narrative explaining the numbers provided on the asset retirement obligation (ARO) balance sheet for nuclear decommissioning.

As agreed by the parties, the Commission will also require Xcel to investigate and report on the use of contractors to decommission the Prairie Island Nuclear Generating Plant (PINGP) and to provide an estimate of what the length of time and cost differential would be if a contractor were used. Xcel shall also report on whether the Company ought to redistribute to retail customers the wholesale customer contribution.

Xcel may also address the use of the SAFSTOR methodology in its next decommissioning study.

Finally, the Commission discontinues its requirement for escrow fund reporting in future triennial decommissioning filings.

### **ORDER**

1. The Commission approves Xcel's decommissioning study.
2. Beginning in 2020, the Commission approves:
  - A. an Annual End of Life Nuclear Fuel Accrual of \$2,003,526; and
  - B. a \$44.4 million Annual Decommissioning Accrual, subject to possible revision based on a subsequent accrual filing to be made on July 15, 2019 that updates inputs and considers the possible implications of:
    - Department of Energy continuing refunds for dry cask storage during the decommissioning process;
    - The use of the SAFSTOR decommissioning method; and
    - The possible use of third-party contractors for nuclear decommissioning
3. Xcel may address the use of the SAFSTOR methodology in its next decommissioning study.
4. The Commission approves escalation rates of 4.05% for the decommissioning labor component and 2.85% for the non-labor components, subject to possible change in the July 15, 2019 updated filing.
5. Xcel shall continue using a consultant to calculate escalation rates in future triennial commissioning filings.
6. Xcel's proposed NDT investment mix is approved. Xcel shall continue discussions with the Department of Commerce regarding the agency's recommended changes to Xcel's investment portfolio.
7. Xcel's proposal to begin the NDT's investments' transition to bonds five years before decommissioning cash flows are planned to occur is approved.
8. The Commission accepts the information Xcel provided regarding premature decommissioning risk.
9. Xcel shall provide balance sheet accounts for SFAS 143 in its next triennial decommissioning filing with a brief narrative explaining the numbers provided on the ARO balance sheet for nuclear decommissioning.



10. In its next triennial decommissioning filing, Xcel shall investigate and report on the use of contractors to decommission the PINGP and to provide an estimate of what the length of time and cost differential would be if a contractor were used. Xcel shall also report on whether the Company should redistribute to retail customers the wholesale customer contribution.
11. Escrow fund reporting is no longer required in future triennial decommissioning filings.
12. Xcel shall refund the 2017 Department of Energy settlement funds to ratepayers, and promptly make a compliance filing notifying the Commission that the DOE refunds have been issued.
13. The due date for Xcel's next triennial decommissioning plan is December 1, 2020.
14. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

*Daniel P. Wolf*

Daniel P. Wolf  
Executive Secretary



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