

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger  
Nancy Lange  
Dan Lipschultz  
John A. Tuma  
Betsy Wergin

Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner

In the Matter of a Commission Investigation  
into Xcel Energy's Monticello Life-Cycle  
Management/Extended Power Uprate Project  
and Request for Recovery of Cost Overruns

ISSUE DATE: May 8, 2015

DOCKET NO. E-002/CI-13-754

ORDER FINDING IMPRUDENCE,  
DENYING RETURN ON COST  
OVERRUNS, AND ESTABLISHING  
LCM/EPU ALLOCATION FOR  
RATEMAKING PURPOSES

**PROCEDURAL HISTORY**

**I. Initial Filings and Orders**

On November 2, 2012, Northern States Power Company, d/b/a Xcel Energy (Xcel or the Company) filed its 2012 rate case.<sup>1</sup>

In that case, the Company sought rate recovery of \$587 million for a Life-Cycle Management/Extended Power Uprate (LCM/EPU) project at its Monticello nuclear power plant. The LCM component increased the plant's life by 20 years; the EPU component increased plant capacity by 71 megawatts (MW). The \$587 million cost was a significant increase from Xcel's initial \$320 million estimate in 2008, upon which the Commission had based its approval of the project.<sup>2</sup>

On September 3, 2013, the Commission issued its Findings of Fact, Conclusions, and Order in the 2012 rate case. In that order, the Commission disallowed some of the EPU costs and opened this proceeding to investigate the prudence, reasonableness, and rate recoverability of the combined LCM/EPU costs. The Commission directed its staff to work with the Minnesota Department of Commerce (the Department) to develop a proposal for conducting the investigation.

On December 18, 2013, the Commission approved the Department's proposal, including retaining an expert to assist in evaluating project costs. The Commission referred the investigation to the Office of Administrative Hearings for a contested-case proceeding before an administrative law judge (ALJ) and directed the parties to address the following issues:

---

<sup>1</sup> Docket No. E-002/GR-12-961.

<sup>2</sup> By April 2014, total estimated costs for the project, including financing costs, had reached \$748 million.

- whether Xcel’s handling of the project was prudent,
- whether the Company’s request for recovery of cost overruns is reasonable, and
- which cost increases were due to (1) solely the EPU, (2) solely the LCM, and (3) both projects.

The Commission requested that the ALJ return a recommendation in time for it to be considered in conjunction with Xcel’s 2013 rate case,<sup>3</sup> in which the Company continues to seek full recovery of the Monticello LCM/EPU costs.

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

The following parties appeared in this case:

- Northern States Power Company, d/b/a Xcel Energy, represented by Aakash Chandarana and Alison Archer, Xcel Energy Services Inc., and Michael Krikava, Paul Hemming, and Elizabeth Brama, Briggs and Morgan;
- Minnesota Department of Commerce, Division of Energy Resources (the Department), represented by Julia Anderson, Assistant Attorney General;
- Residential Utilities and Antitrust Division of the Office of the Attorney General (the OAG), represented by Ryan Barlow and Ian Dobson, Assistant Attorneys General; and
- Xcel Large Industrials (XLI), an ad hoc association of Xcel’s large industrial customers, identified as including Flint Hills Resources, LP; Gerdau Ameristeel US Inc.; Unimin Corporation; and USG Interiors, Inc., represented by Andrew Moratzka and Sarah Johnson Phillips, Stoel Rives LLP.

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

The Office of Administrative Hearings assigned ALJ Steve Mihalchick to hear the case.

On July 16, 2014, ALJ Mihalchick and the ALJ assigned to Xcel’s 2013 rate case held a joint prehearing conference. The ALJs determined that the issues of (1) the prudence of the Monticello project costs and (2) the allocation of those costs between the LCM and EPU portions of the project would be addressed in this docket, while the issues of (3) whether the EPU should be considered “used and useful” during 2014 and (4) recovery and amortization of the costs of this prudence investigation would be addressed in the rate case.

The parties filed direct, rebuttal, and surrebuttal testimony prior to the opening of evidentiary hearings. The ALJ held evidentiary hearings in Saint Paul from September 29 to October 1, 2014. After the hearings the parties filed initial briefs, reply briefs, and proposed findings of fact.

On February 2, 2015, the ALJ filed his Findings of Fact, Conclusions of Law, and Recommendations (ALJ’s Report). The ALJ found that Xcel’s handling of the Monticello LCM/EPU project was not prudent and recommended that the Commission disallow \$71.4 million in Minnesota-jurisdictional costs out of total project costs of \$748 million. The ALJ further recommended that the Commission find that the appropriate allocation of LCM and EPU costs was 15% and 85%, respectively.

---

<sup>3</sup> Docket No. E-002/GR-13-868.

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

The following parties filed exceptions to the ALJ's Report under Minn. Stat. § 14.61 and Minn. R. 7829.2700: Xcel, the Department, the OAG, and XLI.

On March 3 and 6, 2015, the Commission heard oral argument from and asked questions of the parties. On March 6, 2015, the record closed under Minn. Stat. § 14.61, subd. 2.

Having examined the entire record in this case, and having heard the arguments of the parties, the Commission makes the following findings, conclusions, and order.

### **FINDINGS AND CONCLUSIONS**

#### **I. Summary of Commission Action**

The Commission finds that Xcel's imprudent management of the Monticello LCM/EPU project was a substantial factor in causing the project's total cost to rise from an initial estimate of \$320 million to final costs of \$748 million.

The Company's mismanagement consisted primarily in pushing the combined LCM and EPU projects forward on an accelerated schedule without an adequate understanding of the project's scope or of challenges presented by the layout of its own plant. Because mismanagement began at the planning stage, and because Xcel has failed to supply enough factual context to permit reliable evaluation of its efforts to address the difficulties resulting from inadequate planning, the precise amount of the costs attributable to imprudence cannot be quantified.

The Commission concludes that the appropriate remedy for Xcel's imprudence is to deny the Company any return on the cost overrun. This resolution recognizes both the Company's imprudent management of the Monticello project and the benefit to ratepayers of having a carbon-free baseload power plant in service for another 20 years with an additional 71 MW of capacity.

Finally, for purposes of determining what portion of the LCM/EPU project is "used and useful" in Xcel's 2013 rate case, the Commission finds that the most appropriate allocation of project costs is 50% LCM, 50% EPU.

#### **II. Factual Background**

##### **A. Introduction**

The Monticello Nuclear Power Generating Plant (Monticello or the plant) is a boiling-water nuclear reactor that Xcel has operated since 1971.

The plant was originally designed to generate 564 MW of electricity and was licensed by the federal Nuclear Regulatory Commission (NRC) to operate until 2010. In 1998, Xcel increased, or "uprated," Monticello's generating capacity to 600 MW using the margins in the existing equipment.

More recently, the Company took steps both to increase the plant's capacity by an additional 71 MW and to extend its life 20 years beyond the initial license period. These measures, collectively known as the Monticello Life-Cycle Management/Extended Power Uprate (LCM/EPU) project, are the subject of this prudence review.

## **B. Initial Regulatory Approvals**

Between 1994 and 2003, Minnesota law made it very difficult to extend a nuclear power plant's operating license. During this time, Xcel had a policy of deferring capital projects at Monticello, expecting that the plant would be shut down and decommissioned in 2010.

In 2003, Minnesota law changed, opening the possibility of extending Monticello's operating license. In March 2005, Xcel sought permission from the NRC to extend the plant's license for 20 years. The NRC ultimately granted the license extension in November 2006.

In January 2005, Xcel filed an application with this Commission for a certificate of need for an Independent Spent Fuel Storage Installation (ISFSI) to store spent nuclear fuel at Monticello.<sup>4</sup> In that application, the Company identified the expected costs of a standalone Life-Cycle Management (LCM) program as \$135 million. In October 2006, the Commission approved the certificate of need for the ISFSI and approved Xcel's decision to continue operating Monticello in compliance with the NRC license extension.

In 2006, the Company decided to combine its LCM program with an effort to seek an Extended Power Uprate (EPU) to increase the plant's output by 71 MW to 671 MW. Xcel's decision to "multi-track" the projects was based on the then-forecasted need for additional baseload capacity. The Company proceeded with the licensing, design, engineering, and implementation phases of the project concurrently.

In order to perform the EPU, Xcel had to get regulatory approval from both the NRC and this Commission. In November 2006, Xcel filed a license amendment request for the EPU with the NRC. Action on the license amendment was delayed because the Company had given the NRC incomplete information about its plans for Monticello. Xcel was unable to file an updated request until November 2008 and did not receive NRC approval of the uprate until December 2013.

In February 2008, Xcel filed an application for a certificate of need for the EPU with this Commission.<sup>5</sup> The Company estimated total LCM/EPU project costs of \$320 million, with the EPU representing \$133 million of that amount. The Commission granted Xcel a certificate of need for the EPU in January 2009.

## **C. Preliminary Planning for the LCM/EPU Project**

In late 2005, during its 2004 resource-plan proceeding,<sup>6</sup> Xcel identified the possibility of an EPU at Monticello, but no detailed study work had been performed at the plant to identify the necessary plant modifications.

---

<sup>4</sup> Docket No. E-002/CN/05-123.

<sup>5</sup> Docket No. E-002/CN-08-185.

<sup>6</sup> Docket No. E-002/RP-04-1752.

In 2006, Xcel hired General Electric (GE) to prepare a scoping assessment for the EPU. Xcel chose GE because GE was Monticello's original designer and had ample financial and operational records for the plant. GE also holds the proprietary rights for many of the plant's critical systems and therefore had exclusive access to the information needed for an initial "pinch point analysis."

GE's scoping assessment identified the minimally necessary component modifications and replacements to achieve the EPU, as well as their estimated costs, but did not include or evaluate what LCM activities might be necessary for the 20-year life extension. The scoping assessment proposed two alternative implementation schedules for the LCM/EPU project: Under the first schedule, the modifications would be installed during two regularly scheduled refueling outages in 2009 and 2011. Under the second, installation would be postponed until the 2011 and 2013 refueling outages.

Based on the magnitude and timing of the capacity need identified in Xcel's 2004 resource-plan proceeding and confirmed in its 2007 resource-plan proceeding,<sup>7</sup> a nuclear-projects management team, in consultation with Xcel's resource-planning unit, elected to proceed with implementation of the LCM/EPU project during the 2009 and 2011 refueling outages.

In developing its cost estimate for Xcel's board of directors, the nuclear-projects team used as benchmarks three EPU projects that had recently been completed by other utilities. The most expensive project was completed in 2002 at a cost of \$180 million, or 122% of the original estimate. The other two were smaller projects completed in 2006 and had final costs of 133% and 135% of original estimates.

The management team set the initial budget at \$274 million and sought "Board approval of an amount 75 percent higher than the most expensive benchmarked plant." An on-site team at Monticello recommended using the later 2011 and 2013 outages with a budget of \$362.5 million. In August 2006, Xcel's board of directors approved doing the major modifications during the earlier refueling outages in 2009 and 2011 with a \$274 million budget.

According to Xcel, the initial budget included a 10% allowance for contingencies. In contrast, the plants that had just been completed had cost overruns of 33% and 35%, and the most comparably sized plant, completed four years earlier, had a cost overrun of 22%. Moreover, the LCM/EPU project was projected to be completed in 2011, five years away. A simple straight-line projection based on the overrun-rate increases seen with the three benchmarked projects would put the overrun rate at approximately 50% in five years.

As Xcel's planning process continued in 2006, it became apparent that LCM and EPU modifications involved significant overlap. Thus, the Company concluded that it should pursue the LCM and EPU projects as an integrated initiative. Because the primary design and study work for the project was being performed by a single entity, GE, Xcel established a single parent work order to capture all costs that were incurred. Xcel did not set up the work order to account separately for the LCM and EPU costs.

---

<sup>7</sup> Docket No. E-002/RP-07-1572

In late 2006, Xcel executed two agreements with GE. A “phase one” agreement related to the Company’s use of GE’s intellectual property. A “phase two” agreement provided that GE would prepare the license amendment request to the NRC and would engineer, design, and procure the necessary components and modifications to implement the LCM/EPU project in 2009 and 2011.

The Company planned ten major modifications, which ultimately accounted for 95% of the overall project cost:

- Turbine Replacement;
- Power-Range Neutron Monitor Installation;
- Steam Dryer Replacement;
- Condensate Demineralizer System Replacement;
- Main Transformer Replacement;
- Feedwater Heater Rerating;
- Supplemental Reactor Feed Pump and Motor Installation;
- Condensate Pump and Motor Replacement;
- 13.8 kV Distribution-System Upgrade; and
- Licensing Costs.

The phase-two agreement did not include installation of the various components in the plant or modifications of the plant. These services were to be obtained through a separate contract. Xcel intended to use GE as the lead design vendor and separately contract with a third party as the lead installation vendor.

In mid-2007, Xcel issued a request for proposals for a lead installation vendor and received bids from two consortiums—GE/Shaw and Day Zimmerman/Sargent & Lundy. In December 2007, Xcel selected the proposal of Day Zimmerman/Sargent & Lundy.

#### **D. The 2008 EPU Certificate of Need**

On February 14, 2008, Xcel filed its application for a certificate of need to complete the EPU. Although the Company was by this point managing the LCM/EPU project as a combined initiative, a certificate of need was required for the capacity increase resulting from the EPU.<sup>8</sup> Xcel presented an initial cost estimate for the combined LCM/EPU project of \$320 million.

In granting a certificate of need for a power project, the Commission must determine that a more “reasonable and prudent alternative” has not been demonstrated by a preponderance of the evidence.<sup>9</sup> Two of the metrics for comparing a proposed project to alternatives are (1) the total cost of the project and (2) the cost of the energy supplied by the project. To provide this information, Xcel had to determine the cost of each additional MW provided by the EPU. This in turn required that the Company allocate the total cost of the LCM/EPU project into separate LCM and EPU costs.

---

<sup>8</sup> See Minn. R. 7849.0030, subp. 1, and Minn. Stat. § 216B.2421, subd. 2(1) (together requiring a certificate of need for a greater-than-50-MW expansion of a power plant).

<sup>9</sup> Minn. R. 7849.0120(B).

Because Xcel had established a single parent work order to capture all costs of the LCM/EPU, the Company's nuclear department applied high-level judgment to estimate that the EPU cost alone would be \$133 million, or 41.6%, of the \$320 million cost estimate for the project at the time. The remaining 58.4%, about \$189 million, was attributed to LCM upgrades. The Company made this allocation solely for the purpose of the 2008 EPU certificate-of-need application.

Xcel then fed the EPU cost and the demand assumptions from its 2007 resource plan into a computer model. The modeling results indicated that adding 71 MW at Monticello would be \$169 million less expensive than building a natural-gas combustion turbine, \$273 million less expensive than a coal power-purchase agreement, and \$514 million less expensive than a biomass alternative. In other words, the modeling showed that proceeding with the EPU upgrades at Monticello was the lowest-cost alternative available to meet projected demand. Based on this information, the Commission granted a certificate of need for the EPU.

## **E. LCM/EPU Project Implementation**

In its 2008 certificate-of-need application, Xcel had outlined the major modifications it believed would be necessary to finish the project. The Company stated that it had "comprehensively evaluated the effects of the extended power uprate at Monticello" and that only "smaller scope modifications" would be identified during the detailed engineering phase of the project.

However, while doing the installation during the 2009 and 2011 refueling outages, Xcel discovered the need for a series of significant modifications, beyond the scope of its initial estimate, that were necessary to complete the LCM/EPU project. This forced the Company to delay some of the installation work until the 2013 outage and drove overall project costs to \$748 million<sup>10</sup>—far beyond Xcel's initial estimates.

### **1. The 2009 Refueling Outage**

During the 2009 outage, Xcel installed the following major modifications: high-pressure turbine replacement, low-pressure turbine modification, cross-around relief valve replacement, power-range neutron monitor installation, 1AR transformer replacement, and main-steam and feedwater system modifications.

Before the outage, Xcel had estimated that it would incur \$25 million for work related to these modifications. The actual cost for the implementation of these modifications during the 2009 outage totaled \$34 million.

Xcel was somewhat concerned about employee turnover with Day Zimmerman, the lead implementation vendor. When Xcel raised these issues, Day Zimmerman told the Company that employee turnover was fairly common in the nuclear industry given the competitive market. Day Zimmerman assured Xcel that it had sufficient personnel to complete the work heading into the 2011 outage. Xcel continued its relationship with Day Zimmerman as the lead installer for the planning phase into the 2011 outage.

---

<sup>10</sup> This \$748 million amount includes financing costs, or Allowance for Funds Used During Construction (AFUDC). Before financing costs, total project costs were approximately \$665 million.

## **2. Activity Before and During the 2011 Refueling Outage**

By the end of the 2009 outage, the designs for the 2011 modifications were in development, and Xcel expected to meet its planned outage milestones. During the 2011-outage planning period, Day Zimmerman conducted work similar to what it had done for the 2009 outage.

Xcel experienced difficulties with Day Zimmerman’s work-package planning for the 2011 outage throughout 2010 and early 2011. The Company rejected all of the designs that the contractor sent it in 2010 and took steps to complete them to the Company’s specifications before the outage. This effort required Xcel to use its own internal engineering resources to supplement Day Zimmerman’s design work. Xcel attributed the difficulties with Day Zimmerman’s work packages to the contractor’s recent loss of more experienced planning staff.

In June 2010, Xcel decided to split the 2011 outage into two outages and to defer certain work scheduled for the spring 2011 outage to a fall 2011 outage. In addition to the design issues with Day Zimmerman, Xcel identified three factors that led the Company to implement the remaining work in two outages rather than one:

First, installing the new electrical distribution system presented a significant risk of a prolonged shutdown, requiring careful planning to ensure completion in the time allotted for the outage. Second, the NRC license-amendment request was on hold while the agency and Company resolved issues related to containment accident pressure (CAP) standards. And finally, the Company faced fabrication issues with certain equipment and had to work with vendors to correct these issues.<sup>11</sup>

The 2011 refueling outage began on March 4, 2011. During the outage, Xcel installed or began key work on six major modifications: 14A/B and 15A/B feedwater heater replacement, certain electrical distribution system work, main transformer replacement, condensate demineralizer system and control-panel replacement, steam dryer replacement, and feedwater heater drain-line replacement.

The installation effort during the 2011 outage was more challenging than during the 2009 outage, in large part because laborers were now working in confined, radioactive spaces. Moreover, throughout all three outages, Xcel encountered unexpected problems relating to the physical layout of the plant—including piping, wiring, rebar, spacing, and access to the various concrete vaults that housed the equipment—and degraded equipment that needed replacing or refurbishing. These and other “as-found” conditions in the plant required approximately 2,000 field design changes.

Before the 2011 refueling outage, Xcel had estimated that the outage would last 65 days and cost \$101 million. Due to installation complexities and other issues, the outage lasted 81 days and cost about \$133 million.

## **3. The EPU Cost History**

In 2011, Xcel’s chief nuclear officer requested that an internal document be prepared to provide input on the Monticello project structure and how best to complete the installation. The resulting “EPU Cost History,” written by a member of the on-site team familiar with the LCM/EPU project,

---

<sup>11</sup> Ultimately, other factors led Xcel to postpone the remainder of the work to the spring 2013 refueling outage.



indicated that the combination of a poorly defined project scope, a compressed multi-track schedule, and a lack of oversight contributed to LCM/EPU cost overruns.<sup>12</sup>

The Cost History shows that problems began as early as the Xcel board's initial decision to begin the project. The on-site team's position was that each subproject should have a detailed review to define final scope and cost. In contrast, Xcel's initial cost estimate "had high uncertainty since little engineering was done on the design concepts suggested." Despite this, Xcel approved the nuclear-projects team's recommendation for a two-year earlier start with a cost estimate \$90 million below the site team's cost estimate.

The Cost History indicated that the on-site team had little input in scoping the project and no ability to ensure that the scope included any detailed engineering. This led to "the need for the site to create many modifications around the base scope in the GE contract." To work around the GE contract, Xcel had to add significant design, engineering, and project-management resources beyond the project's original staffing levels, all of which increased costs.

The challenges presented by the poorly defined project scope were exacerbated by the compressed schedule, lack of management oversight, and lack of separate cost tracking. According to the Cost History, the most significant scope changes did not appear to be approved by management in any detail. When the scope had to be changed, it was done without an appropriate consideration of the cost because of the fast-track schedule. The scope changes ended up being very expensive, because "schedule constraints forced parallel work and required significant cost commitment to be made to achieve goals." Subprojects did not have separate cost tracking, frustrating efforts to control and forecast cost overruns.

#### **4. Activity Before and During the 2013 Refueling Outage**

After the 2011 outage, there was a discussion among high-level managers about how to proceed. The discussions explored (1) the design and engineering challenges of moving forward with only the LCM, (2) the potential delay associated with changing course, (3) the difficulty in isolating avoidable EPU work and associated costs, and (4) the cost-effectiveness of the project based on general resource-planning factors, previously modeled break-even points, sunk costs, and the costs of changing course.

Xcel reevaluated its internal management personnel, hiring a vice-president of nuclear projects in December 2011. The new vice-president realigned the nuclear-projects group's structure, emphasized individual-modification budgeting and forecasting, and established firm outage milestones for design and work-package planning. New procedures were instituted to improve reporting and tracking.

Because the work scheduled for the 2013 outage was less mechanical and more electrical than the 2009 and 2011 outages, Xcel also reevaluated whether it should continue with Day Zimmerman as the lead implementation contractor. In mid-2011, the Company hired Bechtel Power Corporation to provide comprehensive project management. Bechtel is a large multi-national company with expertise in nuclear generation. Xcel required Bechtel to retain Day Zimmerman as its main mechanical subcontractor to maintain continuity.

---

<sup>12</sup> Neither Xcel's chief nuclear officer in 2011 nor the author of the Cost History testified in this case.

To prepare for the 2013 outage, Xcel and Bechtel worked to understand the complexities of the project and develop final cost estimates. Bechtel prepared an initial overall cost estimate in mid-2011 but increased that estimate by the end of 2011 to approximately \$587 million. Design and work-package preparation continued through 2012, and by January 2013, Bechtel had increased its overall project cost estimate to approximately \$640 million. In June, during the 2013 outage, Bechtel increased the estimate to \$655 million.

The 2013 refueling outage began on March 2, 2013. Xcel completed the following four major modifications during the 2013 outage: reactor feed pump and motor replacement, condensate pump and motor replacement, feedwater heater replacement, and electrical distribution system work.

Labor productivity for the 2013 outage was affected by the NRC's "fatigue rule," which limited work schedules in several ways that created a competitive disadvantage for the LCM/EPU project. It limited workers to a six-day schedule and limited any extended hours for workers after the 60th day of an outage. Moreover, the fatigue rule made it harder for Xcel to compete with non-nuclear projects for workers.

The fatigue rule exacerbated Xcel's existing productivity challenges with (1) hiring and retaining experienced craft labor due to the competitive nuclear labor market and the hydraulic fracturing boom and (2) tasks taking longer than estimated because of small workspaces and radiological conditions in the plant.

Before the 2013 refueling outage, Xcel had estimated that the outage would last 85 days and cost \$99 million. Ultimately, the outage lasted 138 days and cost about \$151 million.

#### **F. Commission Notification of Cost Overruns**

On November 3, 2010, Xcel filed its 2011-test-year rate case.<sup>13</sup> The initial filing included updated costs for the LCM/EPU project of about \$361 million through 2011. On May 4, 2011, in the Company's rate-case rebuttal testimony, it updated the cost estimate for the project to \$399.1 million to reflect costs incurred during the 2011 outage.

On August 25, 2011, Xcel provided post-hearing supplemental testimony with new information regarding project delays and cost increases, specifically that new estimates showed that the project's costs would exceed \$500 million. Several months later, in November, the Company's chief nuclear officer provided testimony that the project was expected to cost between \$550 and \$600 million.

In late November 2011, Xcel filed a Notice of Changed Circumstances in the EPU certificate-of-need docket notifying the Commission of its decision to delay final implementation of the project to the 2013 outage but not mentioning the cost overruns. In January 2012, the Commission found that the change in timing was acceptable without recertification.

Xcel also provided the Commission with cost updates in its 2012 and 2013 rate cases.<sup>14</sup>

---

<sup>13</sup> Docket No. E-002/GR-10-971.

<sup>14</sup> Docket Nos. E-002/GR-12-961 and E-002/GR-13-868.

The 2011 rate case included Xcel's first communication that LCM/EPU project costs could exceed \$500 million. This communication of higher costs occurred after the primary evidentiary hearing, and Xcel did not seek cost recovery at that time. The Company first sought recovery of Monticello project costs in the 2012 rate case, by which point it had spent more than another \$100 million.

### **G. Xcel's Request for Rate Recovery**

Xcel requested recovery of \$587 million in Monticello LCM/EPU costs in its 2012 rate case. The Commission allowed the Company to include the LCM portion of the project in rate base but denied recovery of post-2010 EPU costs, finding that the EPU was not used and useful because Xcel had not yet obtained the NRC's permission to operate the plant at the uprate level.

On November 4, 2013, Xcel filed its 2013 rate case, requesting permission to increase its retail electric rates by \$192.7 million, or 6.9%, in 2014 and an additional \$98.5 million, or 3.5%, in 2015.<sup>15</sup> Approximately \$41 million of the 2014 increase is attributable to the LCM/EPU project.

### **III. The Administrative Law Judge's Report**

The ALJ's Report is well reasoned, comprehensive, and thorough. The ALJ held a formal evidentiary hearing, reviewed the testimony of 11 witnesses, including 7 expert witnesses, and examined 79 hearing exhibits comprising some 2,500 pages.

The ALJ also received and reviewed initial and reply post-hearing briefs from the parties, as well as their proposed findings of fact and conclusions of law. He made 141 findings of fact and conclusions of law and made recommendations based on those findings and conclusions.

The Commission has itself examined the record, considered the report of the Administrative Law Judge, considered the exceptions to that Report, and heard oral argument from the parties. Based on the entire record, the Commission concurs in most of the ALJ's findings and conclusions. On certain issues, however, the Commission reaches different conclusions, as explained below. The Commission makes several supplemental findings supporting its conclusions, which are attached to this order and incorporated by reference. On all other issues, the Commission adopts the ALJ's Report, including his recommendations and memorandum.

### **IV. The Company's Burden of Proof**

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

The parties were in general agreement that a prudence review requires the utility to establish that it acted reasonably based on the facts that it knew or should have known at the time of its action or decision. However, Xcel advanced a more detailed standard that the other parties rejected.

Xcel urged the application of a legal standard that it termed the "prudent investment standard." According to Xcel, the prudent investment standard (1) requires review of the facts the utility knew or should reasonably have known at the time decisions were made, and not hindsight, (2) considers the process rather than just the results (i.e., cost overruns), (3) addresses only events over which the utility has control, and (4) imposes a remedy only if imprudence proximately caused damage to customers.

---

<sup>15</sup> Docket No. E-002/GR-13-868.

Further, while Xcel acknowledged that it had the initial burden to prove that its expenditures were prudent, the Company argued that the other parties must offer affirmative evidence to overcome a prima facie showing of prudence. Xcel argued that the Commission should presume that its management of the project was prudent absent substantial evidence to the contrary.

The Department and the OAG took issue with Xcel's formulation of the prudent-investment standard, arguing that the standard has never been applied by a Minnesota court and that the Company had pieced it together from factually distinguishable cases from other jurisdictions.

They maintained that Xcel's burden to demonstrate the prudence of its costs is the same as in any rate case: To show that its costs were prudently incurred, the Company must demonstrate the reasonableness of its actions at the time those actions or decisions were made. To the extent that Xcel fails to meet that burden, they argued, the Commission has significant latitude to balance shareholder and ratepayer interests in determining a reasonable rate.

The Department and the OAG also disputed that Xcel enjoys any presumption of management prudence. They noted that the Minnesota Supreme Court had rejected a similar argument that Xcel made in a previous rate case. In that case, the Company argued that because it had offered proof of its actual capital structure, a "rebuttable presumption of reasonableness" arose that shifted the burden to the other parties to come forward with evidence of unreasonableness.<sup>16</sup> The Supreme Court held that Minn. Stat. § 216B.16, subd. 4, removed any such presumption if it had ever existed in Minnesota. Rather, Xcel "had at all times the burden of proving the proposed rate change, and by necessity the components that form the basis for the proposal."<sup>17</sup>

## **B. Recommendation of the Administrative Law Judge**

The ALJ concluded that Xcel bore the burden to establish that the costs it seeks to recover from ratepayers were both prudently incurred and reasonable. The ALJ rejected the Company's argument that a utility in a rate proceeding enjoys a rebuttable presumption of reasonableness that other parties must overcome. Rather, he concluded, even if the utility presents a prima facie case and there is no contrary evidence, the utility does not necessarily meet its burden of demonstrating that it is just and reasonable that the ratepayers bear the costs at issue.

## **C. Commission Analysis**

The Commission concurs with the ALJ that the burden remains with Xcel throughout this proceeding to demonstrate that its costs were prudently incurred and will result in just and reasonable rates.

The ultimate issue in ratemaking is whether the rates proposed by the utility are "just and reasonable." The burden to show that the proposed rate change is just and reasonable is on the utility,<sup>18</sup> and any doubt as to reasonableness must be resolved in favor of the consumer.<sup>19</sup> In determining whether a rate is "just and reasonable," the Commission acts in its quasi-legislative

---

<sup>16</sup> *In re N. States Power Co.*, 416 N.W.2d 719, 725 (Minn. 1987).

<sup>17</sup> *Id.*

<sup>18</sup> Minn. Stat. § 216B.16, subd. 4.

<sup>19</sup> Minn. Stat. § 216B.03.

capacity and balances the public's interest in adequate and efficient service at a reasonable cost against the public utility's need for revenue sufficient to allow it furnish that service.<sup>20</sup>

Xcel argued that it had established a prima facie case of prudence, shifting the burden to the other parties to come forward with evidence tying specific acts of imprudence to specific costs. However, under Minnesota law, the utility always retains the burden of showing that it would be just and reasonable to include a particular utility expense in rates.<sup>21</sup>

Moreover, a utility is in the best position to explain why its costs increased and to identify the amount of the increases. Allowing a utility to recover its imprudently incurred costs simply because public agencies or other intervenors are unable to precisely identify which imprudent actions caused which costs would not result in just and reasonable rates.

## **V. Xcel's Handling of the Monticello LCM/EPU Project Was Not Prudent.**

### **A. Summary**

The Department, the OAG, and XLI identified numerous instances of mismanagement at Monticello, including poor up-front planning, inadequate project scoping, avoidable delays, human performance problems, muddled cost tracking mechanisms, and poor communication regarding spiraling cost increases and argued that Xcel's mismanagement contributed to cost overruns. These parties argued that Xcel had not met its burden to prove that these and other actions were prudent or that the resulting costs were reasonable.

Xcel argued that the cost overruns were caused by factors beyond its control, that it could not have foreseen the impact of these factors, and that even if it had anticipated them, it could not have avoided the costs by more prudent management. However, because the record shows that many of the challenges Xcel faced were of its own making, the Commission concurs with the other parties that the Company has not met its burden to establish that its handling of the Monticello LCM/EPU Project was prudent.

The Commission's decision is explained in detail below.

### **B. Positions of the Parties**

#### **1. Initial Planning and Scoping**

Xcel argued that its decision to expedite construction of the LCM/EPU project using high-level designs was justified by an impending need for new baseload generation. The Department, the OAG, and XLI disagreed. They argued that the Company's decision to combine and fast-track the LCM and EPU projects without rigorous pre-planning was imprudent and created a situation where the Company was unable to effectively manage costs, schedules, and deployment or address areas of increasing cost overruns.

---

<sup>20</sup> Minn. Stat. § 216B.16, subd. 6.

<sup>21</sup> 416 N.W.2d at 725.

### **a. The Department**

The Department engaged a consulting engineer, Mr. Mark Crisp, to evaluate Xcel's handling of the LCM/EPU. According to Mr. Crisp, proper management of a major nuclear project requires extensive and accurate planning to establish a detailed scope for the work. In a parallel design-build effort like the Monticello project, the design team and the on-site team must work together in close coordination to ascertain the plant's existing condition and determine the logistics required to dismantle old equipment, remove it, and install new equipment.

Mr. Crisp stated that while any project can encounter unexpected circumstances, it was clear that Xcel did not adequately plan for and scope the Monticello LCM/EPU. Mr. Crisp concluded that an inadequate initial scope and poor planning appeared to contribute significantly to the cost overruns at Monticello when Xcel encountered conditions it had not planned for.

One example Mr. Crisp gave of Xcel's inadequate planning was the Company's failure to maintain updated plant schematics. NRC regulations require the Company to maintain complete documentation of the plant's design and any modifications. Mr. Crisp testified that these "as-built" drawings are the primary point of reference for project planners during maintenance and when developing the scope of capital projects. Because Xcel lacked accurate plant schematics, the Company encountered unanticipated installation difficulties that required additional planning and design work.

The Department argued that the difficulties caused by the lack of adequate planning and scoping were compounded by Xcel's attempt to "fast track" the project and complete it by 2011, against the advice of its on-site team. According to the EPU Cost History, fast-tracking the project led to an unmanageable workload and made it difficult to obtain management review of project scope changes and the resulting cost increases. The Department believed that Xcel had exaggerated the need to fast-track the project to meet demand.

### **b. The OAG**

The OAG suggested that Xcel's decision to fast-track the project was motivated by a desire to maximize its profits from the plant by ensuring that the plant was operating for as much of its extended license period as possible. If the Company had instead taken time to fully develop the project's scope and design, the OAG argued, a significant portion of the cost overruns could have been avoided.

Moreover, the OAG argued, Xcel's decision to design and build in parallel made it likely that some construction and engineering work would be duplicated or rendered unnecessary by later changes in scope and design. According to the OAG, this is precisely what happened at Monticello: Xcel acknowledged that it had to modify its construction and design plans on an expedited basis to maintain the outage schedule. The OAG argued that Xcel knew or should have known that the decision to design and build the project in parallel could lead to increased costs that could have been avoided by a more measured approach.

Finally, the OAG agreed with the Department that the challenges caused by Xcel's decision to design and build in parallel were exacerbated by its failure to produce as-built drawings of the Monticello plant. As a result, the Company had to do design work during the 2009 outage rather than being prepared with thorough design work beforehand.

### **c. Xcel**

Xcel argued that high natural-gas prices and increasing forecast demand in the early 2000s supported retaining and expanding baseload generation. Because of the long planning horizon required for baseload projects, the Company decided to proceed expeditiously. Xcel acknowledged that it could have undertaken more detailed design work to get a more accurate initial cost estimate but argued that doing so would have increased costs and delayed the project until 2017.

Xcel further argued that it was necessary to conduct design and implementation in parallel to complete the LCM/EPU project on schedule. The Company argued that the other parties' assumption that a parallel approach contributed to the cost overruns is unsupported by the record, since no witness testified that following a traditional design-then-build path would necessarily have reduced project costs.

Finally, Xcel argued it was not required to maintain as-built drawings for the power-house (i.e. nonreactor) side of a nuclear plant of Monticello's vintage. The Company stated that, when Monticello was built, the piping was not mapped out ahead of time but was "field run" consistent with common practice at the time. Xcel stated that it had revised drawings when discrepancies were found, but many systems had not been mapped.

## **2. Project Implementation**

While Xcel argued that it reacted appropriately in the face of the many challenges that arose during project implementation, the other parties argued that many of these challenges could have been avoided or addressed in a less costly manner with proper planning. They also criticized the Company's management of its contractors, arguing that contractor turnover was symptomatic of a poorly managed project and increased costs.

### **a. The Department**

The Department noted that Xcel had cited installation complexities as one of the main drivers of cost overruns. For example, Xcel's estimated cost of installing the new feedwater heater did not take into account the significant difficulty in removing the old heater, modifying the size of the concrete containment room, and installing the new, larger feedwater heater.

According to Mr. Crisp, in a retrofit project like Monticello, it is important to identify "controlling factors," such as "spacing, clearances, access, physical arrangement, as well as existing capacity of certain equipment that would continue to function in the updated environment." He concluded that Xcel had offered no reasonable basis for failing to identify these controlling factors early in its planning for the project. In particular, General Electric, as the original designer of the plant, should have had access to the information needed to identify these controlling factors.

Mr. Crisp also identified a number of "stops and starts" in the LCM/EPU project—most significantly, contractor changes in 2010 and 2011—that coincided with significant cost increases. Mr. Crisp stated that this type of activity is consistent with disjointed projects that suffer from substantial initial planning problems due to a lack of proper management and an overly aggressive schedule, as occurred at Monticello.

## **b. The OAG**

The OAG echoed the Department's criticism that Xcel should not have underestimated the complexity and difficulty of completing the physical installation work. Moreover, although Xcel identified where it modified its initial plan, the cost of those modifications, and why they were necessary, the OAG argued that the Company had largely failed to explain its decision-making process when confronted with the need for a modification, including what alternatives it considered. Without this analysis, the OAG argued, Xcel could not meet its burden to demonstrate that its actions, or the resulting costs, were prudent.

The OAG argued that Xcel had demonstrated that it had the ability to provide this kind of detailed information. For example, at the evidentiary hearing, the Company's chief nuclear officer described the process it used to decide how to complete the reactor-feedwater subproject. When the project started showing cost variances, Xcel assembled revised estimates and considered "what options were available for us to do something different." And when GE proposed a solution that involved replacing the feedwater piping with larger diameter piping, Xcel consulted a third-party designer to see if a less costly solution could be implemented.

The OAG also argued that, given the Company's reliance on contractors to design and build the LCM and EPU projects, Xcel should have had a more robust system in place to manage contractors and ensure that work was performed efficiently and consistent with estimates. The OAG argued that the overlapping involvement of contractors led to increased costs for the project as each successive contractor would have had to get up to speed on the work to date. According to the OAG, Xcel provided only vague descriptions of how the Company managed its contractors or the transitions between them.

## **c. Xcel**

Xcel identified the three major drivers of cost overruns as (1) tightening NRC requirements (2) the evolving project scope, and (3) increased labor costs resulting from a shortage of experienced nuclear workers and challenging installation conditions at the plant. The Company stated that it believed it had reasonably accounted for the challenges it would face during project implementation. But, Xcel argued, even if had better foreseen these challenges, this would not have eliminated the need for the extra work.

In response to the OAG, Xcel argued that it did examine alternatives to maximize the benefits of the various modifications. The Company stated that it considered whether to repair or place much of the original plant equipment and decided to replace a number of components that were at the end of their useful lives. It highlighted detailed information in the record about its decision-making process for upgrading the plant's existing 4 kV electrical system to 13.8 kV.

Xcel argued that its use of contractors was reasonable and consistent with industry norms. The Company asserted that making contractor changes is common in nuclear-power-plant construction and detailed a number of reasons why nuclear contractor performance has declined in recent years. Xcel argued that it had adequately explained each contractor-related decision it made, including hiring GE as the initial designer, hiring Day Zimmerman as the installer for the 2009 and 2011 outages, and replacing Day Zimmerman with Bechtel.



### **C. Recommendation of the Administrative Law Judge**

The Administrative Law Judge found that Xcel had failed to demonstrate that the cost overruns it seeks to recover were prudently incurred and reasonable.

The ALJ identified the Company's principal failure as poor initial scoping and early project management before the 2009 refueling outage. He found that Xcel's decision to proceed with the combined LCM/EPU project in 2009 rather than 2011 created an extremely difficult task that the Company was not able to manage. From that point forward, additional issues arose that compounded Xcel's difficulties and required unreasonable amounts of time and money to resolve. As a result, significantly increased, unreasonable costs occurred until the project was completed.

The ALJ also found that Xcel's decision to proceed on an aggressive, fast-track schedule using a parallel process carried unreasonable risks. The fast-track schedule required the Company to rely on preliminary scoping, rather than performing the full scoping effort necessary to have a thorough understanding of what needed to be done to finish the project. The result, the ALJ found, was dramatically increased, imprudently incurred costs.

Finally, the ALJ found that the Company's failure to recognize problems with spacing, clearances, access, and physical arrangements of the plant was a direct failure of its LCM/EPU project management, since nothing related to the plant's physical characteristics, including its size, should have surprised Xcel or led to cost overruns.

In a memorandum attached to his Report, the ALJ specifically found the Department's witnesses to be more credible than Xcel's witnesses. He found that each of the Company's witnesses had a financial interest in the outcome, lacked direct personal knowledge of the facts, or both. In contrast, he found the Departments' experts to be knowledgeable, persuasive, and credible.

### **D. Commission Action**

The Commission concurs with the ALJ, the Department, the OAG, and XLI that Xcel has failed to carry its burden to prove that the LCM/EPU cost overruns were prudently incurred.

The Company's decision to combine the LCM and EPU projects and put them on an accelerated schedule without a more thorough planning and scoping effort was imprudent and created a situation where the Company was unable to effectively manage costs, schedules, and deployment or address areas of increasing cost overruns. The record—in particular, the testimony of Mr. Crisp and the EPU Cost History—establishes that many of the challenges Xcel faced in implementing the LCM/EPU project could have been avoided or addressed in a less costly manner if the Company had taken the time to properly plan and scope the project.

Xcel argued that it needed to rush the project in light of forecasted demand, high natural-gas prices, and the long lead time necessary to expand a baseload resource like Monticello. However, this claim is not borne out by the record.

Mr. Crisp testified that there was no need to fast-track the project, especially moving into the 2010–2011 timeframe, when forecasts showed decreasing demand. His analysis is supported by the fact that, after the 2011 outage, Company executives discussed the possibility of changing

course and abandoning the EPU.<sup>22</sup> Most importantly, even if there was an imminent need for more baseload generation from 2006 through 2011, that fact would not justify the imprudent project management demonstrated on this record.

Beyond failing to establish that its planning, scoping, and scheduling decisions were reasonable, Xcel failed to carry its burden to show that it made prudent decisions when confronted with the need for a modification. The Company provided information about the challenges it encountered working on various major sub-projects. These projects included the condensate demineralizer, feedwater heaters, reactor feed pumps and motors, condensate pump and motor, 13.8 kV distribution system, power range neutron monitoring system, high-pressure turbine replacement, steam dryer, and transformers.

This evidence shows *what* the Company did; however, it does not explain any alternatives available as decisions were made and the project's scope changed, such as possible alternative vendors or cost comparisons of equipment alternatives. Xcel's evidence thus lacks the transparency necessary to quantify the prudence of final costs.

For the foregoing reasons, the Commission finds that Xcel has failed to demonstrate that its handling of the Monticello project was prudent.

## **VI. The Appropriate Remedy**

### **A. Summary**

Given Xcel's imprudent management of the LCM/EPU project, the Department, the OAG, and XLI all agreed that some level of cost disallowance was warranted. However, they differed as to the appropriate remedy.

The Department proposed disallowing \$71 million of the total project cost, having calculated that disallowing this amount would render the project cost-effective compared to other alternatives available when the EPU certificate of need was granted. The OAG recommended disallowing 75% of the overrun, or \$321 million, and disallowing a return on the remaining 25% of overrun. And XLI recommended that the Commission allow Xcel to recover the full cost of the LCM/EPU project but deny the Company any return on the overrun.

The Commission concludes that XLI's proposed remedy appropriately balances the interests of ratepayers and the Company, reflecting both the substantial evidence of imprudent management at Monticello and Xcel's investment in a plant that will provide ratepayers with another 20 years and an additional 71 MW of reliable baseload power. For these reasons, and as further explained below, the Commission will grant Xcel's request for recovery of the LCM/EPU project costs but deny any return on project expenses exceeding the figures provided in the certificate-of-need filings, escalated to 2014 dollars.

The Commission's decision is explained in detail below.

---

<sup>22</sup> Filings by Xcel in the Company's 2010 resource-plan proceeding show that it was aware of softening demand by late 2011. This, among other factors, led the Company to seek a Commission determination of whether an EPU project at its Prairie Island nuclear plant remained in the public interest. That project was ultimately abandoned.

## **B. Positions of the Parties**

### **1. The Department**

The Department calculated the amount of the overrun to be \$402 million. However, the Department did not base its recommended disallowance on the amount of the overrun. Instead, stating that it would not have recommended approval of the EPU in 2008 if it had known the final cost of the project, the Department recommended disallowing a portion of the final EPU costs, such that the remaining costs, when reduced to 2008 dollars, would have rendered the EPU cost-effective compared to other resource options evaluated in the certificate-of-need proceeding.

In order to calculate the cost of the EPU in 2008 dollars, the Department first had to allocate the total project costs of \$665 (pre AFUDC) between the LCM and the EPU. The Department engaged Dr. William Jacobs, a nuclear engineer, to create this LCM–EPU allocation.

Dr. Jacobs examined each LCM/EPU modification and considered whether the modification was required for Monticello to operate at the 671 MW uprate level. If the modification was required for the plant to operate at the new level, Dr. Jacobs allocated the cost of that modification to the EPU. If the modification was not required for the plant to function at uprate conditions, he allocated its cost to the LCM. Dr. Jacobs determined that \$569.5 million, or 85.7%, of the \$665 final, pre-AFUDC costs were required for the EPU and that the remaining \$95.4 million, or 14.3%, were not required to support the EPU.<sup>23</sup>

Using resource-planning assumptions from the 2008 certificate-of-need proceeding, the Department calculated that the break-even point over which the EPU would not have been cost-effective was about \$485 million in current dollars. Subtracting this amount from Dr. Jacobs' EPU allocation of \$569.5 million, the Department determined that \$84.5 million of the EPU costs were not cost-effective. After making further adjustments, the Department recommended disallowing \$71.4 million of the final Monticello LCM/EPU costs. This disallowance would result in a \$10.2 million downward adjustment to Xcel's 2015 revenue requirement.

The Department acknowledged that, as a whole, the LCM/EPU project remained cost-effective compared to a hypothetical scenario in which Monticello was shut down and replaced with a natural-gas plant.<sup>24</sup> The agency suggested a possible alternative remedy of allowing Xcel to recover all LCM/EPU project costs but allowing only a weighted short-term and long-term debt return (no equity) on the overrun amount, which would result in a \$20.5 million downward adjustment to Xcel's 2015 revenue requirement.

### **2. The OAG**

The OAG calculated the amount of the overrun to be \$428 million, based on Xcel's initial estimate of \$320 million and final project costs of \$748 million. The OAG argued that the record demonstrates that a significant portion of the overrun was caused by Xcel's imprudent management of the project and should be disallowed.

---

<sup>23</sup> The Department's allocation of final LCM costs is lower than Xcel's original estimate of \$135 million.

<sup>24</sup> Shaw Direct Testimony at 13–14.

The OAG argued that, at a minimum, the Commission should disallow all cost overruns that were the result of Xcel's poor management. In the OAG's estimation, this category included overruns in the following areas:

- *installation costs*, which grew from an estimated \$104 million to \$288.6 million;
- *distribution-system upgrade costs*, which grew from \$20.9 million to \$119.5 million; and
- *feedwater-heater replacement costs*, which grew from \$37 million to \$114.9 million.

The OAG calculated that the overruns associated with these three projects totaled at least \$261.1 million, given that some costs from the electric distribution system upgrades overlapped with the installation costs. The OAG also recommended that the Commission disallow another \$19.5 million, representing a portion of the cost of the field changes, duplicative design, and abandoned work that resulted from Xcel's inadequate design and scoping.

The OAG argued that Xcel's mismanagement caused additional costs that could not be specifically identified due to the Company's unreasonable accounting practices. The amounts that the OAG specifically identified, above, constitute at least 65.5% of the \$428 million overrun. To account for the additional unidentifiable costs, the OAG recommended denying at least 75% of the total overrun, or approximately \$321 million.

In addition to this \$321 million disallowance, the OAG recommended that the Commission deny any return on the remaining 25% of the overrun. All told, the OAG's recommendation would result in an approximately \$58 million downward adjustment to Xcel's 2015 revenue requirement.

### 3. XLI

XLI recommended that the Commission allow Xcel to recover the LCM/EPU project costs but deny the Company any return on the overrun. XLI calculated that the amount of the overrun was \$295 million and that denying a return on this amount would result in a \$24 million downward adjustment to Xcel's 2015 revenue requirement.

XLI acknowledged that the record would support either the Department's or the OAG's recommended disallowance but argued that its proposal is preferable for several reasons. First, XLI argued, denying a return on the overrun would reflect the significant management problems identified by the Department while at the same time recognizing that the funds were spent on a project that provides benefits to ratepayers.

Second, XLI argued that denying a return on the overrun would create an incentive for Xcel to provide accurate estimates and control the costs of future projects. XLI stated that the Commission, in both rate cases and rider dockets, has relied on this rationale to cap recovery of, or deny a return on, amounts above a project's estimated cost at the time of the project's initial approval.

XLI believes that the Department's cost-effectiveness-based remedy relies too heavily on teasing apart LCM and EPU costs from the combined LCM/EPU project given the lack of transparency in Xcel's accounting. And XLI argued that the Department's recommended disallowance reflects the absolute minimum harm to ratepayers, allowing Xcel to recover and earn a return on some \$331 million in cost overruns that the Company did not meet its burden to show were reasonable and prudent.

#### 4. Xcel

The Company argued that the record could support a disallowance of \$25–\$55 million, which represents identified costs of \$13 million for potentially duplicative designs, \$11 million for abandoned work, and \$25–\$30 million for field design changes (of which, Xcel asserted, only \$1 million was avoidable). If the Commission believes a material disallowance is warranted, Xcel argued that these costs would represent the maximum disallowance that would be consistent with the “prudent investment standard.”

The Company maintained that the record does not support the other parties’ proposed disallowances. It claimed that under the prudent-investment standard, any disallowance must be supported by evidence establishing that specific imprudent acts caused harm to ratepayers and argued that many of the imprudent acts identified by the other parties, such as a low initial estimate, accounting methods, and regulatory-communication issues, did not affect the amount of costs that were ultimately incurred.

Specifically as to the OAG’s and XLI’s proposed disallowances, Xcel argued that they are impermissible “proxy remedies” that are excessive in light of similar overruns at other plants and the limited evidence tying the Monticello overrun to imprudent conduct. In particular, Xcel argued, the OAG’s recommended disallowance of \$321 million exceeds the actual overrun amount<sup>25</sup> and would signal to the Company’s investors that its nuclear programs do not have strong regulatory support in Minnesota.

Xcel argued that the Department’s cost-effectiveness remedy is inappropriate for at least three reasons. First, the Company managed the LCM/EPU as an integrated project—a project which, Xcel stated, is cost-effective as a whole. Second, according to Xcel, any remedy that relies on an after-the-fact split of final costs is necessarily based on hindsight.

Finally, if a cost split is used, Xcel argued that under a reasonable split, the EPU remains cost-effective. Xcel believes that the original, 58.4% LCM, 41.6% EPU split from the 2008 certificate-of-need proceeding is the most reasonable allocation and would avoid injecting hindsight bias into the cost-effectiveness analysis. The Company also prepared its own after-the-fact split that allocates project costs 78% to the LCM and 22% to the EPU.

#### C. Recommendation of the Administrative Law Judge

The ALJ found that Xcel initially represented, in 2005 that the costs of the LCM would be \$135 million and, in 2008, that the costs for the EPU would be \$133 million, for a total in current dollars of \$346 million. The ALJ found that, based on information from March 31, 2014, total estimated project costs were \$748 million, including financing costs to that date, resulting in a \$402 million overrun. And he found that Xcel had failed to demonstrate that the entire \$402 million in cost overruns, or any part thereof, was reasonable and prudent.

Because of Xcel’s failure to demonstrate a reasonable figure for a disallowance and the difficulty of determining the specific amount of a disallowance, the ALJ concluded that it was most appropriate to disallow that portion of EPU-related costs that renders the Monticello plant not

---

<sup>25</sup> Xcel calculated an overrun of \$295 million by escalating its 2008 certificate-of-need estimate to current dollars and subtracting it from the total project cost.

cost-effective as of the present, as recommended by the Department. He reasoned that such a calculation would give Xcel credit for its investment in the EPU to the extent that it will benefit ratepayers but would not reward the Company for its imprudent and unreasonable actions.

The ALJ found that Xcel's accounting practices made it difficult to separately review the actual costs of the EPU from the costs of the LCM, found that neither of its proposed allocations were reasonable, and accepted the Department's allocation of LCM/EPU costs.

The ALJ recommended that the Commission disallow \$71.42 million in Monticello EPU capital costs, resulting in a \$10.237 million downward adjustment to Xcel's 2015 Minnesota revenue requirement and an ongoing adjustment for the life of the plant, stepped down for accumulated depreciation.

#### **D. Commission Action**

While the Commission concurs with the ALJ that Xcel has failed to demonstrate that the Monticello cost overrun was reasonable and prudent, the Commission does not agree that the Department's cost-effectiveness-based remedy best balances the interests of ratepayers and the Company. For the reasons that follow, the Commission finds that Xcel's request for full recovery of the Monticello LCM/EPU cost overrun is reasonable but that the Company should not be allowed any return on project expenses exceeding the figures provided in its certificate-of-need filings, escalated to 2014 dollars.

First, the Monticello LCM/EPU project will provide ratepayers with another 20 years, and an additional 71 MW, of reliable, carbon-free baseload power. The Department's analysis confirmed that the project remains a cost-effective resource as a whole. Allowing Xcel to recover its actual investment in the plant reflects this benefit and will help to ensure that the Company is able to continue operating the plant safely over its remaining life so that the full benefit is realized.

Moreover, allowing Xcel to recover its actual investment in the plant also recognizes that some of the increased costs of the project were caused by a challenging labor market, NRC safety requirements, and other factors beyond the Company's control. Xcel gave great weight throughout this process to safety, a practice that should be recognized and encouraged.

The Company pointed to similar overruns experienced at other plants undergoing EPUs. The Commission gives some weight to the evidence of similar overruns at other plants around the country; however, the value of this evidence is limited since the specific circumstances of these other projects are not in the record.

On the ratepayer's side of the scale, the significant management problems identified by the Department's experts weigh heavily in favor of denying a return on the overrun. The seriousness of these management problems and the magnitude of the overrun lead the Commission to conclude that the Department's cost-effectiveness remedy does not go far enough to address the harm to ratepayers. Allowing Xcel to recover all but \$71 million of the \$748 million project costs, as well as a full return on the difference, does not appear to adequately address the harm to ratepayers caused by the Company's mismanagement.

Xcel argued that the Department's witnesses did not tie specific instances of mismanagement to any particular cost increases. However, the burden to establish the reasonableness of the requested

recovery rests at all times with the Company, not on the Department or other parties. Further, the Department's experts testified that it was not possible to identify the precise costs attributable to mismanagement due to the Company's cost-tracking methods.

Xcel's failure to give the Commission a meaningful opportunity to review mounting costs also supports denying a return on the overrun. When the Company filed its rate case in late 2010, total project costs were estimated to be \$360 million. Within roughly a year, that number had increased by between \$190 and \$240 million.

While Xcel did provide information on rising costs in its rate cases, it generally provided the information in response to discovery requests by other parties. Moreover, none of the information about the Company's analysis and choices were presented to the Commission for review or approval in the November 2011 Notice of Changed Circumstances.

Xcel stated that it did not believe that a notice of changed circumstances required a discussion of costs. However, while a cost overrun is not one of the enumerated changes that require a notice of changed circumstances,<sup>26</sup> the massive overrun experienced at Monticello was certainly a circumstance relevant to the Commission's determination of whether the certificate of need should be reopened. Given that Xcel knew that it would seek recovery of the cost overruns, the Company should have kept the Commission informed and given it the opportunity to timely review the increased expenditures and the reason for them.

The parties calculated the overrun amount using various methodologies. The Commission concludes that the amount on which Xcel will earn no return should be calculated based on the initial LCM and EPU estimates that the Company presented in the 2005 and 2008 certificate-of-need proceedings.

Grounding the remedy on the Company's initial estimates recognizes the importance of these estimates to the Commission's resource-planning decisions. The Department and the Commission both rely on utilities' initial cost estimates in analyzing whether proposed projects are cost-effective compared with alternative resource options. An initial estimate that does not represent a utility's best effort to reflect the full cost of the project, including a reasonable contingency, undermines the integrity of a Commission decision founded on that estimate.

The Commission recognizes that Xcel's decision to undertake the LCM/EPU occurred in the context of the Company's over-\$2 billion capital authorization in 2006 and that, over the six-year period of time at issue, the Company had over \$5 billion of capital expenditures and over \$10 billion in operation and maintenance expenses.

However, Xcel's pre-certificate-of-need costs included about \$60 million in progress payments to General Electric, mainly for detailed engineering and design work for the 2009 modifications. Since the Company had made a \$60 million up-front expenditure largely for detailed engineering and design work, it should have been able to develop reasonable cost estimates.

For the foregoing reasons, the Commission will allow Xcel to recover its actual LCM/EPU costs but will deny the Company a return on the amount exceeding its initial estimates provided in the certificate-of-need proceedings, escalated to 2014 dollars.

---

<sup>26</sup> See Minn. R. 7849.0400.

## **VII. Allocation of Project Costs**

### **A. Introduction**

In Xcel's 2012 rate case, the Company sought recovery of LCM/EPU project costs. Because Xcel had not yet received a license amendment from the NRC and the plant was still operating at pre-uprate levels, the Commission found that only the LCM portion of the project was used and useful and denied recovery of EPU-related costs based on the 41.6% EPU, 58.4% LCM split from the EPU certificate-of-need proceeding.

In its 2013 rate case, Xcel continued to seek full recovery of LCM/EPU costs. The Company received its license amendment for the EPU in December 2013. However, due to delays in the ascension process overseen by the NRC, Monticello was still not operating at the 671 MW uprate level at the end of 2014. Thus, whether the EPU is used and useful is again a disputed issue in the 2013 rate case. The Commission directed the parties to address the appropriate allocation of LCM and EPU costs in this proceeding.

### **B. Positions of the Parties**

#### **1. The Department**

The Department argued that the record supported Dr. Jacobs' finding that \$569.5 million or 85.7% of the LCM/EPU costs were required for the EPU and that the remaining \$95.4 million or 14.3% were not required to support the EPU.

Dr. Jacobs' basic criterion in allocating costs between the LCM and EPU was that "if Monticello could not operate at the higher EPU power level without the particular work or project being evaluated, [he] considered that particular work or project to be an EPU project." Dr. Jacobs used this criterion, which errs on the side of allocating costs to the EPU, because of his belief that the accelerated schedule, rigorous planning, and larger equipment required for an EPU likely drove most of the costs of the LCM/EPU project.

In determining whether a modification was needed to support the EPU, Dr. Jacobs relied primarily on a sworn letter that Xcel sent to the NRC in 2008 supporting its license-amendment request for the EPU. The letter included an "Enclosure 8" specifying modifications planned for the EPU and the LCM. In addition to Enclosure 8, Dr. Jacobs relied on his own experience and discussions with Xcel employees to guide his determination of whether a project was needed for the EPU. For example, although Enclosure 8 listed the 13.8-kV distribution-system upgrade as an LCM modification, he concluded that it was needed to operate the plant at uprate conditions and allocated its cost to the EPU.

#### **2. Xcel**

Xcel argued that the 58.4% LCM, 41.6% EPU split used in the 2008 certificate-of-need proceeding was the most reasonable allocation because it would avoid injecting hindsight bias into the Commission's decision. However, the Company argued that if the Commission decides to determine a split based on final costs, the evidence supports an allocation of 78% to the LCM and 22% to the EPU.



To arrive at this split, Xcel grouped modifications into three categories: LCM only, EPU only, and combination LCM and EPU. The last category represents the cost of replacing degraded equipment with new equipment that was sized to accommodate the uprate. For example, the Company classified the cost of replacing the 40-year-old main transformer as 90% LCM and 10% EPU. It argued that the transformer needed to be replaced even absent the EPU, but allocated 10% of the cost to the EPU to account for the increased size of the new transformer.

Xcel argued that Dr. Jacobs failed to recognize that many plant components needed to be replaced to permit long-term operation and that his split therefore over-allocates costs to the EPU. The Company maintained that its 78% LCM, 22% EPU cost allocation correctly allocates life-extension-related costs to the LCM and uprate-related costs to the EPU.

### **C. Recommendation of the Administrative Law Judge**

The ALJ concluded that Dr. Jacobs' allocation of the LCM/EPU project costs was correct and should be adopted by the Commission.

### **D. Commission Action**

The Commission declines to adopt the recommendation of the Administrative Law Judge on this issue. Because none of the allocations advanced by the parties provide a reliable basis to divide the costs of the project, the Commission concludes that the most reasonable course of action is to employ a 50%–50% allocation based on Xcel's original estimates for the two projects—\$135 million LCM and \$133 million EPU.

Xcel argued that its original 41.6%–58.4% split used in the 2008 certificate-of-need proceeding is the most appropriate allocation. In its 2008 filing, Xcel estimated total project costs of approximately \$320 million—\$133 million, or 41.6%, for the EPU and the remaining 58.4%, or \$189 million, for the LCM. However, this allocation was created using high-level judgment solely for the purpose of that proceeding. Moreover, the Company has provided conflicting estimates of the LCM portion. In response to a Department information request in this docket, the Company stated that its estimate for the LCM in 2008 was \$170 million.

The parties' allocations of the final costs lead to wildly inconsistent results. Xcel's allocation is \$146 million, or 22%, for the EPU and \$518.9 million, or 78%, for the LCM. Following Xcel's analysis, total EPU costs from 2008 until the project was finished increased by 10%, and total LCM costs from 2008 until the project was finished increased by 175%. The Department's allocation is \$569.5 million, or 85.7%, for the EPU and \$95.4 million, or 14.3%, for the LCM. Following the Department's analysis, total EPU costs from 2008 until the project was finished increased by 328%, and total LCM costs from 2008 until the project was finished decreased by 50%. These percentages would change if the LCM amounts of \$170 million and \$189 million were used in the calculations.

The Commission concludes that Xcel's methodology over-allocates costs to the LCM, while the Department's methodology over-allocates costs to the EPU. Moreover, for the reasons stated, the Company's 2008 certificate-of-need allocation is unreliable. Under the circumstances, the most fair and equitable allocation of LCM/EPU costs is 50% LCM, 50% EPU.

## **VIII. Claims-Settlement Funds**

Xcel identified a number of claims it had settled or was pursuing against various project contractors. The Company has designated the details of these claims as a trade secret.

Xcel stated that it has offset settled claims against the overall cost of the Monticello project and indicated that it was willing to treat future settled claims in the same way or, alternatively, to remove them from this case and pursue them independently. No party objected to the Company's proposal.

So that ratepayers may obtain the benefit of any such settlements, the Commission will accept Xcel's proposal to offset any claims or settlements it achieves against the cost of the project. The Commission will require the Company to make quarterly compliance filings, beginning in July 2015, with an update on all pending settlements related to the Monticello project, as detailed below in the ordering paragraphs.

### **ORDER**

1. The Commission adopts the ALJ's Report, including his recommendations and memorandum, to the extent consistent with the decisions made by the Commission in this docket.
2. The Commission finds that Xcel's handling of the Monticello LCM/EPU project was not prudent.
3. The Commission finds that Xcel's request for full recovery of the Monticello LCM/EPU project cost overruns is reasonable.
4. The Commission finds that no disallowance is necessary in this prudence review but that Xcel will not be allowed a return on the expenses exceeding the initial figures provided in its the certificate-of-need filings, escalated to 2014 dollars. The reduction to the allowed return will be incorporated into Xcel's rate case, Docket No. E-002/GR-13-868.
5. The Commission incorporates the findings in Attachment A, supplementing the ALJ's Report.
6. Beginning no later than July 1, 2015, Xcel shall make quarterly compliance filings providing an update on all pending settlements related to the Monticello project. The filings shall contain the following items:
  - An update for each claim
  - Settlement date or anticipated settlement date
  - Settlement amount
  - Proposed handling of any settlement funds

7. This order shall become effective immediately.

BY ORDER OF THE COMMISSION

Daniel P. Wolf  
Executive Secretary



This document can be made available in alternative formats (e.g., large print or audio) by calling 651.296.0406 (voice). Persons with hearing loss or speech disabilities may call us through their preferred Telecommunications Relay Service.

## Supplemental Findings

### LCM/EPU Allocation

- a. Xcel's allocation of the \$664.9 million total project costs<sup>1</sup> was \$146 million, or 22%, for the EPU and \$518.9 million, or 78%, for the LCM.<sup>2</sup>
  - b. The Department's allocation of the \$664.9 million total project was \$569.5 million, or 85.7%, for the EPU and \$95.4 million, or 14.3%, for the LCM.<sup>3</sup>
  - c. In 2008, Xcel filed a certificate-of-need application<sup>4</sup> that estimated total project costs of approximately \$320 million—\$133 million, or 41.6%, for the EPU and \$189 million, or 58.4%, for the LCM<sup>5</sup>. In response to the Department's Information Request (IR) #94 in this docket, the Company provided the following cost breakdown for the 2008 certificate of need:<sup>6</sup>
    - Monticello LCM - \$135 million
    - Monticello EPU - \$133 million
    - Independent Spent Fuel Storage Installation (ISFSI) - \$55 million
- In the same IR, Xcel confirmed that ISFSI costs have never been part of either the estimated or actual costs for the Monticello LCM/EPU project.<sup>7</sup>
- d. If one followed Xcel's analysis, total EPU costs from 2008 until the project was finished increased by 10% and total LCM costs from 2008 until the project was finished increased by 175%.
  - e. If one followed the Department's analysis, total EPU costs from 2008 until the project was finished increased by 328% and total LCM costs from 2008 until the project was finished *decreased* by 50%.
  - f. These percentages would change if Xcel's updated amounts of \$170 million and \$189 million are used in the calculations.
  - g. The results of both Xcel's and the Department's analysis of the allocation of the cost increases are not supported by the record and neither allocation is useful.

---

<sup>1</sup> Total does not include AFUDC.

<sup>2</sup> O'Connor Direct Testimony, Schedules 29 and 30.

<sup>3</sup> Jacobs Direct Testimony at 11.

<sup>4</sup> Docket No. E-002/CN-08-185.

<sup>5</sup> Alders Direct Testimony at 21.

<sup>6</sup> Campbell Direct Testimony, Schedule 5.

<sup>7</sup> *Id.*

- h. Since Xcel has confirmed that the 2008 certificate of need Monticello LCM portion was \$135 million and the Monticello EPU portion was \$133 million, the appropriate allocation of LCM/EPU should be 50% LCM and 50% EPU.

### **Project Management**

- i. The Monticello plant was found to have more systems that needed work than the Company expected. The plant was originally constructed in the 1960s, and the age and condition of many of its components contributed to the assessment of the level of LCM work that was needed.<sup>34</sup>
- j. Xcel provided information regarding the conditions encountered for various major sub-projects. These projects include the condensate demineralizer, feedwater heaters, reactor feed pumps and motors, condensate pump and motor, 13.8 kV distribution system, power-range neutron monitoring system, high-pressure turbine replacement, steam dryer, and transformers.<sup>35</sup>
- k. Xcel also provided historical estimated cash flows for the following items: (a) replacement of feedwater heaters – \$6 million total, (b) capital projects under \$1 million – \$7 million annually, (c) replacement of the feedwater and main steam pipe – \$3.5 million, and (d) 4 kV breaker replacements – \$10 million.<sup>36</sup>
- l. The information Xcel provided shows what the Company did; however, once the initial decision to proceed was made, the record does not explain any alternatives available as decisions were made and the project's scope changed, such as possible vendors, cost comparisons of equipment alternatives, etc.
- m. The information provided by Xcel lacks the transparency necessary to quantify the prudence of final costs.

### **Scoping and Planning and Project Management**

- n. The Company stated that its pre-certificate-of-need costs included about \$60 million in progress payments to General Electric, mainly for detailed engineering and design work for the 2009 modifications.<sup>37</sup> In 2006, the total contract with General Electric, including costs to obtain the necessary NRC approvals, was \$129 million.

---

<sup>34</sup> O'Connor Rebuttal Testimony, Schedule 30.

<sup>35</sup> *Id.*, Schedule 32.

<sup>36</sup> *Id.*

<sup>37</sup> Alders Rebuttal Testimony at 29.

- o. The Company stated that the original \$274 million LCM/EPU project authorization occurred within the Company's over-\$2 billion capital authorization in 2006 and that, over the six-year period at issue, the Company had over \$5 billion of capital expenditures and over \$10 billion in operation and maintenance expenses. The Company believes that information gives perspective on the context in which decisions were made about individual capital projects,<sup>38</sup> including the Monticello project.
- p. Given the myriad problems encountered throughout the project, despite a \$60 million up-front expenditure largely for *detailed* engineering and design work, the Company failed to develop reasonable cost estimates.

### **Cost Overruns and Related Updates**

- q. Adding to the ALJ's Finding of Fact 61, the Company stated that it did not believe that a notice of changed circumstances required a discussion of costs.<sup>39</sup>
- r. The Company stated that emerging changes in project costs were well known and had already been identified in the 2010 rate case (Docket E-002/GR-10-971).<sup>40</sup>
- s. The Company stated that it considered its options as costs increased and had executive-level discussions about how to move forward. These discussions involved Mr. Dennis Koehl (then chief nuclear officer), Mr. Scott Wilensky (then VP of regulatory and resource planning), and Mr. Timothy O'Connor (then site VP of Monticello). The discussions explored (1) the design and engineering challenges of moving forward with only life extension management; (2) the fact that certain equipment needed to be replaced and the costs and timing risks in light of the long lead times for equipment and the time to reanalyze and design work for the upgrades associated with a change in direction, including potential NRC issues associated with changing course and the likely delay this could cause; (3) the difficulty in isolating power-uprate work and associated costs that could be avoided because the 2007 design leveraged the need to replace aging equipment with designs and equipment sized to support both life extension and the power uprate; and (4) the cost-effectiveness of the project based on general resource-planning knowledge of natural gas costs, energy and capacity needs, previously modeled breakeven prices for nuclear uprates, and consideration of the impact of sunk costs and the costs to change plans.<sup>41</sup>

---

<sup>38</sup> Sparby Rebuttal Testimony at 25–26.

<sup>39</sup> Alders Rebuttal Testimony, Schedule 1.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*, Schedule 2.

- t. When the Company filed its 2010 rate case,<sup>42</sup> total project costs were estimated to be \$360 million. In that rate case's rebuttal testimony the Company updated total costs to \$399 million, and by November 2011 the updated total costs had escalated to between \$550 and \$600 million.<sup>43</sup> None of the information about the Company's analysis and choices were presented to the Commission for review or approval at the time of the Notice of Changed Circumstances.
- u. During the course of the 2010 rate case, total estimated project costs increased between \$190 and \$240 million.<sup>44</sup>
- v. While the Company did provide information on rising costs in its rate cases, the Company generally provided the information as a result of information requests during discovery and not initiated by the Company.
- w. Considering that the Company knew that it would seek recovery of the cost overruns, the Company should have kept the Commission informed and given it the opportunity to timely review the increased expenditures and the reason for them.

---

<sup>42</sup> Docket No. E-002/GR-10-971.

<sup>43</sup> Alders Rebuttal Testimony at 16.

<sup>44</sup> \$550 to \$600 million minus \$360 million