

STATE OF MINNESOTA  
COURT OF ADMINISTRATIVE HEARINGS  
FOR THE PUBLIC UTILITIES COMMISSION

In the Matter of Xcel Energy’s Petition for  
Approval of its 2023 Annual Fuel Forecast  
and Monthly Fuel Cost Charges

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**FINDINGS OF FACT, CONCLUSIONS OF  
LAW, AND RECOMMENDATION**

This matter came before Administrative Law Judge Kimberly Middendorf for an evidentiary hearing on September 30, 2025, at the offices of the Minnesota Public Utilities Commission in St. Paul, Minnesota.

Eric Swanson and Elizabeth Schmiesing, Winthrop & Weinstine, P.A., and Ian Dobson and Lauren Steinhäuser, Northern States Power Company – Minnesota, d/b/a Xcel Energy, appeared for and on behalf of Northern States Power Company (NSP) d/b/a Xcel Energy (Xcel).

Katherine Arnold and Richard Dornfeld, Assistant Attorneys General, appeared for and on behalf of the Minnesota Department of Commerce, Division of Energy Resources (Department).

Peter Scholtz and Joey Cherney, Assistant Attorneys General, appeared for and on behalf of Minnesota Office of the Attorney General – Residential Utilities Division (OAG).

Brian Edstrom, Senior Regulatory Advocate, appeared for and on behalf of Citizens Utility Board of Minnesota (CUB).

Amber Lee and Eden Fauré, Stole Rives, LLP, appeared for and on behalf of the Xcel Large Industrials (XLI).

Ashley Marcus and Hirs Mohamed participated on behalf of the Minnesota Public Utilities Commission (Commission).

**STATEMENT OF THE ISSUES**

1. How much more were ratepayers required to pay for electricity because of the outage at the Prairie Island Nuclear Generating Plant caused by Xcel Energy's imprudence in October 2023?

2. Should Xcel be allowed to offset the refund of excess replacement power costs the outage caused, because:

- a. the restoration work performed reduced future outage time that may occur in 2029 for anticipated repairs (the avoided 2029 costs);
- b. supplemental work performed during the outage reduced future outage time (the supplemental or pulled-forward work); or
- c. the historical performance of the plant should be credited against Xcel's imprudence (the performance adjustment)?

### **SUMMARY OF RECOMMENDATIONS**

The best estimate of the cost of replacement power purchased during the Prairie Island Nuclear Generating Plant (PINGP) outages caused by Xcel's imprudence in October 2023 is \$40.6 million. Xcel is not entitled to offset these costs based upon alleged avoided 2029 costs or for supplemental work performed during the outage. PINGP's historical performance does not warrant adjusting the customer refund. Xcel should not recover the expenses it incurred in litigating this matter. Finally, the Commission should mandate a compliance filing detailing all expenses incurred in this contested case and require Xcel to exclude these litigation costs from any future rate cases or cost-recovery proceeding.

Based on the evidence in the hearing record, the Judge makes the following findings:

### **FINDINGS OF FACT**

#### **I. Procedural History**

1. Minn. Stat. § 216B.16, subd. 7, the Fuel Clause Statute, authorizes the Commission to allow a public utility to automatically adjust charges for, among other things, costs for fuel used in generation of electricity and for federally regulated wholesale rates for energy delivered through interstate facilities (referred to collectively as "fuel").

2. The Commission enforces certain annual fuel clause adjustment requirements, as follows:<sup>1</sup>

Each electric utility will refund any over-collections and show prudence of costs before allowing recovery of under-collections. If annual revenues collected (\$/MWh) are higher than total actual costs, the utility must refund

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<sup>1</sup> *In the Matter of an Investigation into the Appropriateness of Continuing to Permit Electric Energy Cost Adjustments*, MPUC Docket No. E999/CI-03-802, Order Approving New Annual Fuel Clause Adjustment Requirements and Setting Filing Requirements at 9 (Dec. 19, 2017) (eDocket No. 201712-138275-01).

the over-collection through a true-up mechanism. If annual revenues collected are lower than total actual costs), the utility must show why it is reasonable to charge the higher costs (under-collections) to ratepayers through a true-up mechanism.

3. On March 1, 2024, Xcel filed its Annual Fuel Clause True-Up and Compliance Report for fuel forecast and fuel-cost charges approved for the 2023 calendar year (2023 AAA Report). Xcel reported its net total Minnesota fuel collections were \$1,061.3 million in 2023. Xcel calculated its total actual fuel expense for 2023 of \$935.3 million. Xcel reported it had over-collected fuel costs by \$126 million for 2023 and proposed to refund this amount to customers.<sup>2</sup>

4. On April 15, 2024, the Department filed comments. The Department concluded that Xcel had sufficiently addressed the non-nuclear aspects of the 2023 AAA Report, but the Department's investigation into Xcel's 2023 nuclear outages of both reactors (PINGP Unit 1 and PINGP Unit 2) at PINGP was ongoing.<sup>3</sup>

5. On May 1, 2024, Xcel filed reply comments, which included some additional information requested by the Department and corrected some errors in its earlier filings.<sup>4</sup>

6. On May 15, 2024, the Department filed supplemental comments. In reviewing Xcel's nuclear outages, the Department identified two areas of concern. The first was an outage at PINGP Unit 2, categorized by Xcel as planned, beginning on September 19, 2023. The second was an unplanned outage at PINGP Unit 1 beginning on October 19, 2023, which Xcel re-categorized as planned beginning November 14, 2023.<sup>5</sup>

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<sup>2</sup> Exhibit (Ex.) XCEL-1 at 7 (Krug Direct).

<sup>3</sup> Comments of the Department (April 15, 2024) (eDocket Nos. 20244-205419-01 and 20244-205419-02).

<sup>4</sup> Xcel Reply Comments (May 15, 2024) (eDocket Nos. 20245-206282-01, 20245-206282-02 and 20245-206282-03).

<sup>5</sup> Supplemental Comments of the Department (May 15, 2024) (eDocket Nos. 20245-206783-01 and 20245-206783-02) (attachments omitted inadvertently submitted May 21, 2024 – eDocket Nos. 20245-206953-02, 20245-206953-03, 20245-206953-04, 20245-206953-05 and 20245-206953-06).

7. These outages were caused when workers struck and severed a buried control cable required to run the reactors on October 19, 2023.<sup>6</sup> Below is a photograph of the severed cable.<sup>7</sup>

**Figure 1: Photograph of Damaged Cables**



8. In the course of the investigation, Xcel admitted that it caused the PINGP 2023 outages, stating: “The root cause of this human performance issue was weakness in the Excavation Permit approval process as well as the inadequate oversight of the non-nuclear supplemental workers[.]”<sup>8</sup> The Department recommended that the Commission order Xcel to refund to ratepayers the cost of replacement fuel necessitated by Xcel’s imprudence.<sup>9</sup>

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<sup>6</sup> ORDER APPROVING 2023 FUEL CLAUSE TRUE-UP REPORT, REQUIRING ADDITIONAL FINDINGS, FINDING IMPRUDENCE, AND NOTICE OF AND ORDER FOR HEARING at 2 (Nov. 15, 2024) (eDocket No. 202411-211999-01) (NOTICE AND ORDER).

<sup>7</sup> Supplemental Comments of the Department (May 15, 2024) (eDocket Nos. 20245-206783-01 and 20245-206783-02).

<sup>8</sup> Supplemental Comments of the Department at 11 (May 15, 2024) (eDocket Nos. 20245-206783-01 and 20245-206783-02).

<sup>9</sup> Supplemental Comments of the Department at 20-21 (May 15, 2024) (eDocket Nos. 20245-206783-01 and 20245-206783-02).

9. Xcel characterized the flaws in its excavation-permit approval process as follows:<sup>10</sup>

Site personnel reviewing and approving the permit were not adequately intrusive to ensure that all interferences had been properly identified prior to approving the permit. Specifically, the use of Ground Penetrating Radar (GPR) had only been completed for some areas and had not been performed in the area that would have identified the interference with the [control] cables.

10. Regarding its oversight of the excavation, Xcel admitted:<sup>11</sup>

[P]rocedural weaknesses and poor communication between site departments allowed the [drilling] work to continue without a clear understanding of which site department was responsible for providing oversight to the [drilling] crew. This resulted in work progressing in the field without all controls in place that would be expected for work at a nuclear plant. Specifically, approved work plans were not always available at the work site and approved construction drawings for [drilling] work were not updated when changes were made in the field.

11. The OAG filed comments on May 15, 2024, as well. The OAG posited that, because the “replacement-power costs were the direct result of Xcel’s imprudent management of the transformer-cable replacement project at Prairie Island”, requiring ratepayers to pay for those costs “would not be just or reasonable[.]” Advocating for the ratepayers, the OAG urged the Commission to order Xcel to remove the replacement-power costs attributable to the outages from its 2023 AAA Report.<sup>12</sup>

12. By June 18, 2024, five members of the public had filed comments.<sup>13</sup> A commenter observed:<sup>14</sup>

[T]he Prairie Island outage and subsequent replacement power expenses were due to Xcel’s inadequate management and quality control. Xcel operates as a monopoly, but should not be allowed to socialize the costs of power production while simultaneously privatizing the profits. It is insulting

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<sup>10</sup> Comments of the OAG, attach. A at 5 (Xcel Response to OAG IR 3) (May 15, 2024) (eDocket Nos. 20245-206795-01 and 20245-206795-02).

<sup>11</sup> Comments of the OAG, attach. A at 5 (Xcel Response to OAG IR 3) (May 15, 2024) (eDocket Nos. 20245-206795-01 and 20245-206795-02).

<sup>12</sup> Comments of the OAG (May 15, 2024) (eDocket Nos. 20245-206795-01 and 20245-206795-02).

<sup>13</sup> Public Comment of Pamela Janisch (June 10, 2024) (eDocket No. 20246-207538-01); Public Comment of Judy Corson (June 10, 2024) (eDocket No. 20246-207533-01); Public Comment of David Bergstrom (June 10, 2024) (eDocket No. 20246-207529-01); Public Comment of Zachary Siegel (June 18, 2024) (eDocket No. 20246-207775-01); Public Comment of Quentin Ritchie (June 18, 2024) (eDocket No. 20246-207775-01).

<sup>14</sup> Public Comment of Zachary Siegel (June 18, 2024) (eDocket No. 20246-207775-01).

that Xcel would even suggest that customers foot the bill for something they caused. Not only should Xcel be prohibited from recouping these costs from customers, they should be fined for wasting everyone's time.

All public comments similarly opposed requiring Xcel's customers to cover the cost of Xcel's imprudence.<sup>15</sup>

13. On July 30, 2024, CUB filed reply comments contending that the Commission should, among other things, find Xcel's imprudence caused or extended unplanned outages and, thus, was the proximate cause of replacement power purchases. CUB maintained that the Commission should require Xcel to refund replacement power costs to ratepayers.<sup>16</sup>

14. On July 30, 2024, Xcel filed supplemental reply comments. Xcel argued that its operation of PINGP in 2023 was prudent despite its extended outage, and that its prudence should allow it to retain the replacement power costs collected from its customers.<sup>17</sup>

15. On August 23, 2024, the Department filed comments responding to Xcel's July 30, 2024 filing. The Department "continue[d] to recommend the Commission approve Xcel's 2023 FCA true-up petition with additional reporting requirements and additional refunds [attributable to Xcel's imprudence]."<sup>18</sup>

16. On September 19, 2024, the Commission met to consider this matter and approved the undisputed, non-nuclear aspects of the 2023 AAA Report and Xcel's proposed \$126 million refund to customers.<sup>19</sup>

17. Regarding the disputed portion of the 2023 AAA Report, the Commission concluded:<sup>20</sup>

[. . .] an unplanned outage at the Prairie Island Nuclear Generating Plant (PINGP) in October 2023 occurred when workers unintentionally struck and damaged an underground cable while excavating for an unrelated project. As a result, Xcel incurred significant costs for replacement energy during this outage. The Commission concludes that this incident and outage

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<sup>15</sup> See, e.g., Public Comment of Pamela Janisch (June 10, 2024) (eDocket No. 20246-207538-01); Public Comment of Judy Corson (June 10, 2024) (eDocket No. 20246-207533-01); Public Comment of David Bergstrom (June 10, 2024) (eDocket No. 20246-207529-01); Public Comment of Zachary Siegel (June 18, 2024) (eDocket No. 20246-207775-01); Public Comment of Quentin Ritchie (June 18, 2024) (eDocket No. 20246-207775-01).

<sup>16</sup> Reply Comments of CUB (July 30, 2024) (eDocket No. 20247-209116-01).

<sup>17</sup> Xcel Energy Supplemental Reply Comments (July 30, 2024) (eDocket Nos. 20247-209117-01, 20247-209117-02, 20247-209117-03 and 20247-209117-04).

<sup>18</sup> Department Reply Comments (Aug. 23, 2024) (eDocket No. 20248-209745-01).

<sup>19</sup> NOTICE AND ORDER at 2.

<sup>20</sup> NOTICE AND ORDER at 2.

resulted from Xcel's imprudence, and it is not appropriate for the Company to recover all of its claimed outage-related fuel costs.

18. As to the PINGP outages, the Commission found that further record development was necessary to determine the impact of the outage on the power costs paid by customers and whether potential benefits or offsets should be considered before requiring any refund of costs incurred during the outage.<sup>21</sup>

19. On November 15, 2024, the Commission referred this matter to the Court of Administrative Hearings for this contested case proceeding.<sup>22</sup>

20. The initial parties to the contested case proceeding were Xcel, the Department, and the OAG.<sup>23</sup>

21. On November 27, 2024, Judge Middendorf issued the First Prehearing Order and established a schedule of proceedings.<sup>24</sup>

22. In the First Prehearing Order, Judge Middendorf determined the parties in the contested case hearing are Xcel and the Intervenors (the Department, OAG, CUB and XLI).<sup>25</sup>

23. On December 5, 2024, the Department petitioned the Commission to make a limited clarification of its November 15 Order.<sup>26</sup>

24. On December 5, 2024, Xcel petitioned the Commission to reconsider its November 15, 2024 Order.<sup>27</sup>

25. On December 16, 2024, CUB filed its Answer to Xcel's Petition for Reconsideration.<sup>28</sup>

26. On December 16, 2024, the OAG filed its Answer to Xcel's Petition for Reconsideration and the Department's Request for Clarification,<sup>29</sup> the Department filed

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<sup>21</sup> NOTICE AND ORDER at 2.

<sup>22</sup> NOTICE AND ORDER at 8.

<sup>23</sup> NOTICE AND ORDER at 2.

<sup>24</sup> FIRST PREHEARING ORDER at 2-5 (Nov. 27, 2024) (eDocket No. 202411-212514-01).

<sup>25</sup> FIRST PREHEARING ORDER at 2.

<sup>26</sup> Department Request for Clarification (Dec. 5, 2024) (eDocket No. 202412-212749-01).

<sup>27</sup> Xcel Energy Petition for Rehearing and Reconsideration (Dec. 5, 2024) (eDocket No. 202412-212755-01) (Petition for Reconsideration).

<sup>28</sup> CUB Answer to the Company's Petition for Reconsideration (Dec. 16, 2024) (eDocket No. 202412-213043-01).

<sup>29</sup> OAG Answer to Xcel Energy's Petition for Reconsideration and the Department of Commerce's Request for Clarification (Dec. 16, 2024) (eDocket No. 202412-213045-02).

its Answer to Xcel's Petition for Reconsideration,<sup>30</sup> and Xcel filed its Answer to the Department's Request for Clarification.<sup>31</sup>

27. Subsequently, the Commission clarified the issues to be addressed in its January 31, 2025 Order Denying Reconsideration and Granting Request for Clarification.<sup>32</sup>

28. On May 1, 2025, Xcel filed its Direct Testimony in this proceeding, from Xcel witnesses Allen D. Krug, Nicholas J. Detmer, Allen L. Hiser, Jr., and Carl R. Bible.<sup>33</sup>

29. On June 27, 2025, Xcel filed errata to the Direct Testimony and Schedules of Nicholas J. Detmer.<sup>34</sup>

30. On July 2, 2025, the Intervenor (CUB, DOC, OAG and XLI) filed a Notice of Motion and Motion for Partial Summary Disposition, Memorandum Supporting Partial Summary Disposition and Declaration of Richard Dornfeld.<sup>35</sup>

31. On July 2, 2025, the Department, OAG, and XLI filed Direct Testimony of their witnesses, including Andrew Golden, Shoua Lee, and Brian C. Andrews.<sup>36</sup>

32. On July 17, 2025, Xcel filed its Memorandum in Opposition to Joint Intervenor's Motion for Partial Summary Judgment.<sup>37</sup>

33. On August 13, 2025, the Court issued its Order Denying Motion for Partial Summary Judgment.<sup>38</sup>

34. On August 13, 2025, Xcel filed its Rebuttal Testimony.<sup>39</sup>

35. On September 17, 2025, the Department, OAG, and XLI filed their Surrebuttal Testimonies.<sup>40</sup>

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<sup>30</sup> Department Answer to Xcel Energy's Petition for Reconsideration (Dec. 16, 2024) (eDocket No. 202412-213069-01).

<sup>31</sup> Xcel Energy's Answer to Petition for Clarification (Dec. 16, 2024) (eDocket No. 202412-213064-01).

<sup>32</sup> ORDER DENYING RECONSIDERATION AND GRANTING REQUEST FOR CLARIFICATION (Jan. 31, 2025) (eDocket No. 20251-214793-01) (CLARIFYING ORDER).

<sup>33</sup> See Exs. XCEL-1-2, 4-5, 10 and 13.

<sup>34</sup> See Exs. XCEL-6-7.

<sup>35</sup> Joint Intervenor's Notice of Motion and Motion for Partial Summary Disposition, Memorandum Supporting Partial Summary Disposition and Declaration of Richard Dornfeld (July 2, 2025) (eDocket Nos. 20257-220598-02, 20257-220598-03 and 20257-220598-04).

<sup>36</sup> See Ex. DOC-1; Exs. OAG-1 – OAG-3; Exs. XLI-1 – XLI-2.

<sup>37</sup> Xcel Energy's Memorandum in Opposition to Joint Intervenor's Motion for Partial Summary Judgment (July 17, 2025) (eDocket No. 20257-221097-01).

<sup>38</sup> ORDER DENYING PARTIAL SUMMARY JUDGMENT (Aug. 13, 2025) (eDocket No. 20258-222028-01).

<sup>39</sup> See Exs. XCEL-3, 8-9, 11-12, 14.

<sup>40</sup> See Exs. DOC-2 - DOC-3; Ex. OAG-4; Exs. XLI-3 – XLI-4.

36. On September 22, 2025, Xcel filed its Notice of Motion and Motion to Strike<sup>41</sup> and Memorandum of Law in Support of Motion to Strike Certain Surrebuttal Testimony of Brian C. Andrews.<sup>42</sup>

37. On September 23, 2025, Xcel filed its Notice of Motion and Motion to Provide Responsive Testimony and Memorandum of Law in Support of Motion to Provide Responsive Testimony to the Surrebuttal Testimony of Department of Commerce Witness Dr. Steve Rakow.<sup>43</sup>

38. On September 24, 2025, the Department filed correspondence responding to Xcel's Motion to Provide Responsive Testimony.<sup>44</sup>

39. On September 25, 2025, XLI filed Errata to Brian Andrews Direct Testimony.<sup>45</sup>

40. On September 25, 2025, XLI filed correspondence in opposition to Xcel Energy's Motion to Strike Certain Surrebuttal Testimony of Brian C. Andrews.<sup>46</sup>

41. On September 26, 2025, a Prehearing Conference was held.<sup>47</sup> The Judge denied Xcel's Motion to Strike but ruled that Xcel would be given latitude to address Department Witness Rakow's testimony.<sup>48</sup>

42. On September 30, 2025, the Evidentiary Hearing was held.<sup>49</sup>

43. On November 25, 2025, Xcel, the Department, OAG, CUB, and XLI filed Initial Post-Hearing Briefs in this proceeding.<sup>50</sup>

44. On January 8th, 2026, the parties filed their Reply Briefs and Proposed Findings of Fact, Conclusions of Law, and Recommendations.

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<sup>41</sup> Xcel's Notice of Motion and Motion to Strike (Sept. 22, 2025) (eDocket No. 20259-223213-01).

<sup>42</sup> Xcel's Memorandum of Law in Support of Motion to Strike Certain Surrebuttal Testimony of Brian C. Andrews (Sept. 22, 2025) (eDocket No. 20259-223213-02).

<sup>43</sup> Xcel Energy's Memorandum of Law in Support of Motion to Provide Responsive Testimony to the Surrebuttal Testimony of Department of Commerce Witness Dr. Steve Rakow (Sept. 23, 2025) (eDocket No. 20259-223236-02).

<sup>44</sup> Department Response to Xcel's Motion to Provide Responsive Testimony (Sept. 24, 2025) (eDocket No. 20259-223279-01).

<sup>45</sup> See Ex. XLI-5.

<sup>46</sup> XLI correspondence in opposition to Xcel Energy's Motion to Strike Certain Surrebuttal Testimony of Brian C. Andrews (Sept. 25, 2025) (eDocket No. 20259-223319-01).

<sup>47</sup> See Second Prehearing Conference Transcript (Sept. 26, 2025) (eDocket No. 202511-224972-01).

<sup>48</sup> Second Prehearing Conference Transcript.

<sup>49</sup> See Evidentiary Hearing Transcript (Tr.) (Sept. 30, 2025) (eDocket No. 202511-224972-02).

<sup>50</sup> Xcel Initial Brief (Nov. 25, 2025) (eDocket No. 202511-225292-01); Department Initial Brief (Nov. 25, 2025) (eDocket No. 202511-225265-01); OAG Initial Brief (Nov. 25, 2025) (eDocket No. 202511-225275-02); CUB Initial Brief (Nov. 25, 2025) (eDocket No. 202511-225294-02); XLI Initial Brief (Nov. 25, 2025) (eDocket Nos. 202511-225296-02 – 202511-225296-03).

## II. Prairie Island Nuclear Generating Plant Background and 2023 Outage

45. The PINGP is a two-unit, nuclear-powered, electric generating station located in Red Wing, Minnesota and owned by Xcel.<sup>51</sup> The PINGP began operating in 1973 and 1974.<sup>52</sup> Xcel counts the PINGP as among the most reliable resources in its fleet.<sup>53</sup>

46. On October 19, 2023, a team working on a cable-replacement project at PINGP struck a direct current (DC) power cable bundle containing control cables, severing those cables (the Event). The maintenance work included underground horizontal drilling.<sup>54</sup> Xcel provided workers conducting the drilling with maps that did not fully depict all underground cables located near the excavation path.<sup>55</sup> As a result, the workers severed control cables during the drilling process.<sup>56</sup> The severed cables supply power to assets required to operate both PINGP reactors. At the time, PINGP Unit 2 was offline, in a planned refueling outage. Severance of the control cables caused PINGP Unit 1 to shut down and extended Unit 2's planned outage.<sup>57</sup>

47. The severed cables had been buried in direct contact with soil, as was the practice in the early 1970s, and included 30 cables of five shielded twisted conductor pairs each, approximately 1,300 feet long.<sup>58</sup>

48. The DC control cables at issue had been in service for approximately 50 years. There is currently no nuclear industry aging management guidance on low voltage direct buried cables (DC control cables). Xcel also does not have an end-of-life replacement program specifically for direct buried cables. Xcel does not have a specific estimated useful life for DC control cables in general, or an estimated remaining useful life for the DC control cables specifically at issue.<sup>59</sup>

49. In the immediate aftermath of the incident, Xcel inspected the control cables and found "evidence of corrosion, and degraded insulation."<sup>60</sup> Xcel determined that the condition of the cables put them at risk of water intrusion and therefore opted to permanently replace the control cables rather than simply repairing the portion that it had damaged.<sup>61</sup> Xcel also asked the Electric Power Research Institute (EPRI) to conduct a forensic evaluation to determine the probable causes of the cable degradation.<sup>62</sup>

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<sup>51</sup> Ex. Xcel-1 at 4 (Krug Direct).

<sup>52</sup> Ex. XCEL-1 at 4 (Krug Direct).

<sup>53</sup> Ex. XCEL-1 at 4 (Krug Direct).

<sup>54</sup> See generally, Ex. OAG-7 (Xcel Response to OAG IR 3) (eDocket No. 20259-223438-04).

<sup>55</sup> NOTICE AND ORDER at 3.

<sup>56</sup> NOTICE AND ORDER at 3; Ex. Xcel-1 at 5 (Krug Direct).

<sup>57</sup> Ex. XCEL-1 at 5-6 (Krug Direct).

<sup>58</sup> Ex. XCEL-1 at 5 (Krug Direct).

<sup>59</sup> See Ex. XCEL-1 at 5-6 (Krug Direct).

<sup>60</sup> Ex. XCEL-2 at 5 (Krug Direct).

<sup>61</sup> Ex. XCEL-2 at 5-6 (Krug Direct).

<sup>62</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38) (eDocket No. 20259-223438-02).

50. Xcel sent portions of the damaged cables to EPRI for testing and assessment. Xcel also provided EPRI with a sample of the backfill in the area of the damaged cables for analysis. EPRI found that the control cable samples had been subject to moisture and overheating, and some locations had cracked jackets. EPRI also determined that the thermal resistance of the backfill was likely higher than planned for buried cables, resulting in cracked jackets and the concomitant potential for water intrusion.<sup>63</sup>

51. Figure 1, below, displays the cross-section of one of the control cables. As the figure shows, a control cable is comprised of five twisted pairs of copper conductors enclosed in chlorinated polymer insulation of various colors.<sup>64</sup> The conductors are further separated by a fiber fill and surrounded by a tinned copper foil shield and a common neoprene jacket.<sup>65</sup> Several of the samples displayed a bluish copper oxide at the cut surfaces. The blue color is indicative of exposure of the copper conductor to moisture, most likely from breaches in the cable jacket and chlorine present in the polymer.<sup>66</sup>

**Figure 1 –  
Control Cable Cross-Section<sup>67</sup>**



<sup>63</sup> Ex. XCEL-13, Schedule 2 at 4-5 (Hiser Direct).

<sup>64</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>65</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>66</sup> Ex. OAG-5 at 4 of 16 (Xcel Response to DOC IR 38).

<sup>67</sup> Ex. OAG-5 at 12 of 16 fig. 2 (Xcel Response to DOC IR 38).

52. EPRI requested that Xcel provide “long continuous lengths of cable” to allow EPRI to perform electrical tests and observe the relative locations of the degradation.<sup>68</sup> Xcel provided cable pieces cut to lengths of only three to four feet, making it impossible for EPRI to conduct meaningful electrical tests.<sup>69</sup> Xcel did not mark the pieces to allow EPRI to establish the interrelationship between them.<sup>70</sup> The lack of markings made it impossible for EPRI to reassemble the full cable length or determine where on the cable the overheating occurred.<sup>71</sup>

**Figure 2 –  
Cable and Soil Samples Received by EPRI from Xcel<sup>72</sup>**



53. There were also issues with the soil sample that Xcel provided to EPRI. EPRI had requested that the sample be “hermetically sealed in Tupperware-like containers” to preserve the compaction and moisture levels present in the soil.<sup>73</sup> Xcel provided the soil in an unsealed plastic bag.<sup>74</sup> Given the unsealed container and how long the sample was in transit, EPRI found it “unlikely that the local conditions could be reconstituted from this sample and, thereby, provide meaningful thermal resistance

<sup>68</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>69</sup> Ex. OAG-5 at 10, 14–15 of 16 (Xcel Response to DOC IR 38).

<sup>70</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>71</sup> Ex. OAG-5 at 10, 16 of 16 (Xcel Response to DOC IR 38).

<sup>72</sup> Ex. OAG-5 at 11 of 16, fig.1 (Xcel Response to DOC IR 38).

<sup>73</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>74</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

information.”<sup>75</sup> Nevertheless, the blue color seen in the control cables was observed in some of the adjacent fill material.<sup>76</sup>

54. The information that EPRI was able to glean from the soil sample suggested that it was not well suited as a fill material for direct-buried cables. EPRI found that the soil was largely composed of “fine sand of similar particle size” and had a low moisture content.<sup>77</sup> This information suggested that the soil’s “thermal resistivity was higher than planned for buried cables.”<sup>78</sup> EPRI stated that a good thermal backfill for buried cables should include a range of particle sizes.<sup>79</sup> EPRI also posited that the soil sample’s low moisture level could lead to higher-than-planned thermal resistivity.<sup>80</sup>

55. EPRI’s inspection of the cable samples uncovered evidence of overheating and pyrolysis,<sup>81</sup> supporting its hypothesis that the soil’s thermal resistivity was higher than planned for buried cables. First, several of the cable pieces displayed copper oxide at the cut surfaces, indicating likely exposure of the conductor to moisture and chlorine.<sup>82</sup> Polymer insulation can release chlorine through pyrolysis if it reaches a high enough temperature, and since no other source of chlorine was present, this shows that the control cable overheated.<sup>83</sup> Second, the jackets of five out of the 56 cable pieces were cracked, and the jackets of another six displayed heat damage.<sup>84</sup> These defects in the cable jackets suggest, again, that the control cables were subjected to overheating.<sup>85</sup>

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<sup>75</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>76</sup> Ex. OAG-5 at 4 of 16 (Xcel Response to DOC IR 38).

<sup>77</sup> Ex. OAG-5 at 10–11 of 16 (Xcel Response to DOC IR 38).

<sup>78</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>79</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>80</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>81</sup> See Ex. OAG-5 at 11–16 of 16 (Xcel Response to DOC IR 38).

<sup>82</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>83</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>84</sup> Ex. OAG-5 at 12 of 16 (Xcel Response to DOC IR 38).

<sup>85</sup> Ex. OAG-5 at 14 of 16 (Xcel Response to DOC IR 38).

**Figure 3 –  
Control Cable Jacket Defects<sup>86</sup>**



56. EPRI noted that “soil resistivity can greatly impact cable longevity.”<sup>87</sup> If the soil around the control cables were dry and not compacted well, its thermal resistivity would be elevated and could lead to cable overheating and hardening of the jacket.<sup>88</sup> This, in turn, could cause cracks to form that would allow moisture to penetrate the jacket, further damaging the internal conductors.<sup>89</sup>

57. Xcel completed its inspection of the damaged cables five days after the incident, on October 24, 2023. It concluded that the “identified damaged cables . . . were beyond repair based on overall condition of the cable jackets, evidence of copper corrosion, and degraded insulation.”<sup>90</sup> Xcel further concluded that “the cabling can not [sic] be repaired and needs to be replaced.”<sup>91</sup>

58. Xcel performed a formal Operational Decision Making Issue (ODMI) evaluation, which was completed from November 7 to 9, 2023.<sup>92</sup> Although the cable inspection concluded the cables could not be repaired, Xcel formally considered three options to remedy the damaged cable: use spare cable conductors within the same bundle; replace only the damaged sections of the cable; and fully replace the cable.<sup>93</sup> On November 13, Xcel decided to proceed with a full cable replacement.<sup>94</sup>

59. On November 14, 2023, Xcel changed the classification of the outage from unplanned to planned.<sup>95</sup> On November 30, 2023, Xcel submitted a request to the

<sup>86</sup> Ex. OAG-5 at 14 of 16, fig.5 (Xcel Response to DOC IR 38).

<sup>87</sup> Ex. OAG-5 at 14 of 16 (Xcel Response to DOC IR 38).

<sup>88</sup> Ex. OAG-5 at 14 of 16 (Xcel Response to DOC IR 38).

<sup>89</sup> Ex. OAG-5 at 14 of 16 (Xcel Response to DOC IR 38).

<sup>90</sup> Ex. DOC-6 at 18 of 24 (Xcel Response to Department Request 24).

<sup>91</sup> Ex. DOC-6 at 5, 16 of 24 (Xcel Response to Department Request 24).

<sup>92</sup> Ex. DOC-6 at 5-16 of 24 (Xcel Response to Department Request 24).

<sup>93</sup> Ex. DOC-6 at 5-6 of 24 (Xcel Response to Department Request 24).

<sup>94</sup> Ex. DOC-6 at 2 (Xcel Response to Department Request 24).

<sup>95</sup> Ex. DOC-6 at 2 (Xcel Response to Department Request 24).

Midcontinent Independent System Operator (MISO) to approve a planned outage from December 15, 2023 to January 19, 2024.<sup>96</sup> MISO approved the request on December 7, 2023.<sup>97</sup>

60. Xcel replaced the control cables, rather than repair the damaged portions. Unit 1 did not return to full service until January 30, 2024. Total outage time for Unit 1 was 103 days following the Event. In addition, the work required to replace and test the control cables added 57 days to the length of the Unit 2 planned outage.<sup>98</sup>

### **III. The Cost of Replacement Power**

#### **A. General Power Cost Considerations**

61. The MISO energy market is a centrally dispatched, wholesale electricity market that manages the flow of electricity across a 15-state region in the U.S. Midwest and South, as well as the Canadian province of Manitoba. It acts as a "grid operator" or "air traffic controller" for the high-voltage transmission system, ensuring that supply meets demand in real-time while ostensibly fostering competition among power generators. MISO's territory includes NSP (i.e., Xcel's Minnesota's service territory and its transmission and generation assets).<sup>99</sup>

62. As a component of Xcel's generation portfolio, PINGP plays a role within the Minnesota region of the MISO North energy market. PINGP's output represents approximately 13 percent of the energy generated within the Minnesota region of the MISO North market.<sup>100</sup>

63. The Minnesota region of the MISO North market is what MISO terms a "Narrow Constrained Area" (NCA), meaning constraints in the transmission system can create bottlenecks and limit the ability to move power. Xcel is sometimes price isolated from the broader energy market, which can prevent Xcel from purchasing additional power on the MISO market. Xcel submits this may have occurred during the outage because it saw the generation at other Xcel facilities increase somewhat from their previously forecasted generation during the same timeframe.<sup>101</sup>

64. Regarding transmission capacity, there are areas of constraints in the transmission system, and, at times, the system can approach its maximum capacity. When this occurs, the market responds by disfavoring generation located in areas of constrained capacity.<sup>102</sup>

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<sup>96</sup> Ex. DOC-6 at 17 of 24 (Xcel Response to Department Request 24).

<sup>97</sup> Ex. DOC-6 at 17 of 24 (Xcel Response to Department Request 24).

<sup>98</sup> Ex. XCEL-1 at 6-7, and Schedule 3 (Krug Direct).

<sup>99</sup> Ex. XCEL-4 at 3 (Detmer Direct); Ex. Xcel-8 at 11 (Detmer Rebuttal).

<sup>100</sup> Ex. XCEL-4 at 13 (Detmer Direct); Tr. at 56 (Detmer).

<sup>101</sup> Tr. at 54-56 (Detmer).

<sup>102</sup> Ex. XCEL-4 at 10 (Detmer Direct).

65. Locational Marginal Pricing (LMP) is the method used by wholesale electric energy markets to determine the price of electricity at specific locations (nodes) across the power grid. It reflects the value of electricity based on demand, congestion, and losses, calculated every five minutes (real-time) or hourly (day-ahead).<sup>103</sup>

66. For a market participant like Xcel that both offers energy into the market and purchases back from that same market, customers are not always paying LMP prices for their energy. When Xcel generation facilities produce energy at generation costs below the LMP, Xcel's sales from the facility into the market (at LMP pricing tied to the location of Xcel's generators) and purchases back from the market (also at LMP pricing but tied to the location of Xcel's load) net out, and customers pay the net generation costs.<sup>104</sup>

67. Because of the outage, Xcel needed to replace the energy that would have been provided by PINGP with other power – either from its own generation facilities or from purchases on the MISO market.<sup>105</sup>

68. To the extent this “replacement power” costs more than customers would have paid absent Xcel's imprudence and the resulting outage, and to the extent those incremental costs are not offset in some way, a refund of any remaining incremental impact on customers must be made. This requires an analysis of the costs of procuring power that would have been generated by PINGP but for Xcel's imprudence.<sup>106</sup>

69. Determining the exact additional costs incurred would require determining what Xcel's costs would have been had it not caused the outage. It is not possible to precisely determine the additional power costs incurred because of any individual outage. Many variables affect energy market prices, and it is necessary to make reasonable assumptions, create a reasonable hypothetical “what if” scenario, and then compare the costs incurred in that “what if” scenario to the costs actually incurred to estimate the amount of additional power costs.<sup>107</sup>

70. Production cost modeling is used to match supply (electric generation) with demand (customer load) to minimize overall system cost, while attempting to recognize the operating characteristics of each electric generating unit. Production cost modeling software is now used extensively in the electric power industry to analyze and make decisions for today's large, complex power systems. This type of modeling is used “to forecast key values, such as the quantity of fuel needed for a specific generating unit in the future, what portfolio of electric generators will best minimize system pollutant emissions, and the expected economic value of a proposed transmission project.”<sup>108</sup>

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<sup>103</sup> Ex. XLI-1 at 15 (Andrews Direct); see Ex. DOC-3 at 14-15, 19 (Rakow Surrebuttal); Ex. XCEL-4 at 4-6 (Detmer Direct).

<sup>104</sup> Ex. XCEL-4 at 4-6, 10 (Detmer Direct).

<sup>105</sup> See Tr. at 56 (Detmer).

<sup>106</sup> See *generally*, Ex. XCEL-4 (Detmer Direct); Ex. DOC-1 (Golden Direct).

<sup>107</sup> Ex. XCEL-4 at 14 (Detmer Direct); Ex. DOC-1 at 6 (Golden Direct).

<sup>108</sup> Ex. XCEL-4 at 11 (Detmer Direct).

71. Production cost models also can be used to conduct backward looking analyses, such as evaluating previous decisions or events. When used to minimize costs for electric power, the modeling tool incorporates multiple factors, including fuel costs, non-fuel operations and maintenance costs, generating unit minimum run times, and maximum capacity at various generating units.<sup>109</sup>

72. The LMP Calculation Method is an alternative to the production cost modeling method. The LMP Calculation Method assumes the generation output of Xcel's other resources would have been largely unchanged regardless of PINGP's level of operation, and the replacement power costs can therefore be determined by calculating the net revenue that would have been earned had the PINGP been operating as usual.<sup>110</sup>

73. The parties have introduced two competing models to estimate the cost of replacement power to fill the gap while PINGP was offline. Xcel advocates for use of its production cost modeling, which results in estimated costs and a maximum refund to Minnesota ratepayers of \$34.3 million.<sup>111</sup> The Intervenors, on the other hand, identify the LMP Calculation Method as the more appropriate means of calculating replacement power costs, resulting in a refund of up to \$40.6 million.<sup>112</sup>

## **B. Xcel's PLEXOS Model**

74. Xcel uses a variety of production cost models, depending on the specific purpose for which it is employed or the data to be analyzed.<sup>113</sup> For studies of power costs over a term length of between one month and five years, the production cost model Xcel uses is PLEXOS.<sup>114</sup>

75. To calculate the replacement-power refund, Xcel proposes that the Commission rely on the utility's PLEXOS modeling-derived estimate. PLEXOS is software that models production costs by attempting to match generation with demand in a way that minimizes the overall system cost.<sup>115</sup> PLEXOS is widely used in the industry for creating forecasts. PLEXOS accounts for variables, such as operating costs, operating characteristics, renewable generation forecasts, and market price forecasts.<sup>116</sup>

76. Using PLEXOS in this matter, Xcel sought to model the cost of replacement power by comparing a "base case" representing actual operations during the outage time (i.e., without PINGP) to a "change case" that included generation from PINGP.<sup>117</sup>

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<sup>109</sup> Ex. XCEL-4 at 11-13 (Detmer Direct).

<sup>110</sup> Ex. DOC-3 at 15 (Rakow Surrebuttal).

<sup>111</sup> Xcel Energy Initial Brief at 24.

<sup>112</sup> Department Initial Brief at 5; OAG Initial Brief at 13; CUB Initial Brief at 4; XLI Initial Brief at 8.

<sup>113</sup> Ex. XCEL-4 at 14 (Detmer Direct).

<sup>114</sup> Ex. XCEL-4 at 14 (Detmer Direct).

<sup>115</sup> Ex. XCEL-5 at 11 (Detmer Direct).

<sup>116</sup> Ex. XCEL-5 at 12, 15 (Detmer Direct).

<sup>117</sup> Ex. XCEL-4 at 16 (Detmer Direct); Ex. XCEL-8 at 3 (Detmer Rebuttal), which also notes that Xcel's change case assumed perfect performance and maximum energy production from PINGP.

77. An estimate of these costs can be developed with production cost modeling by comparing the costs Xcel would have paid had PINGP been available (the change case) to the base case, representing actual operations without PINGP. In Xcel's view, the difference between the total costs in the change case and the total costs in the base case results in the "replacement power cost."<sup>118</sup>

78. The PLEXOS model utilizes a complex time-series decision tree that seeks to determine the lowest cost series of decisions over the study period. To do this, the model requires power plant physical and cost characteristics (such as a unit's ability to run at full capacity and unit fuel costs), renewable generation forecasts, load forecasts, impacts from plant outages, and gas and electricity market forecasts.<sup>119</sup>

79. To develop its replacement power cost estimate, Xcel created two PLEXOS models. First, Xcel created the "base case" model that Xcel states represent actual operations during the outage (i.e., without PINGP).<sup>120</sup> Second, Xcel created the "change case" model by modifying the base case by making PINGP available.<sup>121</sup> According to Xcel, the replacement power costs attributable to the outage equals the difference in total system costs between the two cases:<sup>122</sup>

$$\begin{array}{ccc} \text{Total system costs with Prairie} & & \text{Total system costs without} \\ \text{Island during the outage} & - & \text{Prairie Island during the outage} \\ \text{period} & & \text{period} \end{array}$$

The difference between Xcel's base and change cases scenarios equals about \$34.3 million.<sup>123</sup>

80. Xcel developed the base case by inputting data, including fuel prices for each day of the outage, fuel transportation costs, heat rates (i.e., the efficiency of each generation unit, which impacts fuel consumption), start-up costs, and variable operations and maintenance costs for every generator on the Xcel system. Xcel then ran the case such that every generator operated at its generation level for every hour of the outage period, producing a representation of Xcel's production costs, which Xcel used to develop the total system costs for energy over the outage period.<sup>124</sup>

81. Once this base case was established, Xcel modified it to create the change case by making PINGP available over this same time period, assuming a 100 percent availability for every hour of every day of the outage period, and then allowed the model

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<sup>118</sup> Ex. XCEL-4 at 16 (Detmer Direct).

<sup>119</sup> Ex. XCEL-4 at 15 (Detmer Direct).

<sup>120</sup> Ex. XCEL-5 at 16 (Detmer Direct).

<sup>121</sup> Ex. XCEL-5 at 16 (Detmer Direct).

<sup>122</sup> Ex. XCEL-5 at 16 (Detmer Direct).

<sup>123</sup> Ex. XCEL-5 at 14-17 (Detmer Direct).

<sup>124</sup> Ex. XCEL-4 at 16 (Detmer Direct); Ex. XCEL-8 at 7-8 (Rebuttal Direct).

to redispatch generating units and to make additional sales, again to optimize the results, thereby attempting to minimize overall system costs.<sup>125</sup>

82. Finally, subtracting the change case total system costs from the base case total system costs results in a total estimated incremental power costs for the Xcel Energy system of approximately \$48.5 million, with \$34.3 million attributable to the Minnesota jurisdiction.<sup>126</sup>

### C. XLI's LMP Method

83. The Department, OAG, CUB, and XLI support XLI's LMP method to estimate replacement power costs. Rather than modeling Xcel's system like Xcel's PLEXOS method attempts, the LMP method focuses on PINGP's generation. The LMP method multiplies PINGP's expected electricity generation by the wholesale market price minus PINGP's expected costs as shown:<sup>127</sup>

$$\begin{array}{ccccc} \text{PINGP's expected} & & & & \text{PINGP's expected fuel and} \\ \text{generation absent the} & \times & \text{Actual LMPs paid} & - & \text{operating costs during the} \\ \text{outage} & & \text{during the outage} & & \text{outage} \end{array}$$

84. An LMP has three components: cost of energy; cost of congestion; and the cost of losses. Unlike Xcel's PLEXOS model, the LMP method assumes that other generation facility outputs would have been largely unchanged regardless of Prairie Island's availability.<sup>128</sup> Relying on this assumption, it determines replacement power costs by calculating the net revenue that PINGP would have earned had it been operating as usual.<sup>129</sup>

85. The lost production resulting from the outage did not meaningfully affect LMPs.<sup>130</sup> Xcel agreed that the loss of PINGP would not have a major impact on LMPs and that assuming the change to be zero is the most reasonable approach.<sup>131</sup> Xcel also claimed, however, that "the availability of PINGP would impact the output of its other NSP generators" because of congestion constraints in the MISO market.<sup>132</sup>

86. Department Witness Rakow opined these two assertions, that: (1) the LMPs would not change significantly; and (2) the availability of PINGP would impact the other generating units on Xcel Energy's system, are inconsistent. Rakow explained:

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<sup>125</sup> Ex. XCEL-4 at 16 (Detmer Direct); Ex. Xcel-8 at 3, 11-13 (Detmer Rebuttal).

<sup>126</sup> Ex. XCEL-4 at 16 and Schedule 2, Attachment C (Detmer Direct).

<sup>127</sup> Ex. XLI-1 at 12-13 (Andrews Direct) (eDocket no. 20257-220621-02).

<sup>128</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal) (eDocket no. 20259-223100-03).

<sup>129</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal).

<sup>130</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal) (eDocket no. 20259-223100-03).

<sup>131</sup> Ex. DOC-3 at 4 (Rakow Surrebuttal) citing Xcel-9 at 5 (Detmer Rebuttal).

<sup>132</sup> Ex. DOC-3 at 5 (Rakow Surrebuttal) citing Xcel-9 at 10 (Detmer Rebuttal).

[Xcel Witness] Detmer's assertions are internally inconsistent. It is unlikely to be the case that the loss of PINGP would simultaneously have minimal impact on LMPs and significantly impact the output of other NSP generators due to constraints, because all generators are dispatched based upon LMPs. If LMPs do not change meaningfully, then the output of the generators would not be expected to change to a meaningful degree either.

On the other hand, if loss of PINGP is accompanied by constraints that force other NSP generators to increase output, then those NSP generators would only ramp up their output if LMPs at their locations increased to a level equal to or greater than those generators' variable cost. That is, the constraints would change LMPs enough to trigger the incremental generation.<sup>133</sup>

87. Rakow correctly observes that Xcel's assertions contradict each other because generators are dispatched based upon LMPs. If PINGP's availability has little impact on LMPs, its availability would have little effect on the output of Xcel's other power generation facilities.<sup>134</sup>

88. Rakow concluded that, of these two scenarios, the no LMP change scenario was more probable. As a result, he disagreed with Xcel's assumption that the loss of PINGP's energy would be replaced by its own generation as opposed to the MISO market.<sup>135</sup>

89. To check his conclusion, Rakow reviewed the LMPs to evaluate whether MISO transmission constraints impeded the flow of energy in and out of MISO North, as Xcel alleges. Rakow found that:

While the Minnesota hub (MISO North) does experience congestion—triggering higher LMPs than other hubs—the Minnesota hub experiences more congestion than the other hubs only one-third of the time and it is very rare for that congestion to cause LMPs to diverge by a significant amount. The MISO LMP data does not support a contention of persistent, significant congestion.<sup>136</sup>

90. Rakow summarized that the data does:

not support an assumption that loss of PINGP's energy would be replaced by Xcel's own generation due to congestion limiting MISO North's ability to import energy from the rest of MISO. Xcel's PLEXOS modeling should not

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<sup>133</sup> Ex. DOC-3 at 5-6 (Rakow Surrebuttal).

<sup>134</sup> Ex. DOC-3 at 5-6 (Rakow Surrebuttal).

<sup>135</sup> Ex. DOC-3 at 6 (Rakow Surrebuttal).

<sup>136</sup> Ex. DOC-3 at 9, 11 (Rakow Surrebuttal).

be relied upon as the impact of increased generation from PINGP does not reflect conditions shown in the actual LMP data.<sup>137</sup>

91. XLI, with the support of all Intervenors, asserts that the LMP method produces a reasonable estimate because the Prairie Island outage was too small to meaningfully impact the LMP market price set by MISO and, in turn, impact other generator output.<sup>138</sup> Using the LMP method, the replacement power cost calculation is \$40.6 million.<sup>139</sup>

#### **D. Analysis of the Replacement Power Cost Estimates**

92. As found above, the PLEXOS and LMP models each have strengths and weaknesses. Neither model perfectly replicates real-world conditions and outcomes. The evidence, however, establishes that the LMP method, while imperfect, is superior to the PLEXOS method in this instance.

93. Xcel argues the LMP method is a common but overly simplistic method for developing a proxy for replacement power costs. Xcel often uses the LMP method as a quick and simple estimation tool and used it in this docket to develop an initial estimate of PINGP's replacement power costs.<sup>140</sup>

94. Xcel acknowledged that the LMP method can also be reasonable if the size of the facility at issue is small enough that other nearby resources would be largely unaffected by the facility's unavailability.<sup>141</sup> The LMP method, in Xcel's view, has inherent limitations that make it ill-suited for the kind of robust replacement power cost analysis required in this case, where a 1,000 megawatt baseload facility was unavailable for several months.<sup>142</sup>

95. According to Xcel, the LMP method is unreliable because it fails to recognize that Xcel customers are not always exposed to market prices. Xcel's customers sometimes pay Xcel's net generation costs, which can be lower than market prices, particularly in the case of a low-cost resource such as PINGP. Xcel argues that adding such low-cost resources back into its portfolio means that customers may sometimes pay less than market price for power. The netting of the MISO market purchase, generation sales, and generation cost results in what customers paid.<sup>143</sup>

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<sup>137</sup> Ex. DOC-3 at 13 (Rakow Surrebuttal).

<sup>138</sup> Ex. DOC-3 at 10-11 (Rakow Surrebuttal).

<sup>139</sup> Ex. XLI-3 at 13 (Andrews Surrebuttal) (eDocket no. 20259-223127-02). Although this figure is marked as trade secret in Mr. Andrews' testimony, counsel for XLI and Xcel respectively stipulated to make it public on November 13 and November 18, 2025.

<sup>140</sup> Ex. XCEL-1, Schedule 2 (Krug Direct); Ex. XCEL-8 at 9 (Detmer Direct).

<sup>141</sup> Ex. XCEL-8 at 9 (Detmer Rebuttal).

<sup>142</sup> Ex. XCEL-8 at 9 (Detmer Rebuttal).

<sup>143</sup> See Ex. XCEL-4 at 4-10 (Detmer Direct) (discussing different scenarios and how those scenarios impact customer cost).

96. Xcel further criticizes the LMP method as assuming that had PINGP been operating, every kilowatt hour produced at PINGP would have been sold on the MISO market at LMP pricing, allowing the LMP method to estimate “the net revenue that would have been earned had [PINGP] been operating as usual.”<sup>144</sup>

97. Because the LMP method assumes power from PINGP would have been sold on the MISO Market at LMP pricing, Xcel maintains that the LMP method assumes those other generating assets would have provided the exact same amount of production, with or without PINGP operating.<sup>145</sup>

98. Xcel contends that for the LMP method to provide a reasonable estimate of the impact of the PINGP outage, all PINGP power produced during the outage would have had to have production costs below the LMP price to clear the market and would not have had production costs below Xcel’s other generating facilities. Had PINGP had costs lower than those other units, PINGP power would have displaced this other, higher cost (but still below LMP-priced) power.<sup>146</sup>

99. Xcel contends that real world data confirms that the LMP method does not reflect what occurred on Xcel’s system. Xcel attributes minimal production increases from other Xcel generation resources to the outage, by comparing Xcel’s forecasted generation (assuming PINGP was fully operational) to actual generation at those plants during the PINGP outage.<sup>147</sup>

100. Xcel’s PLEXOS model is unsound because that model reflects two conflicting assumptions. First, Xcel assumes that PINGP’s availability would have little impact on LMP prices. Second, Xcel assumes that PINGP’s availability would meaningfully affect the output of Xcel’s other generation facilities.<sup>148</sup> The Intervenor note these claims are internally inconsistent. Because generators are selected to run based on price signals, if LMPs do not change meaningfully, then the output of Xcel’s other generators would also be largely unchanged. Xcel’s other generators would be unlikely to change production output in response to flat pricing signals.<sup>149</sup>

101. Acknowledging these conflicting assumptions, Xcel contends that these assumptions reflect real-world transmission congestion that required Xcel to replace PINGP’s output with its own generators despite being more costly than replacing PINGP with lower cost market purchases.<sup>150</sup>

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<sup>144</sup> Ex. XLI-2 at 15 (Andrews Direct) (emphasis added).

<sup>145</sup> Tr. at 56 (Detmer).

<sup>146</sup> Tr. at 56 (Detmer); Xcel Initial Brief at 32.

<sup>147</sup> Tr. at 56 (Detmer).

<sup>148</sup> Ex. XCEL-9 at 5, 10 (Detmer Rebuttal).

<sup>149</sup> Ex. DOC-3 at 5-6 (Rakow Surrebuttal).

<sup>150</sup> Tr. at 54, 56-57 (Detmer).

102. The Intervenor dispute Xcel's claim that transmission congestion forced Xcel's other generation facilities to increase output. Xcel claims that transmission congestion must have prevented Xcel from importing low-cost energy from elsewhere in MISO to replace Prairie Island.<sup>151</sup> As a result, even though it would be uneconomic, Xcel claims it would be forced to rely on its own higher-cost generation units.<sup>152</sup> Xcel claims that generation above forecasts for some of its assets establishes that its own assets replaced the power PINGP could not produce.<sup>153</sup> However, Xcel has not ruled out other plausible explanations for generation above forecasts.<sup>154</sup>

103. The Department closely evaluated the reasonableness of Xcel's assumption that transmission congestion precluded replacing PINGP output with market purchases.<sup>155</sup> The Department conducted this analysis by comparing LMPs across the MISO region and with Minnesota's nearest MISO neighbor, Illinois.<sup>156</sup> The Department found, based on this comparison, that real world LMP data does not support Xcel's assumption that PINGP would have to be replaced by Xcel's own generation due to congestion limiting MISO energy imports.<sup>157</sup> The Department found that Minnesota only experienced the highest LMPs indicative of congestion within MISO only a fraction of the time. In any given month, Minnesota never accounted for more than half of the highest LMPs.<sup>158</sup> When Minnesota did have the highest LMPs, it was rare for those LMPs to be materially higher than those experienced in other MISO states. Table 2 shows that, while the Minnesota hub had the highest cost about one-third of the time during the fourth quarter of 2023, it was very rare for the congestion to cause LMPs at the Minnesota hub to be significantly greater than the other hubs, using 30 percent as a guideline for "significant."<sup>159</sup>

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<sup>151</sup> Ex. XCEL-9 at 10 (Detmer Rebuttal).

<sup>152</sup> Ex. XCEL-9 at 10 (Detmer Rebuttal).

<sup>153</sup> Tr. at 56 (Detmer).

<sup>154</sup> See Exs. XCEL 4, 8.

<sup>155</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal).

<sup>156</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal).

<sup>157</sup> Ex. DOC-3 at 13 (Rakow Surrebuttal).

<sup>158</sup> DOC-3 at 8 (Rakow Surrebuttal).

<sup>159</sup> DOC-3 at 9 (Rakow Surrebuttal).

**Table 2: Number of Hours at Highest Cost by 30%+  
(4<sup>th</sup> Quarter 2023)**

| Node          | October   | November  | December  |
|---------------|-----------|-----------|-----------|
| ARKANSAS.HUB  | -         | -         | 2         |
| ILLINOIS.HUB  | 3         | 7         | -         |
| INDIANA.HUB   | 7         | 15        | 5         |
| LOUISIANA.HUB | -         | -         | -         |
| MICHIGAN.HUB  | 1         | -         | 1         |
| MINN.HUB      | 51        | 35        | 29        |
| TEXAS.HUB     | 2         | -         | -         |
| <b>TOTAL</b>  | <b>64</b> | <b>57</b> | <b>37</b> |

104. XLI Witness Brian Andrews concluded that PINGP’s loss would only cause small changes in the energy output of Xcel’s other units in MISO’s actual dispatch. This is because most of the change in energy output to account for loss of PINGP would be spread across generating units throughout MISO (i.e., more broadly than just generating units controlled by Xcel). This expected “allocation” of the replacement energy throughout MISO is attributable to the assumption that there would be only small changes in LMPs.<sup>160</sup>

105. Andrews criticized a second aspect of Xcel’s PLEXOS modeling, testifying that: “Xcel claims that it calibrated the model to match actual conditions, but it has provided no demonstration or analysis comparing the costs that are produced by the base case in PLEXOS to its actual costs incurred during the study period.”<sup>161</sup>

106. Xcel provides no demonstration or analysis comparing costs produced by the base case to actual costs incurred during the study period.<sup>162</sup> In contrast, Andrews found that Xcel’s calibration “essentially forced the base case run to make no dispatch decisions in the base case, but instead forced the model to run the generating units to align with their actual output.” In other words, there is no analysis to provide that the base case accurately represents Xcel’s power costs during the extended outage.<sup>163</sup>

107. Not only is Xcel’s base case weak, but its change case is also flawed. In the PLEXOS change case, Xcel failed to allow for “any reduction of the MISO purchases and only a minimal amount of additional sales.”<sup>164</sup> This flaw precludes Xcel’s PLEXOS

<sup>160</sup> Ex. XLI-1 at 3-4 (Andrews Direct).

<sup>161</sup> Ex. XLI-1 at 4 (Andrews Direct).

<sup>162</sup> Ex. XLI-1 at 4 (Andrews Direct).

<sup>163</sup> Ex. XLI-1 at 4 (Andrews Direct).

<sup>164</sup> Tr. at 107 (Andrews).

modeling from isolating the PINGP outage and producing realistic replacement power cost estimates.<sup>165</sup> As noted by Andrews, “MISO market interaction is also a significant component of Xcel’s overall power costs.”<sup>166</sup> Andrews observes that PINGP’s loss would cause only small changes in the energy output of Xcel’s units in MISO’s actual dispatch because most of the change in output to account for the PINGP outage would be spread broadly across MISO, and not isolated only to Xcel’s generation units.<sup>167</sup> As a result, Andrews and Rakow do not agree with Xcel’s assumption that the loss of PINGP’s energy would be replaced by Xcel’s own generation, as opposed to the MISO market.<sup>168</sup>

108. In response to XLI’s request for Xcel to verify its PLEXOS base case, Xcel Witness Nicholas Detmer stated that Andrews’ request for verification was excessively burdensome:

[...] the modeling process used to develop the base case relies on robust inputs that calibrate the model to represent actual conditions as closely as is possible. As a result, comparing the costs that are produced by the base case in PLEXOS to actual costs incurred during the study period represents an excessive requirement.<sup>169</sup>

109. Xcel’s failure to produce the requested verification information undermines the reliability of its base case.

110. Rakow refuted Xcel’s claim that verification of the model would be excessively burdensome, testifying that it was not clear “how producing a table with two columns for Xcel’s generators, one showing model costs and the second showing actual costs, is an excessive requirement. Just because Xcel calibrated the energy output does not mean Xcel calibrated the costs as well.”<sup>170</sup> As a result, Rakow concurred with Andrews’ concern about Xcel’s failure to verify its model.<sup>171</sup>

111. In Xcel’s base case, the excess or shortfall from actual generation to meet load was used to determine what the MISO sales and purchases were.<sup>172</sup> These sales and purchase volumes were held constant in the change case. In the change case, the generators were dispatched to the same real time LMPs (RT-LMPs) that were used in the base case. Xcel also allowed for excess sales. These excess sales totaled roughly 631,000 MWh.<sup>173</sup> These excess sales represent only 16 percent of the PINGP generation.<sup>174</sup> What most concerned Andrews is that Xcel did not allow for the change

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<sup>165</sup> Tr. at 107 (Andrews).

<sup>166</sup> Ex XLI-3 at 3 (Andrews Surrebuttal).

<sup>167</sup> Ex. XLI-1 at 2 (Andrews Direct).

<sup>168</sup> Ex. DOC-3 at 6 (Rakow Surrebuttal).

<sup>169</sup> Ex. XCEL-5 at 8 (Detmer Rebuttal).

<sup>170</sup> Ex. DOC-3 at 14 (Rakow Surrebuttal).

<sup>171</sup> Ex. DOC-3 at 14 (Rakow Surrebuttal).

<sup>172</sup> Ex. DOC-3 at 5 (Rakow Surrebuttal).

<sup>173</sup> Ex. XCEL-5 at 6 (Detmer Rebuttal).

<sup>174</sup> Ex. XLI-3 at 5 (Andrews Surrebuttal).

case to have any reduction of MISO purchases. It is reasonable to expect the availability of PINGP to result in more MISO sales, significantly more than just 16 percent of its output. It would also follow that MISO purchases would be nearly eliminated. This omission further undermines the reliability of Xcel's PLEXOS modeling.<sup>175</sup>

112. The actual cost from MISO purchases and revenues from MISO sales are likely drastically different than what has been represented by the PLEXOS modeling.<sup>176</sup> Xcel has provided nothing demonstrating that net costs associated with MISO purchases and sales are representative of actual costs.<sup>177</sup>

113. Andrews and Rakow agreed that using a production cost model such as PLEXOS would normally be the best method to estimate the incremental cost of the PINGP outage. In this instance, however, Xcel's model is too flawed to provide a reliable estimate.<sup>178</sup> Xcel's PLEXOS outputs conflict with what is known about the real world. Xcel Energy's model reflects significant congestion, forcing its own units to do most of the reacting to changes, but Xcel's congestion assumptions are contradicted by real-time LMP data.

114. In addition, Xcel's PLEXOS results conflict with the Department's MISO market data.<sup>179</sup> Although Xcel asserts its transmission congestion claims are supported by independent data, Xcel did not offer this independent data to corroborate its congestion claims. Expert witnesses customarily identify the facts or data supporting their opinions and produce exhibits summarizing or supporting their claims.<sup>180</sup> Yet on the critical and disputed point of whether Xcel's PLEXOS model accurately reflects real-world transmission congestion, Xcel offered only unsupported and speculative opinion testimony. Therefore, Xcel has not met its burden of proof to establish that its PLEXOS model results are sufficiently reliable to support its replacement power cost estimate. Xcel's PLEXOS analysis should not be relied upon in this case.<sup>181</sup>

115. The Intervenor's contend that the LMP-method replacement power costs estimate is reasonable and more reliable than the PLEXOS modelling. They assert the LMP method's assumption that the generation output of Xcel's other generators would have been largely unchanged regardless of PINGP's availability.<sup>182</sup>

116. The Intervenor's argument is supported by the record. First, all parties agree that PINGP's availability had little impact on LMPs.<sup>183</sup> Reflecting that consensus, PINGP represented only 0.5 percent of MISO's 191 gigawatts of installed capacity during the

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<sup>175</sup> Ex. XLI-3 at 5 (Andrews Surrebuttal).

<sup>176</sup> Ex. XLI-3 at 5 (Andrews Surrebuttal).

<sup>177</sup> Ex. XLI-3 at 5 (Andrews Surrebuttal).

<sup>178</sup> Ex. DOC-3 at 14 (Rakow Surrebuttal).

<sup>179</sup> DOC-3 at 13 (Rakow Surrebuttal).

<sup>180</sup> See Minn. R. Civ. P. 26.01(b)(2)(B), (C).

<sup>181</sup> Ex. DOC-3 at 14 (Rakow Surrebuttal).

<sup>182</sup> Ex. DOC-3 at 14-15 (Rakow Surrebuttal).

<sup>183</sup> Ex. XLI-1 at 7 (Andrews Direct); Ex. XCEL-9 at 5 (Detmer Rebuttal); Ex. DOC-3 at 5 (Rakow Surrebuttal).

outage period and, as a result, only impacted prices by about \$0.01 per megawatt-hour.<sup>184</sup> Second, given that the LMPs should have been largely unchanged, the Intervenor asserts that the economic dispatch of Xcel's other power plants should not have changed.<sup>185</sup> Third, given that Xcel's other plants would have run as normal, they contend the only real financial change is PINGP's lost sales revenue.<sup>186</sup> This is what the LMP method calculates—the market value of PINGP's generation minus its saved fuel and operating costs – to derive a reasonable proxy of replacement power costs.<sup>187</sup>

117. In response, Xcel raises two criticisms. First, Xcel asserts that the LMP method is unreasonable because XLI compared PINGP to the entire MISO market instead of the smaller MISO North region.<sup>188</sup> Compared to the smaller MISO North region, Xcel argues PINGP would have impacted the output of other generation facilities.<sup>189</sup> Second, Xcel asserts that XLI improperly relies on the LMP method analysis from the *Sherco 3 Forced Outage (Sherco 3)* proceeding.<sup>190</sup>

118. In response to Xcel's criticism, the Department explained that Minnesota rarely experiences persistent, material market congestion that impedes MISO energy imports.<sup>191</sup> Absent meaningful market congestion, the appropriate basis for comparison is the entire MISO market, not the smaller MISO North region.<sup>192</sup> The Department and OAG also argued that Xcel's criticism of references to the *Sherco 3* proceeding was misplaced. They explained that this older analysis was used for a limited purpose: establishing that the lost net revenues typically represent most replacement power costs, consistent with the assumption underpinning the LMP method. In the *Sherco 3* case, for example, Xcel's analysis showed that lost revenues accounted for 88 percent of the total replacement cost, while the complex, offsetting impacts from other units were minimal.<sup>193</sup>

119. The Judge finds Xcel has failed to establish by a preponderance of evidence that its PLEXOS modeling results are reliable. The flaws with Xcel's modeling the Intervenor identified render Xcel's replacement cost estimate too speculative to meet its burden of proof, especially in the absence of any real-world evidence to corroborate its assumptions. In contrast, the Intervenor established that the LMP method is a more reasonable method to develop an estimate. Xcel's peripheral criticisms should not cause the Commission to question the reliability of the LMP-method results.

120. In sum, the weight of the evidence establishes that the most reliable and reasonable estimate is that the replacement power cost is \$40.6 million.

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<sup>184</sup> Ex. XLI-1 at 8, 10-11 (Andrews Direct).

<sup>185</sup> Ex. XLI-1 at 11 (Andrews Direct); Ex. DOC-3 at 5-6 (Rakow Surrebuttal).

<sup>186</sup> Ex. XLI-1 at 7-8, 11-12 (Andrews Direct).

<sup>187</sup> Ex. XLI-1 at 7-8, 11-12 (Andrews Direct).

<sup>188</sup> Ex. XCEL-9 at 9-10 (Detmer Rebuttal).

<sup>189</sup> Ex. XCEL-9 at 10 (Detmer Rebuttal).

<sup>190</sup> Ex. XCEL-9 at 10-11 (Detmer Rebuttal).

<sup>191</sup> Ex. DOC-3 at 16 (Rakow Surrebuttal).

<sup>192</sup> Ex. DOC-3 at 16 (Rakow Surrebuttal).

<sup>193</sup> Ex. XLI-1 at 13-14 (Andrews Direct).

#### IV. Xcel's Claimed Offsets

121. Xcel advanced three offsets that, together, would reduce the replacement-power-cost refund by more than \$26 million.<sup>194</sup> These offsets are: (1) the “2029 avoided costs offset”; (2) a “supplemental work” offset; and (3) a “historic performance adjustment”, summarized as follows:

**Table 1 –  
Xcel's Proposed Customer Refund After  
Offsets<sup>195</sup>**

|                                  |                                    |
|----------------------------------|------------------------------------|
| Replacement-Power Costs per Xcel | \$34.3 million                     |
| Less Avoided 2029 Costs Offset   | \$21.0 million                     |
| Less Supplemental Work Offset    | \$1.8 million <sup>196</sup>       |
| <b>Subtotal</b>                  | <b>\$11.4 million</b>              |
| Historic Performance Adjustment  | 51%                                |
| <b>Total Customer Refund</b>     | <b>\$5.8 million<sup>197</sup></b> |

122. The Intervenors largely oppose these offsets.<sup>198</sup> Separately, if the Commission does not categorically reject Xcel's proposed offsets, the Department recommended that the Commission also consider an “underspent generation expense” offset. For the reasons explained below, Xcel's proposed offsets are speculative, unsupported, and unreasonable.

##### A. The Avoided 2029 Costs Do Not Support Offsetting the Refund.

123. Xcel argues that replacing the control cables during the October 2023 outage eliminated the need to do so later, thereby avoiding replacement-power costs associated with a hypothetical 2029 cable-replacement outage.<sup>199</sup> Xcel contends that replacing the cables during the October 2023 outage saved ratepayers \$21.0 million and that the refund should be reduced by this amount.<sup>200</sup>

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<sup>194</sup> Xcel calculated total replacement-power costs of \$34.3 million and recommended a refund of \$7.4 million. \$34.3 million – \$7.4 million = \$26.9 million.

<sup>195</sup> Ex. XCEL-7 at 24 tbl.4 (Detmer Public Direct Errata). All amounts are Minnesota-jurisdictional.

<sup>196</sup> In rebuttal testimony, Xcel witness Krug agreed to a reduced supplemental -work offset of \$500,000. Ex. XCEL-3 at 6 (Krug Rebuttal).

<sup>197</sup> In rebuttal testimony, Krug identified \$7.4 million as the appropriate refund amount, and in its Initial Brief, Xcel reaffirmed this as the amount it now supports. See Xcel Initial Br. at 44–45 & n.196.

<sup>198</sup> The Department did not oppose a \$500,000 offset for the supplemental work. See Ex. DOC-1 at 14 (Golden Direct); Ex. DOC-2 at 2 (Golden Surrebuttal). Although the supplemental work offset is less problematic than the other offsets Xcel claims, it fails to be sufficiently defined to support a reduction in Xcel's favor.

<sup>199</sup> Ex. XCEL-5 at 17, sched. 2 at 2–5 (Detmer Direct).

<sup>200</sup> See Ex. XCEL-7 at 24 tbl.4 (Detmer Public Direct Errata).

124. All Intervenor's opposed the avoided 2029 costs offset, arguing that Xcel is not entitled to offset the refund based on prudent actions taken to resolve the consequences of its prior imprudence, that is, replacing the control cables after having imprudently damaged them.<sup>201</sup> The Department, OAG, CUB, and XLI each argued that Xcel's proposed offset relied on numerous speculative or uncertain assumptions.<sup>202</sup>

125. The Judge finds the Intervenor's arguments more persuasive. First, the Commission rejected a similar avoided-cost offset when Xcel proposed it after the failure at Xcel's Sherco plant caused ratepayers to pay replacement-power costs.<sup>203</sup> Second, even if this type of offset were permissible, it depends on too many uncertain assumptions, particularly given the statutory directive that all doubt be resolved in favor of consumers when setting rates.<sup>204</sup> Third, Xcel relies on the expert testimony of a witness lacking credibility. Each of these arguments is discussed below.

### **1. Any Avoided 2029 Costs Necessarily Result from Xcel Remedying Its Own Imprudence.**

126. Xcel's avoided 2029 costs offset seeks credit for "avoiding" a hypothetical future outage to replace the control cables. In a November 2023 internal report, Xcel concluded that the cables could not be repaired and needed to be replaced to remedy the outage.<sup>205</sup> Xcel's retained engineers conceded that repairing or using temporary cables would not have been appropriate, leaving full replacement as the only option.<sup>206</sup> Xcel, in other words, is attempting to offset a customer refund arising from actions its internal records show, and its witnesses concede, were necessary to remediate the utility's own imprudence.

127. In the similar *Sherco 3* case, Xcel's Sherco power plant experienced an extended outage caused in part by Xcel's imprudence.<sup>207</sup> There, Xcel purchased replacement power during the outage and recovered the costs of the replacement power from ratepayers via the Fuel Clause Rider.<sup>208</sup> As here, Xcel advanced several offsets,<sup>209</sup> including one for avoided future outage time.<sup>210</sup>

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<sup>201</sup> Department Initial Br. at 14–15; OAG Initial Br. at 21–22; XLI Initial Br. at 10; CUB Initial Br. at 7–8.

<sup>202</sup> Department Initial Br. at 15–18; OAG Initial Br. at 22–30; XLI Initial Br. at 9; CUB Initial Br. at 7–8.

<sup>203</sup> See *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 32–33 (Dec. 24, 2024); see also MPUC Docket No. E-002/GR-12-961, ALJ FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS at 81–82.

<sup>204</sup> See Minn. Stat. § 216B.03; see also Minn. Stat. § 216B.16, subd. 4.

<sup>205</sup> Ex. DOC-6 at 18 of 24 (Xcel Response to Department Request 24).

<sup>206</sup> Tr. at 96:23-97:8, 97:9-19 (Hiser).

<sup>207</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 4 (Dec. 24, 2024).

<sup>208</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 2 (Dec. 24, 2024).

<sup>209</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 27 (Dec. 24, 2024).

<sup>210</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 32–33 (Dec. 24, 2024); see also MPUC Docket No. E-002/GR-12-961, ALJ

128. To justify the offset in *Sherco 3*, one Xcel witness testified that the restoration of Sherco avoided approximately 10 to 11 weeks of outage time to conduct planned overhauls of this equipment in the future.<sup>211</sup> Another Xcel witness agreed that the work performed during the Sherco outage enabled Xcel to “avoid or shorten later planned outages, meaning the Company also avoided replacement power costs that otherwise would have been passed on to customers.”<sup>212</sup> This witness estimated that Xcel avoided “a total of 76 to 84 days of additional outage time after Unit 3 returned to service, with those avoided outage days occurring . . . between [the] 2015 and 2022 time frame” and further estimated the value of the associated replacement power to be approximately \$4.3 million to \$4.8 million (MN jurisdiction).<sup>213</sup>

129. The Commission determined that it would not allow Xcel “to offset a refund of imprudently incurred costs by any benefits that accrued from Xcel’s prudent actions responding to and resolving the consequences of Xcel’s imprudent behavior.”<sup>214</sup> The Commission reasoned that prudently managing the restoration process, including mitigating future costs, was “the expectation and does not offset or mitigate Xcel’s prior imprudence.”<sup>215</sup>

130. For the same reasons, the Judge concludes the Commission should deny Xcel’s avoided 2029 costs offset. As in *Sherco 3*, here, Xcel seeks credit for future replacement-power costs it may have avoided by responding to and resolving the consequences of imprudently damaging the control cables. As the Commission determined in the *Sherco 3*, prudently responding to the October 2023 incident was the expectation and should not offset or mitigate Xcel’s prior imprudence.

## **2. The Avoided 2029 Costs Are Speculative and Unsupported.**

131. In *Sherco 3*, the Commission found Xcel’s avoided-cost estimates “too speculative and unsupported to justify the offsets sought by Xcel.”<sup>216</sup> Likewise, here, the avoided 2029 costs offset depends on numerous assumptions for which Xcel has offered little or no support.

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FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS at 81–82 (May 17, 2024) (noting Xcel’s claim that ratepayers benefitted from the outage due, in part, to the reduction of future outage time).

<sup>211</sup> MPUC Docket No. E-002/GR-12-961, Direct Test. of Darin W. Schottler at 15 (June 16, 2023).

<sup>212</sup> MPUC Docket No. E-002/GR-12-961, Direct Test. of Nicholas J. Detmer at 19 (June 16, 2023).

<sup>213</sup> MPUC Docket No. E-002/GR-12-961, Direct Test. of Nicholas J. Detmer at 19 (June 16, 2023).

<sup>214</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>215</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>216</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

132. Xcel's avoided 2029 costs offset is based on a scenario it calls "Case 1."<sup>217</sup> Case 1 assumes that, absent the October 2023 incident, Xcel would have inspected the control cables as part of the subsequent license renewal (SLR) process, discovered their degraded condition, and replaced them in 2029 as part of a planned outage.<sup>218</sup>

133. However, the engineer that Xcel engaged to evaluate the SLR process, Allen Hiser, determined that there was "less than a 20 percent probability" that the control cables would have been selected for inspection in the SLR process.<sup>219</sup> Hiser's assumption, moreover, relied on numerous other assumptions:

- The commodity group would be subject to a particular aging management program;<sup>220</sup>
- The particular aging-management program, including the 20 percent sampling requirement, would not change; and<sup>221</sup>
- There are, in fact, no more than 125 cables in that commodity group.<sup>222</sup>

If any of Hiser's assumptions are wrong in the coming decades, then his prediction will necessarily also be wrong.

134. Offsetting ratepayers' refund based on a scenario that has a one-in-five chance of occurring is not consistent with Xcel's burden to support its proposed action by a preponderance of the evidence<sup>223</sup> or with the requirement to resolve doubt in favor of consumers.<sup>224</sup>

135. Xcel characterizes its use of Case 1 as "conservative" because the two other scenarios that Xcel modeled ("Case 2" and "Case 3") would have yielded even larger avoided cost figures.<sup>225</sup> But there are any number of other scenarios that Xcel did not consider,<sup>226</sup> which could have yielded fewer avoided costs than Xcel assumes. For the reasons discussed in the next section, Xcel's Case 2 and Case 3 scenarios are also speculative and unreasonable to use as the basis for an offset.

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<sup>217</sup> Ex. XCEL-2 at 14 (Krug Direct).

<sup>218</sup> Ex. XCEL-5 at 18 (Detmer Direct).

<sup>219</sup> Ex. XCEL-13, sched. 2 at 13 (Hiser Direct). Hiser also stated that there was an "unquantifiable chance" that the control cables would have been inspected as part of a sample expansion. Ex. XCEL-13, sched. 2 at 17 (Hiser Direct).

<sup>220</sup> Tr. at 101:4-7 (Hiser).

<sup>221</sup> Tr. at 101:8-11 (Hiser).

<sup>222</sup> Tr. at 101:12-15 (Hiser).

<sup>223</sup> Minn. R. 1400.8608.

<sup>224</sup> Minn. Stat. § 216B.03.

<sup>225</sup> See Ex. XCEL-5 at 18 (Detmer Direct).

<sup>226</sup> See Ex. OAG-1 at 15 (Lee Direct).

136. Xcel's Case 2 and 3 scenarios assume that the control cables would spontaneously fail when either both units are online (Case 2) or one unit is in scheduled refueling (Case 3).<sup>227</sup> To quantify the avoided replacement-power costs for these hypothetical failures, Xcel assumed an outage in 2029 when Unit 2 is already scheduled to be refueled. Xcel then modeled the avoided power costs at that time.<sup>228</sup> Cases 2 and 3, in other words, assume both that the control cables would inevitably have failed during the life of the plant and that this spontaneous failure would have occurred in 2029.

137. Xcel's sole basis for arguing that the cables would eventually have failed is the condition in which they were found after Xcel severed them.<sup>229</sup> The cables were direct-buried, parts of the outer jacketing were cracked, and the cables had been exposed to some moisture.<sup>230</sup>

138. Xcel has not carried its burden to show that the control cables would have failed even absent the October 2023 incident. While Xcel points to the evidence of degradation, the cables had been in service for 50 years without issue.<sup>231</sup> Moreover, Xcel's previous testing of equipment served by the cables confirmed that all conductors were working normally.<sup>232</sup> Industry experience is that control cables fail either due to damage caused during installation or from long-term exposure to water.<sup>233</sup> Since there had been "no observations of water accumulation in manholes or ponding of water in the vicinity of these cables,"<sup>234</sup> it is likely that water intrusion into the cables would be a gradual process. Xcel presented no competent evidence that the degradation observed on the cable jackets would have continued at a rate that would have led to the cables' inevitable failure during PINGP's operating life.

139. Xcel's claim that the cables would have failed within the Subsequent License Review (SLR) operating period rests on the testimony of two outside engineers, Hiser and Carl Bible. Bible's report, attached to his direct testimony, states that: "[t]here was a high probability that cables in the direct buried section would have failed during future plant operation if not discovered during the boring activity."<sup>235</sup> Likewise, Hiser's report states that the evidence of degradation found on the severed cables "indicat[ed] that failure was likely to occur within the intended SLR operating period."<sup>236</sup> These predictions are baseless because, among other things, Xcel presented no useful life estimates for the cables, and the cables were not subject to any maintenance schedule, like other components of the PINGP.

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<sup>227</sup> Ex. XCEL-5 at 18–19 (Detmer Direct).

<sup>228</sup> Ex. XCEL-5, sched. 2 at 3 (Detmer Public Direct).

<sup>229</sup> Ex. XCEL-10, sched. 2 at 3 (Bible Direct).

<sup>230</sup> Ex. OAG-5 at 11, 14 of 16 (Xcel Response to DOC IR 38).

<sup>231</sup> Ex. XCEL-12 at 4 (Bible Rebuttal).

<sup>232</sup> Ex. XCEL-14, sched. 1 at 3, attach. A (Hiser Rebuttal).

<sup>233</sup> Ex. XCEL-10, sched. 2 at 4 (Bible Direct).

<sup>234</sup> Ex. XCEL-10, sched. 2 at 4 (Bible Direct).

<sup>235</sup> Ex. XCEL-10, sched. 2 at 3 (Bible Direct); *see also* Tr. at 69:3–5 (Bible) (claiming that the cables "were not going to last longer than a couple years in the future, if that").

<sup>236</sup> Ex. XCEL-13, sched. 2 at 15 (Hiser Direct).

140. Neither Bible nor Hiser had personal knowledge of the condition of the control cables. Instead, their knowledge of the cables' condition depended entirely on information provided by Xcel,<sup>237</sup> including the Electric Power Research Institute (EPRI) report.<sup>238</sup> The EPRI report, however, provides no insight into whether or when the cables would have failed from degradation. Instead, it reasonably concludes that the combination of excavation damage, cable-jacket degradation, and the soil's likely thermal resistance meant that replacing the cables "represented best industry practice."<sup>239</sup> The report cannot be read to conclude that in the absence of excavation damage, the cables would have failed. Rather than providing definitive answers, most of the EPRI report's conclusions are heavily caveated because Xcel mishandled the soil and cable samples.<sup>240</sup>

141. Beyond citing EPRI's findings, neither Bible nor Hiser provided a basis for their opinions that the cables would likely have failed within PINGP's extended operating life. When the cables began degrading, and the rate at which they may be degrading, are unknown. Hiser admitted to lacking experience with degraded control cables like those at PINGP.<sup>241</sup> Hiser conceded that predicting what would have happened to the cables absent the October 2023 incident involves speculation.<sup>242</sup> Contrary to the idea that further degradation to the point of failure was inevitable, Hiser admitted that a buried cable could last "a thousand years" without degrading.<sup>243</sup> Bible claimed experience with control cable failures but did not describe that experience.<sup>244</sup> Bible primarily cited his "decades of experience" working with Florida Light & Power's (FPL) nuclear fleet as the basis for his opinions.<sup>245</sup> Yet during Bible's tenure at FPL, which included management roles, FPL's nuclear fleet was plagued by imprudence, forced outages, and "integrity" issues.<sup>246</sup> Little to no weight should be given to these witnesses' claims as they lack a reasonable basis in fact and, in Bible's case, credibility.

142. Even if Xcel had shown that the control cables would fail during the plant's operating life, Xcel cannot reasonably predict when the cables would have failed or how much this failure would have cost.<sup>247</sup>

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<sup>237</sup> See Tr. at 71:6–74:14 (Bible); see generally Ex. XCEL-10, sched. 2 (Bible Direct) (attaching report); Ex. XCEL-13, sched. 2 (Hiser Direct) (attaching report).

<sup>238</sup> See Ex. XCEL-10, sched. 2 at 3–4 (Bible Direct); Ex. XCEL-13, sched. 2 at 4–5 (Hiser Direct).

<sup>239</sup> Ex. OAG-5 at 16 of 16 (Xcel Response to DOC IR 38).

<sup>240</sup> Moreover, to the extent that the EPRI report supports a finding that the control cables would have eventually failed, it also supports a finding that Xcel's imprudent installation of the cables contributed to this failure.

<sup>241</sup> Tr. at 95:22–24 (Hiser).

<sup>242</sup> Tr. at 103:13–16 (Hiser).

<sup>243</sup> Tr. at 95:15–19 (Hiser).

<sup>244</sup> See Ex. XCEL-10, sched. 2 at 2 (Bible Direct).

<sup>245</sup> See Ex. XCEL-10, sched. 2 at 2 (Bible Direct).

<sup>246</sup> See Tr. at 75–85 (Bible); Ex. DOC-9 (Fla. Pub. Serv. Comm'n Order No. PSC-09-0024-FOF-EI); Ex. DOC-10 (Fla. Pub. Serv. Comm'n Audit Report).

<sup>247</sup> See generally Exs. XCEL-10-14.

143. Replacement-power costs can vary significantly on a day-to-day basis.<sup>248</sup> Xcel's avoided-cost estimate required it to predict when the cables would fail and then predict what wholesale power costs would be at that time. This is speculation. Xcel had to make numerous assumptions to forecast costs out to 2029, including hourly LMPs, hourly loads, monthly fuel prices, monthly operation and maintenance costs for all of its generators, unit heat rates, outage rates, startup costs, and fuel-transportation costs.<sup>249</sup> Xcel asks the Commission to accept a series of uncertain and compounded assumptions about a hypothetical outage four years in the future and to apply the resulting avoided-cost estimate to reduce the ratepayers' refund. This would resolve significant doubt against ratepayers, contrary to law.<sup>250</sup>

144. The avoided costs Xcel calculates in this case are even more uncertain than the avoided costs for the offset that the Commission rejected in the *Sherco 3*. The projects that Xcel avoided by repairing Sherco involved scheduled maintenance that the Company was already planning to do. Xcel identified rough timeframes for when it would otherwise have completed that maintenance.<sup>251</sup> Here, however, it is unknown when or even if the control cables would have otherwise been replaced, since they had worked without issue for 50 years, Xcel had no plans to replace them, and was unaware of the condition the control cables were in because of water intrusion or overheating.

145. In any outage, a utility is expected to minimize costs.<sup>252</sup> Contrary to the duty of cost-minimization, however, Xcel's 2029 outage scenarios assume that the cable replacement would not be scheduled to overlap with other major work.<sup>253</sup> This assumption favors Xcel and would unjustly decrease the ratepayers' refund.

146. Xcel assumes that the cable replacement would have been the critical-path project in a 2029 outage.<sup>254</sup> A "critical-path" project is the project that takes the longest and therefore drives an outage's length.<sup>255</sup> If a project is not critical-path, it does not drive the outage's overall length and thereby its overall replacement-power costs.<sup>256</sup>

147. Even if the hypothetical cable-replacement project were the longest-duration project during the 2029 refueling outage, the cable replacement would only drive replacement-power costs to the extent that it exceeded the length of any other concurrent work requiring an outage. The more concurrent work Xcel scheduled to occur

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<sup>248</sup> Ex. XCEL-5 at 17 (Detmer Direct).

<sup>249</sup> Ex. XLI-3 at 9 (Andrews Surrebuttal).

<sup>250</sup> Minn. Stat. § 216B.03.

<sup>251</sup> MPUC Docket No. E-002/GR-12-961, Direct Test. of Nicholas J. Detmer at 20 (June 16, 2023).

<sup>252</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>253</sup> Ex. XCEL-5, sched. 2 at 3 (Detmer Direct).

<sup>254</sup> Ex. OAG-4 at 10 (Lee Surrebuttal).

<sup>255</sup> Ex. OAG-4 at 3 (Lee Surrebuttal).

<sup>256</sup> Ex. OAG-4 at 10 (Lee Surrebuttal).

during the cable-replacement outage—consistent with its duty to maximize cost savings for ratepayers<sup>257</sup>—the less the cable replacement would extend the outage.

148. While Xcel does assume it would have tried to minimize the 2029 outage length—specifically, trenching and laying cable before shutting the units down—Xcel also assumes that the only other work done during the outage would be refueling one of the two units.<sup>258</sup> Xcel assumes this refueling work would be “planned for approximately 27 days without major work scope other than the cable replacement project.”<sup>259</sup>

149. Xcel’s assumption that a 2029 cable replacement would not be paired with any major projects other than 27 days of refueling is undermined by facts in the record. First, most of Xcel’s planned outages since 2005 have been longer than 27 days and, in some cases, substantially longer.<sup>260</sup> Xcel’s own information establishes PINGP has had six planned outages exceeding 70 outage days since January 2005, and many others exceeding 30 outage days.<sup>261</sup> Second, Xcel maintains a “dual unit forced outage list” of projects that can only be completed when both units are offline.<sup>262</sup> Xcel has not explained why no projects from this list would be scheduled to be completed concurrently with a future cable replacement, as occurred during the October 2023 outage. Finally, a list of planned projects at Xcel’s nuclear facilities shows that Xcel has millions of dollars of investment slated for PINGP in 2029.<sup>263</sup> Yet Xcel apparently assumes that none of these 2029 projects will occur during a refueling outage planned for the same year. This is suspect.

150. Xcel has not shown that a 2029 cable replacement would have been a critical-path project, much less that it is reasonable to assume no other major work would occur during the outage. Xcel argues that witness Bible provides a “thorough discussion” of how the 2029 outage would have been sequenced.<sup>264</sup> It must be pointed out that Bible’s discussion comprises one page of text describing an illustrative timeline for its hypothetical 2029 cable replacement.<sup>265</sup> This illustrative timeline was prepared by Xcel, not Bible, and reflects Xcel’s assumption that the 2029 refueling would occur without major work other than the cable replacement project.<sup>266</sup> There is no discernable basis for this assumption, which Bible appears to have accepted uncritically, other than to maximize the size of Xcel’s offset. For reasons discussed below, Bible’s testimony is not credible and is given no weight. In addition, on this point specifically, Bible’s testimony

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<sup>257</sup> See *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>258</sup> Ex. XCEL-5, sched. 2 at 3 (Detmer Direct).

<sup>259</sup> Ex. XCEL-5, sched. 2 at 3 (Detmer Direct).

<sup>260</sup> See Ex. OAG-6 at 2–4 tbl.1 (listing planned outages at Prairie Island since January 2005).

<sup>261</sup> See Ex. OAG-6 at 2–4 tbl.1 (listing planned outages at Prairie Island since January 2005).

<sup>262</sup> Ex. OAG-4 at 4 (Lee Surrebuttal).

<sup>263</sup> See Ex. OAG-4 at 10–11 & n.26 (Lee Surrebuttal) (citing MPUC Docket No. E-002/RP-24-67, Compliance Filing – Planned Investments – Monticello and Prairie Island Nuclear Generating Plants (July 18, 2025)).

<sup>264</sup> Xcel Initial Br. at 36–37.

<sup>265</sup> See Ex. XCEL-11 at 6–7, sched. 1 at 110 (Bible Trade Secret Rebuttal).

<sup>266</sup> See Ex. XCEL-11, sched. 1 at 2 (Bible Trade Secret Rebuttal).

should be given no weight because he provides no explanation for why he accepted Xcel's illustrative timeline, which itself included unsupported assumptions.

151. If the 2029 cable replacement were done concurrently with other work that required as much or more outage time, then replacing the cable during the October 2023 outage did not avoid any future outage time or replacement-power costs.<sup>267</sup> Xcel has not provided any specific evidence to rule out this possibility. Moreover, even if Xcel had shown that the cable replacement would likely be critical-path, its assumption that there would be no other overlapping work is unreasonable, rendering its avoided-cost estimates unreliable.

152. Xcel's failure to account for overlapping outage tasks was one of the reasons the Commission rejected the Sherco avoided costs offset as unsupported.<sup>268</sup> Likewise, Xcel's unreasonable assumption in this case that no major work would occur during the 2029 outage, other than 27 days of refueling, arbitrarily increases the offset and reduces the ratepayers' refund. The Commission should reject Xcel's calculation of avoided 2029 costs as too unreliable to use as an offset against a ratepayer refund for Xcel's imprudence.

153. Even if it were possible to know that the control cables would have been replaced in 2029 and how much in replacement-power costs this would have caused, for the avoided costs of that future replacement to offset the refund in this case, Xcel would have to establish that the future replacement would not have been caused by its imprudence.<sup>269</sup> The available evidence prevents making such a finding.

154. It is possible that Xcel could have imprudently damaged the control cables at some future time had it not done so in 2023.<sup>270</sup> The root causes of the October 2023 incident were weakness in Xcel's excavation-permit approval process and inadequate oversight of the nonnuclear supplemental workers.<sup>271</sup> After the October 2023 incident, Xcel implemented multiple procedure changes to address these oversight and permit-approval gaps.<sup>272</sup> Yet had the incident not occurred, there is no reason to conclude Xcel would have identified these weaknesses or made these procedural changes, leaving a meaningful possibility of a similar incident occurring in the future.<sup>273</sup>

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<sup>267</sup> Ex. OAG-1 at 13–14 (Lee Direct).

<sup>268</sup> See *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024) (finding that Xcel had failed to adequately explain “whether any outage tasks could have overlapped with other outage tasks” in future outage for which Xcel was claiming avoided costs).

<sup>269</sup> Ex. OAG-1 at 13 (Lee Direct).

<sup>270</sup> See Tr. at 38 (Krug) (agreeing that Xcel could have cut through the control cables at a future time had it not done so in 2023).

<sup>271</sup> Ex. OAG-7 at 7 of 14 (Xcel Response to OAG IR 3).

<sup>272</sup> Ex. OAG-7 at 7 of 14 (Xcel Response to OAG IR 3).

<sup>273</sup> Evid. Hrg. Tr. at 42 (Krug).

155. It is also possible that the cables could fail or need replacement due to Xcel's imprudent installation or maintenance, and the EPRI report provides some suggestion that Xcel's installation contributed to the cables' degradation. The control-cable bundle was direct-buried, which was consistent with industry practice in the early 1970s.<sup>274</sup> Yet when burying electric cables in that fashion, it is important to use the right type of fill material—composed of a range of particle sizes—to decrease thermal resistance and control moisture levels.<sup>275</sup> According to EPRI's report, Xcel's control cables were buried in soil composed largely of fine sand of similar particle size with low moisture content, suggesting that its thermal resistivity was "higher than planned for buried cables."<sup>276</sup>

156. Xcel provided the soil sample in an unsealed container contrary to EPRI's instructions. This prevented EPRI from drawing definitive conclusions about the soil's effects on the cables it surrounds.<sup>277</sup> Yet evidence that portions of the cable had overheated still suggests that the manner in which Xcel installed the cables contributed to their degradation.<sup>278</sup> The possibility that Xcel improperly installed the cables is also supported by the testimony of Xcel Witness Hiser. Hiser testified that it is possible for direct-buried cables to last essentially indefinitely in the ground, and that he was unaware of DC control cables at any other plant experiencing similar degradation.<sup>279</sup> These facts suggest that the manner in which the cables were originally installed contributed to the degradation observed in October 2023.

157. The Judge finds that Xcel has failed to show that the possibility of the control cable's future failure would not have been caused by its own imprudence. Xcel is not entitled to offset the refund owed to ratepayers for October 2023-outage replacement-power costs with hypothetical and unknowable future outage costs.

### **3. Xcel Witness Bible's Testimony is Lacking Credibility.**

158. To support the reasonableness of replacing, rather than repairing, the cut cables and, more importantly, the assumptions needed to calculate its proposed offsets to the customer refund, Xcel offered expert testimony from Bible. Bible's opinions are based on his 46 years of experience as an engineer working for the nuclear fleet of Florida Power & Light (FPL).<sup>280</sup>

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<sup>274</sup> Ex. XCEL-10, sched. 2 at 3 (Bible Direct).

<sup>275</sup> Ex. OAG-5 at 11 of 16 (Xcel Response to DOC IR 38).

<sup>276</sup> Ex. OAG-5 at 10–11 of 16 (Xcel Response to DOC IR 38).

<sup>277</sup> Ex. OAG-5 at 10 of 16 (Xcel Response to DOC IR 38).

<sup>278</sup> See Ex. OAG-5 at 14 of 16 (Xcel Response to DOC IR 38) (discussing evidence that cables had been subject to overheating and explaining how improper fill material can contribute to overheating).

<sup>279</sup> Tr. at 95 (Hiser).

<sup>280</sup> Ex. XCEL-10, 1, sched. 2 at 2 (Bible Direct); Xcel Initial Br. at 14, 35.

159. The Department exposed numerous concerns about Bible's credibility.<sup>281</sup> The Department noted that Bible's report included none of the customary components of expert reports and does not identify any facts or data that were relied upon in assessing the reasonableness of Xcel's scenarios.<sup>282</sup> Bible testified that he did not develop the hypothetical scenarios he presented in his testimony and did not perform any independent calculations to assess the reasonableness of Xcel's scenarios.<sup>283</sup> Instead, Bible merely reiterated that the scenarios developed by Xcel were reasonable "[b]ased on [his] decades of experience in the industry."<sup>284</sup>

160. Before becoming a consultant in 2024, Bible's professional career consisted of working for the FPL nuclear fleet.<sup>285</sup> Bible was promoted to a supervisory role in the late 1980s, and held roles at the manager or director level for more than 30 years until his retirement in 2024.<sup>286</sup> His 46-year career was focused on FPL's St. Lucie and Turkey Point nuclear plants, except from 2014 to 2021 when he had responsibility for all five plants in the FPL fleet, including St. Lucie and Turkey Point.<sup>287</sup>

161. Evidence demonstrates that FPL's nuclear fleet repeatedly underperformed and violated regulatory requirements while Bible held leadership positions. Specifically:

- In 2006, FPL's Turkey Point nuclear plant experienced an extended outage when a contractor drilled through a pressurized pipe.<sup>288</sup> The Florida Public Service Commission held FPL responsible for the incident, concluding that the utility had failed to demonstrate that it had prudently managed and exercised oversight over its contractors.<sup>289</sup> Bible "was actually leading the team" involved in the incident.<sup>290</sup>
- The NRC imposed a \$232,000 civil penalty on FPL for firing a nuclear contractor who raised safety concerns in 2017.<sup>291</sup> In 2019, the NRC fined FPL an additional \$150,000 after determining that FPL employees, including three supervisors, attempted to falsify nuclear maintenance records and then tried to cover up their actions.<sup>292</sup>

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<sup>281</sup> Department Initial Br. at 16-18.

<sup>282</sup> See Minn. R. Civ. P. 26.02(b)(2)(A), (B) (requiring the report to contain the facts or data considered by the witness, and a complete statement of the witness's opinions and the basis and reasons for them); Tr. at 73:2-9, 73:20-74:7, 74:8-14 (Bible).

<sup>283</sup> Tr. at 71:20-21, 73:2-9, 73:20-74:14 (Bible).

<sup>284</sup> Ex. XCEL-10, CRB-D-2 at 5-6 (Bible Report).

<sup>285</sup> Ex. Xcel-10, sched. 1 (Bible Direct).

<sup>286</sup> Ex. Xcel-10, sched. 1 (Bible Direct).

<sup>287</sup> Ex. Xcel-10, sched. 1 (Bible Direct); Tr. at 79:3-11 (Bible).

<sup>288</sup> Ex. DOC-9 at 17 (Fla. Pub. Serv. Comm'n Order No. PSC-09-0024-FOF-EI) (eDocket no. 202510-223480-07).

<sup>289</sup> Ex. DOC-9 at 17 (Fla. Pub. Serv. Comm'n Order No. PSC-09-0024-FOF-EI).

<sup>290</sup> Tr. at 76:21-22 (Bible).

<sup>291</sup> Ex. DOC-10 at 3 (Fla. Pub. Serv. Comm'n Audit Report) (eDocket no. 202510-223480-08).

<sup>292</sup> Ex. DOC-10 at 3 (Fla. Pub. Serv. Comm'n Audit Report).

- FPL's Turkey Point and St. Lucie nuclear plants suffered 12 forced outages in 2019, 20 forced outages in 2020, and 22 forced outages in 2021.<sup>293</sup> In comparison, the industry average was 0.45 annual outages per unit between 2018 and 2022.<sup>294</sup>

162. Given these deficiencies, an FPL internal review board concluded that, during the period Bible held nuclear leadership positions, the utility's nuclear management was inadequately engaged, allowed standards to erode, failed to model adequate behavior, and failed to deliver acceptable operational results.<sup>295</sup>

163. Xcel argues unpersuasively that FPL's problematic history under Bible's management is irrelevant.<sup>296</sup> Because Bible cited only his experience as the basis for his expert conclusions, the performance of FPL's nuclear fleet in general, and St. Lucie and Turkey Point plants in particular, are especially relevant to assessing his credibility and fitness to opine on Xcel's decision-making.<sup>297</sup>

164. The Department asserted that because of Bible's reliance solely on his experience as the basis for supporting his conclusions in his expert report, and the performance of the FPL nuclear fleet while he held leadership positions, Bible should be found to lack credibility as a witness, and no weight should be placed on his testimony.<sup>298</sup> Xcel argued that none of the reports related to the performance of FPL's nuclear fleet are relevant to Bible's credibility.<sup>299</sup>

165. The Judge agrees Bible lacks credibility, and no weight should be placed on his testimony. Bible's expert report provides no basis for his conclusions other than his citations to his own experience. Bible and Xcel heavily emphasize the length of Bible's experience in the nuclear industry to support his opinions. It is unreasonable to suggest that the performance of FPL's nuclear fleet during his career is irrelevant to the credibility of his opinions which rest entirely on his "experience." Nor are the concerns raised by the Department isolated incidents. Instead, the FPL fleet's underperformance and regulatory violations span decades. Xcel has provided no reason why the conclusions of Bible's own employer -- that the nuclear fleet's management, which included Bible, was largely responsible for these serious and persistent shortcomings -- should be ignored when considering whether the Commission should rely on Bible's judgment and experience.

166. The Judge finds that Xcel engages in layers of speculation to attempt to prove its counterintuitive claims that its imprudence benefitted ratepayers by avoiding

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<sup>293</sup> Ex. DOC-10 at 2 (Fla. Pub. Serv. Comm'n Audit Report).

<sup>294</sup> Ex. XCEL-10, CRB-D-2 at 5-6 (Bible Report); Tr. at 80:16-20 (Bible). During the relevant period, Turkey Point and St. Lucie were each operating two units. Ex. DOC-10 at 1 (Fla. Pub. Serv. Comm'n Audit Report).

<sup>295</sup> Ex. DOC-10 at 6 (Fla. Pub. Serv. Comm'n Audit Report).

<sup>296</sup> Xcel Initial Br. at 14, fn 48.

<sup>297</sup> Department Initial Br. at 18.

<sup>298</sup> Department Initial Br. at 18.

<sup>299</sup> Xcel Initial Br. at 14, fn 48.

future work. For these reasons, the Commission should deny any offset premised upon Xcel's speculation that it avoided future work to the benefit of ratepayers.

## **B. The Supplemental or Pulled Forward Work Credit**

167. While PINGP Unit 1 and Unit 2 were shut down, Xcel conducted some of the work it had already scheduled to be completed. Xcel initially claimed it avoided 8.1 outage days by “pulling forward” planned future work to complete during the dual-unit shutdown. Xcel initially sought credit for doing 8,505 labor hours of supplemental work, claiming that doing this work during the outage avoided 8.1 future outage days and associated replacement-power costs worth \$1.8 million (MN jurisdiction).<sup>300</sup>

168. Xcel completed additional maintenance projects during the October 2023 outage concurrently with the control-cable replacement.<sup>301</sup> Most of this work had been scheduled to be completed in the near term, either during future planned outages or while the plant was online.<sup>302</sup>

169. Xcel characterized its efforts to complete supplemental work during the October 2023 outage as “pulling-forward these projects from planned future outages” such that “customers received a measurable benefit by avoiding future incremental power costs associated with those future outages.”<sup>303</sup>

170. A review of the supplemental work reveals that Xcel inflated this category of offsets, as some of these projects either were not slated for a particular timeframe or did not require an outage to complete at all. For example, a list of planned projects Xcel provided indicated that much of the work was scheduled to be completed while the plant was “online.”<sup>304</sup> In addition, one of the projects, which entailed replacing a pipe in the cooling-water system, was noted as being “[o]n dual-unit forced outage list.”<sup>305</sup> This indicates that the pipe-replacement project was not scheduled to occur during any particular outage but “was identified as needing to be added to the next available dual unit outage.”<sup>306</sup>

171. In discovery, the OAG inquired whether “pulling forward work from planned future outages shorten[ed] the planned future outages” and by how many days.<sup>307</sup> In response, Xcel conceded that only 2,272 out of the original 8,505 labor hours would have had any impact on the length of future outages.<sup>308</sup> Xcel further conceded that completing this subset of the supplemental work avoided only 2.2 future outage days, or

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<sup>300</sup> Ex. OAG-1 at 6–7 (Lee Direct).

<sup>301</sup> Ex. XCEL-5 at 20 (Detmer Direct).

<sup>302</sup> See Ex. XCEL-5 at 20 (Detmer Direct); Ex. OAG-2, sched. 2 at 3–4 tbl.1 (Lee Direct Schedules).

<sup>303</sup> Ex. OAG-1 at 6–7 (Lee Direct).

<sup>304</sup> See Ex. XCEL-5, sched. 2 at 9–10 (Detmer Public Direct).

<sup>305</sup> See Ex. XCEL-5, sched. 2 at 9 (Detmer Public Direct).

<sup>306</sup> Ex. OAG-4 at 4 (Lee Surrebuttal).

<sup>307</sup> Ex. OAG-2, sched. 2 at 1 (Lee Direct Schedules).

<sup>308</sup> Ex. OAG-2, sched. 2 at 2 (Lee Direct Schedules).

approximately \$500,000 (MN jurisdiction) in replacement-power costs.<sup>309</sup> The revised offset relates to just two of the 40-plus supplemental projects Xcel originally identified as meriting an offset: (1) the above-mentioned cooling-water pipe replacement; and (2) inspecting the “plant screenhouse stop log rail guide.”<sup>310</sup> Xcel claims these projects both required a dual-unit shutdown and would be critical-path in a future outage.<sup>311</sup>

172. The OAG identified further concerns with the revised \$500,000 offset. First, the OAG argued that there was no basis to believe that either of these two projects would, on their own, have caused Xcel to schedule an outage.<sup>312</sup> For example, the rail-guide inspection was one of the projects with an “online” notation indicating that it did not require the plant to be shut down.<sup>313</sup> The cooling-water pipe replacement was on the dual-unit forced outage list, proving that it was not urgent enough to prompt a dual-unit outage on its own.

173. The OAG also pointed out that there was no evidence that these projects would be critical-path in any future outage, noting that they were not critical-path during the October 2023 outage.<sup>314</sup> As the OAG reasoned, since the need to complete these projects, alone, was not enough to prompt an outage, or if the projects did prompt an outage, they were not critical-path projects, completing them in 2023 avoided no future replacement-power costs.<sup>315</sup>

174. Xcel maintained that these two supplemental projects avoided future outage time. According to Xcel, the rail-guide inspection was originally scheduled to be performed with the plant online, however, it subsequently determined that the inspection should be done with both units shut down.<sup>316</sup> Xcel reasoned that if these two dual-unit projects had been done during a future planned outage to refuel one of the units, they would necessarily have caused an outage of the non-refueling unit.<sup>317</sup> Xcel concluded that completing these projects in 2023–2024, when PINGP was already in a dual-unit outage, “avoided the non-refueling operating unit shutdown outage days” in a future refueling outage.<sup>318</sup>

175. Xcel’s conclusion depends on at least two unproven assumptions. First, Xcel assumes that the need to complete these projects would have caused Xcel to convert a single-unit refueling outage into a dual-unit outage. Second, Xcel assumes that these projects would have driven the length of a future dual-unit outage (i.e., that they

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<sup>309</sup> Ex. OAG-2, sched. 2 at 2 (Lee Direct Schedules); Ex. XCEL-3 at 6 (Krug Rebuttal).

<sup>310</sup> Ex. OAG-4, sched. 1 at 1 (Lee Surrebuttal).

<sup>311</sup> Ex. OAG-2, sched. 2 at 2 (Lee Direct Schedules); Ex. XCEL-12 at 7–8 (Bible Rebuttal).

<sup>312</sup> OAG Initial Br. at 19.

<sup>313</sup> See Ex. XCEL-5, sched. 2 at 9 (Detmer Public Direct).

<sup>314</sup> OAG Initial Br. at 20.

<sup>315</sup> OAG Reply Br. at 9.

<sup>316</sup> Ex. XCEL-12 at 8 (Bible Rebuttal).

<sup>317</sup> Ex. XCEL-12 at 8 (Bible Rebuttal).

<sup>318</sup> Ex. XCEL-12 at 8 (Bible Rebuttal).

would have been critical-path in any future outage). Neither assumption is supported by the record.

176. Under the scenario of a single-unit refueling outage imagined by Xcel, completing a project that required both units to be offline would indeed drive outage time for the non-refueling unit (assuming there was no other reason to take the non-refueling unit offline). First, Xcel's claim that the supplemental projects would, on their own, have occasioned a dual-unit outage is contradicted by other evidence in the record. With regard to the rail-guide inspection, the initial data that Xcel presented suggests that this project did not require an outage at all, much less a dual-unit outage.<sup>319</sup> Even assuming that the inspection could only be done during a dual-unit outage, there is no evidence that the need to complete this project, alone, would have caused Xcel to schedule a dual-unit outage.

177. Second, as noted above, the pipe-replacement project was on Xcel's "dual unit forced outage list" prior to the October 2023 outage.<sup>320</sup> This means that the pipe-replacement project, had it not been completed in 2023–2024, would have happened the next time a dual-unit outage occurred.<sup>321</sup> Thus, Xcel has the causation backwards: the decision to do the pipe-replacement project was driven by a dual-unit forced outage and not vice versa.

178. Xcel's second unsupported assumption is that these projects would have driven the length of a future dual-unit outage. In other words, Xcel assumes that these projects would have been critical path in any future outage. Xcel admits that "whether an item is critical path can depend on the other projects scheduled for the same outage" and that "[i]f a future dual unit outage were performed and included other work that was scheduled to take more time to perform than these two activities, then these activities would not be critical path."<sup>322</sup> It is unknown whether the supplemental work could or would have been done in parallel with a longer-duration project in a future outage and, therefore, whether completing them during the October 2023 outage avoided any future outage days.<sup>323</sup> The supplemental work did not drive the length of the October 2023 outage,<sup>324</sup> and Xcel has given no reason, beyond conclusory assertions, to believe these relatively small projects would drive the length of any other outage.

179. The only evidence Xcel offered to support the hypothesis that these projects could be critical-path work that would have extended a future outage was Bible's discredited testimony parroting Xcel's factually unsupported claim that since the projects required both generating units to be offline, the projects would drive outage days for the

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<sup>319</sup> Ex. OAG-4 at 5 (Lee Surrebuttal).

<sup>320</sup> Ex. OAG-4 at 4 (Lee Surrebuttal).

<sup>321</sup> Ex. OAG-4 at 4 (Lee Surrebuttal).

<sup>322</sup> Ex. OAG-4 at 3 (Lee Surrebuttal).

<sup>323</sup> Ex. OAG-4 at 3 (Lee Surrebuttal).

<sup>324</sup> Ex. OAG-4 at 3 (Lee Surrebuttal).

non-refueling unit in a future outage.<sup>325</sup> As the OAG points out, the fact that the supplemental projects required a dual-unit outage does not mean that completing them during the October 2023 outage avoided outage time in the future.<sup>326</sup>

180. Accepting Xcel's arguments means validating the same unfounded assumptions that underlie its calculation of avoided costs.<sup>327</sup> Specifically, (1) that the supplemental projects would otherwise have been completed in 2029;<sup>328</sup> (2) that Minnesota's sales growth relative to North and South Dakota will yield a 77.30 percent fuel-cost allocator;<sup>329</sup> and (3) other assumptions required to model production costs in 2029.<sup>330</sup>

181. For all these reasons, the Judge finds that Xcel has failed to carry its burden to prove that the supplemental projects saved any future outage time. Even if Xcel had established that completing the supplemental work avoided future outage time, it failed to establish with any reasonable certainty how much future replacement-power cost was avoided. Accepting Xcel's \$500,000 estimate requires accepting many, if not most, of the uncertain and unproven assumptions that apply to the "avoided 2029 costs" offset.<sup>331</sup> The Commission should thus reject the "supplemental work" offset as too speculative to yield a just and reasonable refund.

### **C. Historic Performance Adjustment**

182. Finally, Xcel contends it should be granted a 49 percent refund reduction for PINGP's past performance.<sup>332</sup> Xcel seeks application of a historic-performance adjustment to reward Xcel for operating PINGP in an allegedly prudent manner prior to the October 2023 outage.<sup>333</sup>

183. A utility has a duty to "operate and maintain [generation plants] in a reasonable and prudent manner consistent with good utility practices."<sup>334</sup> Allowing a utility to bank "excess" prudence and use it to reduce liability for later imprudent conduct is antithetical to the purpose of regulation and its duty to ratepayers.

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<sup>325</sup> Ex. OAG-4 at 3 (Lee Surrebuttal); see Tr. at 61-86 (Bible).

<sup>326</sup> See OAG Initial Br. at 18–20.

<sup>327</sup> See Xcel Initial Br. at 41-42.

<sup>328</sup> See Ex. OAG-1 at 7 (Lee Direct) (noting that Xcel recycled the production-cost modeling used for the "avoided 2029 costs" offset to value avoided costs for the supplemental work even though the supplemental projects were not scheduled to occur in 2029).

<sup>329</sup> Ex. OAG-1 at 14 and fn 2 (Lee Direct) (citing Ex. XCEL-5, sched. 2 at 12 (Detmer Public Direct)).

<sup>330</sup> See Ex. XLI-3 at 9 (Andrews Surrebuttal).

<sup>331</sup> Ex. XLI-3 at 9 (Andrews Surrebuttal).

<sup>332</sup> See Ex. OAG-1 at 4–5 & tbl.4 (Lee Direct).

<sup>333</sup> Ex. XCEL-5 at 21–22 (Detmer Direct).

<sup>334</sup> Ex. OAG-1 at 17 (Lee Direct); Ex. OAG-4 at 14–15 (Lee Surrebuttal); Ex. DOC-2 at 8 (Golden Surrebuttal); Ex. XLI-3 at 10–11 (Andrews Surrebuttal).

184. In 2022, PINGP's two reactors operated at a combined 96 percent capacity factor. Between 2018 and 2022, PINGP performed at a combined average capacity factor of 95 percent, which Xcel asserts is a performance level above the industry average.<sup>335</sup>

185. Xcel customers benefited from PINGP's performance over the 2018-2022 period.<sup>336</sup> During the period from 2018 through 2022, PINGP generated approximately 2,577 GWh above Xcel's forecasted amount. Xcel asserts this performance provides benefits to customers of more than \$50 million.<sup>337</sup> According to Xcel, it outperformed the industry average by 51 percent in this limited period of PINGP's operation.<sup>338</sup>

186. The Intervenor's argue persuasively that even if Xcel were allowed to "bank" prudence, it has not established that its proposed historic performance adjustment is reasonable. As the Department noted, Xcel offered no testimony purporting to show that Prairie Island's above industry-median performance from 2018 to 2022 was attributable to any decisions or actions taken by Xcel, rather than happenstance.<sup>339</sup>

187. In contrast, Xcel's data also demonstrated that PINGP generally performed below the industry-wide average. For example, while Xcel characterized PINGP's performance from 2018 to 2022 as "exemplary" because its average capacity factor of 95 percent exceeded the industry average by 2.18 percent for this period, the plant only achieved average capacity factors of 77, 86, and 91 percent, respectively, in the three years preceding that time frame.<sup>340</sup> From 2013 to 2017, PINGP's average capacity factor was 7.32 percent below the industry average.<sup>341</sup> Xcel does not offer any basis to limit consideration of its "historical performance" to only its best years and ignore its underperforming years.<sup>342</sup>

188. Xcel argued that PINGP's "history of strong performance" resulted in "substantial benefits" to its ratepayers in the form of generating more power than Xcel forecasted.<sup>343</sup> Xcel stated that "[a]ll of the benefit of [Xcel's] performance redounded to customers."<sup>344</sup> Xcel calculated this benefit to customers as totaling over \$50 million from 2018 through 2022.<sup>345</sup> The Department, however, noted that Xcel shareholders were the ones who receive substantial benefits from Xcel's operation of PINGP, without regard to the plant's performance. In 2023 alone, Xcel collected approximately \$174.14 million in returns purely for operating the plant.<sup>346</sup>

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<sup>335</sup> Ex. XCEL-1 at 4 (Krug Direct); Ex. XCEL-4 at 20-21 and Schedule 3 (Detmer Direct); Ex. XCEL-10, Schedule 2 at 6 (Bible Direct).

<sup>336</sup> Ex. XCEL-1 at 4 (Krug Direct); Ex. XCEL-4 at 21 (Detmer Direct).

<sup>337</sup> Ex. XCEL-1 at 4-5 (Krug Direct); Ex. XCEL-4 at 21-22 (Detmer Direct).

<sup>338</sup> Ex. XCEL-4 at 24 (Detmer Direct).

<sup>339</sup> Department Initial Br. at 21.

<sup>340</sup> Ex. DOC-2, ARG-S-1 (Golden Surrebuttal).

<sup>341</sup> Ex. DOC-2, ARG-S-1 (Golden Surrebuttal).

<sup>342</sup> See Exs. XCEL-2 (Krug Direct), XCEL-4 (Detmer Direct).

<sup>343</sup> Xcel Initial Br. at 22.

<sup>344</sup> Xcel Initial Br. at 22.

<sup>345</sup> Ex. XCEL-2 at 12 (Krug Direct).

<sup>346</sup> Department Reply Br. at 5.

189. The Department also raised the concern that improvements in Prairie Island's capacity factor during the Company's proposed look-back period may be due to capital investments in the plant and COVID-19 related postponement of maintenance.<sup>347</sup> Although those concerns were raised in direct testimony, and the Department requested that Xcel address the Department's concerns with the selected lookback period timeframe, Xcel provided no response.<sup>348</sup>

190. To support its claim that PINGP's performance was superior, Xcel states that PINGP's capacity factor was 2.18 percent higher than the industry average from 2018 to 2022.<sup>349</sup> Since 2005, however, as shown in the table below, PINGP underperformed the industry average by nearly 5 percent.<sup>350</sup>

| Years     | Prairie Island | Industry-Wide | Difference |
|-----------|----------------|---------------|------------|
| 2018-2022 | 94.94%         | 92.76%        | 2.18%      |
| 2013-2017 | 84.56%         | 91.88%        | -7.32%     |
| 2008-2012 | 85.08%         | 89.64%        | -4.56%     |
| 2005-2022 | 88.35%         | 91.23%        | -2.88%     |
| 2005-2024 | 86.39%         | 91.37%        | -4.98%     |

191. Xcel did not establish why it would be appropriate to limit consideration of its historic performance to a period where it slightly outperformed the industry average. Likewise, Xcel did not prove it would be just or reasonable to allow it to offset costs for above average performance without also compensating customers for its underperformance from 2005 to 2017.

192. Even limiting review of Xcel's performance to the five years immediately preceding and including the outage, ratepayers are already likely compensating Xcel for it. Commission filings establish recent capital improvements are the most likely drivers of this improved performance.<sup>351</sup> Ratepayers already compensate Xcel and its investors for making these improvements through rate setting. The Intervenors correctly observe that Xcel's "performance adjustment" would functionally allow the utility to charge customers for capital improvements a second time.<sup>352</sup>

<sup>347</sup> Ex. DOC-1 at 17 (Golden Direct).

<sup>348</sup> Ex. DOC-2 at 5–6 (Golden Surrebuttal).

<sup>349</sup> Ex. DOC-2 at 5 (Golden Surrebuttal).

<sup>350</sup> Ex. DOC-2 at 5 (Golden Surrebuttal).

<sup>351</sup> Ex. DOC-1 at 17 (Golden Direct).

<sup>352</sup> See Minn. Stat. § 216B.16, subd. 6 (requiring the Commission to give "due consideration" to the cost of the property when first devoted to public use in setting rates).

193. Finally, Xcel's request to offset the refund owed to customers with a historic performance adjustment should be denied as antithetical to the regulatory compact. Xcel is already compensated to operate PINGP and is required to always do so prudently. The timeframe chosen by Xcel is arbitrarily selected to provide an artificially high impression of PINGP's performance. If the Commission chooses to apply a historic performance adjustment, it must use a timespan that more accurately reflects the performance customers have been provided by such a long-lived asset.<sup>353</sup>

194. Other states have rejected prudence "banking." Applying a similar standard, the Texas Public Utilities Commission rejected a utility's attempt to offset imprudently incurred costs with savings achieved by superior performance elsewhere. The Texas commission explained that "any activity that exceeded [the] standard would fit within it. The prudence standard contains a floor but not a ceiling."<sup>354</sup> Similarly, noting the perverse incentives the arrangement would create, the New Hampshire Public Utilities Commission commented that "such a mechanism . . . would send distorted economic signals by negating any financial disallowance imposed upon a utility whose actions are found imprudent."<sup>355</sup> Put differently, once a utility achieves the prudence standard, its conduct is simply prudent. It cannot claim excess prudence to offset deficiencies elsewhere.

195. In sum, Xcel has failed to establish law or fact to support its claimed historical performance offsets. The Judge recommends that the Commission deny them as factually unsupported, contrary to law and Commission precedent, and violative of the regulatory compact between utilities and ratepayers.

## **V. Recovery of Costs**

196. The Department, OAG, and XLI also recommended that the Commission deny Xcel recovery of any litigation expenses incurred during this proceeding. They cite several bases for the denial.

197. First, they assert that denying Xcel cost recovery of its litigation expense is consistent with the common law "American rule."<sup>356</sup> This rule creates a presumption that parties pay their own litigation costs. Minnesota follows the American rule and bars parties

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<sup>353</sup> The Department further argues that should the Commission be inclined to grant any offset to Xcel, contrary to the Judge's recommendations, the Commission must consider whether the offset must be reduced by Xcel's "underspent generation maintenance" expense, as funds collected from ratepayers for maintenance yet unspent for the benefit of shareholders. See Department Initial Br. at 23-24. The Judge agrees but concludes it is unnecessary to address this argument further as Xcel has failed to establish any offset should be awarded.

<sup>354</sup> *In re Appl. of El Paso Elec. Co. for Auth. to Change Rates*, Docket No. 9945, 1991 WL 426626, Final Order (Tex. P.U.C. Nov. 12, 1991).

<sup>355</sup> *In re Pub. Serv. Co. of New Hampshire*, DR 96-077, 1996 WL 1068496, at \*2, Order No. 22,399 (N.H. P.U.C. Nov. 5, 1996).

<sup>356</sup> Department Initial Br. at 25; OAG Initial Br. at 35; see XLI Reply Br. at 5.

from shifting attorney fees to an adversary unless there is specific statutory or contractual authorization.<sup>357</sup>

198. Second, the OAG and Department assert denying recovery of Xcel's litigation expenses is consistent with "cost-of-service" ratemaking. Utilities are only permitted to recover from customers the costs of furnishing service.<sup>358</sup> The costs of furnishing utility service typically include labor, materials and supplies, taxes, insurance, and depreciation.<sup>359</sup> Even when a utility establishes it has incurred an expense, the Minnesota Supreme Court has held that it does not necessarily make that cost a "cost of service."<sup>360</sup> The Commission must first determine, in its quasi-legislative authority, that it "is just and reasonable that the ratepayers bear the costs of those expenses."<sup>361</sup>

199. The OAG and Department further assert that there is no constitutional requirement that states permit utilities to recover regulatory expenses from customers and some states deny recovery entirely or in part.<sup>362</sup> Rate cases and permitting proceedings are distinguishable from this matter. Those proceedings are often necessary to ensure that a utility has sufficient resources to provide service or to permit the utility to construct facilities needed to serve customers.<sup>363</sup>

200. Given these considerations, the Department and OAG explain that allowing Xcel an opportunity to justify why customers should pay costs that Xcel imprudently incurred is not a cost of providing utility service. Xcel's litigation expenses in this matter, they assert, have no bearing on Xcel's core obligations to provide "adequate, efficient, and reasonable service"<sup>364</sup> nor would it be "just and reasonable" for customers to bear these expenses.<sup>365</sup>

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<sup>357</sup> See *Roach v. County of Becker*, 962 N.W.2d 313, 322–23 (Minn. 2021) (stating American common-law rule that civil litigants ordinarily bear their own attorney fees).

<sup>358</sup> Minn. Stat. § 216B.16, subd. 6; *Minnegasco v. Minn. Pub. Utils. Comm'n*, 549 N.W.2d 904, 909 (Minn. 1996).

<sup>359</sup> Minn. Stat. § 216B.16, subd. 6; *Minnegasco*, 549 N.W.2d at 909.

<sup>360</sup> *In re Pet. of N. States Power Co. for Auth. to Change its Sch. of Rates for Elec. Serv. in Minn.*, 416 N.W.2d 719, 722–723 (Minn. 1987); see also *In re Xcel Energy's Appl. for Auth. to Increase Elec. Serv. Rates in Minn.*, Docket No. E-002/GR-21-630, Findings of Fact, Conclusions, & Order at 4 (July 17, 2023) (eDocket no. 20237-197559-01).

<sup>361</sup> *In re Pet. of N. States Power Co. for Auth. to Change its Sch. of Rates for Elec. Serv. in Minn.*, 416 N.W.2d 719, 722–723 (Minn. 1987); see also *In re Xcel Energy's Appl. for Auth. to Increase Elec. Serv. Rates in Minn.*, Docket No. E-002/GR-21-630, Findings of Fact, Conclusions, & Order at 4 (July 17, 2023).

<sup>362</sup> See, e.g., Conn. Gen. Stat. § 16-243p(b) ("[N]o electric distribution company . . . shall recover through rates its direct or indirect costs associated with . . . [any] rate proceeding."); Colo. Rev. Stat. § 40-3-102.5 (requiring the Colorado commission to establish rules limiting rate case expense recovery); *In re Jersey Central Power and Light Co.*, BPU Docket No. 841-55, 1985 WL 1213309, Order § II(H) (N.J. B.P.U. Feb. 11, 1985) (noting that "[t]he 50 /50 sharing of rate case expense remains accepted board policy.").

<sup>363</sup> See, e.g., Minn. Stat. §§ 216B.16 (rate proceedings), .243 (certificates of need), 216I.06-.08 (energy facility permitting).

<sup>364</sup> Minn. Stat. § 216B.16, subd. 6.

<sup>365</sup> *In re Pet. of N. States Power Co.*, 416 N.W.2d at 722-23.

201. Xcel argues that ratepayers should pay its costs in this proceeding because the proceeding was ordered by the Commission.<sup>366</sup> The Commission concluded that “[c]onsidering the current record . . . it is unable to determine the appropriate ratepayer refund amount resulting from Xcel’s imprudence.”<sup>367</sup> In other words, all of the litigation costs incurred in this matter are the inevitable consequence of Xcel’s imprudence and its subsequent erroneous automatic adjustment. Xcel’s characterization of this action as driven by the Commission’s action or the Intervenor’s disagreement with Xcel’s claims mischaracterizes the automatic adjustment process, Xcel’s role in this process, and the Intervenor’s arguments.

202. While Xcel is within its right to be heard before being compelled to issue a refund to ratepayers, it would be a manifest injustice to force ratepayers to pay for Xcel’s efforts to reduce the refund the ratepayers are due. The Commission should not disincentivize prudence and accuracy by relieving the utility of costs it incurs when it has been imprudent and erroneous.

203. There is no legal or policy reason to require customers to fund Xcel’s litigation here; neither traditional litigation rules nor utility ratemaking principles warrant it. In addition, the Commission should require Xcel to make compliance filings demonstrating that it has excluded its litigation expenses for this proceeding from all applicable rate case and cost recovery proceedings.

## **CONCLUSIONS OF LAW**

1. The Commission and the Administrative Law Judge have jurisdiction over the subject of this proceeding under Minn. Stat. § 216B.03 (2024), Minn. R. 7825.2390-.2920 (2023), and Minn. Stat. §§ 14.57–.62 (2024).

2. The Commission has complied with all procedural requirements of law and rule, and the parties have had notice and an opportunity to fully participate in this proceeding. Therefore, this matter is properly before the Commission and the Judge.

3. Every rate made, demanded, or received by a public utility must be just and reasonable.<sup>368</sup>

4. Automatic adjustments through a fuel clause rider are considered provisionally approved and are placed into effect without Commission action.<sup>369</sup> Erroneous adjustments must be refunded.<sup>370</sup> The Commission may, after investigation, notice, and hearing, issue an order to discontinue or modify an automatic adjustment.<sup>371</sup>

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<sup>366</sup> Xcel Reply Br. at 32-34.

<sup>367</sup> NOTICE AND ORDER at 8.

<sup>368</sup> Minn. Stat. § 216B.03.

<sup>369</sup> Minn. R. 7825.2920, subp. 1.

<sup>370</sup> Minn. R. 7825.2920, subp. 2.

<sup>371</sup> Minn. R. 7825.2920, subp. 3.

5. The burden to prove the reasonableness of recovery of replacement power costs rests on Xcel and any doubt as to reasonableness will be resolved in favor of the consumer.<sup>372</sup> Xcel must support its proposed action by a preponderance of the evidence.<sup>373</sup> The preponderance of the evidence standard requires that to establish a fact, it must be more likely than not that it exists.<sup>374</sup>

6. A utility may not offset a refund of imprudently incurred replacement-power costs using benefits that accrued from the utility's prudent actions "responding to and resolving the consequences of" the prior imprudent conduct.<sup>375</sup> Rather, a utility's "prudent management of the restoration process—including efforts to mitigate costs—[is] the expectation and does not offset or mitigate . . . prior imprudence."<sup>376</sup>

7. For any other offset, when a utility seeks to offset a replacement-power cost refund using benefits arising from a forced outage, such as avoiding future outages, the utility must establish the offset's reasonableness by a preponderance of the evidence, including a demonstration that the offset is not "too speculative or unsupported to justify."<sup>377</sup>

#### **A. PLEXOS vs. LMP-Calculated Replacement Power Estimate.**

8. For the reasons set forth above, Xcel failed to establish by a preponderance of evidence that its PLEXOS modeling results are more reliable than the LMP-method results for determining the costs of replacement power in this matter. A preponderance of the evidence establishes that the LMP-method produced a more reliable and reasonable result to calculate the replacement power cost in this matter.

#### **B. "Avoided 2029 Costs" Offset.**

9. Consistent with recent Commission decisions and the prudence standard, Xcel is not entitled to its "avoided 2029 costs" offset as a matter of law. The record establishes that Xcel's offset arises from actions necessary to remediate the utility's own imprudence. Because the claimed benefit – the avoided outage days in 2029 – accrues from resolving its own imprudent behavior, Xcel may not use it to offset the customer refund.

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<sup>372</sup> Minn. Stat. §§ 216B.03, .16, subd. 4.

<sup>373</sup> Minn. R. 1400.8608.

<sup>374</sup> Minn. R. 1400.7300, subp. 5; *City of Lake Elmo v. Metro. Council*, 685 N.W.2d 1, 4 (Minn. 2004).

<sup>375</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>376</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>377</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

10. Even assuming Xcel's "avoided 2029 costs" offset was not remedial, Xcel failed to establish by a preponderance of the evidence that its "avoided 2029 costs" offset is not "too speculative or unsupported."<sup>378</sup> As discussed above, Xcel relies on unreliable and speculative expert reports and testimony that the Commission should not credit.

### **C. "Supplemental Work" Offset.**

11. As discussed above, Xcel failed to establish by a preponderance of the evidence that pulling forward "supplemental work" projects saved any future outage time. The supplemental work did not drive the length of the October 2023 outage, and Xcel has given no reason, beyond conclusory assertions, to believe that these relatively small projects would drive the length of any future outage.

### **D. "Performance Adjustment" Offset.**

12. The prudence standard requires that Xcel take "reasonable action . . . in good faith based on knowledge available at the time of the action or decision. Actions taken in good faith are those taken . . . exercising the care that a reasonable person would exercise under the same circumstances at the time the decision was made."<sup>379</sup> Any action that falls within a "range of reasonable is by definition considered prudent."<sup>380</sup>

13. The prudence standard sets the floor for utility conduct. "Excess" prudence may not be banked to mitigate future imprudent conduct. In similar situations, the Commission has rejected utilities' attempts to bank and redistribute regulatory compliance, explaining that meeting regulatory standards for one action does not grant the utility authority to violate those standards for another action.<sup>381</sup>

14. The Commission should reject Xcel's argument for a performance offset because it is irreconcilable with the Commission's duty to ensure just and reasonable rates. It is fundamentally unjust and per se unreasonable to force customers to subsidize a utility's imprudence.

15. Xcel's performance claim is factually unsupported as it has historically underperformed compared to industry averages. In addition to failing as a matter of law, a preponderance of the evidence does not establish that PINGP has historically overperformed the industry averages.

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<sup>378</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36.

<sup>379</sup> Ex. XCEL-2 at 10 (Krug Direct) (eDocket no. 20255-218509-05); *see also In re Review of the July 2018–December 2019 Annual Automatic Adjustment Reports*, Docket No. E-999/AA-20-171, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED & REQUIRING REFUND at 5 (Feb. 25, 2022) (eDocket no. 20222-183172-01).

<sup>380</sup> Tr. at 47:15-18 (Krug).

<sup>381</sup> *Cf. In re Peoples Nat. Gas Co.*, Docket No. G-007/GR-00-951, 2001 WL 797465, at \*12, ORDER MODIFYING & ACCEPTING SETTLEMENT (May 11, 2001) (rejecting an attempt to offset noncompliance and compliance with an applicable standard in the aggregate).

16. Assuming prudence could be “banked,” Xcel’s offset is inconsistent with the Commission’s *Sherco 3 Forced Outage* decision.<sup>382</sup> In that case, Xcel claimed that future prudence should compensate for its imprudent actions.<sup>383</sup> Here, Xcel is seeking the opposite – claiming that alleged past prudence should compensate for its imprudent actions.<sup>384</sup> Applied in either direction, “banking” prudence violates the prudence standard.<sup>385</sup>

17. Xcel’s “performance adjustment” offset violates the prudence standard as a matter of law and is otherwise inconsistent with the Commission’s recent *Sherco 3 Forced Outage* decision.

#### **E. Xcel’s Litigation Expenses**

18. Allowing Xcel an opportunity to justify why customers should pay costs that Xcel imprudently incurred is not a cost of providing utility service. Xcel’s litigation expenses in this matter have no bearing on Xcel’s core obligations to provide “adequate, efficient, and reasonable service”<sup>386</sup> nor would it be “just and reasonable” for customers to bear these expenses.<sup>387</sup>

Any of the forgoing Conclusions of Law more properly designated as Findings of Fact are hereby adopted as such.

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<sup>382</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>383</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>384</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>385</sup> *Sherco 3 Forced Outage*, Docket No. E-002/GR-12-961, ORDER ADOPTING ADMINISTRATIVE LAW JUDGE REPORT AS MODIFIED at 36 (Dec. 24, 2024).

<sup>386</sup> Minn. Stat. § 216B.16, subd. 6.

<sup>387</sup> *In re Pet. of N. States Power Co.*, 416 N.W.2d at 722-23.

## RECOMMENDATIONS

In summary, Xcel's imprudence resulted in customers paying more for power than they otherwise would have paid such that a refund of power costs is appropriate. Xcel owes Minnesota ratepayers \$40.6 million for the cost of its imprudence. Based upon the record, the Judge recommends that:

1. The Commission adopt the Findings of Fact, Conclusions of Law, and Recommendations as set forth herein.
2. The Commission order Xcel to refund \$40.6 million plus interest at the prime rate, compounded monthly until the refund is fully paid.
3. The Commission bar Xcel from recovering from ratepayers the costs of this contested-case litigation.
4. The Commission order Xcel to make a compliance filing listing all costs that Xcel incurred in litigating this contested case, including internal employee labor and overhead.
5. The Commission require Xcel, in any future rate case or cost-recovery proceeding that relies on actual cost data, to show that the internal and external costs for this contested case have been adjusted out of the test year(s) or otherwise removed.

March 11, 2026

  
KIMBERLY MIDDENDORF  
Administrative Law Judge

March 11, 2026

See Attached Service List

**Re: *In the Matter of Xcel Energy's Petition for Approval of its 2023 Annual Fuel Forecast and Monthly Fuel Cost Charges***

**CAH 21-2500-40336  
MPUC E-002/AA-22-179**

To All Persons on the Attached Service List:

Enclosed and served upon you is the Administrative Law Judge's **FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATION** in the above-entitled matter.

If you have any questions, please contact me at (651) 361-7845, [samantha.cosgriff@state.mn.us](mailto:samantha.cosgriff@state.mn.us), or via facsimile at (651) 539-0310.

Sincerely,

  
SAMANTHA COSGRIFF  
Legal Assistant

Enclosure

cc: Docket Coordinator

STATE OF MINNESOTA  
COURT OF ADMINISTRATIVE HEARINGS  
PO BOX 64620  
600 NORTH ROBERT STREET  
ST. PAUL, MINNESOTA 55164

**CERTIFICATE OF SERVICE**

|                                                                                                                     |                                                          |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| In the Matter of Xcel Energy's Petition for Approval of its 2023 Annual Fuel Forecast and Monthly Fuel Cost Charges | CAH Docket No.:<br>21-2500-40336<br>MPUC E-002/AA-22-179 |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|

On March 11, 2026, a true and correct copy of the **FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATION** was served by eService, and United States mail, (in the manner indicated on the attached service list) to the following individuals:

| #  | First Name     | Last Name          | Email                             | Organization                                                 | Agency                                                          | Address                                                                          | Delivery Method    | Alternate Delivery Method | View Trade Secret | Service List Name          |
|----|----------------|--------------------|-----------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|---------------------------|-------------------|----------------------------|
| 1  | Kevin          | Adams              | kadams@caprw.org                  | Community Action Partnership of Ramsey & Washington Counties |                                                                 | 450 Syndicate St<br>N Ste 35<br>Saint Paul MN, 55104<br>United States            | Electronic Service |                           | No                | Official CC Service List 1 |
| 2  | Katherine      | Arnold             | katherine.arnold@ag.state.mn.us   |                                                              | Office of the Attorney General - Department of Commerce         | 445 Minnesota Street<br>Suite 1400<br>St. Paul MN, 55101<br>United States        | Electronic Service |                           | No                | Official CC Service List 1 |
| 3  | Jessica L      | Bayles             | jessica.bayles@stoel.com          | Stoel Rives LLP                                              |                                                                 | 1150 18th St<br>NW Ste 325<br>Washington DC, 20036<br>United States              | Electronic Service |                           | No                | Official CC Service List 1 |
| 4  | Sasha          | Bergman            | sasha.bergman@state.mn.us         |                                                              | Public Utilities Commission                                     | 121 7th Pl E<br>Ste 350<br>St. Paul MN, 55101<br>United States                   | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 5  | Elizabeth      | Brama              | ebrama@taftlaw.com                | Taft Stettinius & Hollister LLP                              |                                                                 | 2200 IDS Center<br>80 South 8th Street<br>Minneapolis MN, 55402<br>United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 6  | Mike           | Bull               | mike.bull@state.mn.us             |                                                              | Public Utilities Commission                                     | 121 7th Place<br>East, Suite 350<br>St. Paul MN, 55101<br>United States          | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 7  | James          | Canaday            | james.canaday@ag.state.mn.us      |                                                              | Office of the Attorney General - Residential Utilities Division | Suite 1400<br>445 Minnesota St.<br>St. Paul MN, 55101<br>United States           | Electronic Service |                           | No                | Official CC Service List 1 |
| 8  | Christopher J. | Cerny              | ccerny@winthrop.com               | Winthrop & Weinstine, P.A.                                   |                                                                 | 225 South Sixth Street<br>Suite 3500<br>Minneapolis MN, 55402<br>United States   | Electronic Service |                           | No                | Official CC Service List 1 |
| 9  | Joey           | Cherney            | joey.cherney@ag.state.mn.us       |                                                              | Office of the Attorney General - Residential Utilities Division | 445 Minnesota Street STE 1800<br>Saint Paul MN, 55101<br>United States           | Electronic Service |                           | No                | Official CC Service List 1 |
| 10 | John           | Coffman            | john@johncoffman.net              | AARP                                                         |                                                                 | 871 Tuxedo Blvd.<br>St, Louis MO, 63119-2044<br>United States                    | Electronic Service |                           | No                | Official CC Service List 1 |
| 11 | Generic        | Commerce Attorneys | commerce.attorneys@ag.state.mn.us |                                                              | Office of the Attorney General - Department of Commerce         | 445 Minnesota Street Suite 1400<br>St. Paul MN, 55101<br>United States           | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 12 | George         | Crocker            | gwillc@nawo.org                   | North American Water Office                                  |                                                                 | 5093 Keats Avenue<br>Lake Elmo MN, 55042<br>United States                        | Electronic Service |                           | No                | Official CC Service List 1 |
| 13 | Ian M.         | Dobson             | ian.m.dobson@xcelenergy.com       | Xcel Energy                                                  |                                                                 | 414 Nicollet Mall, 401-8                                                         | Electronic Service |                           | No                | Official CC                |

| #  | First Name  | Last Name | Email                                | Organization                                       | Agency                                                  | Address                                                                                                          | Delivery Method    | Alternate Delivery Method | View Trade Secret | Service List Name          |
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|    |             |           |                                      |                                                    |                                                         | Minneapolis<br>MN, 55401<br>United States                                                                        |                    |                           |                   | Service List 1             |
| 14 | Richard     | Dornfeld  | richard.dornfeld@ag.state.mn.us      |                                                    | Office of the Attorney General - Department of Commerce | Minnesota Attorney General's Office<br>445 Minnesota Street, Suite 1800<br>Saint Paul MN, 55101<br>United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 15 | Christopher | Droske    | christopher.droske@minneapolismn.gov | Northern States Power Company dba Xcel Energy-Elec |                                                         | 661 5th Ave N<br>Minneapolis MN, 55405<br>United States                                                          | Electronic Service |                           | No                | Official CC Service List 1 |
| 16 | Brian       | Edstrom   | briane@cubminnesota.org              | Citizens Utility Board of Minnesota                |                                                         | 332 Minnesota St Ste W1360<br>Saint Paul MN, 55101<br>United States                                              | Electronic Service |                           | No                | Official CC Service List 1 |
| 17 | Rebecca     | Eilers    | rebecca.d.eilers@xcelenergy.com      | Xcel Energy                                        |                                                         | 414 Nicollet Mall - 401 7th Floor<br>Minneapolis MN, 55401<br>United States                                      | Electronic Service |                           | No                | Official CC Service List 1 |
| 18 | John        | Farrell   | jfarrell@ilsr.org                    | Institute for Local Self-Reliance                  |                                                         | 2720 E. 22nd St<br>Institute for Local Self-Reliance<br>Minneapolis MN, 55406<br>United States                   | Electronic Service |                           | No                | Official CC Service List 1 |
| 19 | Eden        | Faure     | eden.faure@stoel.com                 | Stoel Rives LLP                                    |                                                         | 33 S. 6th Street<br>Suite 4200<br>Minneapolis MN, 55402<br>United States                                         | Electronic Service |                           | No                | Official CC Service List 1 |
| 20 | Sharon      | Ferguson  | sharon.ferguson@state.mn.us          |                                                    | Department of Commerce                                  | 85 7th Place E Ste 280<br>Saint Paul MN, 55101-2198<br>United States                                             | Electronic Service |                           | No                | Official CC Service List 1 |
| 21 | Lucas       | Franco    | lfranco@liunagroc.com                | LIUNA                                              |                                                         | 81 Little Canada Rd E<br>Little Canada MN, 55117<br>United States                                                | Electronic Service |                           | No                | Official CC Service List 1 |
| 22 | Edward      | Garvey    | garveyed@aol.com                     | Residence                                          |                                                         | 32 Lawton St<br>Saint Paul MN, 55102<br>United States                                                            | Electronic Service |                           | No                | Official CC Service List 1 |
| 23 | Matthew B   | Harris    | matt.b.harris@xcelenergy.com         | XCEL ENERGY                                        |                                                         | 401 Nicollet Mall FL 8<br>Minneapolis MN, 55401<br>United States                                                 | Electronic Service |                           | No                | Official CC Service List 1 |
| 24 | Adam        | Heinen    | aheinen@dakotaelectric.com           | Dakota Electric Association                        |                                                         | 4300 220th St W<br>Farmington MN, 55024<br>United States                                                         | Electronic Service |                           | No                | Official CC Service List 1 |
| 25 | Katherine   | Hinderlie | katherine.hinderlie@ag.state.mn.us   |                                                    | Office of the Attorney General - Residential            | 445 Minnesota St Suite 1400<br>St. Paul MN,                                                                      | Electronic Service |                           | No                | Official CC Service List 1 |

| #  | First Name | Last Name        | Email                             | Organization                        | Agency             | Address                                                                       | Delivery Method    | Alternate Delivery Method | View Trade Secret | Service List Name          |
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|    |            |                  |                                   |                                     | Utilities Division | 55101-2134<br>United States                                                   |                    |                           |                   |                            |
| 26 | Michael    | Hoppe            | lu23@ibew23.org                   | Local Union 23, I.B.E.W.            |                    | 445 Etna Street<br>Ste. 61<br>St. Paul MN,<br>55106<br>United States          | Electronic Service |                           | No                | Official CC Service List 1 |
| 27 | Alan       | Jenkins          | aj@jenkinsatlaw.com               | Jenkins at Law                      |                    | 2950 Yellowtail Ave.<br>Marathon FL,<br>33050<br>United States                | Electronic Service |                           | No                | Official CC Service List 1 |
| 28 | Richard    | Johnson          | rickjohnson@cozen.com             | Cozen O'Connor                      |                    | 150 S. 5th Street<br>Suite 1200<br>Minneapolis MN, 55402<br>United States     | Electronic Service |                           | No                | Official CC Service List 1 |
| 29 | Sarah      | Johnson Phillips | sjphillips@stoel.com              | Stoel Rives LLP                     |                    | 33 South Sixth Street<br>Suite 4200<br>Minneapolis MN, 55402<br>United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 30 | Michael    | Krikava          | mkrikava@taftlaw.com              | Taft Stettinius & Hollister LLP     |                    | 2200 IDS Center<br>80 S 8th St<br>Minneapolis MN, 55402<br>United States      | Electronic Service |                           | No                | Official CC Service List 1 |
| 31 | Carmel     | Laney            | carmel.laney@stoel.com            | Stoel Rives LLP                     |                    | 33 South Sixth Street<br>Suite 4200<br>Minneapolis MN, 55402<br>United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 32 | Amber      | Lee              | amber.lee@stoel.com               | Stoel Rives LLP                     |                    | 33 S. 6th Street<br>Suite 4200<br>Minneapolis MN, 55402<br>United States      | Electronic Service |                           | No                | Official CC Service List 1 |
| 33 | Annie      | Levenson Falk    | annielf@cubminnesota.org          | Citizens Utility Board of Minnesota |                    | 332 Minnesota Street, Suite W1360<br>St. Paul MN,<br>55101<br>United States   | Electronic Service |                           | No                | Official CC Service List 1 |
| 34 | Alice      | Madden           | alice@communitypowermn.org        | Community Power                     |                    | 2720 E 22nd St<br>Minneapolis MN, 55406<br>United States                      | Electronic Service |                           | No                | Official CC Service List 1 |
| 35 | Kavita     | Maini            | kmaini@wi.rr.com                  | KM Energy Consulting, LLC           |                    | 961 N Lost Woods Rd<br>Oconomowoc WI, 53066<br>United States                  | Electronic Service |                           | No                | Official CC Service List 1 |
| 36 | Christine  | Marquis          | regulatory.records@xcelenergy.com | Xcel Energy                         |                    | 414 Nicollet Mall<br>MN1180-07-MCA<br>Minneapolis MN, 55401<br>United States  | Electronic Service |                           | No                | Official CC Service List 1 |

| #  | First Name     | Last Name                      | Email                                | Organization                         | Agency                                                          | Address                                                               | Delivery Method    | Alternate Delivery Method | View Trade Secret | Service List Name          |
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| 37 | Greg           | Merz                           | greg.merz@ag.state.mn.us             |                                      | Office of the Attorney General - Department of Commerce         | 445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States      | Electronic Service |                           | No                | Official CC Service List 1 |
| 38 | Kimberly       | Middendorf                     | kimberly.middendorf@state.mn.us      |                                      | Office of Administrative Hearings                               | PO Box 64620 600 Robert St N Saint Paul MN, 55164-0620 United States  | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 39 | Andrew         | Moratzka                       | andrew.moratzka@stoel.com            | Stoel Rives LLP                      |                                                                 | 33 South Sixth St Ste 4200 Minneapolis MN, 55402 United States        | Electronic Service |                           | No                | Official CC Service List 1 |
| 40 | David          | Niles                          | david.niles@avantenergy.com          | Minnesota Municipal Power Agency     |                                                                 | 220 South Sixth Street Suite 1300 Minneapolis MN, 55402 United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 41 | Carol A.       | Overland                       | overland@legalelectric.org           | Legalelectric - Overland Law Office  |                                                                 | 1110 West Avenue Red Wing MN, 55066 United States                     | Electronic Service |                           | No                | Official CC Service List 1 |
| 42 | Generic Notice | Residential Utilities Division | residential.utilities@ag.state.mn.us |                                      | Office of the Attorney General - Residential Utilities Division | 1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 43 | Kevin          | Reuther                        | kreuther@mncenter.org                | MN Center for Environmental Advocacy |                                                                 | 26 E Exchange St, Ste 206 St. Paul MN, 55101-1667 United States       | Electronic Service |                           | No                | Official CC Service List 1 |
| 44 | Joseph L       | Sathe                          | jsathe@kennedy-graven.com            | Kennedy & Graven, Chartered          |                                                                 | 150 S 5th St Ste 700 Minneapolis MN, 55402 United States              | Electronic Service |                           | No                | Official CC Service List 1 |
| 45 | Elizabeth      | Schmiesing                     | eschmiesing@winthrop.com             | Winthrop & Weinstine, P.A.           |                                                                 | 225 South Sixth Street Suite 3500 Minneapolis MN, 55402 United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 46 | Peter          | Scholtz                        | peter.scholtz@ag.state.mn.us         |                                      | Office of the Attorney General - Residential Utilities Division | Suite 1400 445 Minnesota Street St. Paul MN, 55101-2131 United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 47 | Janet          | Shaddix Elling                 | jshaddix@janetshaddix.com            | Shaddix And Associates               |                                                                 | 7400 Lyndale Ave S Ste 190 Richfield MN, 55423 United States          | Electronic Service |                           | Yes               | Official CC Service List 1 |
| 48 | Joshua         | Smith                          | joshua.smith@sierraclub.org          |                                      |                                                                 | 85 Second St FL 2 San Francisco CA, 94105 United States               | Electronic Service |                           | No                | Official CC Service List 1 |

| #  | First Name | Last Name | Email                         | Organization                  | Agency | Address                                                                      | Delivery Method    | Alternate Delivery Method | View Trade Secret | Service List Name          |
|----|------------|-----------|-------------------------------|-------------------------------|--------|------------------------------------------------------------------------------|--------------------|---------------------------|-------------------|----------------------------|
| 49 | Ken        | Smith     | ken.smith@districtenergy.com  | District Energy St. Paul Inc. |        | 76 W Kellogg Blvd<br>St. Paul MN, 55102<br>United States                     | Electronic Service |                           | No                | Official CC Service List 1 |
| 50 | Beth       | Soholt    | bsoholt@cleangridalliance.org | Clean Grid Alliance           |        | 570 Asbury Street Suite 201<br>St. Paul MN, 55104<br>United States           | Electronic Service |                           | No                | Official CC Service List 1 |
| 51 | Byron E.   | Starns    | byron.starns@stinson.com      | STINSON LLP                   |        | 50 S 6th St Ste 2600<br>Minneapolis MN, 55402<br>United States               | Electronic Service |                           | No                | Official CC Service List 1 |
| 52 | James M    | Strommen  | jstrommen@kennedy-graven.com  | Kennedy & Graven, Chartered   |        | 150 S 5th St Ste 700<br>Minneapolis MN, 55402<br>United States               | Electronic Service |                           | No                | Official CC Service List 1 |
| 53 | Eric       | Swanson   | eswanson@winthrop.com         | Winthrop & Weinstine, P.A.    |        | 225 6th St Ste 3500<br>Minneapolis MN, 55402<br>United States                | Electronic Service |                           | No                | Official CC Service List 1 |
| 54 | Joseph     | Windler   | jwindler@winthrop.com         | Winthrop & Weinstine          |        | 225 South Sixth Street, Suite 3500<br>Minneapolis MN, 55402<br>United States | Electronic Service |                           | No                | Official CC Service List 1 |
| 55 | Kurt       | Zimmerman | kwz@ibew160.org               | Local Union #160, IBEW        |        | 2909 Anthony Ln<br>St Anthony Village MN, 55418-3238<br>United States        | Electronic Service |                           | No                | Official CC Service List 1 |