![Minnesota Public Utilities Commission logo]

# Staff Briefing Papers

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| **Meeting Date** | **Thursday August 22, 2024** | **Agenda Item \*\*1** |

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| Company | Northern States Power Co. d/b/a Xcel Energy |
| Docket No. | E002/M-23-466 |

**In the Matter of Xcel Energy's 2023 Hosting Capacity Report Under Minn. Stat. §216B.2425, Subd. 8**

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|---|---|
| Issues | Should the Commission accept or take some other action on Xcel Energy's 2023 Hosting Capacity Analysis Report? |

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|---|---|---|---|
| Staff | Derek Duran | Derek.Duran@state.mn.us | 651-201-2206 |

✓**Relevant Documents** **Date**

| | |
|---|---|
| Xcel – Hosting Capacity Program Report with Attachments | November 1, 2023 |
| Xcel – Cover Letter and Attachment A (FTSRS BCA) | December 22, 2023 |
| Xcel – Response to Information Requests | February 16, 2024 |
| Joint Solar Commenters (JSC) – Initial Comments | March 6, 2024 |
| Xcel Response to Information Requests (Supplement) | March 20, 2024 |
| Department of Commerce (the Department) – Initial Comments | March 20, 2024 |
| Xcel – Reply Comments | March 20, 2024 |
| Xcel – Response to Reply Comments | March 28, 2024 |
| Xcel – Compliance Filing Quarterly Update | May 1, 2024 |

Staff Briefing Papers for Docket No. **E002/M-23-466**

## I.        Background

The Electric Power Research Institute (EPRI) defines hosting capacity as the amount of distributed energy resources (DER) that can be accommodated on the existing system without adversely affecting power quality or reliability under existing control configurations and without requiring infrastructure upgrades.[1]  A Hosting Capacity Analysis (HCA) evaluates a utility's distribution system to find locations where DER may interconnect, as well as mitigation measures that might enhance the distribution system's capacity to accommodate interconnection.

Minn. Stat. § 216B.2425, subd. 8, directs a public utility that is subject to the statute and operating under a multi-year rate plan to "... conduct a distribution study to identify interconnection points on its distribution system for small-scale distributed generation resources and shall identify necessary distribution upgrades to support the continued development of distributed generation resources...."

Under the statute, the study must be conducted biennially (odd-numbered years) and included in the utility's biennial transmission projects report. Xcel has agreed to conduct and file the study annually. Xcel files the HCA Report on the same due date as the biennial report (November 1), however, it is filed as a stand-alone report from the biennial transmission projects report as authorized by the Commission in the 2018 HCA Order.[2]

*Past and Current HCA Reports and Commission Orders*

| Report Year (Filing Year) | Docket No. | Initial Filing (Filing Link) | PUC Order Date (Order Link) |
|---|---|---|---|
| 2023 | E002/M-23-466 | 2023 HCA Report | |
| 2022 | E002/M-22-574 | 2022 HCA Report | 2023 HCA Order – September 15, 2023 |
| 2021 | E002/M-21-767 | 2021 HCA Report | 2022 HCA Order - September 9, 2022 |
| 2020 | E002/M-20-812 | 2020 HCA Report | 2021 HCA Order - November 9, 2021 |
| 2019 | E002/M-19-685 | 2019 HCA Report | 2020 HCA Order – July 31, 2020 |
| 2018 | E002/M-18-684 | 2018 HCA Report | 2019 HCA Order – August 1, 2019 |
| 2017 | E002/M-17-777 | 2017 HCA Report | 2018 HCA Order – July 19, 2018 |
| 2015 | E002/M-15-962 | 2016 HCA Report | 2017 HCA Order – August 1, 2017 |

On November 1, 2023, Xcel filed its 2023 Hosting Capacity Report, including attachments B, C, and D.

On December 20, 2023, the PUC issued a Notice of Comment Period.

On December 22, 2023 Xcel filed a Cover Letter and Attachment.

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[1]  EPRI, Impact Factors, Methods and Considerations for Calculating and Applying Hosting Capacity, 2018 Technical Update, at v.
[2]  See Order Point 8, July 19, 2018, Order Accepting Study and Setting Further Filing Requirements

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On February 16, 2024, the PUC issued Information Requests (IR) of Xcel.

On March 6, 2024, the Joint Solar Commenters filed initial comments. The Joint Solar Commenters include the Institute for Local Self-Reliance (ILSR), MnSEIA, and Cooperative Energy Futures (CEF).

On March 20, 2024, Xcel Energy and the Department filed reply comments. Xcel also filed a supplement to their previous IR response.

On March 28, 2024, Xcel Energy filed a response to the reply comment.

In the September 15 2024, Commission Order, Xcel was required to pursue the Monthly Updates use case, provide a more robust benefit-cost analysis on the Fast Track Supplemental Review Screen (FTSRS) use case, provide information on its historical and future costs, indicate where it will recover costs from, and employ a net loading methodology consistent with other Company planning processes for its Load-HCA.

**Acronyms**

| | |
|---|---|
| ADMS | Advanced Distribution Management System |
| BCA | Benefit-Cost Analysis |
| CEUD | Customer Energy Usage Data |
| CI | Critical Infrastructure |
| CIM | Common Information Model |
| CRS | Customer Resource System |
| DER | Distributed Energy Resource |
| DGWG | Distributed Generation Working Group |
| DML | Daytime Minimum Load |
| DRIVE | Distribution Resource Integration and Value Estimation |
| EPS | Electric Power System |
| FTSRS | Fast Track Supplemental Review Screen |
| Gen-HCA | Generation Hosting Capacity Analysis |
| GIS | Geographic Information System |
| HCA | Hosting Capacity Analysis |
| Load-HCA | Load Hosting Capacity Analysis |
| MN DIP | Minnesota DER Interconnection Process |
| PADR | Pre-Application Data Reports |
| TPS | Technical Planning Standard |
| VSR | Voltage Supervisory Reclosing |

## II.      Introduction and Overview

Xcel submits its Hosting Capacity Analysis report annually to the Commission. The report summarizes available hosting capacity for distributed energy resources, improvements or changes to the way Xcel conducts the analysis, and forward-looking improvements and areas where the Company seeks input from stakeholders and the Commission on how to proceed. The major questions before the Commission are whether Xcel should continue conducting the Load-HCA going forward (Decision Options 2 or 3) and whether Xcel should proceed with the Fast Track Supplemental Review Screen (FTSRS) use case (Decision Option 5).

## III.     HCA Requirements

Xcel has been tasked with HCA-related requirements which Staff has compiled in Table 1. Staff notes that the Department has filed and submitted these tables in the past with its own determination if Xcel has complied with the respective ordering paragraphs but did not do so with this latest Commission Order and HCA Report. Joint Solar Commenters (JSC) supports approval of the 2023 HCA report.[3]  Staff is unclear whether the Department recommends the Commission approve Xcel's 2023 HCA report. Staff supports approval of the 2023 HCA report.

Table 1: 2023 Commission Order Description and Location in 2023 HCA Report

| Authority | Description | Location |
|---|---|---|
| **2023 HCA Order** | | |
| **Ordering Paragraph 2** | Xcel shall pursue implementation of the Monthly Updates use case | 2023 Hosting Capacity Program Summary, Section V.A. |
| **Ordering Paragraph 3** | Xcel shall provide information related to the Modeling Software Review RFP in a future cost recovery request proceeding. | N/A |
| **Ordering Paragraph 4** | Xcel shall provide more robust cost-benefit analysis for the FTSRS use case. This analysis should include benefits to developers derived from consultations with external stakeholders and whether Xcel could gain monetary savings by using internal labor to conduct the FTSRS. | Preliminary results are in the 2023 Hosting Capacity Program Summary, Section V.5.1. |
| **Ordering Paragraph 5** | Xcel shall provide the following information in its cost recovery request for any investment Xcel makes in its | 2023 Hosting Capacity Program Summary, Section IV.B. |

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[3]  Joint Solar Commenters, Initial, P. 1, March 6, 2024

| | HCA and requests cost recovery for in a future TCR Rider proceeding:<br>  a.  the functionality of the investment(s)<br>  b.  analysis of alternatives to the investment(s)<br>  c.  clearly identifiable costs and benefits of the investment(s)<br>  d.  a comparison between scenarios that illustrates the impact that the investment(s) is/are expected to have. | a-d: N/A |
|---|---|---|
| **Ordering Paragraph 6** | In future HCA annual reports, Xcel shall do the following:<br><br>  a.  provide all actual historical and all future estimated costs related to the hosting capacity analysis broken down by cost type.<br>  b.  indicate where HCA costs are recovered from or where it proposes to recover the costs from.<br>  c.  employ a net load methodology consistent with other Company planning processes for its Load-HCA. | 6a. 2023 HCA Report – Summary – Table 6 at Page 25.<br><br>6b. 2023 Hosting Capacity Program Summary Section IV.B.<br><br>6c. Attachment A - 2023 Hosting Capacity Analysis Report Section II.B. |

## IV.     2023 Generation HCA Report Summary

### A.      Methodology Changes

The method for determining hosting capacity is summarized in the following steps for both the Gen-HCA and Load-HCA and remains largely unchanged from Xcel's 2022 Hosting Capacity Analysis Report. Xcel summarized this process in five steps: 1) Determine Feeder Models to Update, 2) Develop Feeder Models, 3) Perform Analysis with DRIVE, 4) Compile and Review Results for Accuracy, and 5) Apply Additional Limiting Criteria.

In determining which feeders to update, Xcel chooses any feeder that meets one of the following criteria:

- Aggregate load change of 500 kW or more.
- Aggregate DER generation change of 100 kW or greater.
- Other significant changes (known large capacity projects, feeder reconfigurations, load transfers, and similar).
- [New for 2024] Change in the feeder's rated capacity.

- At least one update per feeder in each annual reporting cycle.

Since the last HCA Report, Xcel states that EPRI has changed its terminology to use "constraining metric" rather than "limiting criterion" and Xcel has made this terminology change as well. Additionally, Xcel identifies the following notable changes to their methodology in their 2023 Hosting Capacity Analysis Report

*DRIVE Version Upgrade:*
The Electric Power Research Institute (EPRI) released an update to their DRIVE tool, version 4.2.0 which Xcel acquired and began implementation in February 2023. The Company states that the new version provides a simplified interface and minor efficiency improvements.

*TPS Capacity Utilization (Gen-HCA):*
Xcel states this constraining metric, which they began utilizing on November 1, 2023, accounts for the remaining capacity on a feeder considering the TPS value on the feeder, meaning the available hosting capacity is shown only up to the remaining TPS value.

*Native Capacity Utilization (Load-HCA):*
Xcel state that this "new constraining metric accounts for the remaining capacity on a feeder based on the rated capacity and Demand."[4]   The Company explains that the remaining available rated capacity will be used as the hosting capacity value for a feeder even if a DRIVE result shows more hosting capacity than is allowable via the rated capacity for a feeder.

*Feeder NLS (Native Loading Standard) (Load-HCA)*:
Xcel states that the Feeder NLS will now be listed in a separate column in the Load-HCA results rather than as explicit constraining metric. The Company adds that "this will indicate to customers when an upgrade project may be required for interconnection on certain feeders" and "Native Capacity Utilization…will now be used as a constraining metric alongside other constraining metrics assessed by DRIVE."

*Feeder Capacity Rating:*
Starting in February 2024, Xcel will now update a feeder model if there has been a change in the feeder's normal rated capacity since the last quarterly HCA update.

B.   **HCA Results**

Xcel provides the following table as a summary of the 2023 Gen-HCA Results

Table 2: Gen-HCA 2023 Results Summary

| Item | Feb 2023 | May 2023 | Aug 2023 | Nov 2023 (current) |
|---|---|---|---|---|
| **Data Cutoff Date** | 10/31/2022 | 1/31/2023 | 5/31/2023 | 7/31/2023 |

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[4]  Xcel. 2023 Hosting Capacity Report, P. 6, November 1, 2024

| | | | | |
|---|---|---|---|---|
| **Number of feeders included in the annual analysis** | 1,053 | 1,053 | 1,053 | 1,053 |
| **Percent of feeders updated** | 26% | 20% | 35% | 24% |
| **Feeders with zero maximum hosting capacity, and** | 148 | 148 | 130 | 114 |
| - **Those with at least 1 MW of existing DER** | 103 | 103 | 91 | 76 |
| **Number of feeders with actual Daytime Minimum Load** | 907 | 907 | 937 | 934 |
| **Number of feeders with VSR installed** | 111 | 111 | 111 | 117 |

Xcel notes that the Company saw a decrease in 16 feeders with zero maximum hosting capacity (130 to 114) in November and that out of the 114 feeders with zero maximum hosting capacity, 45 feeders had no capacity due to the Feeder TPS, which is a number that has not changed since the August 2023 update.

Xcel also provided Table 3, listing a summary of the limiting criteria for their feeders for both minimum and maximum hosting capacity, defining each term as follows:

- Minimum Hosting Capacity: The maximum amount of DER that can be accommodated anywhere on the feeder. Most often at the end of the feeder.
- Maximum Hosting Capacity: The maximum amount of DER that can be accommodated at a single point on the feeder. Most often closer to the substation.

Table 3: Number of Feeders Limited by Each Metrix for Min and Max Hosting Capacity (Generation)

| Constraining Metric | # Feeders Min Hosting Capacity | # Feeders Max Hosting Capacity |
|---|---|---|
| **Primary Over-Voltage** | 192 | 63 |
| **Primary Voltage Deviation** | 0 | 0 |
| **Regulator Voltage Deviation** | 0 | 0 |
| **Thermal Discharging** | 428 | 10 |
| **Additional Element Fault** | 1 | 1 |
| **Breaker Relay Reduction of Reach** | 9 | 77 |
| **Unintentional Islanding** | 374 | 840 |

| | | |
|---|---|---|
| **Feeder Technical Planning Standard** | 45 | 45 |
| **TPS Capacity Utilization** | 4 | 17 |

**Workshop/Stakeholder Engagement**

Xcel hosted a workshop on January 20, 2023 to raise awareness of the tools and data the Company provides for interconnections and educate developers and other users about effectively using these tools and data as well as "best practice for developers seeking interconnection is to consult the Hosting Capacity Map and the Monthly DER Queue Report to glean insight into what capacity and wait-times might be like before proceeding with the Pre-Application Data Report."[5]  Xcel states they were able to answer many questions posed by participants and filed an attachment into Docket No. E002/M-22-574 on March 7, 2023 with the answers to those questions included.

The Company hosted a Load-HCA workshop on September 7, 2023 to present the tabular results and share "best practices for utilizing them in conjunction with the Gen-HCA results and other valuable interconnection tools and resources."[6]

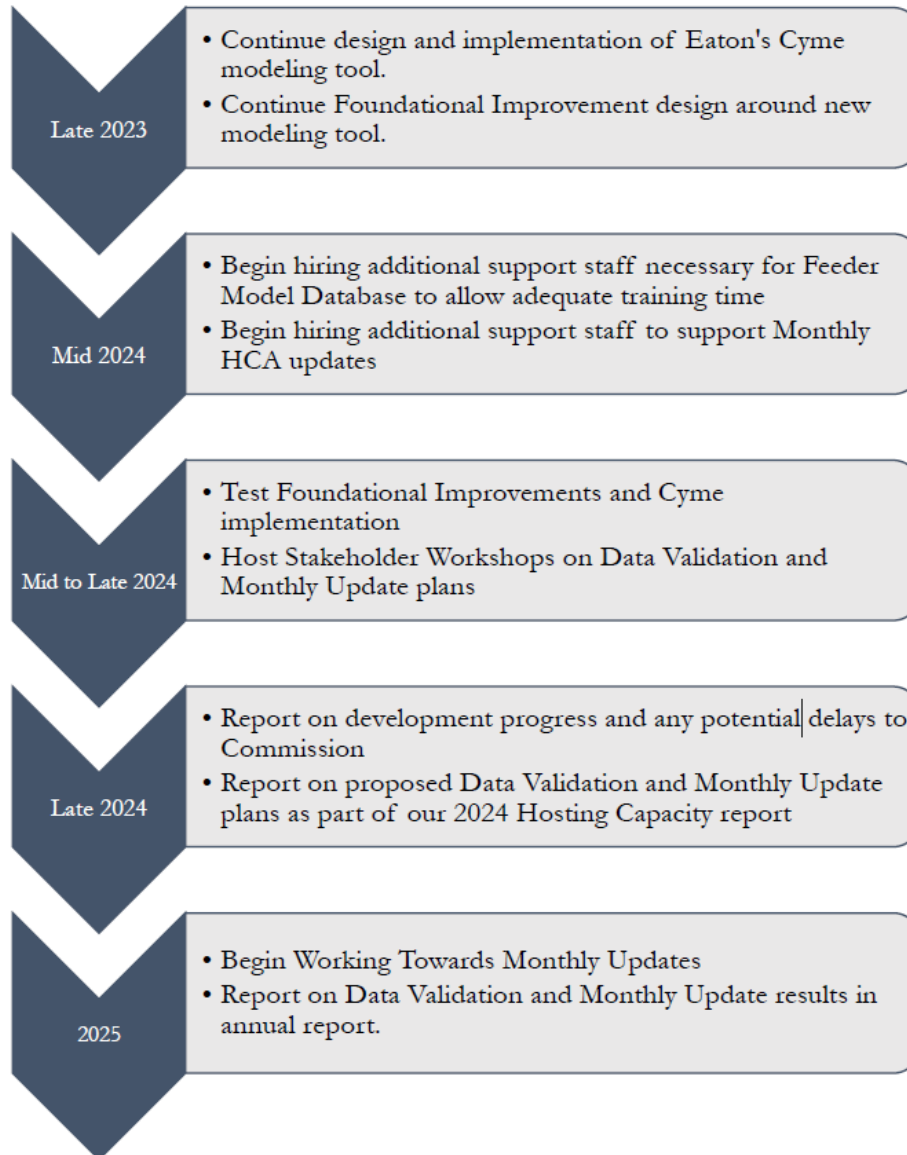## V.      Road Map Update and Future Use Cases

### A.      Monthly Updates

Xcel states that the Company is on track to have implemented its "Foundation Improvements", a suite of improvements discussed in the 2022 HCA Report, by the end of 2024. The implementation of the foundational improvements was a prerequisite for a few future use cases, including the transition to monthly updates to the HCA. Xcel plans on working toward Monthly Updates in 2025 once the foundational improvements are fully implemented. Figure 1 details the Company's schedule of implementation.

Figure 1 – Foundational Improvements and Monthly Updates Road Map

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[5]  Xcel. 2023 Hosting Capacity Report, P. 22 November 1, 2024
[6]  Xcel. 2023 Hosting Capacity Report, P. 23 November 1, 2024

**Late 2023**
- Continue design and implementation of Eaton's Cyme modeling tool.
- Continue Foundational Improvement design around new modeling tool.

**Mid 2024**
- Begin hiring additional support staff necessary for Feeder Model Database to allow adequate training time
- Begin hiring additional support staff to support Monthly HCA updates

**Mid to Late 2024**
- Test Foundational Improvements and Cyme implementation
- Host Stakeholder Workshops on Data Validation and Monthly Update plans

**Late 2024**
- Report on development progress and any potential delays to Commission
- Report on proposed Data Validation and Monthly Update plans as part of our 2024 Hosting Capacity report

**2025**
- Begin Working Towards Monthly Updates
- Report on Data Validation and Monthly Update results in annual report.

### i. Party Comments

The Department - Reply

The Department states that "no quantitative or qualitative CBA has been performed on the … monthly hosting capacity updates to demonstrate such a process would be reasonable" and recommends the Commission "obtain better information regarding the costs and benefits of increased frequency before requiring monthly hosting capacity updates."[7]

Xcel Reply and Response to Reply

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[7] The Department, Reply, P. 8, March 20, 2024

In the response to the reply comments Xcel points out that the Department agreed to Monthly Updates use case in the last HCA report and that the Commission ordered the Company to pursue the use case in its September 15, 2023 Order in Docket No. E002/M-22-574.[8]

### B.    Dynamic Hosting Capacity

Xcel says that the next step in the HCA progression after implementing the monthly updates use case is exploring incorporation of 8,760 time-series analysis, which would provide insight into hosting capacity constraints as well as how much of the year those constraints are present. The Company states that its long-term vision for the HCA is to move to dynamic analysis which would provide updates on a near real-time basis. Xcel relays that this will require continued improvement of input data and significant improvement and automation of modeling processes but that the goal would "eliminate most process lag and ensure that the data shown on the hosting capacity map is as up to date as possible." Xcel notes that they are not aware of any utilities that use dynamic hosting capacity so will not have any examples to draw upon for guidance and will not have much indication regarding the feasibility and cost of the program in time and money.[9]

## VI.    Fast Track Supplemental Review Screen (FTSRS)

The September 2023 Commission Order required Xcel to provide a more "robust CBA for the FTSRS" use case and should include potential benefits to developers derived from consultations with external stakeholders. On October 2, 2023, Xcel hosted a FTSRS use case workshop to "discuss the potential benefits of the FTSRS use case and to obtain input from potential uses on how they would value those benefits for use in a CBA."[10]  The Company states that the workshop gave a brief overview of the FTSRS use case, its plans for a user-pays recovery plan, and included several opportunities for participants to ask questions and offer input. Xcel also conducted several polls, which had been sent prior to the workshop, aimed at obtaining information about their willingness to pay and perceived monetary value of the FTSRS use case to developers.

Xcel states that only five workshop participants responded to at least one of the poll questions during the workshop and zero responses were gathered after the survey was distributed after the workshop. Xcel contends that this level of participation suggests that "there is not much interest on behalf of developers in the FTSRS use case."[11]  Table 4 below summarizes the poll responses.

Table 4: FTSRS Developer Survey Responses

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[8]  Xcel Energy, Response to Replies, P. 1, March 28, 2024
[9]  Xcel Energy, 2023 Hosting Capacity Report, P. 34, November 1, 2024
[10]  Xcel Energy, 2023 Hosting Capacity Report, P. 24 November 1, 2024
[11]  Xcel Energy, 2023 Hosting Capacity Report, P. 24 November 1, 2024

| | Question 1 | Question 2 | Question 3 | Question 4 | Question 5 | Question 6 |
|---|---|---|---|---|---|---|
| | How many DER applications, on average, does your organization submit on an annual basis to Xcel Energy in MN? | Of those DER applications submitted, how many go through the supplemental review screen? | How much more in application fees would your organization be willing to pay per application if results were achieved 10 business days faster? | How much more in application fees would your organization be willing to pay per application if results were achieved 5 business days faster? | What would the cost savings per application be to your organization if Xcel Energy completed the review process 10 business days faster? | What would the cost savings per application be to your organization if Xcel Energy completed the review process 5 business days faster? |
| 1 | 30 | 3 | $50 (total $250) | $100 (total $300) | x | x |
| 2 | 150 | 15 | $0 (total $200) | $0 (total $200) | x | I don't know how to monetize these changes. |
| 3 | 50 | 10 | $250 (total $450) | $100 (total $300) | x | X |
| 4 | 12 | 1 | $250 (total $450) | $100 (total $300) | x | 100 |
| 5 | x | x | x | $0 (total $200) | x | X |

Xcel notes that due to the low level of responses they had to make some assumptions in their CBA that may not have great levels of certainty, such as using a likely value of $175 per application to represent developer benefit of the FTSRS use case which they believe may be an overestimate.[12]

*Proposed Cost Recovery Plan for FTSRS Use Case*

Xcel proposed a cost recovery method that would have the beneficiaries of the FTSRS use case also pay for the required investments over time. The Company estimates the use case implementation to cost $1.42 million and considered several return periods to pay for the cost based on the cost of an individual supplement review screen. Xcel assumed 1,068 supplemental review screens per year, using 2022 Hosting Capacity Program data. The additional cost per

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[12] Xcel Energy, Cover Letter, P. 5, December 22, 2023

application given a certain return period can be seen in Table 5. Xcel notes that these numbers do not include the $200 fee that is associated with the labor expenses of the review itself.

Table 5: Additional Cost per Application by Return Period

| Return Period | Additional Cost per Application |
|---|---|
| 3 Years | $443.20 |
| 4 Years | $332.40 |
| 5 Years | $265.92 |
| 6 Years | $221.60 |
| 7 Years | $189.94 |
| 8 Years | $166.20 |
| 9 Years | $147.73 |

Xcel determined that if the FTSRS use case were to go forward, a five-to-seven-year return period would be appropriate as it is typical for software depreciation. This translates to an additional fee between $189.94 and $265.92 per supplemental review. Xcel states that it will be exploring whether the FTSRS use case will be applicable and useable in other jurisdictions which could bring down the cost per application.[13]

*Cost Benefit Ratio*

In conducting its CBA, assuming a $175 worth of value per application to developer at about 1,000 per year and comparing that to the cost of implementing the FTSRS use case, Xcel determined that 90 percent of the time the cost-benefit ratio was 0.92 or less, meaning the costs were greater than the benefits to developers. However, Xcel did find that the margin of error for the CBA was greater than 42 percent due to the low response number from developers.[14]

Xcel does note that the CBA does not capture all costs and benefits as benefits such as increased customer satisfaction due to time savings is not easily quantifiable. However, the Company notes that the time savings is "potential" and not guaranteed either and can be reduced during application surges.

*Internal vs Contract Labor*

Xcel also briefly discussed using contract labor for the review screens compared to using internal labor. Xcel stated that they currently use contracted consultants that charge the Company on an hourly basis and that the time spent per application can fluctuate but that historically the company has spent $214,000 per year on this labor. In looking at the option of bringing this process internally Xcel says it would cost "approximately $600,000, which is less

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[13]  Xcel. 2023 Hosting Capacity Report, P. 33 November 1, 2024
[14]  Xcel Energy, Cover Letter, P. 5, December 22, 2023

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than we have historically spent on contract labor for these screens."[15]  Xcel states that using hourly contract labor is better as the volume of the applications fluctuates throughout the year. The Company admits that in theory costs could go down if part of the process is automated with FTSRS, but they don't have any data to support this. Staff discusses this further in Section IX below.

### i.    Party Comments

Joint Solar Commenters

The JSC states that it appears that the FTSRS use case costs exceed the perceived benefits.[16] JSC proffers that it is "perhaps advisable for Xcel to determine ways to reduce the costs of implementing the FTSRS and/or increase the benefits" and that if the developers are asked to pay for the implementation of the FTSRS use case, the Company needs to "create internal cost centers specifically for this case, as it has failed to do for the HCA."[17]

The Department – Reply Comments

In response to JSC not being able to state how the FTSRS could be improved, the Department agrees with Xcel that the lack of interest indicates that the FTSRS "is not useful to developers and should not be pursued further."[18]

Xcel Energy – Reply Comments

Xcel reiterates in their reply comments that the Company received very little engagement and feedback from developers on the FTSRS use case and believe that the lack of interest means that it would not be prudent to continue devoting resources to this use case. Xcel notes that if the Commission would like to continue discussing the FTSRS use case Xcel recommends postponing the conversation until after its ongoing improvements and modeling tools are complete.[19]

## VII.    Hosting Capacity Program Costs

Xcel was required to provide the historic costs and future estimate costs for the Hosting Capacity Program as part of the 2023 Order. Xcel provides Table 6 below listing their historical expenditures, noting that their internal labor is estimated as they do not have internal cost centers specifically for hosting capacity-related work.

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[15]  Xcel Energy, Cover Letter, P. 6, December 22, 2023

[16]  Joint Solar Commenters, Initial, P. 3, March 6, 2024

[17]  Joint Solar Commenters, Initial, P. 3, March 6, 2024

[18]  The Department, Reply, P. 5, March 20, 2024

[19]  Xcel Energy, Reply, P. 8, March 20, 2024

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Table 6 Estimated Historic Spend on the Hosting Capacity Program Since Inception

| Year | Internal Labor | External Labor | Support (Regulatory and Legal) | Other Expenses | Total |
|------|------|------|------|------|------|
| **2016** | $146,000 | $0 | $44,000 | $260,000 | $450,000 |
| **2017** | $150,000 | $0 | $39,000 | $10,000 | $199,000 |
| **2018** | $150,000 | $0 | $39,000 | $60,000 | $249,000 |
| **2019** | $150,000 | $0 | $44,000 | $10,000 | $204,000 |
| **2020** | $150,000 | $0 | $54,000 | $10,000 | $214,000 |
| **2021** | $125,000 | $50,000 | $39,000 | $10,000 | $224,000 |
| **2022** | $179,000 | $105,000 | $60,000 | $10,000 | $354,000 |
| **2023** | $183,000 | $97,000 | $49,000 | $10,000 | $339,000 |

Where:
- Internal Labor includes the estimated costs associated with one Engineer and one Geospatial Specialist to process the results and generate the Gen-HCA heat map.
- External Labor includes the actual costs attributed to Xcel's consulting engineer firm assisting with the HCA starting in 2021.
- Support includes the known or estimated amount of time spent by the Company's Regulatory, Legal, and Engineering staff for hosting stakeholder workshops, responding to information requests, preparing quarterly updates, and preparing annual filings and the associated hearings.
- Other Expenses includes actual expenses for acquiring DRIVE (one time in 2016) and the cost to participate in EPRI's User Group dedicated to improving DRIVE (annual). This also includes an additional cost in 2018 to perform a separate study, required by the Commission, for investigating feeders with zero available hosting capacity.

Xcel's estimated future costs for 2024 are included in Table 7.

Table 7 Estimated Future Spend on Hosting Capacity Program (Quarterly Updates Only)

| Year | Internal Labor | External Labor | Support (Regulatory and Legal) | Other Expenses | Total |
|------|------|------|------|------|------|
| **2024** | $141,000 | $102,000 | $44,000 | $10,000 | $297,000 |

Xcel separates 2024 from 2025 and other future years as 2024 is the last year that Xcel plans to have quarterly updates for the HCA, after which the Company plans to transition to monthly updates which incurs a more distinct set of expenses.

Xcel's estimate future costs for 2025 through 2028 where the Company has begun its monthly updates of the HCA are listed in Table 8. Xcel plans to run the HCA completely in house with the monthly updates so will not require external labor.

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Table 8 Estimated Future Spend on Hosting Capacity Program (Monthly Updates)

| Year | Internal Labor | Support (Regulatory and Legal) | Other Expenses | Total |
|------|----------------|-------------------------------|----------------|-------|
| 2025 | $861,000 | $44,000 | $10,000 | $915,000 |
| 2026 | $861,000 | $44,000 | $10,000 | $915,000 |
| 2027 | $861,000 | $44,000 | $10,000 | $915,000 |
| 2028 | $861,000 | $44,000 | $10,000 | $915,000 |

Xcel notes that under quarterly updates (table 7), 1,053 feeders would be updated at least once each year while under monthly updates (table 8), those same 1,053 feeders would be updated every month for a total of 12,660 feeder updates. Likewise, monthly updates will require nearly 10,000 hours of engineering and geospatial labor annually compared to 4,300 hours under the current quarterly process.[20]

### i. Party Comments

Joint Solar Commenters - Initial

JSC states that Xcel failed to provide actual historical expenditures as requested.[21]

The Department - Reply

The Department believes that Xcel has complied with Order Point 6a which requires Xcel to provide a breakdown of historical costs related to the hosting capacity analysis. The Department states Table 6 provides the required historic costs by type.[22]

Xcel Energy - Reply

Xcel refutes JSC's claim that they failed to comply with Order Point 6a as they did provide all the actual expenditures available. Xcel notes that the Company does not have internal cost centers for hosting-capacity-related work and used estimates in their stead for the internal labor used to conduct the HCA.[23]

## VIII. Gen-HCA Miscellaneous

### A. HCA Errors / Potential Improvements

JSC notes that there are several errors in the HCA program, reporting typos in queue reports

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[20] Xcel, 2023 Hosting Capacity Report, P. 27, November 1, 2024
[21] Joint Solar Commenters, Initial, P. 2, March 6, 2024
[22] The Department, Reply, P. 5, March 20, 2024
[23] Xcel Energy, Reply, P. 9, March 20, 2024

and inconsistent substation names. JSC also notes that some feeders, RAM072 and AFT314, haven't been updated in over a year, and feeders APA061, MEL088, and SLP083 haven't been updated in nearly a full year.[24]  The Department agrees that these errors should be cleaned up.[25]

JSC states that monthly updates will be more useful for developers. They also point to other state HCA map features such as Hawaii which updates its Locational Value Maps nightly and California which provides hourly profiles in its monthly HCA which can allow developers to "design beneficial projects and avoid any capacity constraints."[26]

JSC offers that another potential improvement to the Gen-HCA would be to integrate the number of applications actively on hold and the number of applications in the queue going through review into the HCA map.[27]  JSC states that the public queue report is not very user friendly and poorly maintained for accuracy. In general, JSC finds the Gen-HCA Heat Map not very accessible to the general public to those without a high level of knowledge of the data and gives examples that many fields within the report provides values with no units, acronyms that are not explained, and technical terms that require a glossary or legend.

Additionally, where multiple limiting factors are found, JSC would like to see a prioritization of these factors to help stakeholders interpret grid conditions as well as "short descriptions of what types of remedies tend to be required to address various limiting factors."[28]  JSC states that while this wouldn't provide a cost estimate it would help them make more informed decisions when exploring a project's viability. JSC notes that while some areas of the grid are capacity constrained or "red", some of the upgrades are small and small enough to be within the cost constraints of the project. JSC's last suggestion is to make the map more colorblind-friendly.

### 1.      Party Comments

<u>Xcel Energy - Reply</u>

Regarding JSC's claims that some of the feeders hadn't been updated in almost a year, Xcel states that some feeders may only be updated once a year given their update criteria (found under Section IV.A of this briefing paper). Regarding the claim that some feeders, RAM072 and AFT314, hadn't been updated in over a year, Xcel notes that there was a dating error in their system. The Company notes that the tabular results and date are correct and the data on the heat map is correct but the date on the heat map is incorrect. This will be corrected in the May

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[24]   Joint Solar Commenters, Initial, P. 3, March 6, 2024

[25]   The Department, Reply, P. 7, March 20, 2024

[26]   Joint Solar Commenters, Initial, P. 3, March 6, 2024

[27]   Joint Solar Commenters, Initial, P. 3, March 6, 2024

[28]   Joint Solar Commenters, Initial, P. 5, March 6, 2024

2024 update.[29]

Regarding JSC's statement that there "are feeders whose results show available hosting capacity, yet customers are on-hold or vice versa" Xcel notes that the HCA is a snapshot in time of the system and meant to provide preliminary information on the feeders "and is one of the tools available for assisting with the initial stages of interconnecting generation to the distribution grid."[30]

Regarding including the queued and installed amount of DERs, Xcel states that this data is only updated when the feeder model is updated as part of the quarterly update process which can sometimes be once per year. Xcel suggests that the Public Queue Report be used for this information instead and that including this information in the map could cause further confusion.[31]

Regarding JSC's suggestion of making the guide more user-friendly and adding more information to pop-ups, Xcel remarks that they developed the Hosting Capacity How-To guide to instruct users on how to interact with the map and provide definitions for the terms listed in the pop-ups. Xcel states that this guide was developed specifically to avoid adding more information to the map and pop-ups as it was leading to a cluttered interface. The Company writes that they plan to expand on the guide to "include additional information on interpreting the results and common mitigation projects for the constraining metrics" and plan to have them as early as the May 2024 update.[32] Xcel notes that the guide can be found on their interconnection page of its website in the same location as the Public Queue Report and Tabular Results. Xcel notes that it plans on making the legend and color-scheme of the map more user-friendly in the May 2024 update.

### B. Secondary System Data

At the July 20, 2023, Agenda Meeting Xcel stated that there were gaps in its secondary system data and the Commission requested Xcel be specific about what information the Company did have and explanation for information gaps and path forward for improving records in the Notice of Comment Period on its 2023 HCA Report.

In its 2023 HCA Report, Xcel clarifies that it has comprehensive information on its secondary system in its GIS and that the information that is missing does not impact the Company's ability "to operate effectively or provide our customers with safe and reliable power or perform interconnection studies."[33] Xcel notes that their primary and secondary system data have been recorded on GIS maps since approximately 1995 and that digitization efforts of their paper

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[29] Xcel Energy, Reply, P. 7, March 20, 2024

[30] Xcel Energy, Reply, P. 7, March 20, 2024

[31] Xcel Energy, Reply, P. 5, March 20, 2024

[32] Xcel Energy, Reply, P. 5, March 20, 2024

[33] Xcel. 2023 Hosting Capacity Report, Attachment F, P. 1, November 1, 2024

maps were completed in the late 1990s.

Regarding missing data, Xcel details that approximately 21,000 secondary objects (out of 685,000 total secondary objects) have a missing data field, such as wire size or wire material.[34] Xcel notes that the information on service transformers is comprehensive. Xcel states that this represents 3 percent of their total secondary objects as indicating a missing data field.

Xcel notes that there are 165,433 customer pointers in the Minnesota service territory that do not have the ability to capture information on material or length. Xcel states that before NSP and New Century Energies, Inc merged in August 2000 it was common practice to map a customer pointer object rather than a service object (which can capture information material and length), but this practice was discontinued in 2000. Xcel believes this issue will resolve over time and does not have concerns regarding its electric service or reliability, but that this information would be needed if parts of the interconnection process were to be automated as more precise information would be needed (and was the premise behind the initial Asset Data Validation Initiative use case in prior HCA Reports that is not being pursued).[35]

Going forward, the Company states it will "continue to capture and catalog secondary system data", "utilize upcoming field software changes to capture crew observations and operations more efficiently" and may be able to "gather electrical equipment information from AMI data/DI agents" as well.[36]  Xcel also notes that it has undergone and will continue to undergo data collection efforts for Advanced Distribution Management System (ADMS).


## IX.     Gen-HCA Staff Analysis

Staff supports approval of Xcel's 2023 HCA Report. (**Decision Option 1**)

Monthly Updates

Staff appreciates the update on the Foundational Improvements and Monthly Updates use case timeline from the Company. As Staff understands it, the Foundational Improvements should be finished by the end of 2024 and work on implementation of Monthly Updates will begin in 2025. Staff is curious to know if the Company has any updated timeline on when the Monthly Updates use case may be operational at this time.

Regarding the Department's recommendation that the Commission "obtain better information regarding the costs and benefits of increased frequency before requiring monthly hosting

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[34]  Xcel. 2023 Hosting Capacity Report, Attachment F, P. 9, November 1, 2024

[35]  Xcel. 2023 Hosting Capacity Report, Attachment F, P. 10, November 1, 2024

[36]  Xcel. 2023 Hosting Capacity Report, Attachment F, P. 12, November 1, 2024

capacity updates,"[37]   Staff notes the Commission ordered Xcel to pursue this use case in the September 15, 2023, Order[38]  and, as described above, Xcel has made progress towards implementing monthly updates.

<u>Fast Track Supplemental Review Screen (FTSRS)</u>

Staff believes that Xcel complied with the Commission's September 15, 2023, Order to provide a more robust CBA on the FTSRS that included potential benefits to developers garnered through consultation with those developers and through workshops. Xcel created a survey to quantify the benefits of the FTSRS use case as well as to determine how much the developers would be willing to pay for the implementation of the FTSRS. Xcel reached out to MnSEIA before the workshop to help get more developer engagement as well. The survey was made available before, during, and after the workshop. Xcel only received five responses to the survey.

Xcel found in its CBA that developers would have a 0.92 cost-benefit ratio 90 percent of the time assuming a per application benefit of $175 and pay back fee between $189 and $265 depending on the return period. However, this had a 42 percent margin of error due to the lack of response rate from developers. Therefore, theoretically it could have a positive cost-benefit ratio if more developers participated in the survey and those developers valued the potential benefit higher than the developers that responded to the survey.

Staff understands that Xcel had to make assumptions with the values and data that they were provided, however there are some discrepancies in the record. In the 2022 HCA Report Xcel states that the Company uses contract labor to process supplemental review screens at a flat rate *per application,* which Staff knows to be $200.[39]  However, in the record in this docket, Xcel states that "these contracted consultants charge the Company on an *hourly* basis" regarding the contract labor that completes the supplemental review screens.[40]  Staff requests Xcel clarify which of these two is true as the purpose of having Xcel explore whether there would be any savings on the FTSRS by bringing the labor in-house was due to the fact that the contract labor was on a per application basis and not hourly.

This is an important distinction as the FTSRS has the potential to automate parts of the supplemental review screen process which could make the screen much quicker to review, meaning there could be savings seen if the labor was charged on an hourly basis but there would be no cost savings seen if labor was charged on a per application basis.

However, Staff is somewhat swayed by the argument that either due to the lack of apparent

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[37]  The Department, Reply, P. 8, March 20, 2024

[38]  Docket E002/M-22-574

[39]  Xcel Energy, 2022 HCA Report, P. 30, November 1, 2022

[40]  Xcel Energy, Cover Letter, P. 5, December 22, 2023

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interest by developers or an unwillingness to pay for the implementation given the derived benefits, the FTSRS may not be a use case worth pursuing at this time. Staff believes some societal benefits may have been underrepresented in the BCA and that there may be some potential future benefit in this use case, especially as more and more DERs interconnect onto the distribution system. Staff agrees with Xcel that it may be worth postponing the conversation until further improvements and modeling tools are complete.

Errors and Improvements to HCA

Staff appreciates JCS pointing out where there are errors or inconstancies in the HCA and Xcel in rectifying those issues in future updates. Staff is also supportive of Xcel creating a "How-To guide" on how to interact with the map and make it both more user-friendly and useful to developers.

## X.       Load-HCA

### A.       Load-HCA Results

The November 2023 HCA filing is Xcel's second Load HCA. The Company states that it used the same feeder set as it used in the 2022 Load-HCA. Xcel provides the following table, summarizing the 2023 Load-HCA results.

Table 9 Load-HCA 2023 Results Summary

| Item | November 2022 | November 2023 |
|---|---|---|
| **Data Cutoff Date** | 7/31/2022 | 7/31/2023 |
| **Number of feeders included in the analysis** | 1,052 | 1,052 |
| **Percent of feeders updated** | 100% | 100% |
| **Feeders with zero maximum hosting capacity** | 178 | 182 |

Xcel remarks that of the 182 feeders with zero maximum hosting capacity, 67 were limited by Native Capacity Utilization, 70 by Primary Under-Voltage, and 43 by Thermal Charging. Xcel notes that "feeders limited by the Native Capacity Utilization metric would be already at 100 percent of their thermal rating and are currently unable to accept new load without a required project."[41]

Xcel also provides the following table summarizing how many feeders are limited by each constraining metric.

Table 10 Number of Feeders Limited by Each Metric for Min and Max Hosting Capacity (Load)

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[41]  Xcel. 2023 Hosting Capacity Report, P. 15, November 1, 2024

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| Constraining Metric | # Feeders Min Hosting Capacity | # Feeders Max Hosting Capacity |
|---|---|---|
| **Primary Under-Voltage** | 104 | 80 |
| **Primary Voltage Deviation** | 0 | 0 |
| **Regulator Voltage Deviation** | 2 | 1 |
| **Thermal Charging** | 865 | 662 |
| **Native Capacity Utilization** | 104 | 80 |

Xcel states that in addition to these metrics, all feeders are subject to separate NLS metrics to inform developers when projects upgrades should be expected. The Company reports that 67 feeders are "Exceeded", 302 are "Over-Utilized" and 683 are "Compliant".

Xcel notes that it has chosen not to publicize its Feeder Nodal Results or create a heat map for the Load-HCA due to grid security and customer privacy concerns, but that the tabular results can be found online at their website.[42]

### B.      Security

Xcel states that given the ongoing proceeding in the Grid Security Docket (Docket No. E999/CI-20-800) and heightened geopolitical risks and domestic threats to critical infrastructure (CI), the Company has not made any changes to its approach to grid or customer security or confidentiality.[43]  Xcel continues to practice the following:[44]

1. Removing certain feeders from the heat map to protect Critical Infrastructure Sectors (CIS)
2. Excluding feeders that are serving fewer than 15 premises or where the load of a single customer constitutes 15% or more of the total load
3. Protecting customer confidentiality and security by applying the 15/15 standard
4. Treating the peak substation transformer load and peak feeder load data as non-public in the tabular results
5. Blurring exact feeder lines in the Gen-HCA heat map
6. Protecting peak load information by making those data non-public

Xcel notes that data for the CIS feeders can be found in the tabular results (except for the peak load information). In total, 115 feeders are excluded from the Gen-HCA map (out of 1,053) but the data from those feeders are provided in the tabular results. Xcel notes that the tabular results do not provide any indication of which feeder falls under CIS categories or are subject to privacy concerns. For similar security reasons, the Company has chosen to not publish a heat map for the Load-HCA, stating that it would make the distribution grid unnecessarily vulnerable. Additionally, Xcel chose not to make public Feeder Nodal Results for Load-HCA.

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[42]  https://mn.my.xcelenergy.com/s/renewable/developers/interconnection
[43]  Xcel, 2023 HCA Report, P. 16, November 1, 2023
[44]  Xcel, 2023 HCA Report, P. 19, November 1, 2023

####     i.     Party Comments

Joint Solar Commenters - Initial

JSC states that experts from the Department and the Interstate Renewable Energy Council (IREC) have testified that "releasing distribution grid data does not necessarily impair grid security", that Xcel has not made any changes to its approach to grid security and confidentiality.[45]  Subsequently, JSC's concerns remains the same, that Xcel is needlessly withholding data.

Xcel Energy – Reply Comments

In response to JSC, Xcel notes that this discussion belongs in "the Grid Security Docket (Docket No. E999/CI-20-800), which is in the process of record development to determine what the risks are and the appropriateness of sharing certain grid data publicly."[46]

###     C.     Continuation of Load-HCA

Xcel has interpreted the November 9, 2021 Commission Order that the Company was to provide a Load-HCA in 2022 only. The Company conducted a Load HCA in this HCA Report but plans for this filing to be the last iteration of the Load CA unless otherwise required by the Commission (**Decision Option 3**).[47]

####     i.     Party Responses

Joint Solar Commenters - Initial

JSC supports the continuation of the Load-HCA and recommends that the Commission clarify its orders regarding the Load-HCA, including a determination of frequency.[48]  JSC also suggests that the Company be directed to include existing distributed generation in its Load-HCA (**Decision Option 6**). JSC adds that discontinuing the Load-HCA would be at odds with Xcel's own predictions and planning found in the Company's 2024-2040 Upper Midwest Resource Plan which predicted anticipated new load coming from large new data centers and accelerated EV adoption.

The Department - Reply

The Department agrees with JSC that the Load-HCA appears important given the projected growth in Xcel's ongoing resource plan in Docket No. E002/RP-24-67.[49]  The Department

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[45]  Joint Solar Commenters, Initial, P. 5, March 6, 2024
[46]  Xcel Energy, Reply, P. 10, March 20, 2024
[47]  Xcel, 2023 Hosting Capacity Report, Attachment A, P. 12, November 1, 2024
[48]  Joint Solar Commenters, Initial, P. 2, March 6, 2024
[49]  The Department, Reply, P. 6, March 20, 2024

supports having the Commission require Xcel continue conducting the Load-HCA (**Decision Option 2**).

Xcel Energy – Reply

Xcel maintains its position and interpretation that it is not required to continue to conduct Load-HCA reports. The Company does not think it is prudent to continue with the Load-HCA at this time (**Decision Option 3**).[50]  Xcel states that at one point the Company believed that Load-HCA was a valuable internal tool but there is not a current internal need for the tool that is worth the required time and cost to conduct the update. The Company says that the Load-HCA costs $75,000 to update and that the time and money could be better used on the Foundational Improvement and Monthly Updates use cases and that those use cases could make the Load-HCA more useful and lower-cost in the future.[51]

Additionally, Xcel believes the Load-HCA is not "as beneficial as some might think it to be, due to the level of information the Company should continue to treat as non-public" regarding data and a heat map the Company omitted due to grid security risks and system vulnerabilities.[52] Xcel states that it believes a decision on sharing additional Load-HCA "data externally should wait until a conclusion has been reached in the Grid Security Docket."[53]

The Company also states that the Load-HCA is just "one of the many resources available that could aid interconnecting load customers" and that load based customers are "generally able to receive a reduction in project costs through our Contribution In Aid of Construction (CIAC) rules", all of which leads Xcel to believe that the Load-HCA does not provide significant benefits to load customers.[54]

### D.      Net versus Native Load

JSC notes that Xcel claims that it complied with Order Point 6c of the Commission's September 15, 2023 Order which required Xcel to "employ a net loading methodology consistent with other Company planning processes for its Load-HCA."[55]  Xcel notes it still uses native loading and states "the use of native loading on a feeder is appropriate and follows our current planning processes."[56]  JSC asks the Commission to direct Xcel to clarify which parameter is used in each of its planning processes (**Decision Option 4**). In Reply Comments, the Department agreed with JSC stating that the clarification will "enable parties to determine the degree of

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[50]  Xcel Energy, Reply, P. 3, March 20, 2024

[51]  Xcel Energy, Reply, P. 4, March 20, 2024

[52]  Xcel Energy, Reply, P. 4, March 20, 2024

[53]  Xcel Energy, Reply, P. 4, March 20, 2024

[54]  Xcel Energy, Reply, P. 4, March 20, 2024

[55]  PUC Commission Order, September 15, 2023

[56]  Joint Solar Commenters, Initial, P. 2, March 6, 2024

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consistency across Xcel's processes."[57]

### 1.    Party Comments

<u>Xcel Energy - Reply</u>

Xcel denies that it failed to comply with Order Point 6c regarding employing a net load methodology that is consistent with other Company planning processes for its Load-HCA. The Company states that it uses native load planning for its distribution planning processes as well for its forecasting and risk analysis which makes it consistent.[58]  Xcel states that it also proposed a Planned Net Loading methodology in the 2023 Integrated Distribution Plan (IDP) that at the time of Company's reply comment had not been heard by the Commission. However, Xcel states that even with a change in methodology, the native loading figures cannot be ignored and would still play a role in the planning process.

The Company states that by using native loading in its models and not using generation provided through DERs (net loading), Xcel is able to "ensure that the new load will not lead to any thermal violations if DERs are tripped offline, and are thus unable to provide load relief" which aligns with the Company's "planning processes for risk analysis as it considers the worst-case scenario where DERs are offline, resulting in a native loading scenario."[59]

## XI.    Load-HCA Staff Analysis

<u>Security Concerns and Load-HCA Continuation</u>

Xcel has not deviated from its security and confidentiality practices since the last HCA Report regarding the Load-HCA. Xcel still follows the 15/15 standard, does not publish a load heat map, and excludes data that may pose a security or confidentiality risk such as peak load information. JSC maintains its position that experts they support have commented on this and that Xcel needlessly withholding data and Xcel disagrees with this position. Staff maintains the position that this discussion should continue in the Grid Security Docket (20-800).

Xcel has also interpreted Order Point 4 of November 9, 2021 Commission Order, which states "Xcel must perform an HCA for load and file the analysis by November 2022,"[60]  as ordering the Company to conduct a singular Load-HCA and that the Load-HCA they conducted for this HCA report (the second they have conducted) was done as a courtesy. Their position now is that they will cease conducting the Load-HCA unless otherwise ordered as they do not believe the Load-HCA to be beneficial, especially with no public heat map and with the information they

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[57]  The Department of Commerce, Reply, P. 6, March 20, 2024

[58]  Xcel Energy, Reply Comment, P. 2, March 20, 2024

[59]  Xcel Energy, Reply Comment, P. 3, March 20, 2024

[60]  Docket No. E-002/M-20-812, Order Point 4, November 9, 2021

remove from the public due to security reasons. JSC and the Department advocate for the Load-HCA to continue to be conducted.

Staff is somewhat confused by the Company's change of position on the Load-HCA as its opinion in the last HCA report was that it saw the Load-HCA as a promising use case. In the last report, Xcel saw potential with having the Corporate Economic Development Teams use the Load-HCA to maintain "dig read" sites for new load, and that it could theoretically be used with the Gen-HCA to focus load installations in areas where there is no hosting capacity. Xcel also indicated interest from parties during its stakeholder workshop series.

Staff understands that much of the potential benefit of the Load-HCA is perhaps stripped away by making the data non-public and not producing a heat map due to grid security reasons. However, Staff believes there is still benefit to be had in the Load-HCA aside from that evolving subject matter. Additionally, Staff acknowledges JSC's point that Xcel's Upper Midwest Resource Plan as filed by the Company predicts significant anticipated new load in the future and the Load-HCA could be a viable tool to help interconnect that load. The Load-HCA may also be beneficial as Xcel anticipates conducting proactive upgrades as it may help developers by determining how much load is available at locations already and how much needs to be added.

Lastly, this is only the second iteration of the Load-HCA. The Commission has seen the Gen-HCA evolve over time to become more useful and informative with each iteration. Staff believes the same could be true with the Load-HCA regarding both the Load-HCA itself as the Grid Security Docket progresses and as Xcel's service territory experiences increases in load. Staff finds value in the Commission requiring Xcel to continue conducting the Load-HCA and timing its analysis in conjunction with its filing of the Gen-HCA (**Decision Option 2**).

Net Loading Methodology

In ordering paragraph 6c of the 2023 HCA Order, the Commission ordered Xcel the following:

> In future HCA annual reports, Xcel shall do the following:
> …
> c. employ a net load methodology consistent with other Company planning processes for its Load-HCA

Xcel interpreted this order as "to only employ a net load methodology for Load-HCA to the extent that this would be consistent with our other planning processes" and since Xcel uses native loading in their forecasting and risk analysis, they did not apply a net loading methodology for the Load-HCA.[61]

Since the HCA was filed, the Commission heard Xcel's 2023 Integrated Distribution Plan (IDP) on July 2, 2024, which required Xcel to create a methodology for Planned Net Loading. The

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[61] Xcel Energy, Reply, P. 2, March 20, 2024

Commission required (Order forthcoming) that Xcel must implement its PNL methodology in the next planning for the next IDP as well as to refine its PNL methodology and file a report on its new methodology. Staff proposes that Xcel employ the PNL methodology as ordered in the 2023 Integrated Distribution Plan in Docket No. E002/M-23-452, and its future iterations, consistent with the planning processes for its Load-HCA (**Decision Option 4**).

## XII. Decision Options

1. Accept Xcel's 2023 Gen-HCA and Load-HCA Report. (*Xcel, JSC*)

2. Require Xcel to continue conducting the Load-HCA and file the analysis in conjunction with the Gen-HCA. (*Staff Interpretation, Department, JSC*)

3. Allow Xcel to cease conducting the Load-HCA. (*Xcel*)

4. In future HCA annual reports, require Xcel to employ the planned net loading methodology as ordered in the 2023 Integrated Distribution Plan in Docket No. E002/M-23-452, and its future iterations, consistent with the planning processes for its Load-HCA. (*Staff*)

5. Require Xcel to pursue the Fast Track Supplemental Review Screen (FTSRS) use case.

6. In its next Load-HCA, require Xcel to include existing distributed generation. (*JSC*)