

March 28, 2019

Daniel P. Wolf  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 350  
St. Paul, Minnesota 55101

RE: **Reply Comments of the Minnesota Department of Commerce, Division of Energy Resources**  
Docket No. E002/M-18-684

Dear Mr. Wolf:

Attached are the reply comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

Northern States Power, d/b/a Xcel Energy's 2018 Distribution System Hosting Capacity Study.

The report was filed on November 1, 2018, by:

Bria E. Shea  
Director, Regulatory & Strategic Analysis  
Northern States Power Company d/b/a/ Xcel Energy Services Inc.  
414 Nicollet Mall  
Minneapolis, MN 55401

The Department is available to respond to any questions the Minnesota Public Utilities Commission may have on this matter.

Sincerely,

/s/ MATTHEW LANDI  
Rates Analyst

/s/ LISE TRUDEAU  
Senior Engineering Specialist

ML/LT/ja  
Attachment



## Before the Minnesota Public Utilities Commission

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### Comments of the Minnesota Department of Commerce Division of Energy Resources

Docket No. E002/M-18-684

#### I. BACKGROUND

On November 1, 2018, Xcel Energy (Xcel or the Company) filed its 2018 Distribution System Hosting Capacity Report (the 2018 Report) as required by Minn. Stat. §216B.2425, subd. 8 (the Statute) and the Minnesota Public Utility Commission's (Commission) July 19, 2018 Order in Docket No. E002/M-17-777 (the Order).

Further, on November 20, 2018, the Commission issued its Notice for Comment Period (Notice). The Notice requested comments on the Report regarding the following topics:

- Does Xcel Energy's 2018 Hosting Capacity Study achieve the requirements outlined in the Commission's July 19, 2018 Order [footnote omitted] and Minn. Stat. §216B.2425, subd. 8?
- Does the Hosting Capacity Study adequately address stakeholder recommendations [footnote omitted], or what modifications or clarifications are needed?
- Should the Hosting Capacity Study continue to be filed independently from the statute-required Biennial Grid Modernization Report or Integrated Distribution Plan in years in which they are required to be filed?
- Are there other issues or concerns related to this matter?

The initial round of comments were due on February 28, 2019. The Minnesota Department of Commerce, Division of Energy Resources (Department), as well as Fresh Energy filed comments on February 28, 2019. The Department offers these reply comments in response to the initial comments submitted by Fresh Energy.

#### II. DEPARTMENT ANALYSIS

The Department's reply comments focus on two aspects: (1) points of agreement with aspects of Fresh Energy's initial comments; and (2) points of disagreement with aspects of Fresh Energy's initial comments.

*A. POINTS OF AGREEMENT*

*1. Xcel's Hosting Capacity Report Should Be Useful To Stakeholders*

In Fresh Energy's initial comments, they helpfully provided details of, and responses to, a survey they sent to developer members of the Solar\*Reward Community (S\*RC) Workgroup.<sup>1</sup> Fresh Energy explained that they received six responses to the survey and provided each response as Exhibit A to their initial comments. The Department appreciates this valuable feedback and believes it is useful in the Commission's deliberation of this matter.

The Department shares many of the concerns articulated by Fresh Energy and survey respondents regarding the value of Xcel's Hosting Capacity Report to date. After reviewing the survey responses, it is clear that much more can be done to improve the value of the Hosting Capacity Report. The Department's initial comments recommended that the Commission require Xcel to work with stakeholders to improve the value of the Company's hosting capacity analysis, including but not limited to providing more detailed substation, feeder, and other equipment data in the hosting capacity map.

In recognition of the value of the stakeholder feedback obtained from Fresh Energy's survey, the Department concludes that it would be beneficial for Xcel to conduct its own survey regarding its Hosting Capacity Report in order to obtain feedback from developers and inform the Commission of the results and Xcel's ongoing efforts to increase the value of the Hosting Capacity Report.

**The Department recommends that the Commission require Xcel to conduct a survey directed to distributed energy resource (DER) developers, whether identified in this docket or through its other stakeholder outreach activities related to DER integration and development (such as the Solar\*Reward Community Workgroup) and independent of any utility-led working groups or outreach activities (such as Community Solar Garden participants). Such a survey should be conducted before the next 2019 Hosting Capacity Report is filed, and the results should be provided in that report. At a minimum, the survey should contain questions similar to the questions contained in Fresh Energy's survey of S\*RC Workgroup members.**

*2. Xcel Should Provide Peak Load, Daytime Minimum Load, Installed Generation Capacity, and Queued Generation for Each Feeder and Substation*

In Fresh Energy's initial comments, and in the survey responses provided by Fresh Energy, it is clear that the provision of more load information would be useful for developers.

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<sup>1</sup> Fresh Energy Initial Comments, at 1.

In our initial comments, the Department requested the following:

**The Department requests that Xcel discuss the practicability of using more detailed load profile data in their feeder model and to file the peak load data by substation and feeder in spreadsheet format, as an additional column in an amendment to Attachment A.**

The Department will review Xcel's response in the Company's reply comments; however, to the extent practicable, the Department recommends that the Commission require Xcel to include peak load data by substation and feeder, including daytime minimum load, installed generation capacity, and queued generation, in a spreadsheet format and in the public-facing hosting capacity map.

*3. Xcel's Hosting Capacity Report Should More Clearly Identify Necessary Distribution Upgrades to Support Continued Development of Distributed Generation Resources*

The Department shares Fresh Energy's concerns related to the limited information provided by Xcel regarding Minn. Stat. §216B.2425, subd. 8 and Order Point #3,<sup>2</sup> which required that:

Xcel's 2018 Hosting Capacity Report must be detailed enough to inform future distribution system planning efforts and upgrades necessary to facilitate the continued efficient integration of distributed generation.

The Department notes that Fresh Energy's concerns also relate to Order Point #7g, which requires Xcel to "file supplemental information that would result in a broader understanding of how to guide distribution upgrades for additional hosting capacity."

Related to Fresh Energy's concerns, the Department's initial comments asked Xcel to provide more detailed information related to constraints to DER integration, the mitigation options available to individual feeders and their costs, the technical and economic potential of mitigation options, and the impact of the mitigations on the value of DERs.

The Department shares Fresh Energy's concerns related to the capability of the DRIVE tool to meet this objective of the hosting capacity analysis.

**The Department recommends that the Commission require Xcel to provide feeder-specific mitigation options in addition to providing the following information:**

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<sup>2</sup> *Id.*, at 5.

- **The frequency at which the constraints to individual feeders occur throughout the distribution system;**
- **A range of potential costs for each of the mitigation options available for an individual feeder and a range of total costs;**
- **How much additional hosting capacity could be obtained by implementing the identified mitigation options on a technical and economic basis (*i.e.*, the technical potential of the mitigation options and the economic potential of the mitigation options); and**
- **Whether there would be a cost-effective impact on the value of DERs if such mitigation options were pursued (*i.e.*, do any of the mitigation options impact the value proposition of DERs and if so, what is that impact?).**

4. *Xcel Should Discuss the Impact of New Load on its Hosting Capacity Analysis*

Fresh Energy stated that “Xcel is only considering new generation and not considering new load” and recommended that the Commission “[make] the output of load capacity and preparedness for rapid beneficial electrification a priority in Xcel’s 2019 HCA [(hosting capacity analysis)].”<sup>3</sup>

The Department endorses the spirit of this recommendation, but notes that the second recommendation from our initial comments can be understood as requiring Xcel to consider whether the EPRI DRIVE tool is capable of considering the load characteristics of DERs. Further, the Department lacks insight into how new sources of load can be incorporated into Xcel’s hosting capacity analysis. The Department notes that Xcel states that they “did not take the *load characteristics* of DER devices such as energy storage into consideration in [their] analysis” and that “future analysis aimed at understanding storage device load characteristic impacts on the distribution system would need to include both load and generation characteristics of DER.”<sup>4</sup> Further, Xcel stated that they “plan to monitor the ability of our hosting capacity tool with regard to energy storage, and maximize its capabilities where we can.”<sup>5</sup>

In response to Fresh Energy’s concerns related to the capability of Xcel’s 2019 HCA to be useful in preparation of beneficial electrification efforts, the Department amends our second recommendation as follows:

**The Department recommends that the Commission continue to require Xcel to provide an update on the evolving capabilities of the EPRI DRIVE tool and whether it is capable of incorporating the technologies included in the broadened definition of DERs (maintain Order**

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<sup>3</sup> *Id.*, at 2-3.

<sup>4</sup> 2018 Report, at 6.

<sup>5</sup> *Id.*

**Point #7e), including a discussion of how Xcel's hosting capacity analysis can be used to assist state energy policy goals related to beneficial electrification. (emphasis added for clarity)**

*B. POINT OF DISAGREEMENT*

*1. Xcel Complied with the Statute and the Order*

Fresh Energy's initial comments state that Xcel's Hosting Capacity Report failed to comply with Order Point 2, 3, 4, and 6.<sup>6</sup>

While there are several areas of the Hosting Capacity Report that Fresh Energy helpfully and rightfully points out can be improved, the Department reaffirms the conclusion of our completeness analysis that Xcel complied with both Minn. Stat. §216B.2425, subd. 8 and the Order. The Department expects that Xcel will continue to make good-faith efforts to improve upon its hosting capacity analysis methodology and its value to stakeholders in Minnesota.

*2. Xcel's Hosting Capacity Report is Reasonably Accurate*

Fresh Energy stated that "Xcel used only the screening results to evaluate the accuracy of the DRIVE tool results and did not provide a comparison to the study results" and disagreed with Xcel's decision to compare the HCA and the interconnection screening, suggesting that the "goal of the HCA is not to align the results with the screening criteria, it is to understand the actual hosting capacity of the distribution grid."<sup>7</sup>

While the Department agrees with Fresh Energy that understanding the actual hosting capacity of the distribution grid is a goal of the HCA, it is not clear that Xcel's approach is unreasonable simply because it only derives an estimate of the hosting capacity of the distribution grid.

In Xcel's review of a study performed by San Diego Gas and Electric comparing the accuracy of the EPRI DRIVE Tool to the Iterative Capacity Analysis (ICA) Method, the Company concluded that the DRIVE tool "produces comparable results to one of the early leading industry approaches to hosting capacity that is significantly more labor intense to produce."<sup>8</sup> Given the information provided by Xcel in the 2017 Report regarding the labor-intensive nature of the ICA method<sup>9</sup> and the comparable results produced by each method as described by Xcel in the 2018 Report, it is unclear that requiring any additional level of analysis is reasonable.

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<sup>6</sup> FE Initial Comments, at 3.

<sup>7</sup> *Id.*, at 5.

<sup>8</sup> 2018 Report, at 17.

<sup>9</sup> 2017 Report, at 8-9.

The Department shares Fresh Energy's concerns related to the accuracy of Xcel's hosting capacity analysis in light of survey responses from developers, however. The Department requests that Xcel work with stakeholders in finding potential options for improving the accuracy of the hosting capacity analysis in light of the feedback provided in response to Fresh Energy's survey of developers.

### **III. CONCLUSION**

The Department appreciates the opportunity to comment further on the Company's 2018 Report and looks forward to working with all stakeholders to improve future HCAs.

Based on our initial review Xcel's 2018 Hosting Capacity Report, and of stakeholder comments, the Department makes the following recommendations:

1. That the Commission require Xcel to provide updates on the appropriateness of the methodological choice of the hosting capacity analysis, a discussion of the ability of the Company to obtain more detailed secondary voltage equipment data, and the types of DERs being interconnected in future reports.
2. That the Commission continue to require Xcel to provide an update on the evolving capabilities of the EPRI DRIVE tool and whether it is capable of incorporating the technologies included in the broadened definition of DERs (maintain Order Point #7e from the Commission's July 19, 2018 Order in Docket No. E002/M-17-777), including a discussion of how Xcel's hosting capacity analysis can be used to assist state energy policy goals related to beneficial electrification.
3. That the Commission require Xcel to work with stakeholders to improve the value of the Company's hosting capacity analysis, including but not limited to the provision of more detailed substation, feeder, and other equipment data in the hosting capacity map.
4. That the Commission require Xcel to conduct a survey directed to DER developers, whether identified in this docket or through its other stakeholder outreach activities related to distributed energy resource integration and development (such as the Solar\*Reward Community Workgroup) and independent of any utility-led working groups or outreach activities (such as Community Solar Garden participants). Such a survey should be conducted before the next 2019 Hosting Capacity Report is filed, and the results should be provided in that report. At a minimum, the survey should contain questions similar to the questions contained in Fresh Energy's survey of S\*RC Workgroup members.

5. That the Commission require feeder-specific mitigation options in addition to providing the following information in future reports:
  - a. The frequency at which the constraints to individual feeders occur throughout the distribution system;
  - b. A range of potential costs for each of the mitigation options available for an individual feeder and a range of total costs;
  - c. How much additional hosting capacity could be obtained by implementing the identified mitigation options on a technical and economic basis (i.e. the technical potential of the mitigation options and the economic potential of the mitigation options); and
  - d. Whether there would be a cost-effective impact on the value of DERs if such mitigation options were pursued (i.e. do any of the mitigation options impact the value proposition of DERs and if so, what is that impact?).
  
6. To the extent practicable, the Department recommends that the Commission require Xcel to include peak load data by substation and feeder, including daytime minimum load, installed generation capacity, and queued generation, in a spreadsheet format and in the public-facing hosting capacity map



## **CERTIFICATE OF SERVICE**

I, Linda Chavez, hereby certify that I have this day served copies of the following document on the attached list of persons by electronic filing, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**MINNESOTA DEPARTMENT OF COMMERCE – Reply Comments**

Docket Nos. **E002/M-18-684**

Dated this **29th** day of **March, 2019**.

/s/Linda Chavez

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