COMMERCE DEPARTMENT

February 2, 2018

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

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E002/M-17-777

Dear Mr. Wolf:

Attached are the 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 2017 Distribution System Hosting Capacity Study.

The report was filed on November 1, 2017, 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 Commission may have on this matter.

Sincerely,

/s/ MATTHEW LANDI
Rates Analyst

/s/ LISE TRUDEAU
Senior Engineering Specialist

ML/LT/lt
Attachment

COMMERCE DEPARTMENT

Before the Minnesota Public Utilities Commission

Comments of the Minnesota Department of Commerce
Division of Energy Resources

Docket No. E002/M-17-777

I. INTRODUCTION

On November 1, 2017, Xcel Energy (Xcel or the Company) filed its 2017 Distribution System Hosting Capacity Report (the 2017 Report) as required by Minn. Stat. §216B.2425, subd. 8 (the Statute) and the Minnesota Public Utility Commission's (Commission) August 1, 2017 Order in Docket No. E002/M-15-962 (the Order).

Minn. Stat. §216B.2425, subd. 8, states:

> Subd. 8. Distribution study for distributed generation. Each entity subject to this section that is operating under a multiyear rate plan approved under section 216B.16, subdivision 19, shall 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, and shall include the study in its report required under sub-division 2.

The Order listed the following requirements for Xcel's 2017 Report:

1. The Commission will require that the 2017 Hosting Capacity Report be detailed enough to provide developers with a reliable estimate of the available level of hosting capacity per feeder at the time of submittal of the report to the extent practicable. The information should be sufficient to provide developers with a starting point for interconnection applications.
2. The Commission will require that the 2017 Hosting Capacity Report be detailed enough to inform future distribution system planning efforts and upgrades necessary to facilitate the continued efficient integration of distributed generation.
3. Xcel shall provide a color-coded, map-based representation of the available Hosting Capacity down to the feeder level. This information should be provided to the extent it is consistent with what Xcel believes

are legitimate security concerns. If security concerns arise, Xcel shall explain in detail the basis for those concerns.

4. Xcel shall provide the Hosting Capacity results in downloadable, MS-Excel or other spreadsheet file formats.
5. Xcel shall provide (at a minimum) in its next Hosting Capacity Report the information requested by Commission staff and parties in response to the 2016 Report (through comments or information requests) regarding data used in the modeling, including model assumptions and methodology, reasons for the model assumptions and methodological choices, additional detail on the model used and its inherent assumptions.
6. Xcel shall provide information on the accuracy of the Hosting Capacity Report information; both estimates on the accuracy of the 2017 report and an analysis of the 2016 results compared to actual hosting capacity determined through any interconnection studies or other reasonable metric.
7. Xcel shall file a Hosting Capacity Report on an annual basis, by November 1 of each year.

Further, on November 17, 2017, the Commission issued its Notice for Comment Period (Notice). The Notice requested comments on the Report regarding the following topics:

- Are there questions about the foundational elements or assumptions used in Xcel's hosting capacity report?
- Are there areas of improvement or modification that would make future hosting capacity reports more useful?
- Other issues or concerns related to this matter.

Since there are no specific rules for Minn. Stat. §216B.2425, subd. 8, the Department examined Xcel's 2017 Report according to the Statute and the Order. In addition, the Department offers the following comments as a response to the Commission's Notice.

II. DEPARTMENT ANALYSIS

A. COMPLETENESS ANALYSIS

As noted above, the Department's analysis relies on the Statute and the Order to determine the completeness of the 2017 Report in terms of serving the public-interest-oriented goals of the Statute and the Order.

1. THE STATUTE

Minn. Stat. §216B.2425, subd. 8, as aforementioned, states that Xcel:

> *…shall 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*, and shall include the study in its report required under sub-division 2. [emphasis added].

The Department views the statute as having two distinct requirements: (1) a substantive requirement, which is found in the *italicized* text above; and (2) a procedural requirement, which is found in the underlined text above.

Further, the completeness analysis of the substantive requirement of the Statute involves two components and requires answers to two questions:

> (1) does the 2017 Report identify interconnection points on Xcel's distribution system for small-scale distributed generation resources, and;
> (2) does it identify distribution upgrades that will help facilitate the development of distributed generation resources?

The Department concludes that the 2017 Report identifies a reasonable and sufficient amount of interconnection points on Xcel's distribution system[1] and identifies necessary distribution upgrades to support the continued development of distributed generation resources. The Department concludes that the answer to both those questions is yes, and therefore concludes that the 2017 Report is complete as far as the substantive requirement of the Statute is concerned.

The completeness analysis of the procedural requirement of the Statute involves only one component and requires an answer to one question: was the 2017 Report included in the study that is required by the Statute under subdivision 2 (referring to the Biennial Transmission Projects Report[2])?

Technically, the answer to that question is no, as Xcel did not include the 2017 Report *in* the actual Biennial Transmission Projects Report filing. However, Xcel filed its 2017 Report on the same day as the Biennial Transmission Report, noticed the filing on nearly all of the same parties as the Biennial Transmission Report, and added other parties that are likely to be interested in the 2017 Report but may not be interested in the Biennial Transmission Report.

[1] Xcel identified and included 1,047 feeders in their HCA, while excluding 120 feeders from the public "heat map" based on confidentiality and security concerns. 2017 Report, pages 22-24.
[2] Minn. Stat. §216B.2425, subd. 2, filed under Docket No. E999/M-17-377 dated November 1, 2017.

Thus, the Department concludes that, except for the few parties on the service list for the Biennial Transmission Report but omitted from the service list for the 2017 Report, Xcel effectively met this procedural requirement and may have even improved on the requirement by focusing the service list for the 2017 Report on parties that are interested only in the distribution system.

The Distribution System Hosting Capacity Report addresses fundamentally different substantive issues than the Biennial Transmission Projects Report, and attracts heightened and wider stakeholder interest helpful to the Commission's consideration of the substantive issues addressed in the Distribution System Hosting Capacity Report. Given the materially different substantive issues addressed and the demonstrated stakeholder interest in the 2016 Distribution System Hosting Capacity Report (2016 Report) from Docket No. E002/M-15-962, the public interest is best served by disaggregating the Distribution System Hosting Capacity Report from the Biennial Transmission Projects Report and filing them in separate dockets.

However, since the procedural requirement stems from a statute, to clear up any question about compliance, the Department recommends that Xcel either notice the parties identified on the Biennial Transmission Report but not on the 2017 Report or confirm that such parties wish not to be included in the 2017 Report.[3]

Going forward, the Department recommends that the Commission decide that filing the Distribution System Hosting Capacity Report in a separate docket is a permissible interpretation of the statutory requirement that the Distribution System Hosting Capacity Report be included in the Biennial Transmission Projects Report. Accordingly, the Department recommends that the Commission make explicit in its order that the Distribution System Hosting Capacity Report need not be included in the Biennial Transmission Projects Report, as the plain language of the Statute appears to require.

2. THE ORDER

The Order created seven requirements for Xcel's next Distribution System Hosting Capacity Report. They can be organized into two categories: (1) substantive requirements, and; (2) structural requirements. These categories are discussed below as the Department reviews each of these requirements to determine completeness.

[3] For example, Moorhead Public Service and ITC Midwest were on the service list for the Biennial Transmission Report but not the 2017 Report. Such parties may not be interested in the 2017 Report, but Xcel should confirm that all parties to the Biennial Transmission Report that wish to receive the 2017 Report are included in the service list. The Department notes that "party" refers only to an organization as a whole rather than to every person in an organization that is on the service list for the Biennial Transmission Report.

a. SUBSTANTIVE REQUIREMENTS

The Department views Order Points 1, 2, 5, and 6 as the substantive requirements of the Order regarding the actual content of the report.

1. Sufficient Detail as a Starting Point for Developers

As noted above, Order Point 1 requires the 2017 Hosting Capacity Report to be "detailed enough to provide developers with a reliable estimate of the available level of hosting capacity per feeder at the time of submittal of the report to the extent practicable." In addition, this Order Point requires the information to be "sufficient to provide developers with a starting point for interconnection applications."

The 2017 Report contains detailed hosting capacity analysis (HCA) of most of Xcel's individual feeders, excluding only those feeders that are sensitive for privacy or security reasons, or feeders not owned by Xcel.[4] This detailed information on a per-feeder basis is also provided in a spreadsheet attached to the 2017 Report.

While the Company admits that their streamlined approach to performing their HCA is not as detailed as other methods, such as the iterative method conducted in California that seeks to "precisely answer the specific level of DER [Distributed Energy Resource] that can be accommodated at each node, through detailed power flow analysis that is similar to an interconnection engineering study," their approach is "reasonably accurate in steering DER interconnections to potential 'best' locations."[5] The Commission, at this time, has not ordered a more detailed analysis for this report or future reports.

The Department also notes that the information is a reasonable improvement from the 2016 Report. Therefore, the Department concludes that the Company is in compliance with Order Point #1 as they provided a reliable estimate of the available level of hosting capacity per feeder at the time of submittal of the report to the extent practicable" and that the information provided is sufficient to provide developers with a starting point for interconnection applications.

2. Sufficient Detail to Inform Planning Efforts

Order Point 2 requires that the 2017 Hosting Capacity Report be detailed enough to inform future distribution system planning efforts and upgrades necessary to facilitate the continued efficient integration of distributed generation.

[4] 2017 Report, pages 22-24.
[5] 2017 Report, page 8.

The 2017 Report contains high-level information about the hosting capacity of most feeders in Xcel's distribution system. While not precise, this information will be informative for future distribution system planning as it is generally helpful for interested stakeholders to determine the various technical constraints to greater integration of distributed energy resources (DER) currently on the distribution system. This insight allows for more targeted DER siting and identifies system upgrades that may be needed in the future to enable a more efficient allocation of resources and the orderly integration of cost-effective DER. Therefore, the Department concludes that the Company complied with Order Point 2.

3. Response to Information

Order Point 5 requires Xcel to provide information requested by Commission staff and parties in response to the 2016 Report regarding data used in the modeling, including model assumptions and methodology, reasons for the model assumptions and methodological choices, additional detail on the model used and its inherent assumptions.

In response to the 2016 Report, several parties filed comments seeking additional information on the use of the Electric Power Research Institute (EPRI) DRIVE tool, assumptions of the model, the methodology of the HCA, the data used by the Company to conduct the HCA, and the Company's overall rationale in electing to partner with EPRI in conducting the HCA. In Attachment B of the 2017 Report, entitled "Order Point 5 Compliance Matrix," the Company lists each of the information requests made by different stakeholders in regards to the 2016 Report, and provides a reference of the location where the Company responds to the information requests, either in the 2017 Report or in the Company's comments in the 2016 Report docket.

Assessing whether the Company was responsive to each stakeholder's individual requests regarding modeling data, assumptions, and methodology is best left to the individual stakeholders requesting that information. The Department notes that the Company's 2017 Report provides high-level details regarding modeling data, assumptions, and methodology, and provides a more detailed explanation of why it chose to partner with EPRI and rely on the DRIVE model.

Further, it seems that the Company made a concerted effort to provide greater detail in the sections detailing the choice of the EPRI DRIVE tool, as well as the Methodology and Assumptions sections in the 2017 Report.[6] This effort was supplemented by the Company's provision of additional information in response to Commission Staff's requests for additional

[6] 2017 Report, pages 7 – 14.

information regarding the 2017 Report. The Department appreciates both the Commission Staff's and the Company's efforts to solicit and provide additional information, respectively.

Therefore, the Department concludes that the Company complied with Order Point 5. The Department intends to review feedback other stakeholders regarding whether the Company provided a sufficient level of detail regarding modeling data, assumptions, and methodology in the 2017 Report, and how the Company can best ensure transparency of future HCAs.

4. Accuracy of Hosting Capacity Report Data

Order Point 6 requires Xcel to provide information on the accuracy of the Hosting Capacity Report information; "both estimates on the accuracy of the 2017 report and an analysis of the 2016 results compared to actual hosting capacity determined through any interconnection studies or other reasonable metric."

Section H of the 2017 Report contains a detailed explanation of the Company's attempt to measure the accuracy of the 2017 Report and compare the results of the 2016 Report to the hosting capacity derived from interconnection studies. The Company provided a variety of reasons for why the 2016 Results cannot be easily compared to interconnection studies or screening reports.[7] The Company stated that it will seek to augment its interconnection studies and refine its methodology so that a better apples-to-apples comparison can be made.

Despite these difficulties, the Company was able to identify 15 different feeders to compare for accuracy. Specifically, they compared 2016 and 2017 results, and the 2017 results with interconnection studies.[8] While there is still work to do in the future, the Department concludes that the results of the Company's attempt to measure the accuracy of the 2017 Report and compare it meaningfully to the 2016 results and interconnection studies, as well as the Company's intention to allow for more meaningful measurements of the accuracy of its hosting capacity analyses, satisfy compliance with this order point.

b. STRUCTURAL REQUIREMENTS

The structural requirements of the Order refer to the requirements for the presentation and timing of the report. Order Points 3, 4, and 7 are considered to be such requirements.

1. Map

Order Point 3 requires Xcel to provide a "color-coded, map-based representation of the available Hosting Capacity down to the feeder level." It also requires Xcel to provide all

[7] 2017 Report, pages 17 – 18.
[8] *Id.,* at 19 – 20.

information that is consistent with what Xcel believes are legitimate security concerns, and explain in detail the basis for any such concerns.

In response to stakeholder feedback and to comply with this order point, the Company created a public-facing website that allows anyone to view an interactive, color-coded, map-based representation of the results of the 2017 Report.[9] In addition, the Company provided a detailed explanation as to what feeders were excluded from the 2017 Report due to security concerns.[10] Therefore, the Department concludes that the Company complied with Order Point 3.

2. Downloadable Data

Order Point 4 requires Xcel to provide the Hosting Capacity results in downloadable, MS-Excel or other spreadsheet file formats.

In Attachment A of the 2017 Report, the Company provided an MS-Excel spreadsheet of the Hosting Capacity results. This spreadsheet is publicly available on the Company's *How to Interconnect* website that also provides access to the visual results of the 2017 Report. Therefore, the Department concludes that the Company complied with Order Point 4.

3. Filing Date

Order Point 7 requires Xcel to file a Hosting Capacity Report on an annual basis, by November 1 of each year.

The Company filed the 2017 Report on November 1, 2017, and complied with this order point.

3. CONCLUSION REGARDING COMPLETENESS

In review of the Statute and the Order, and for the reasons detailed above, the Department concludes that the Company complied with both the Statute and the Order.

B. DEPARTMENT RESPONSE TO THE COMMISSION'S NOTICE

On November 15, 2017, the Commission issued a Notice of Comment Period for the 2017 Report, asking stakeholders and the general public to comment on the following topics:

[9] The visual results of the 2017 Report are available at: https://www.xcelenergy.com/working_with_us/how_to_interconnect.
[10] 2017 Report, pages 22 – 24.

- Are there questions about the foundational elements or assumptions used in Xcel's hosting capacity report?
- Are there areas of improvement or modification that would make future hosting capacity reports more useful?
- Other issues or concerns related to this matter

Here the Department offers its comment on the 2017 Report in response to the topics open for comment.

1. FOUNDATIONAL ELEMENTS AND ASSUMPTIONS

Generally speaking, the modeling choice of the HCA—whether it is the streamlined approach of the EPRI DRIVE tool, the ICA approach described by the Company in the 2017 Report and used by other state commissions (e.g., California), or a different approach altogether—can lead to a path dependency for distribution system planning. In other words, decisions made at the end of the analysis may be unduly limited by decisions made at the beginning of the analysis. The goals of a HCA should be reflected in the choice over which model to use.

The Commission's original goals for the Company's report were enumerated in its June 28, 2016 Order, which stated:

> 3. Xcel shall complete and file by December 1, 2016, for inclusion in the 2015 Biennial Distribution-Grid-Modernization Report, a distribution-system study that
>
> a. includes the initial analysis of the hosting capacity of each feeder on the Xcel distribution system for small-scale distributed generation resources, defined as resources that are 1 MW or less; and
>
> b. identifies potential distribution upgrades necessary to support expected distributed-generation resource additions including, in aggregate, distributed-generation resources that are in the Company's integrated-resource-plan filings and those that are active in the Company's community-solar-garden process.

The Commission's more recent order, as enumerated above, furthers these goals by creating specific requirements intended to be useful to future distribution system planning efforts and stakeholders: the HCA should provide a high-level understanding of the distribution system's hosting capacity as a starting point for interconnection applications and to serve as a guide for the orderly development and investment in the distribution system to further integrate DERs.

Toward that end, if future HCAs are to be the starting point for stakeholders interested in distribution system planning and DER integration, the results of the HCA must lend themselves to the next steps in whichever process is being undertaken, whether it is a developer working on a DER project, a residential homeowner wanting to install a solar PV system on their home, or state regulators looking to facilitate the orderly development of the distribution system and guide system investments. In order to maximize the usefulness of the HCA, the results need to be a reliable starting point for deeper dives into the distribution system through the interconnection process. To do that, to the great extent practicable, the foundational elements, assumptions, methodological design, and threshold values used in the HCA should match those used in the more technical processes used to actually integrate DERs and used for long-term distribution system planning.

a. LOAD PROFILE ASSUMPTIONS

For DER siting and long-term distribution planning, it would be helpful to have more detailed data on load profile assumptions used in the analysis, including:

- Peak load by substation and feeder
- Feeder characteristics by sector (e.g., % residential, % commercial)
- Any reasonable information for hourly load profile assumptions and the basis for such assumptions (SCADA, metered data, etc.).

It would be helpful to understand the level of granularity that can be publicly posted while protecting private or confidential customer data, and/or critical distribution infrastructure information.

2. AREAS OF IMPROVEMENT OR MODIFICATION FOR FUTURE REPORTS

a. ACCURACY OF THE HCA

The Department appreciates the considerable efforts undertaken by the Company to assess the accuracy of the 2016 and 2017 Reports. While the Company noted that there are hurdles to making an apples-to-apples comparison between HCA and interconnection studies, harmonizing the methodology and assumptions of each type of study to the extent practicable, as well as the consistent use of one model for interconnection studies used by the Company and its contractors, should to lead to more accurate and useful measures of accuracy of future hosting capacity reports.

The Department sees value in the high-level understanding of the distribution system that the EPRI DRIVE tool is capable of providing. If, however, the first-pass analysis that the EPRI DRIVE tool provides is not informative of the interconnection process or the results of a more detailed

interconnection study, then it wouldn't appear to be an efficient use of time and resources. HCA results that are accurate and lend themselves to the next stages in the interconnection process justify the continued use of the EPRI DRIVE tool. If the EPRI DRIVE tool is not a sufficiently accurate method of determining the hosting capacity of the distribution grid, then remedial actions must be taken or alternatives must be considered.

While the Company demonstrated that the analysis did not "inaccurately [show] that there is capacity when there is not" and "the comparison yielded no egregious errors that would indicate larger issues," the Department would like to see more emphasis on comparing the HCA to interconnection studies or to the results of analysis using the iterative method approach of select feeders. For instance, the Company notes that only 4 of the 15 feeders Xcel chose to compare for accuracy were subjected to an interconnection study. While it is useful to compare the results of the HCA analysis to the results of an interconnection study for various feeders, more emphasis should be put on this measure of accuracy. Only 4 of the 1,047 feeders, a fraction of a percent, were subjected to an interconnection study. While a significant amount of resources can go into an interconnection study, it would improve the reliability and validity of the HCA and the Company's streamlined approach if more feeders were subjected to an interconnection study to determine the accuracy of the HCA. It would also be helpful if the Company could demonstrate the criteria and reasoning for why these four feeders were chosen, and whether these four feeders are representative of the Company's distribution system. This point is discussed further below.

Another method to improve the measure of accuracy of the HCA is to compare the results of the streamlined method (EPRI DRIVE tool) to the results of the iterative method. These approaches would provide a better understanding of the accuracy of the EPRI DRIVE tool and provide stakeholders with a sense of the usefulness of the HCA results for distribution system planning and guiding development of the Company's distribution system and the integration of DERs. The Department defers to the Company's and stakeholders' expertise on whether a limited study using the iterative method could be reliably compared to the streamlined method, but it seems that such an approach would be useful for measuring the accuracy of the streamlined method.

In addition, it would be helpful for Xcel to identify more clearly its criteria for selecting feeders to compare for accuracy. While the Company provided some explanation as to why they chose those 15 feeders, it would be useful for Xcel to articulate whether these feeders are representative of feeders found in Xcel's distribution system and what criteria was used to make that determination. Information such as geographic location, the current state of the feeder (most recent maintenance evaluation, whether upgrades have been made or are needed), propensity to see DER integration (if such characteristics are currently known), and other appropriate criteria may be useful in establishing a rationale for the choice of feeders

used to measure the accuracy of the HCA and whether the results could reasonably be extrapolated to others parts of the system.

Improving the accuracy of the HCA is essential for a utility's distribution planning process. As the Company has elected to pursue a streamlined method using the EPRI DRIVE tool instead of the more precise (yet more resource-intensive) ICA approach used by other states, it is even more essential that this first-pass analysis yields insight into the distribution system that is useful for stakeholders at all levels of distribution system planning and in order to meet the general goals of the hosting capacity analysis laid out by the Commission.

b. DISRIBUTION UPGRADES AND COSTS

The 2017 Report included potential distribution upgrades necessary to support expected distributed generation resource additions as required by the Commission's June 28, 2016 Order. Xcel's Table 3 of the 2017 Report is a useful overview of the potential mitigation options available to increase the hosting capacity at individual feeders. The Department also appreciates the complexity and case-by-case engineering evaluation needed to inform the actual upgrades required to expand the hosting capacity.

In the future, this overview could be supplemented with information on: 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?).

While this is not an exhaustive list of the potential improvements that could be made to this requirement for future reports, this information would be useful to the most immediate goal of determining what potential upgrades are necessary to support the expected distributed generation resource additions. This supplemental information would provide stakeholders, the Department, and the Commission with a broader understanding of the technical and economic potential of the distribution system, and therefore could be useful in guiding the orderly development and investment in the distribution system.

c. INTERACTION WITH OUTHER REGULATORY PROCEEDINGS AND INTERNAL COMPANY PROCESSES

There are a number of regulatory proceedings currently underway before the Commission that involve distribution system planning, integrating DERs, electric vehicles, rate designs, and other matters that may directly or indirectly relate to the distribution system. These various proceedings each involve separate and distinct facets of the distribution system, yet are interrelated enough that some of the tools, methods, and results of any analyses or studies may be useful to the other regulatory proceedings involving the distribution system. Thus, the HCA and the 2017 Report are potentially useful to other regulatory processes.

To maximize the usefulness of the work Xcel has done to date, the Department asks the Company and other stakeholders to comment on the potential for the HCA to be used in other regulatory proceedings, how other jurisdictions use HCAs, and how the circumstances in those other proceedings—such as whether or not the generation component has been deregulated – may or may not be similar to Minnesota's circumstances. [11] The Department is interested in maximizing the value of the Company's resources: if the HCA can be useful to other regulatory proceedings, the Department would like the Company to use it to the greatest reasonable extent.

Additionally, there are various internal processes that the Company conducts to maintain, plan, and invest in its distribution system. If the HCA is useful for the Company's own internal processes to guide the integration of DERs, distribution system planning and investment, and any other relevant aspects of the Company's provision of distribution service to ratepayer, the Department would be interested in knowing these aspects and asks that the Company respond to this point.

These recommendations are intended to use the results of these analyses as much as reasonably possible to maximize efficiency and transparency while minimizing costs, and to best serve the public interests of Xcel's ratepayers.

3. OTHER ISSUES

In the Order, the Commission identified that the purpose of the hosting capacity report is "two-fold – 1) to inform and facilitate interconnection processes over time; and 2) to inform and facilitate distribution planning."[12] Over time, the HCA may be useful for stakeholders interested in further integrating DERs and associated technology, such as energy storage and electric vehicles. Additionally, the geographic features of the HCA, including the heat map created by the Company, may lend itself to helping stakeholders determine the locational value of solar. The Department would appreciate consideration of these three topics in future HCAs, and invites other stakeholders to offer their considerable expertise on how best to address

[11] States that deregulated generation may not have the same expanse of options to ensure reliable, cost-effective electric service that is available in Minnesota.
[12] Commission's Order from Docket No. E002/M-15-962 dated August 1, 2017, page 5.

these topics in the context of future HCAs, and how to accomplish such interconnections in a cost-effective manner, consistent with Xcel's integrated resource plans and transmission filings.

While the Company suggested that storage as a source of power can be included in the HCA, development of the tool to include storage acting as a source of load or as a substitute for transmission resources will be necessary to fully capture the impact of this technology. The Department would like to know whether the EPRI DRIVE tool is capable of modeling storage as a load or potential replacement for transmission. The Department would further like to know what standards exist, if any, to fully define the requirements or characteristics of storage operating as a source of load or substitute for transmission. The Department invites other stakeholders to comment on this aspect of the HCA.

III. CONCLUSION

The Department appreciates the opportunity to comment on the Company's 2017 Report and looks forward to working with all stakeholders to improve future HCAs.

ML/LT/lt

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, 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
Comments

Docket No. E002/M-17-777

Dated this 2nd day of February 2018

/s/Sharon Ferguson

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