

STATE OF MINNESOTA  
BEFORE THE  
PUBLIC UTILITIES COMMISSION

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Commissioner  
Commissioner  
Commissioner  
Commissioner

In the Matter of Xcel Energy’s 2018 Distribution  
System Hosting Capacity Study

Docket No. E002/M-18-684

**REPLY COMMENTS OF THE INTERSTATE RENEWABLE ENERGY COUNCIL,  
INC. ON XCEL ENERGY’S 2018 HOSTING CAPACITY STUDY**

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## I. INTRODUCTION

In response to the Commission’s November 20, 2018 Notice of Comment Period on Xcel Energy’s 2018 Distribution System Hosting Capacity Study, the Interstate Renewable Energy Council, Inc. (IREC) hereby submits these comments urging the Commission to use this filing as an opportunity to evaluate whether or not the methodology (and, thus, functionality) of Xcel Energy’s hosting capacity analysis is meeting the objectives of the Commission and customers in the state. IREC has participated in the development of hosting capacity analyses in Minnesota and other jurisdictions, authored a report on the topic,<sup>1</sup> and provided detailed comments and suggestions for improvements regarding Xcel’s 2016 and 2017 Hosting Capacity Reports.<sup>2</sup> IREC has reviewed Xcel’s 2018 Hosting Capacity Study, as well as the initial comments from Fresh Energy and the Minnesota Department of Commerce. Rather than reiterate the long list of issues we have identified in previous comments,<sup>3</sup> IREC respectfully submits these reply comments to suggest that after three years of attempting to refine and improve the effort, it may be time for the Commission to seriously evaluate whether Xcel’s hosting capacity map is providing real value to distributed energy resources (DER) customers and developers in the state. If not, the Commission should consider and decide what steps need to be taken to ensure the time and effort

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<sup>1</sup> Sky Stanfield & Stephanie Safdi, *Optimizing the Grid: A Regulator’s Guide to Hosting Capacity Analyses for Distributed Energy Resources*, Interstate Renewable Energy Council, Inc. (Dec. 2017), available at <https://irecusa.org/2017/12/tools-to-build-the-modern-grid> (“*Optimizing the Grid*”).

<sup>2</sup> IREC Opening Comments, Dkt. No. E002/M-17-777 (Feb. 2, 2018) (“IREC’s Opening Comments on Xcel’s 2017 Hosting Capacity Report”); IREC Reply Comments, Dkt. No. E002/M-17-777 (Feb. 28, 2018).

<sup>3</sup> IREC Opening Comments, Dkt. No. E002/M-17-777 (Feb. 2, 2018); IREC Reply Comments, Dkt. No. E002/M-17-777 (Feb. 28, 2018).

expended on this effort by all parties, as well as the expenses incurred by Xcel and ratepayers on its hosting capacity effort is worth the investment.

## **II. XCEL'S STUDY DOES NOT PRODUCE A RELIABLE ESTIMATE OF HOSTING CAPACITY.**

Fresh Energy included with their comments responses from various DER developers in the state with experience using Xcel's hosting capacity maps to help identify possible DER interconnection locations.<sup>4</sup> The comments provide a pretty dismal assessment of the current usefulness of Xcel's hosting capacity analysis. They identify a number of different issues, which can be distilled down to the following overarching challenges: the hosting capacity results differ greatly from interconnection study results; the map does not provide readily available substation and feeder data that would help developers make informed decisions; and the annual frequency of map updates hinders its usefulness. As a result, DER developers are not using and do not trust Xcel's hosting capacity maps or analyses to provide them with a starting point for interconnection applications. Put simply, DER developers are not using Xcel's hosting capacity analysis because the information it provides is not useful. These concerns align closely with the comments that IREC has provided in the past and serve as compelling evidence of the need for a more candid conversation about what the Commission expects and whether or not the maps and analysis are meeting those expectations.

Developers state that Xcel's Hosting Capacity Study does not provide them a reliable or accurate estimate of Xcel's actual hosting capacity. *Not one* of the respondents to Fresh Energy's survey believe that Xcel's hosting capacity report is meeting the requirements of the Commission's Order to "be sufficient to provide developers with a starting point for

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<sup>4</sup> Fresh Energy Initial Comments at pp. 10-21.

interconnection applications.”<sup>5</sup> For example, one developer responded that the hosting capacity results “differed greatly” from the results of interconnection studies, providing as an example that one location where the map showed no capacity available “had 14MW of capacity without upgrades when in final design with Xcel.”<sup>6</sup> The developer concluded that she “no longer use[s] the map as a result.”<sup>7</sup> Another developer describes the correlation between hosting capacity results and full interconnection studies as “varied. As in, the capacity map appears to show good potential (green to yellow), but the interconnection study and cost comes in at [\$]600k+.”<sup>8</sup> Similar sentiments were expressed by a developer who found the “map is totally unreliable. It shows that there is almost no capacity anywhere. This is not true.”<sup>9</sup>

The accuracy analysis included in Xcel’s 2018 report does not relieve the concerns expressed by DER developers and IREC. In its report, Xcel compared certain interconnection screens to its 2017 and 2018 hosting capacity results.<sup>10</sup> In its 2017 Hosting Capacity Report, Xcel noted that this approach to assessing accuracy—comparing hosting capacity results to interconnection study results—poses problems, including in particular that most past interconnection studies did not necessarily calculate hosting capacity, but rather showed where violations occurred and upgrades are needed to interconnect a particular project.<sup>11</sup> While

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<sup>5</sup> *Id.* at pp. 3-4, citing Minn. Pub. Util. Comm., Order Accepting Study and Setting Further Requirements, Dkt. No. E002/M-17-777, at pp. 4-5 (July 19, 2018).

<sup>6</sup> *Id.* at p. 12.

<sup>7</sup> *Id.* at p. 12.

<sup>8</sup> *Id.* at p. 14.

<sup>9</sup> *Id.* at p. 20.

<sup>10</sup> Xcel, Hosting Capacity Report, Dkt. No. E002/M-18-684, at pp. 19-20.

<sup>11</sup> Xcel Energy, Distribution System/Hosting Capacity Study, Docket No. E002-M-17-777 at pp. 17-18 (Nov. 1, 2017).

developers must rely on the circumstantial evidence they obtain as a result of individual projects, the Commission should work with Xcel to perform a more robust, representative, and thorough accuracy assessment.<sup>12</sup>

After three years of development and refinement, it is time for the Commission to have a serious conversation about if and when this tool is going to provide DER customers and developers the functionality and value that Commission intends to provide them. Without confidence that the results will be reliable and accurate, and with the knowledge that all the developers surveyed do not find the map to comply with the Commission's requirements, one could raise questions about the utility's use of resources to develop the map and undertake the corresponding analysis.

### **III. XCEL'S HOSTING CAPACITY MAP LACKS IN FUNCTIONALITY.**

Xcel's hosting capacity map lacks key features that would provide useful information to DER developers, which hinders its overall functionality in guiding DER project decision-making. Developers identified improvements to Xcel's hosting capacity map in responses to Fresh Energy's survey, and IREC discussed these features in its earlier comments.<sup>13</sup>

First, Xcel's map does not distinctly identify the locations of feeders with a line, as most hosting capacity maps do, but instead overlays a colored map that cannot be used to identify the feeder a customer connects to. As one developer noted, the "maps do not list hosting capacity per feeder – in fact feeders are not even designated on the map."<sup>14</sup> A more functional hosting

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<sup>12</sup> IREC provided detailed recommendations on accuracy assessments in its comments on Xcel's 2017 Hosting Capacity Report. IREC's Opening Comments on Xcel's 2017 Hosting Capacity Report at pp. 1-13.

<sup>13</sup> IREC's Opening Comments on Xcel's 2017 Hosting Capacity Report at pp. 13-17.

<sup>14</sup> Fresh Energy Initial Comments at p. 11.

capacity map would distinctly identify the location of a feeder with a line,<sup>15</sup> and allow users to click on the line to display a pop-up box with the feeder's name and other useful information.

When asked what improvements might make the map and analyses more useful to inform and guide DER project siting and decision-making, the surveyed DER developers identified several data they would use. Multiple developers suggest that the map identify the feeder, the substation the feeder connects to and pertinent information about both the substation and feeder.<sup>16</sup> Pertinent information identified by developers include: name of substation, substation capacity, capacity of distributed generation connected, capacity of distributed generation in queue, and load profile.<sup>17</sup> This information is readily available to Xcel and could be displayed in a pop-up box when one clicks on a feeder. This information is also provided by other states' hosting capacity maps, including California and New York. For example, when one selects a feeder in Southern California Edison's hosting capacity map, a pop-up box displays this information and provides a link that allows developers to download a spreadsheet with the data.<sup>18</sup> Publishing this data in a functional format would provide substantial value to developers independent of the hosting capacity analysis.

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<sup>15</sup> Xcel further acknowledges that its coarse display of hosting capacity values combines feeders that are close in proximity to each other. Xcel, Hosting Capacity Report, Dkt. No. E002/M-18-684, at p. 25 (Nov. 1, 2018) ("For feeders that are in close proximity to another feeder that has differing available hosting capacity, we have indicated the higher of the two capacities."). This does not meet the Commission's requirement to provide the "level of hosting capacity *per feeder*." Minn. Pub. Util. Comm., Order Accepting Study and Setting Further Requirements, Dkt. No. E002/M-17-777, at 4 (emphasis added). IREC provided a discussion of this issue in its 2017 comments. IREC's Opening Comments on Xcel's 2017 Hosting Capacity Report, at pp. 15-16.

<sup>16</sup> *Id.* at p. 15; *Id.* at p. 17; *Id.* at p. 19.

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

<sup>18</sup> Southern California Edison DRPEP Map, available at <https://ltmdrpep.sce.com/drpep/>.

Further, the hosting capacity results that Xcel provides lack precision. The spreadsheet attached to Xcel's report includes a range for the hosting capacity of each feeder.<sup>19</sup> Yet that range, calculated as the difference between the maximum hosting capacity and minimum hosting capacity, is so large as to render it useless much of the time—over 20 percent of Xcel's feeders include a range of 1 MW or larger. For example, feeder HSN312 provides a hosting capacity range of 0.1 MW to 3.31 MW.<sup>20</sup> These results indicate that the feeder could potentially host a large 3 MW system, or could fail to host a small net metering system of 100 kW. An analysis that examines smaller segments of a feeder, rather than the length of an entire feeder, may produce more precise results.<sup>21</sup> The hosting capacity range provided for a large portion of Xcel's feeders is so large that, even if accurate, it fails to provide DER customers and developers with actionable information.

It is also important to recognize that, at this juncture, Xcel's hosting capacity analysis and map only serves solar generators and fails to provide analysis for other types of distributed energy resources, such as electric vehicles and energy storage. The transition to a low-carbon economy is going to require massive electrification of vehicles and buildings and hosting capacity maps can play an important tool to facilitating an understanding of where the best opportunities for additional load may exist, just as they can for additional generation. A map that covers new load sources can help smooth the connection of these resources in the same way it can for solar, and can also provide important insight to the Commission as it plans for how to integrate these resources in the lowest cost manner. Similarly, there is untapped potential for

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<sup>19</sup> Xcel, Hosting Capacity Report, Dkt. No. E002/M-18-684, Attachment A (Nov. 1, 2018).

<sup>20</sup> *Id.*

<sup>21</sup> IREC's Opening Comments on Xcel's 2017 Hosting Capacity Report, at pp. 22-23.

growth in distributed energy storage (as a standalone project or paired with distributed generation), especially as costs continue to decline and customer demand for resiliency increases. A hosting capacity map and analysis that includes these additional DERs will help ensure its longevity and usefulness today and into the future.

There are numerous other ways in which Xcel's map and underlying analyses could be improved in order to help drive DER to the most valuable locations.<sup>22</sup> If the Commission intends for Xcel's map to provide value to customers it is necessary that the capabilities of the map and analysis be improved.

#### **IV. CONCLUSION**

IREC appreciates the opportunity to submit these reply comments. Hosting capacity analyses have the potential to provide the Commission, developers, utilities, and stakeholders with useful information. They can streamline the interconnection process, prevent the submission of requests to study interconnection at locations without available capacity, incent increased development of distributed generation in more optimal locations, identify places on the grid that are more suitable for electric vehicle charging, and much more. Unfortunately, Xcel's hosting capacity resources are not providing information and results that stakeholders can rely on and that are useful. IREC suggests that the Commission take this opportunity to seriously evaluate the limitations of Xcel's efforts relative to identified objectives and provide clear direction to remedy the current shortcomings, lest more ratepayer and Commission resources be spent to continue developing a tool that does not provide value or function as expected.

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<sup>22</sup> IREC's Opening Comments on Xcel's 2017 Hosting Capacity Report.



DATED: March 28, 2019

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

**Docket No. E002/M-18-684**

I, the undersigned, state that I am a citizen of the United States and am employed in the City and County of San Francisco; that I am over the age of eighteen (18) years and not a party to the within cause; and that my business address is 396 Hayes Street, San Francisco, CA 94102.

On March 28, 2019, I served a true and correct copy of

**REPLY COMMENTS OF THE INTERSTATE RENEWABLE ENERGY COUNCIL,  
INC. ON XCEL ENERGY'S 2018 HOSTING CAPACITY STUDY**

on the parties in this action as follows:

**SEE ATTACHED SERVICE LIST**

**BY ELECTRONIC FILING:** I caused a copy of the document(s) to be sent to the e-mail addresses of the persons designated as accepting electronic service on the Official Service List by using the eService feature of the eFiling application of the Minnesota Public Utilities Commission.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed in San Francisco, California on March 28, 2019.

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