STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

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January 27, 2020

In the Matter of Xcel Energy's Hosting Capacity Analysis Report **Docket No. E002/M-19-685**

SUPPLEMENTAL COMMENTS OF FRESH ENERGY

Fresh Energy submits these supplemental comments pursuant to the Commission's January 14, 2020 *Notice of Supplemental Comment Period* on Xcel Energy's (Xcel's) fourth annual Distribution System Hosting Capacity Analysis (HCA). Fresh Energy appreciates the thorough analysis and detailed comments submitted by the Department of Commerce (the Department) and Interstate Renewable Energy Council (IREC). The participation of these parties in the hosting capacity process has been invaluable for Fresh Energy and other stakeholders' understanding of the opportunities for ensuring the HCA provides value to Minnesota's energy industry and policy makers.

In these supplemental comments, we address topics raised in Initial and Reply Comments, specifically: frequency of HCA updates, granularity of the analysis, mitigation studies, DRIVe methodology, load hosting capacity, and stakeholder participation.

A. Frequency of Updates

Fresh Energy concurs with IREC and the Department that more frequent updates to the HCA, and particularly monthly updates, are critical for providing useful information for developers.[1,2] We appreciate that the Company is taking this request from stakeholder seriously and is planning to evaluate the feasibility and potential cost of quarterly and monthly updates in the 2020 HCA.[3] Fresh Energy believes that waiting until next November to

[1] IREC, Comments filed December 30, 2019 in Docket E002/M-19-685, p. 15 (link).
[2] Minnesota Department of Commerce, Comments filed December 30, 2019 in Docket E002/M-19-685, p. 26 (link).
[3] Xcel Energy, Reply Comments filed January 17, 2020 in Docket 19-685, p. 10 (link).

examine the feasibility of more frequent updates is not necessary and is overly long. In that case, Xcel would likely not begin publishing more frequent updates (pending Commission decision) until summer 2021, following the issuance of the Commission's Order in the 2020 HCA.

We recommend that Xcel file a compliance filing by April 30, 2020 evaluating the feasibility, resource requirements, and estimated costs of partial (targeted) updates to the HCA. This analysis should evaluate the feasibility, resource requirements, and costs for (1) monthly and (2) quarterly updates, and updates made pursuant to different possible criteria. Xcel shall consult with stakeholders about which criteria should be prioritized in more frequent updates and which to examine in this compliance filing.

B. Granularity of the Analysis

Commenters raised several concerns related to the granularity and accuracy of the HCA report, including the importance of sub-feeder level analysis, use of actual daytime minimum load data, publishing all criteria violation values, and integration with the MN DIP pre-application data report.

1. Sub-Feeder Level Analysis

Fresh Energy appreciates the Company's response to our query on how "sub-feeder" is defined and we are glad to hear that nodal hosting capacity results are combined into sub-feeder results in a consistent manner for each feeder.[4] While this does not answer our question about the specific number of nodes or length that qualifies as "sub-feeder," we do not believe this information is critical to the Commission's next steps on this matter.

We understand that Xcel "believe[s] providing a spreadsheet for over a thousand feeders with thousands of nodes per feeder would be cumbersome, at best, for individuals to utilize and overly complicate the tabular results."[5] However it is reasonable to expect the tabular report to correspond to the HCA map – and to publish information already being produced by DRIVE. Fresh Energy recommends that Xcel move toward making, at minimum, sub-feeder level results available to stakeholders who may find this information useful and not overly cumbersome.

Specifically, we recommend:

- Xcel shall publish within 30 days of the Commission Order in Docket 19-685 a

[4] *Ibid,* p. 6
[5] *Id,* p. 12

tabular report containing the sub-feeder results displayed on the 2019 hosting capacity map. This report shall be available in the docket, on the hosting capacity webpage, and/or by email request.

- Starting in November 2020, Xcel shall make available a tabular report containing the sub-feeder results displayed on the 2020 hosting capacity map. This report shall be available in the docket, on the hosting capacity webpage, and/or by email request.

2. Actual Daytime Minimum Load Data

Fresh Energy's comments on the 2018 HCA emphasized the need for actual daytime minimum load (DML) input data.[6] The Company has significantly improved data quality on this metric, but there is further to go. As Xcel notes in Reply Comments, the 2019 HCA uses actual DML for 25 percent of feeders, but "the balance of DML information for our system was based on estimated DML."[7] As we noted last year, 20 percent of peak load is an imprecise DML estimate.

Fresh Energy recommends that Xcel include in future HCA reports the precise number of feeders with actual and estimated DML data and note the feeders with estimated DML on the tabular spreadsheet to inform developers' use of the report.

Fresh Energy further recommends that Xcel provide a description of its plans for adding SCADA to additional feeders – particularly rural feeders where SCADA would help secure actual DML data for areas with significant community solar garden penetration.

3. Publishing Criteria Violation Values

Fresh Energy supports IREC's recommendation that Xcel publish all of the criteria violation values produced by DRIVE. It is reasonable to expect that the HCA report includes all relevant data that DRIVE is already providing, unless it is not useful to stakeholders. The list of HCA criteria and violation thresholds is quite useful to developers. We understand Xcel's concern that this information is dynamic and thresholds may change depending on mitigation actions taken.[8] We trust this could be mitigated with a disclaimer on the HCA map and report noting that hosting capacity is likely to change depending on mitigations performed.

Fresh Energy recommends that Xcel begin to publish all criteria violation values produced by DRIVE in the 2020 HCA tabular report and map.

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[6] Fresh Energy, Comments filed February 28, 2019 in Docket E002/M-18-684, p. 5 (link).
[7] Xcel Reply Comments, p. 6
[8] *Ibid*, p. 12

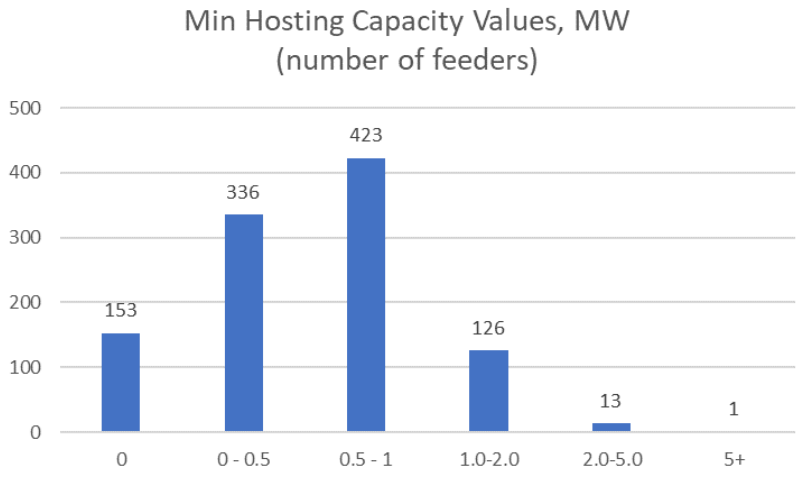
4. Integration with MN DIP Pre-Application Data Report

Fresh Energy does not yet have a position on whether the HCA report should replace the MN DIP pre-application data request. We believe other improvements can be made that would greatly increase the usefulness of the report and would be less time and resource intense than providing pre-application data through the HCA. We are interested in the Company's evaluation of what would be required to integrate the pre-application data report and the HCA, but we strongly oppose the idea of assessing a fee for access to the HCA map and tabular report. The hosting capacity analysis has been intended to be a free and public resource, and we would not support putting this information behind a paywall unless a useful but simplified free version was maintained.

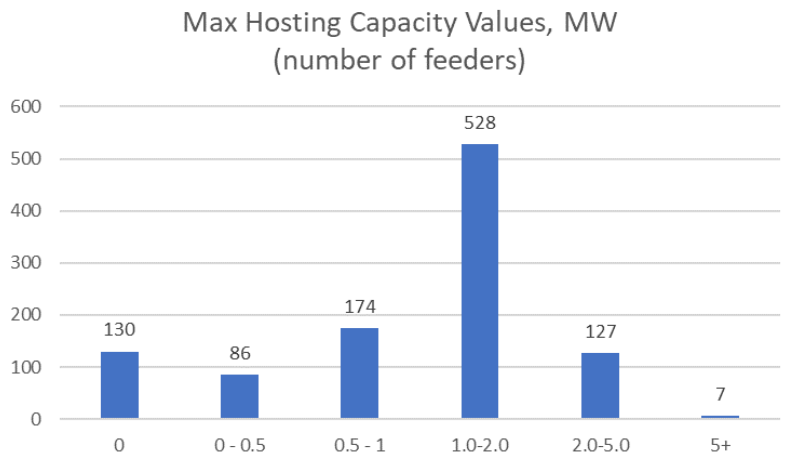
C. Mitigation Studies

1. Increasing number of "zero capacity" feeders

The 2019 HCA tabular report shows 130 feeders with zero hosting capacity at both minimum and maximum.[9] This is a 38% more than last year (95 feeders identified, later revised by Xcel to 94 feeders), which is a concern. The charts below illustrate the number of feeders with minimum and maximum hosting capacity in various ranges: 0 MW, greater than zero up to 0.5 MW, greater than 0.5 up to 1 MW, greater than 1MW up to 2 MW, greater than 2 MW up to 5 MW, and more than 5 MW. As you can see, very few feeders have hosting capacity over 2 MW, and a large percentage have zero.



[9] Xcel Energy, 2019 Hosting Capacity Analysis Report Attachment B Live filed November 1, 2019 in Docket E002/19-685.



Further, we note than the vast majority (84 percent) of feeders' maximum limiting factor is reverse power flow. Last year we posited that this may be due to the use of estimated DML inputs. We believe this years' DRIVE results continue to show this pattern due to the continuing use of estimated DML inputs for (in this year's DRIVE analysis) 75 percent of feeders. To help stakeholders understand whether zero HCA feeders are more likely to have estimated than actual DML, we have requested that Xcel specify which feeder HCA results use actual vs. estimated data in the 2020 HCA report (see section 2 above).

Maximum Limiting Factor	Number of Feeders	Percentage
Breaker Relay Reduction of Reach - max	41	3.9%
Primary Over-Voltage - max	130	12.4%
Reverse Power Flow - max	880	83.7%
(blank)	1	0.1%
Grand Total	**1052**	

D. DRIVE Methodology

Stakeholders continue to have questions and seek additional information on the use of DRIVE versus other methodologies, specifically Synergi. Fresh Energy recommends that the Company continue to report on updates to DRIVE as well as other hosting capacity models to help stakeholders assess whether DRIVE is the best tool for Minnesota's hosting capacity needs.

Fresh Energy has requested the Xcel team provide a demonstration of the DRIVE and Synergi models to ensure stakeholder have a sufficient understanding of the models' functionality, structure, assumptions, inputs, outputs, and interactions with other models or data sets. Xcel

has expressed a willingness to providing such a demonstration in the next few months.

E. Load Hosting Capacity

Fresh Energy continues to believe that load hosting capacity is important for informing the state of Minnesota's decarbonization and beneficial electrification policy objectives. Xcel states that the HCA "focus is generation capabilities" rather than load capabilities. This may historically be true, but the Commission's August 15, 2019 Order (Point 5A) requests that Xcel provide:

> *5A. A report on the evolving capabilities of the DRIVE tool and whether it is capable of incorporating the technologies included in the* ***broadened definition of DERs****, including a discussion of how Xcel's hosting capacity analysis can be used to assist state energy policy goals related to beneficial electrification.*[10]

We are willing to discuss options outside of the HCA report for obtaining the information requested for informing distribution system planning, electric vehicle (EV) charging locations, and electrification programs. We encourage Xcel to engage other stakeholders, particularly EV charging providers, in discussions about and the information on load hosting capacity and the format and cadence of this information that would be most useful.

Fresh Energy also recommends that in 2020 HCA, Xcel provide a discussion of how Xcel's hosting capacity analysis can be used to assist state energy policy goals related to beneficial electrification including detail on how a load hosting analysis would be done, an estimate of the resources that would be required, and the specific information it could provide.

F. Stakeholder Engagement and Responsiveness

Fresh Energy appreciates the comments from IREC and the Department related to the need for continued robust stakeholder engagement on the HCA, and responsiveness from Xcel. We are glad to see the Company's initial stakeholder plan, and encourage the Company, developers, and stakeholders to engage proactively in the coming year.

We support the current proposals for stakeholder meetings:

- The forthcoming combined DRIVE method
- A demonstration of DRIVE and Synergi
- A meeting to discuss and evaluate specific technical assumptions and input

We also recommend Xcel seek input from a diverse group of stakeholders, including EV charging developers and providers, on:

[10] Minnesota Public Utilities Commission, July 15, 2019 Order in Docket E002/18-684.

- The criteria to be used, and data to prioritize, in more-frequent updates to the HCA
- What data to include in a notes field
- The usefulness of feeder line locations
- Use cases for a load hosting capacity analysis and what data points would be most useful

Summary of Recommendations:

Fresh Energy offers the following recommendations for the Commission's consideration:

- Xcel shall file a compliance filing by April 30, 2020 evaluating the feasibility, resource requirements, and estimated costs of partial (targeted) updates to the HCA. This analysis shall evaluate the feasibility, resource requirements, and estimated costs for (1) monthly and (2) quarterly updates, and updates made pursuant to different possible criteria. Xcel shall consult with stakeholders about which criteria should be used and which data should be prioritized in more-frequent updates.
- Xcel shall publish within 30 days of the Commission Order in Docket 19-685 a tabular report containing the sub-feeder results displayed on the 2019 hosting capacity map. This report shall be available in the docket, on the hosting capacity webpage, and/or by email request.
- Starting in November 2020, Xcel shall make available a tabular report containing the sub-feeder results displayed on the 2020 hosting capacity map. This report shall be available in the docket, on the hosting capacity webpage, and/or by email request.
- Xcel shall include in future HCA reports the precise number of feeders with actual and estimated DML data and note the feeders with estimated DML on the tabular spreadsheet to inform developers' use of the report.
- In future HCA reports, Xcel shall provide a description of plans for adding SCADA to additional feeders – particularly rural feeders where SCADA would help secure actual DML data for areas with significant community solar garden penetration.
- Xcel shall begin to publish all criteria violation values produced by DRIVE in the 2020 HCA tabular report and map.

Thank you for the opportunity to comment on the 2019 hosting capacity study. Fresh Energy appreciates the Company's efforts to improve the usefulness of the HCA and acknowledges the work the distribution planning team (and others) have done to respond to stakeholder feedback. We look forward to continuing the robust discussion with Xcel and stakeholders about what the hosting capacity analysis should achieve and how to ensure an efficient and useful product.

/s/ Isabel Ricker
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