

**STATE OF MINNESOTA  
PUBLIC UTILITIES COMMISSION**

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**August 25, 2021**

In the Matter of Updating Generic Standards for Utility Tariffs for Interconnection and Operation of Distributed Generation Facilities Under Minn. Stat. §216B.1611 Docket No. E999/CI-16-521

**COMMENTS OF FRESH ENERGY**

Fresh Energy submits these comments in response to the Commission's July 16, 2021, *Notice of Comment Period* regarding Minnesota's Distributed Energy Resource Interconnection Process and the changes recommended by Distributed Generation Workgroup (DGWG) subgroups over the past year. The Commission's *Notice* described the issue to be addressed as follows:

Should any of the suggested changes identified in the DGWG subgroups' final reports be adopted by the Commission related to:

- a) Group System Impact Study option for long interconnection queues or for capacity constrained feeders or substations;
- b) Interconnection queue management proposals; such as, Distributed Energy Resource (DER) capacity planning limits, feeder capacity reservations, and cost sharing mechanisms for customers with small DER, and
- c) DER dispute resolution processes?

Interconnection procedures are one of the most influential policy tools states have for governing the distributed energy resources (DER) market. As Minnesota works to accelerate the transition to carbon-free electricity and the adoption of energy storage and electric vehicles, the interconnection process will only become more important to the policy goals, economic wellbeing, and environmental health of the state.

The DER market in Xcel Energy's territory has been experiencing serious interconnection

challenges – from lengthy delays to rising interconnection upgrade costs – that require the Commission’s attention. Stakeholders have worked hard over the past year through the DGWG process to propose potential solutions and attempt to find agreement on a path forward. Unfortunately, on many issues, the parties did not sufficiently agree. There are a few proposals that are not yet sufficiently developed, but where robust alternative proposals exist, Fresh Energy urges the Commission to take action and require changes to be implemented sooner than later. Where details need to be solidified, Fresh Energy urges the Commission to provide direction to Xcel and stakeholders on which solutions the Commission believes most appropriate and effective. The DGWG is a valuable and important forum for working through technical details of proposed policies, but it typically operates on consensus. We are now at the point that clear direction from the Commission is essential for moving forward.

Fresh Energy proposes that the Commission direct Xcel to adopt six improvements to its interconnection process, including four near-term changes and two medium-term strategies. Our recommendations, and a snapshot of the current projects that would be impacted by each, is summarized in the table below.

<b>Interconnection Challenge</b>	<b>Fresh Energy Recommended Solution</b>	<b>Impact on Current Queue</b>
Small, behind-the-meter projects facing high interconnection upgrade costs	Enable cost-sharing for certain projects, either shared by all eligible DER applications or alternative to be proposed	33 residential applications at a known capacity constraint
Fast-Track projects above 40kW on hold in non-capacity constrained areas	Expand parallel screening in non-capacity constrained areas to include all Simplified and Fast Track projects	33 substations 54 applications
Study track projects on hold in non-capacity constrained areas (numbers 1-4 in queue)	Semi-Parallel SIS process to initiate study when the ahead project moves to Facilities Study	8 substations 16 applications
Study track projects on hold in non-capacity constrained areas	Group Study process for non-constrained areas – pilot followed by proposal for permanent program	14 substations 76 applications
Study track projects on hold in capacity constrained areas	Develop a Group Study process for constrained areas for Commission review	29 substations 93 applications
All applications in capacity constrained and Notice areas	Establish a process for studying each capacity constrained or Noticed area to evaluate the issue and determine potential solutions	62 substations 316 applications

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## I. Background to Current Interconnection Challenges

As stakeholders have discussed at length in DGWG meetings and subgroup reports, the success of utility implementation of Minnesota's Distributed Energy Resource Interconnection Process (MN DIP) has been inconsistent across the state. Developers generally report that the process is clearer now and there have been significant improvements in efficiency and customer experience for customers of municipal and cooperative utilities. The new process also appears to be working reasonably well for customers of the state's smaller public utilities.<sup>1</sup> In contrast, developers and customers have experienced prolonged delays and rising and/or unpredictable upgrade costs when working to interconnect with Xcel Energy since the new process took effect in June 2019. While Xcel has made or is working to make several important improvements to the process, large barriers remain.

The primary issues stakeholders, developers, and customers have raised regarding Xcel's transition to the MN DIP process include:

- Missed timelines for MN DIP process steps
- Projects being put on hold
- An increasing number of small projects facing very high interconnection costs

### A. Missed Timelines

Xcel's pattern of missing the timelines established by MN DIP for each step of the interconnection process was a primary issue raised by DGWG members. Fresh Energy has highlighted the severity of delays in Xcel's completion of system impact studies (SIS) for the Commission before,<sup>2</sup> but during the DGWG process over the past year it became clear that delays were occurring throughout the process and for projects of all sizes.

Data from the utilities' MN DIP Temporary Annual Reporting shows that while all four rate-regulated utilities miss timelines sometimes, there is an evident difference in performance between Xcel and the other utilities.<sup>3</sup> In 2020, the large majority Xcel's interconnection customers experienced missed timelines for most of the steps for which we have reporting. The table below is borrowed from the Commission's April 20, 2021 presentation on 2020 MN DIP Temporary Annual Reporting data. It shows that Xcel was late over 50% of the time for three of the five steps before a Simplified project receives an interconnection agreement (IA). For Fast Track and Study track applications, all of Xcel's pre-IA steps for which we have data were

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<sup>1</sup> These impressions of the MN DIP implementation experience across utilities are based in part on MNDIP Temporary Annual Reporting and on Fresh Energy's participation in DGWG and subgroup meetings, and extensive discussions with developers over the past 18 months.

<sup>2</sup> See for example, [Comments of Fresh Energy, ELPC, ILSR, and MNSEIA](#), April 12, 2019, Docket No. E002/M-13-867.

<sup>3</sup> MN PUC Presentation: [MN DIP Temporary Annual Reporting Review](#), Slide 8, April 20, 2021.

completed late between 63-89% of the time.

**Business days between reporting steps (all applications, all process tracks)**  
Jan 1, 2020 – December 31, 2020 [\(Xcel by process\)](#)

		Completeness Review (20 days)*	Initial Engineering Review (20/15 days)	Supplemental Engineering Review (30 days)	System Impact Study (30 days)	Facilities Study (30 days)	IA Sent to Applicant (5 days)	Applicant Returns IA (5 days)	Signed IA to PTO	Application to PTO
<b>Simplified</b>	Median	34	21	32	-	3	3	4	65	139
	Min	1	1	1	-	2	0	1	1	40
	% Exceeding	76%	51%	66%	-	0%	20%	36%	n/a	n/a
	Sample	2083	1802	226	-	2	1190	1185	1011	1011
<b>Fast Track</b>	Median	40	23	32	-	-	8	4	119	208.5
	Min	1	2	1	-	-	1	1	1	78
	% Exceeding	71%	75%	69%	-	-	71%	39%	n/a	n/a
	Sample	393	191	36	-	-	134	132	72	72
<b>Study</b>	Median	35.5	23.5	33	50	48	9	2	58	186
	Min	2	1	1	4	2	1	1	8	98
	% Exceeding	75%	73%	80%	89%	68%	63%	26%	n/a	n/a
	Sample	162	108	75	38	59	40	38	29	29

\*uses 20-day threshold for applications that are not complete upon submittal, as data indicated only 11 applications were complete when submitted

4/20/2021

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One can see from this data that chronic delays impacted most customers seeking to interconnect with Xcel in 2020. Fresh Energy understands that there have been myriad challenges with implementing this new process, ranging from the volume of applications to technical glitches. Nonetheless, the reality is that most interconnection customers have been receiving inadequate service and deserve better. While not all of the proposed solutions before the Commission in this comment period directly address the issue of delays, it is important context for the Commission’s decision-making process.

Xcel has directed increased attention and resources to interconnection issues over the past six months to a year, which appear to be having good effects. Xcel made several improvements to their team, process, and technology platforms that are making for a more functional and timely process. Xcel’s recent Quarter Two 2021 Interconnection Report illustrates significant improvement in timeliness between the first half of 2021 and the second half of 2020, especially for completeness review, initial engineering review, and facilities study steps. Over this period, the number of late initial completeness reviews dropped from 19% to 3%, late initial screening dropped from 18% to .05%, and late facilities studies dropped from 52% to 2%.<sup>4</sup> Fresh Energy appreciates the Company’s efforts to improve its timeliness and applauds these strong initial results. We look forward to Xcel continuing on this path.

<sup>4</sup> Xcel Energy, [Quarter Two 2021 Report: Generic Standards For Interconnection And Operation Of Distributed Generation Facilities](#), August 16, 2021, Docket Nos. E999/CI-16-521 & E,G-002/M-12-383, pp. 12-18

### 1. MN DIP allowed timelines are quite generous

Stepping back from the issue of delays, it is important to note that MN DIP allows quite a lengthy process timeline. This is especially true small, Simplified projects. The general timeline allowed by MN DIP for approval of a Simplified application (from receipt to offer of Interconnection Agreement) ranges from 35-85 business days<sup>5</sup> (1.6-4 months), depending on how many engineering reviews the application requires and can be extended if the customer requests additional time for certain steps. Dakota Electric Association's median time to complete these steps in 2020 was 16 business days, while Xcel's median time ranged from 58-93 business days.<sup>6</sup> It is important to note that because these are median performance numbers, half of all interconnection applications took longer.

The allowed time of seven weeks (for the shortest Simplified process) is quite lengthy considering that these projects are behind the meter and do not exceed 20kW. In many states including Arizona, Colorado, Delaware, Illinois, New Hampshire, New York, and Pennsylvania (not an exhaustive list), utilities complete the interconnection approval process for small DER projects in less than one week.<sup>7</sup> As discussed in Xcel's Quality of Service Plan proceeding last year, "utilities in California have consistently been able to process applications for projects up to 1 MW within three days" and Southern California Edison processes half of applications within a day of a complete application being submitted.<sup>8</sup> The fact that MN DIP allows seven weeks to four months for these projects does not mean that they should take four months. At this time, Fresh Energy is not recommending changes to MN DIP's allowed timelines, but Simplified track applications should be moving more quickly than recent practice and they should certainly not be experiencing unnecessary delays.

### B. On Hold in Queue

In fall 2020, several DGWG members raised concerns about a growing number of applications in Xcel's territory, including some small rooftop systems, being put "on hold" while other applications ahead in queue were being processed. The "hold" would last from the Application's Deemed Complete date until all projects ahead in queue had signed IAs. "On hold" is not a stage defined in MNDIP and therefore does not have a time limit. In some areas

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<sup>5</sup> MN DIP Section 2.

<sup>6</sup> MN PUC Presentation: [MN DIP Temporary Annual Reporting Review](#), Slide 8, April 20, 2021.

<sup>7</sup> Clean Energy Organizations [Initial Comments](#), July 1, 2020 Docket No. M-12-383, p.6

<sup>8</sup> Joint Movants' Mar. 29, 2018 Comments, p. 7; see Aaron Johnson, [Speeding Up Grid Interconnections for Solar Customers](#), Western Energy Institute (Dec. 3, 2015), (5 days for PG&E); Heather Van Schoiack, [Southern California Edison's journey to same-day interconnection](#), Clean Power Research (Aug. 3, 2016), ("By the end of 2015, average time to interconnection was down to 3 days, and in May 2016, 51% of net energy metering applications were one-touch applications. One-touch applications usually receive permission to operate the same day that a complete application package is submitted because it only requires a single review by Southern California Edison.").

with lengthy (or “deep”) queues, applicants are unlikely to receive an IA for five, ten, or even upwards of 15 years under this process.

A multi-year waiting process before a customer can even have a project reviewed by Xcel should be the rare exception. Unfortunately, it is becoming rather common. Table 1 summarizes the number of substations, feeders, and applications on hold by the length of time a new applicant could expect to wait until receiving an IA, based on Xcel’s most recent DER Queue Report.<sup>9</sup> As of August 2, 2021, 316 applications were on hold and approximately 952 other applications were active in stages prior to receiving an IA.<sup>10</sup> In other words, 25% of projects that have not yet received an interconnection agreement are on hold. This includes 37 Simplified track projects, as shown in Table 2.

**Table 1: August 2021 “On Hold” Lengths in Xcel Territory**

<b>Years until MNDIA for a new applicant</b>	<b>Number of Substations</b>	<b>Number of Feeders</b>	<b>Number of Applications</b>
Less than 4 years	42	59	83
4-8 years	13	16	87
More than 8 years	11	7	146
<b>Total</b>	<b>66</b>	<b>82</b>	<b>316</b>

**Table 2: Size Range of Projects “On Hold” by Track**

<b>MN DIP Process Track</b>	<b>Applications On Hold</b>	<b>Minimum Capacity (kW)</b>	<b>Maximum Capacity (kW)</b>
Fast Track	110	23.51	1000
Simple	37	3.747	19.988
Study	169	1000	1000

The “on hold” process is a result of Xcel’s interpretation of MNDIP 1.8.3. This section states that applications requiring an SIS should be studied “serially” if not participating in a group study:

1.8.3 The Area EPS Operator shall maintain a single, administrative queue and may manage the queue by geographical region (i.e., feeder, substation, etc.) This administrative queue shall be used to address Interconnection Customer inquiries about the queue process. If the Area EPS Operator and the Interconnection Customer(s) agree, Interconnection Applications may be studied in clusters for the purpose of the system impact study; otherwise, they will be studied serially.

<sup>9</sup> Xcel Monthly DER Queue Report, August 2, 2021, available [at this webpage](#) or [download here](#).

<sup>10</sup> Based on Fresh Energy evaluation of all applications included in the August 2, 2021 Queue Report.

In implementing this section, Xcel developed an internal process that reviewed applications one at a time, regardless of track, and allowing no overlap. Fresh Energy and other stakeholders argued during the DGWG process that “serially” requires that projects be studied in order of queue position but *does not* require that the review of each project be completed before the next can begin.

Xcel changed its practice and began performing “parallel” screening for applications of 40kW and smaller in fall 2020, as long as those projects were on feeders and substations that were not classified as “Known Capacity Constraints” (more discussion on this designation below). Under parallel screening, Xcel evaluates projects in order of queue position, but will begin initial screening for small projects based on the timeline established by MN DIP, regardless of ahead-in-queue projects’ stage. During the screens, Xcel assumes all ahead-in-queue applications are active projects with the equipment in the field today.

Xcel has offered to expand parallel screening to all Fast-Track applications in areas that are not Known Capacity Constraints. During the DGWG Subgroup process, DGWG members expressed a desire to have more information about how the parallel screening process was going for small projects before expanding it. Based on information provided by Xcel’s DER Integration team in March 2021, included as Attachment 4 to these comments, it appears that parallel screening is going well for small projects and, based on this data set, is not leading to higher upgrade costs for these projects. Fresh Energy supports Xcel expanding the parallel screening process to all Fast-Track projects and recommends that Commission direct Xcel to do so by January 1, 2022.

### **C. Capacity Constrained Feeders and Substations**

Xcel points to the concentration of DER, particularly CSGs, in certain areas of its system as the primary reason that it is necessary to put projects on hold.<sup>11</sup> When distributed generation capacity approaches the maximum capacity of equipment on a specific area of the distribution grid, more complex engineering work and larger investments in distribution equipment may be needed to interconnect additional generation. For this reason, Xcel suggests they must study projects one at a time in these locations.

Xcel calls these areas Known Capacity Constraints, which it defines as:

- Substations where active plus in-queue DER capacity is  $\geq 90\%$  of the transformer capacity rating

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<sup>11</sup> As Xcel has shared previously, all CSGs are located on approximately 15% of feeders. This concentration is largely a result of the statutory language requiring that subscribers be located in the same county or a contiguous county to their solar garden. As a result, CSGs are much more likely to locate in the Twin Cities metro area, and particularly in rural counties that border more densely populated counties.

- Feeders where active plus in-queue DER capacity is  $\geq 90\%$  of the feeder capacity rating
- Substations and feeders where Xcel Energy has previously issued a Phase 2 study notification

Until 2020, Xcel included daytime minimum load in addition to equipment thermal capacity, to account for the contribution provided by local loads during solar production hours. However, Xcel removed DML from the denominator due to the Company's and some developers' concern that this may allow generation on a feeder to rely too heavily on customer loads, which may change or disappear as customers adopt greater energy efficiency or behind-the-meter generation.

Fresh Energy acknowledges that when a feeder or substation transformer approaches thermal thresholds, studying multiple projects in queue at once ("in parallel") could lead to undesirable outcomes. When projects are studied before prior-in-queue projects are complete, assumptions need to be made about the prior-in-queue projects. In non-constrained locations, we believe Xcel should screen or study projects under these assumptions – the data we have suggests it does not cause unwanted results. In constrained areas, there is a greater risk of assumptions later proving incorrect, such as projects ahead withdrawing or projects ahead requiring a significant upgrade that was not accounted for in the later-in-queue study. In these situations, later-in-queue projects may need to be restudied or could be assessed unnecessarily high upgrade costs. Some developers are eager to take on these risks, while others are wary. Fresh Energy believes a suite of solutions that addresses the varying interconnection queue situations on Xcel's grid is most appropriate for balancing time, cost, and resource needs.

It should also be noted that the "Phase 2 System Impact Study" is not a study process described or envisioned in MN DIP. In response to Information Request 46 from Fresh Energy, Xcel explains that "A Phase 2 Study is that path for projects wanting to interconnect on feeders or substations that have reached an otherwise unresolvable issue. For example, the thermal limit on a substation transformer or a situation where steady state over voltage cannot be resolved."<sup>12</sup> Phase 2 SIS are distinct from a Transmission Impact Study (TIS), though applications that require a Phase 2 SIS may also require a TIS. Fresh Energy's understanding is that Xcel does not have a standard timeframe for completion of a Phase 2 SIS. Currently, 21 feeders have received a Phase 2 SIS or other specialized study notice from Xcel.<sup>13</sup>

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<sup>12</sup> See Attachment 1 for Fresh Energy IR 46.

<sup>13</sup> Xcel Monthly DER Queue Report, August 2, 2021, available [at this webpage](#) or [download here](#).

## **II. Discussion of DGWG members' suggested changes to interconnection standards and procedures**

From July 2020 through March 2021, Fresh Energy was deeply involved in discussions with DER developers, Xcel, and the DGWG about the issues arising for interconnection customers. Fresh Energy facilitated a Subgroup of the DGWG related to the queue management issues raised by members, namely capacity constraints and the “on hold” process. Fresh Energy also participated in the group study subgroup. In this section, Fresh Energy provides a discussion of and recommendations regarding the following proposals made by the DGWG Subgroups:

- a. Cost-sharing interconnection upgrades for small DER projects
- b. Semi-Parallel System Impact Studies
- c. Establishing a Group System Impact Study process
- d. Changing Xcel's DER capacity planning limits
- e. Implementing feeder capacity reservations for customer-sited projects
- f. Modifying the dispute resolution process

### **A. Cost sharing upgrades for small DER**

#### *1. DGWG Subgroup Discussion and Proposal*

An increasing number of Xcel customers that want to install on-site solar are facing interconnection costs that they cannot afford. These customers tend to be located in areas with significant CSG activity, but some are simply in areas with older or lower-capacity grid infrastructure. During the queue management subgroup process, Fresh Energy and IREC proposed the idea of a cost-sharing mechanism for interconnection upgrades required by projects up to 40kW to reduce interconnection cost disparities and improve several queue challenges. Fresh Energy later worked with All Energy Solar and TruNorth Solar to further develop this proposal and estimate the cost per customer.<sup>14</sup> By pooling costs, DER customers that may be faced with large upgrade costs as a result of grid conditions may be able to move forward. This would reduce friction, delay, and queue churn, enable a streamlined facilities study process, and potentially allow these customers to interconnect in areas that currently have capacity constraints.

The goals of cost-sharing interconnection upgrades for small projects include:

- Reducing geographic disparities that currently exist in interconnection costs due to DER concentrations in certain areas and differences in existing grid infrastructure.

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<sup>14</sup> See Attachments 2 and 3 for this proposal and cost estimates using Xcel's 2020 DER Interconnection Report data.

- Enable greater equity of access to on-site DER by reducing the potential barrier of high interconnection costs.
- Reduce disputes and enable streamlining of several interconnection process steps.
- Facilitate a faster-moving queue, less queue churn, and enable small projects to be screened in parallel with ahead-in-queue projects in a greater number of locations.
- Enable small projects to interconnect in some capacity-constrained areas due to greater latitude to accept upgrade costs.

Fresh Energy, All Energy, and TruNorth developed a proposal that would charge a flat fee to each application for DER up to 40kW. This pool of funds would be used to pay for supplemental screening fees and distribution system interconnection upgrades aside from substation level equipment. Based on 2020 application data and using upgrade costs provided by Xcel and developers, Fresh Energy estimates that the total cost of 2020 upgrades under this proposal would have been \$300,000-\$455,000 and the initial upgrade fee would be \$100-\$150 per application, an amount that seems feasible for solar customers to absorb. Our expectation was that the fee would be updated each year based on the prior year's interconnection upgrade costs and forecasted DER applications for the coming year.

In discussions with Xcel about this proposal, we learned that Xcel was contemplating an alternative cost-sharing approach, which would allocate interconnection upgrade costs, up to a certain amount, for residential Solar\*Rewards customers to the Company's general distribution budget, i.e., to rate base these costs. Fresh Energy is optimistic about this alternative. Depending on the details of the proposal, this approach could be as effective or perhaps preferable to a fee-based cost-sharing proposal. We expect to provide more feedback in reply comments after reviewing Xcel's proposal but provide an initial discussion of the potential merits and challenges of this approach below.

Residential Solar\*Rewards customers are the majority of DER applications Xcel receives each year but comprise a small percentage of capacity. In 2020, they comprised 76% of applications but 3% of applied-for capacity. The percentage of residential projects that require expensive upgrades is quite low – Fresh Energy estimates it was approximately 2% in 2020.<sup>15</sup> Using a range of average upgrade cost numbers provided by Xcel and rooftop solar companies, Fresh Energy estimates that the total cost of upgrades for residential Solar\*Rewards participants would have been between \$114,000-\$191,000 in 2020 had this proposal been in place, and assuming that all residential Solar\*Rewards projects that failed or withdrew during supplemental screens had required upgrades and were put in service.<sup>16</sup>

This approach may also provide a timing advantage by enabling projects to skip the facilities

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<sup>15</sup> See Attachment 3 for this calculation.

<sup>16</sup> See Attachment 3 for this calculation.

study phase altogether. Speeding the interconnection process for residential projects that are sized to load is a high priority for many DGWG members, including Fresh Energy. However, we believe it will be necessary to ensure the proposal includes sufficient customer protection measures such as a cost cap on the upgrades that could be covered by Xcel and reporting to allow the Commission, Department of Commerce, and others to review the costs for reasonableness. Fresh Energy looks forward to seeing the details of Xcel's proposal and providing our recommendations on this matter in Reply Comments.

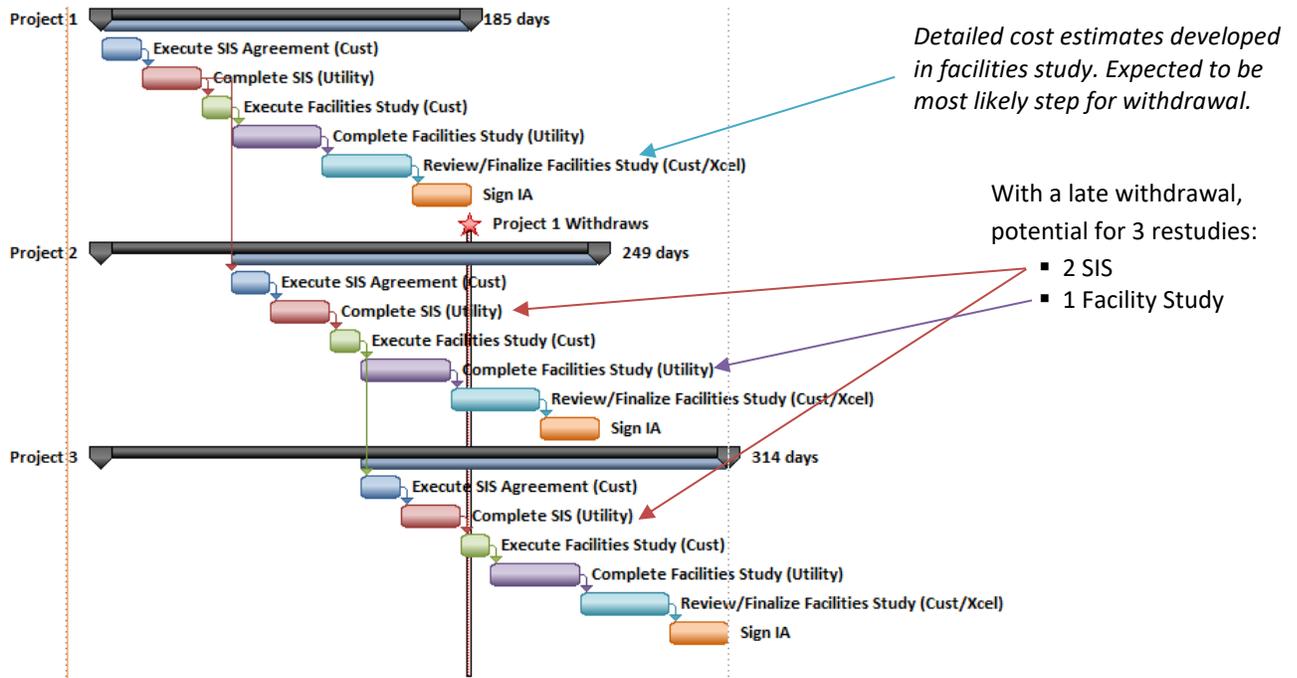
## **B. Semi-Parallel System Impact Studies**

### *1. DGWG Subgroup Discussion and Proposal*

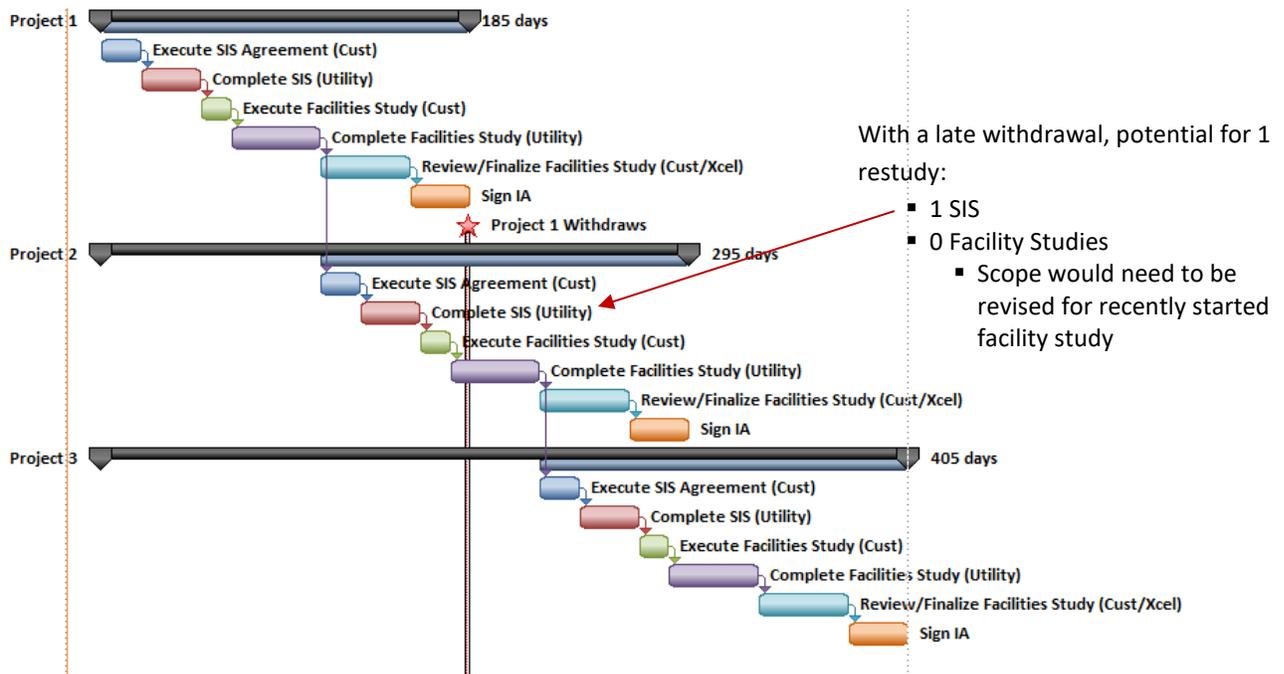
During the DGWG Queue Management subgroup, Xcel presented a set of draft proposals for reducing “on hold” time for Study track projects located on non-capacity constrained feeders. Xcel proposed to move up the “trigger point” at which an SIS would commence, so that projects could begin to be studied while other projects remained ahead in queue. The DGWG discussed this proposal as a solution for projects in queue positions 1-4 on non-constrained feeders or substations, which could work in conjunction with other solutions for deeper queues and capacity-constrained areas.

Currently under its serial review process, Xcel does not begin an SIS process until all projects ahead-in-queue have signed an IA or withdrawn. Under the potential accelerated process, Xcel would initiate an SIS when the ahead-in-queue project was at an earlier step, either a) Executed facilities study agreement or b) Received a complete facilities study. Fresh Energy is calling these proposals a “semi-parallel” SIS process because studies would not be completed simultaneously, but there could be significantly more overlap than current practice. Xcel provided the following charts to the DGWG Subgroup to illustrate the proposals, under a scenario where three Study track projects applied on the same day.

**Chart 3: Semi-Parallel SIS: Trigger Point is Beginning of Facilities Study**



**Chart 4: Semi-Parallel SIS: Trigger Point is Delivery of Facilities Study**



## 2. Evaluation and Recommendation

Comparing these two scenarios with the current serial study process, one can see that adopting an earlier trigger point would provide significant time savings. If a SIS could begin when the ahead-in-queue project initiates their facilities study, each ensuing project would save 121 business days – five and a half months – of waiting in queue. This could significantly reduce the number of projects on hold and avoid the current trajectory towards ever-growing backlog in Xcel’s DER queue.

**Table 5: Current SIS Process versus Semi-Parallel SIS Proposals**

<b>Process</b>	<b>Timeline for Second Project in Queue* (business days)</b>	<b>Time Savings (business days)</b>	<b>Potential Restudies in worst-case scenario</b>
Current: Study begins with IA for ahead project	370	n/a	0, unless a project withdraws after IA is signed (rare)
Semi-Parallel, begins with beginning of Facilities Study for ahead project	249	121	2 SIS 1 Facilities Study
Semi-Parallel, begins with delivery of Facilities Study for ahead project	295	75	1 SIS 1 modified facilities scope

\*From execution of the SIS Agreement for the first project in queue, to IA for second project in queue

As noted in the charts above, restudies are a potential downside to this approach. In discussions at the DGWG, Xcel was reluctant to take on any potential restudies. Fresh Energy believes the risk of restudies is a reasonable one given the benefits of this proposal.

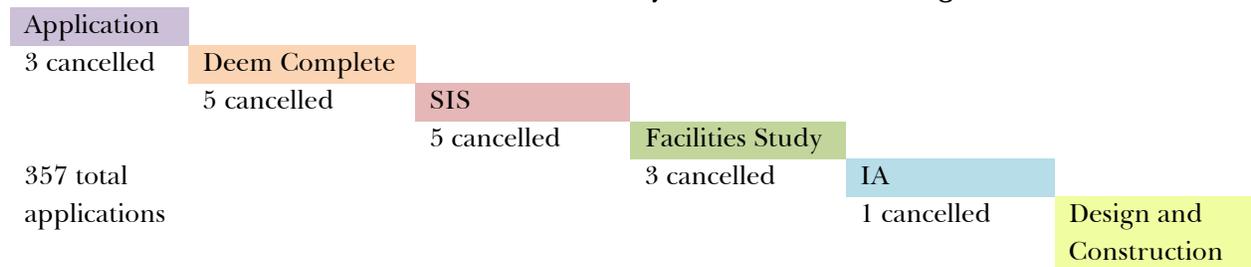
- While we support Xcel’s desire to ensure their engineering resources are used wisely and efficiently, restudies do not impose a direct business cost on Xcel as they are paid for by developers, and they appear to be quite rare under the MN DIP process.
- The charts above show a close-to-worst-case scenario: three projects submitted on the same day, with project 1 withdrawing at the end of the Signed IA milestone. This means the projects are as close in timeline as possible, and the illustrated withdrawal happens quite late.
- Xcel’s data shows that under MN DIP, most cancellations/withdrawals happen before or during the SIS process (10 out of 14), or during the period for reviewing and finalizing the facilities study (3 out of 14). In the first 18 months of MN DIP, only one project withdrew during IA review.<sup>17</sup>
- In comparison, 357 CSGs submitted applications in the first 18 months of MN DIP

<sup>17</sup> Xcel Response to Fresh Energy IR 30

implementation.<sup>18</sup> Therefore, the overall withdrawal rate for this period was 5% and the withdrawal rate after an SIS was completed was 1%.

The chart below illustrates the number of CSGs cancellations/withdrawals at each general interconnection step during the first 18 months of MNDIP.

**Chart 6: CSG Withdrawals by Interconnection Stage<sup>19</sup>**



Xcel presented two potential risk-mitigation approaches, either to discourage withdrawing after a study was completed (by charging an extra deposit to the ahead in queue project) or to ensure all potential restudies are paid for in advance (by charging an extra deposit to later-in-queue projects). Fresh Energy does not believe such deposits are necessary given the low numbers of withdrawals at these late stages. Should restudies be required, the later-in-queue project (the one being restudied) would pay for all costs associated with the restudy at the time it was deemed required. If the System Impact Study Agreement and Facilities Study Agreement do not specify that restudy costs are to be borne by the developer, adding this clause could be helpful for mitigating any concerns about non-payment.

Fresh Energy believes the Semi-Parallel SIS proposal will provide many benefits to Xcel’s DER customers and the interconnection queue overall. Given the low risk of restudy and greater timing benefits of an early trigger point, we support initiating later-in-queue SIS at the time the ahead-in-queue project signs a Facilities Study agreement. We recommend the Commission direct Xcel to adopt this SIS trigger point for certain Study track projects:

- For Applications in queue positions 1 through 4, in locations that are not designated as a Known Capacity Constraint, Xcel will commence the System Impact Study process within 1 business day of the ahead-in-queue project submitting to Xcel a signed Facilities Study Agreement. Xcel should begin this process no later than January 1, 2022.

<sup>18</sup> Xcel Energy, 2020 DER Interconnection Report, April 8, 2021, Docket E999/PR-21-10.

<sup>19</sup> Based on data from Xcel Response to Fresh Energy IR 30.

## **C. Group Studies**

### *1. Background*

Group (or cluster) studies are a process wherein multiple interconnection applications are studied together, simultaneously, as a group. This is distinct from Xcel's current batch study process, where participating applications enter the SIS process at the same time but are modeled one at a time. Batch studies provide individual project results and maintain the current cost allocation method where each project is responsible for all upgrades directly attributable to its interconnection. The advantages of a group study compared to a batch study include:

- A reduction in the aggregate time to study the participating applications, since the model is run once for the group rather than once for each participating application.
- The potential for overcoming larger cost barriers to interconnection by sharing upgrade costs across applications in a group, rather than assessing each one the costs directly attributable to it.

In other states with a group study process, the cost allocation among group participants typically requires that each project pay for the interconnection facilities directly supporting that project and share distribution system upgrades proportionally with the group, on a cost per-kW basis. This approach received general support during DGWG Subgroup and MNSEIA member meetings discussing group study options over the past year.

### *2. Group Study purpose and application*

Fresh Energy believes group studies are a promising tool for Minnesota's DER interconnection process. Xcel's territory in particular is well-suited to group studies: there is a large volume of DER applications, many projects are very similar in size (around 1MW), many projects are on hold until studies can be completed for ahead-in-queue projects, and many projects may face expensive interconnection upgrades due to their feeder or substation approaching capacity limits. Group studies can help to alleviate "holds" by processing multiple studies at once and can make larger, more expensive interconnection upgrades more feasible by sharing the costs.

Xcel has expressed concern with using group studies at Known Capacity Constraints. While Fresh Energy acknowledges that the group study process for a constrained feeder may require a more complex engineering review and a more involved facilities study, it can be done. These locations require additional innovation.

There are two categories of Known Capacity Constraints: areas where aggregate DER exceeds 90% of equipment capacity, and areas where a Phase 2 SIS Notice has been issued. Given the differing degree of technical challenges for areas with Phase 2 Notices, it may be reasonable to first focus on constrained areas that are not yet facing the "unresolvable issues" implied by a

Phase 2 Notice. Fresh Energy recommends that Xcel develop a Group System Impact Study and Group Facilities Study process for this category of locations, in consultation with stakeholders. The stakeholder process should be open to any party who comments on group studies in this proceeding and should result in a proposal for the Commission's review by September 1, 2022, unless the group requests a different date.

Xcel has also expressed a preference for a pilot group study process to allow its team and developers time to establish the new process and learn how well it works before making group studies a widely available option. Fresh Energy is concerned that a pilot process with no delivery date or reporting requirements may be too slow or not provide the insights it promises. However, we are open to Xcel and developers pursuing a voluntary pilot until details of a broader group study process are complete and approved by the Commission.

Should a group study pilot go into effect, Fresh Energy recommends that Xcel provide some reporting on the process:

- A compliance filing six months after the Order in this matter is published describing the participating applications, relevant feeder and substation characteristics, the time in which each phase of the study was completed, any group retention measures (deposits or penalties) used, the general cost allocation process used, and any disputes that arose.
- A presentation at the next Solar\*Rewards Community stakeholder meeting that follows submission of this report, to be given by Xcel with input from participating applicants about the process and lessons learned.

### *3. Does Commission adoption require an update to the MN DIP/DIA?*

Commission adoption of Fresh Energy's recommendations above does not require an update to the MN DIP/DIA. However, Commission direction to any utility to adopt a group study process may require an update to the MN DIP, if group studies were to be required in certain situations. Section 1.8.3 states that, "If the Area EPS Operator and the Interconnection Customer(s) agree, Interconnection Applications may be studied in clusters for the purpose of the system impact study; otherwise, they will be studied serially." The Commission could modify this language to read:

If the Area EPS Operator and the Interconnection Customer(s) agree, **or if the Area EPS Operator has received Commission approval to require a cluster study process in certain cases**, Interconnection Applications may be studied in clusters for the purpose of the system impact study; otherwise, they will be studied serially.

The Commission could adopt this language now, but it may be most appropriate to adopt a MN DIP change at the time a formal group study process is approved.

## **D. Distributed Energy Resource (DER) capacity planning limits**

### *1. DGWG Subgroup Discussion and Proposal*

During the Queue Management Subgroup, Xcel proposed a change to its internal DER Planning Limits. Historically, Xcel used the sum of the relevant equipment capacity rating plus daytime minimum load (DML)<sup>20</sup> as the DER Planning Limit for each feeder or substation. The relevant equipment for a feeder is the feeder line rating and for a substation is the substation transformer capacity rating. Xcel's proposal was to remove DML from the planning limit, and instead reserve it for non-exporting projects. Xcel's stated reasons for this proposal include maintaining system flexibility and ensuring that all customers have the ability to reduce their own load through efficiency or behind-the meter DER, without causing safety issues or facing large interconnection costs.

### *2. Do the suggested changes advance the purpose of interconnection standards outlined in Minn. Stat. §216B.1611 or the Minnesota Distributed Energy Resource Interconnection Process or Agreements (MN DIP/DIA)?*

Fresh Energy is not convinced that this proposal meets the goals described in MN DIP to “give maximum possible encouragement of distributed energy resources consistent with protection of the ratepayers and the public.”<sup>21</sup> Changing Xcel's planning limit in this way would reduce the potential available capacity for DER (based on thermal capacity) by approximately 13% in aggregate across Xcel's system.<sup>22</sup> The change also discounts the contribution distributed generation can make to offsetting nearby loads.

We agree that all customers have the right to reduce their load for any reason, including energy efficiency or behind-the-meter generation, and we are concerned that in one or more cases, a customer has felt that pre-existing DER on their feeder precluded their ability to interconnect. However, the proposed planning limit change is not necessarily the only way or best way to achieve this. Creating a new mechanism to share the costs, or a portion of the costs, of higher-than-expected interconnection upgrades for behind-the-meter DER could solve this same problem.

Given the growth of electrification as a state policy priority and as part of Xcel's business, Fresh Energy expects that DML will increase over time on the majority of feeders. If there are specific cases where DML is shrinking or is forecasted to drop, Xcel should develop a plan to address those situations. Until there is evidence that changes to DML are causing significant

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<sup>20</sup> Defined as the smallest load observed between 10am and 4pm.

<sup>21</sup> MN DIP, p. 1

<sup>22</sup> Xcel Response to Fresh Energy IR 27: “The absolute reduction in DER thermal capacity across the system if DML was removed is 2,155 MVA. This represents an aggregate percent reduction of 12.9 percent.”

issues for the grid and/or customers, we believe this proposal to be premature. Fresh Energy recommends the Commission not approve this proposal, but we are open to continuing this conversation and recommend that Xcel discuss grid or interconnection issues that arise as a result of reduced DML in its Quarterly Compliance Filing in this docket.

## **E. Feeder capacity reservations**

### *1. DGWG Subgroup Proposal and Discussion*

Alongside the DER planning limit proposal, Xcel proposed to reserve 25% of equipment capacity (e.g., feeder or substation transformer capacity rating) for customer-sited projects. The remaining 75% would be allocated on a “first come first served” basis. This proposal was intended to address similar concerns as the planning limit change, to ensure customers can install behind-the-meter generation to offset their loads and to improve system flexibility. Reserving 25% of equipment capacity across Xcel’s system would reserve approximately 3,600 MVA for customer-sited generation, based on a typical feeder size.<sup>23</sup>

Fresh Energy is open to the idea of a capacity reservation but does not believe that Xcel’s proposal is necessary, well-supported, or preferable to the other options on the table. First, the benefit of a capacity reservation would be to allow customer-sited projects to interconnect without needing to pay for capacity expansions (which tend to be expensive) on their feeder or substation. The cost share proposals discussed above both address this problem and provide a solution that grows, rather than restricts, the DER market. Second, a capacity reservation does little to address applications waiting on hold in areas where there are known capacity constraints, i.e., where there is little-to-no current capacity to reserve. In contrast, a cost-sharing approach and/or a more comprehensive planning effort tailored to these areas (discussed below), could address this issue.

Third, a flat percentage reservation for all feeders is unsatisfactory. Xcel suggests that it proposed a 25% reservation for continuity with planning for load.<sup>24</sup> When planning for load customers, Xcel reserves 25% of distribution feeder capacity so that when there is a need for system reconfiguration, loads can be switched to nearby feeders. This is a critical function for Xcel’s load customers and plays an important role in providing reliable service. However, Xcel does not switch distributed generation to nearby feeders when an outage or other event occurs (presumably with the exception of customers with behind-the-meter generation), so Fresh Energy does not find this justification compelling. Customer types, load profiles, and DER potential vary significantly on feeders and substations across Xcel’s system. 3,600MVA is a significant amount of capacity to reserve for behind the meter generation but it would almost

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<sup>23</sup> Calculated using Xcel’s Response to IR 27. If removing DML reduces theoretical DER capacity by 12.9% and 2,155 MVA, 25% of overall equipment capacity is 3,637 MVA.

<sup>24</sup> Expressed by Xcel during the DGWG Subgroup process.

certainly be excessive in some areas and insufficient to meet demand in others.

*2. Will the suggested changes improve the interconnection process for customers and the utility, including reducing the time needed to approve interconnection applications?*

Reserving capacity for customer-sited projects would in practice create a second queue for the reserved capacity. Xcel would still screen and study all applications in order of queue position but would allocate customer-sited generation to the reserved portion until reserved capacity was met, at which point, customer-sited projects could use the remaining “first come first served” portion. This could improve the speed of application processing for customer-sited projects that are currently on hold due to a deep queue or capacity constrained feeder. However, a capacity reservation would not change the process for customer-sited projects on feeders where active DER capacity is already at or above feeder capacity.

*3. Do the suggested changes advance the purpose of interconnection standards outlined in Minn. Stat. §216B.1611 or the Minnesota Distributed Energy Resource Interconnection Process or Agreements (MN DIP/DIA)?*

Fresh Energy does not believe that this proposal meets the goals described in MN DIP to “give maximum possible encouragement of distributed energy resources consistent with protection of the ratepayers and the public” and “Be technology neutral and non-discriminatory.”<sup>25</sup> Reserving 25% appears to benefit behind-the-meter generation at the expense of other types of DER and is likely to cap DER lower than is necessary for safety or reliability in many locations.

A capacity reservation would need to balance the interests of behind-the-meter and other DER, not serve as a de facto cap on the market in certain areas and have sufficient justification for the specific amount to be reserved. Fresh Energy is open to the idea of a reservation for behind-the-meter projects if the amount being reserved is reasonable, balances the needs of different DER market segments, is based on load and DER forecasts and other anticipated changes in electrical conditions, and adjusted to the characteristics of each substation and feeder.

## **F. DER Dispute Resolution Processes**

### *1. Xcel Proposal*

In Xcel’s June 1, 2021 Quality of Service Plan (“QSP”) Compliance Filing, Xcel proposed a modified dispute resolution process for interconnection complaints. The Commission’s Order in the 2019 QSP proceeding required Xcel to convene stakeholder meetings to develop “outside the QSP customer complaint metrics, a different mechanism or tariff to resolve solar

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<sup>25</sup> MN DIP, p. 1

installation issues before they become QSP complaints.”<sup>26</sup> Fresh Energy was not made aware of nor invited to participate in these stakeholder meetings, so we were unable to provide input on the proposal before it was filed.

Xcel’s proposed dispute resolution process is broken into two tracks, non-technical and technical, with different response timelines depending on the disputed issue. Non-technical disputes include issues related to program administration and application portal functions and would follow an expedited dispute process.<sup>27</sup> Technical disputes include issues related to review screens, study results, required interconnection upgrades, and interconnection costs, and Xcel recommends these issues follow the existing dispute process timelines outlined in MN DIP section 5.3.<sup>28</sup>

Xcel proposes that for both dispute tracks, customers first submit an online Notice of Dispute Form in compliance with MN DIP section 5.3.3, which requires a written notice of dispute.<sup>29</sup> For non-technical issues, Xcel staff will reply, provide a resolution, and meet with the disputing party within ten business days from receiving the Notice of Dispute Form.<sup>30</sup> For technical disputes, Xcel will follow the current MN DIP section 5.3 requirements of meeting with the parties within 20 business days from receiving the Notice of Dispute Form.<sup>31</sup> Xcel proposes that complaints submitted through the new Dispute Form are not counted towards the customer complaint threshold in its Quality of Service Plan (QSP) tariff “unless the parties had attempted to resolve the issue first through the dispute resolution process.”<sup>32</sup>

*2. Will the suggested changes improve the interconnection process for customers and the utility, including reducing the time needed to approve interconnection applications?*

Fresh Energy shares the goal of a streamlined and effective dispute resolution process, especially given the number and severity of disputes in the last 18 months. We support Xcel’s proposal to establish an online Notice of Dispute Form and two-week timeline for resolving non-technical disputes. However, we have concerns about requiring timeline-related complaints to use this process and recommend that customer information clearly state that the process does not preclude submitting a complaint to CAO after using the Notice of Dispute process with Xcel, should a customer wish to. Fresh Energy also notes that many disputes may

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<sup>26</sup> MN PUC, [Order Accepting Filing and Denying Request to Exclude Complaints](#), February 18, 2021, Docket Nos. E,G002/CI-02-2034, E,G002/M-12-383, Order Point 3

<sup>27</sup> Xcel Energy, [Compliance Filing Quality of Service Plan Tariff](#), June 1, 2021, Docket Nos. E,G002/CI-02-2034, E,G002/M-12-383, p. 1

<sup>28</sup> *Ibid*

<sup>29</sup> *Ibid*

<sup>30</sup> *Id.*, p. 2

<sup>31</sup> *Id.*, p. 11

<sup>32</sup> *Id.*, p. 2

be avoided by improving internal processes, communications with customers, and adopting several of the solutions proposed above. We support a faster dispute process for non-technical issues, but it is no substitute for broader improvements to the process overall.

Xcel's suggested dispute process appears to provide improvements to the speed and certainty of resolution for customers with non-technical complaints. The ten-day timeframe for response and resolution of these issues is an improvement over the current informal process. We see benefits to tracking disputes by issue area and providing regular reports to the Consumer Affairs Office (CAO) and Commission. Establishing a process for elevating a concern to Xcel and providing an opportunity for resolution before the complaint counts toward the QSP threshold may also increase Xcel's incentive to resolve issues.

Fresh Energy's primary concern is that the proposed process could reduce accountability for meeting MN DIP timelines specifically, contrary to the Commission's Order requirement that a new dispute process "provides clear transparency to the installers and customers for the tracking and holding accountable of Xcel Energy's compliance with the MN DIP timelines."<sup>33</sup> For customers that are waiting on an overdue document from Xcel or have previously experienced a missed timeline, requiring customers to notify Xcel and go through a 10-day resolution process is not appropriate. Xcel knows when it has missed a MN DIP timeline and should already be in communication with customers when this happens. Customers should not be required to file a Dispute Form in order to receive overdue documents in the timeliest manner possible.

Customers who experience late responses or overdue documents may also wish to file a complaint after the expected document has been received, to inform Xcel and the Commission of their dissatisfaction with the customer service, not to request resolution for their specific issue. Complaints about a previously missed timeline, where the expected milestone is completed but was late, may also be perceived as "resolved" and therefore seen as ineligible for a complaint to the CAO. To remedy these issues, Fresh Energy recommends that customers with complaints about a missed timeline be allowed to file a complaint with the CAO at the same time they complete Xcel's Notice of Dispute Form.

Fresh Energy recommends that the Commission clarify that customers may file a complaint with the CAO after the corresponding resolution period (10 business days for non-technical, 20 business days for technical disputes) if they are not satisfied with the response or resolution received, regardless of whether Xcel has deemed it resolved. This process should be clearly explained on the Commission's website as well as Xcel's webpages relevant to interconnection, Solar\*Rewards, Solar\*Rewards Community and Net Metering.

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<sup>33</sup> MN PUC, [\*Order Accepting Filing and Denying Request to Exclude Complaints\*](#), February 18, 2021, Order Point 3

Fresh Energy appreciates the opportunities for tracking, reporting, and transparency that Xcel's proposal contains. We support the Company's plan to track and monitor trends in issues of dispute, to provide monthly reporting to CAO and quarterly reporting to the Commission, and to discuss the dispute process and underlying issues at the new quarterly Solar\*Rewards stakeholder meeting. Fresh Energy recommends that in future quarterly MN DIP compliance filings to the Commission, Xcel provide:

- The number of nontechnical and technical dispute notices received that quarter
- The number of nontechnical and technical disputes resolved that quarter
- A breakdown of all dispute notices received that quarter by issue area
- A discussion of work planned, ongoing, or recently completed to address issues highlighted by nontechnical and technical customer disputes
- Any other relevant information

### **III. Are there other issues or concerns related to this matter?**

#### **A. Addressing Known Capacity Constraints**

As discussed above, Fresh Energy believes that cluster studies could be used to address, and would be most valuable if used to address, capacity constrained grid locations. We acknowledge that in some locations, such as those with DER capacity already at or above feeder capacity and hosting deep queues (i.e., more than 4 projects on hold) a more complex engineering process may be necessary. In the DGWG Cluster Study Subgroup, Fresh Energy joined with MnSEIA, IREC, and Sunrise Energy Ventures in recommending that Xcel complete a technical assessment of the capacity constrained locations on its distribution system to inform decisions about whether and how to expand hosting capacity at each one.

Fresh Energy is concerned by the lack of information in the record about the specific technical issues that may exist at the substations and feeders on the known capacity constraints list, and the lack of proposal for addressing them. As discussed in the Cluster Study Subgroup Report, we recommend that the Commission direct Xcel to provide a full technical assessment of each of the capacity constrained locations, outlining the technical issues being encountered and the potential avenues are for addressing them, including estimated costs and timelines for the alternative solutions.

Fresh Energy believes this assessment is necessary for the Commission and parties to have a factual understanding of issues, their severity, and the cost of mitigations. This information is foundational for a productive discussion about whether to resolve these constraints and the pathways for doing so. We recommend this assessment be submitted within two months of the Commission's order, or as part of Xcel's 2021 Hosting Capacity Analysis. We believe this

timeline is reasonable as Xcel has indicated that it is aware of the issues in play and in some cases is in discussions with MISO about them. After Xcel submits the assessment, we recommend the Commission open a comment period to allow stakeholders to comment on the completeness of the assessment, the merits of various solutions Xcel presented, and to offer alternative solutions. We also recommend that the Commission consider asking the Department of Commerce to utilize an internal distribution engineering expert or an external consultant with this expertise to assist in evaluating Xcel's assessment.

## **B. Transparency of Distribution Upgrade Costs for DER Interconnection**

### *1. Xcel Itemization of Costs*

During Fresh Energy's investigation into the potential for a cost-sharing approach for small DER projects, we learned that currently there is very little transparency into how upgrade costs are determined. Fresh Energy reviewed several anonymized Scope of Work documents for interconnection upgrades, which show that customers typically receive a very brief description of the upgrades that Xcel has deemed required and one total cost number for all of the work. In some cases, Xcel will provide a cost for distribution upgrades, transmission upgrades, and substation-related upgrades.

Fresh Energy strongly believes more transparency into these costs is required. MN DIP Section 5.6.1 states”:

“As indicated in the Interconnection Agreement, the Area EPS Operator shall provide a good faith cost estimate, including overheads, for the purchase and construction of the Interconnection Facilities, Distribution Upgrades, and Network Upgrades, and provide a detailed itemization of such costs.”

It is clear from the Scope of Work documents that developers receive that Xcel is not providing “a detailed itemization of such costs.” The information provided is an overall cost number, with no breakdown by budget categories (e.g., labor, equipment, transportation, and overhead) or by components of the project (e.g., differentiating between transformer installation and primary line extension costs). While interconnection upgrades are not currently included in rates, they are costs that Xcel charges customers as part of its rate-regulated business, and the Commission must have some oversight of these amounts. Customers may not need the information for comparing quotes, but they nonetheless have a right to know what they are paying for. Fresh Energy recommends that Xcel begin to provide customers with itemized cost estimates as part of Facilities Study results by November 1, 2021 to ensure customers and regulators have some insight into these costs.

In light of a potential proposal to move interconnection upgrade costs into the general distribution budget, and therefore into base rates, this additional transparency is even more

necessary. The cost of these upgrades is quite small in comparison to the overall distribution budget, but we believe it would be appropriate for Xcel to include reporting on the costs of interconnection upgrades as part of a future request for cost recovery. Fresh Energy anticipates expanding on this issue in Reply Comments after reviewing Xcel's proposal.

## *2. Improving transparency across all rate-regulated utilities*

Customers across Minnesota have little to no insight into what interconnection costs to anticipate when they apply for interconnection. Some utilities, including Xcel's Colorado business,<sup>34</sup> publish cost guides that list the most common distribution and substation upgrades and a range of typical costs for each. This information, while incredibly simple, could be invaluable for customers and developers in understanding the range of potential total project costs. It may also increase the opportunity for some projects to modify their design in advance to avoid more costly upgrades. Fresh Energy recommends that all rate-regulated utilities develop and publish a cost guide for typical DER upgrades by January 1, 2022, update it as needed, and notify the Commission when the guide has been updated.

A related issue concerns customer, developer, and stakeholder uncertainty about how utilities determine the cost of replacement infrastructure. Xcel has stated that they do "not consider depreciation of existing equipment for DER interconnection,"<sup>35</sup> and provided a document explaining the Company's accounting treatment for interconnection upgrade costs.<sup>36</sup> According to Xcel, all replaced assets have a net book value of zero, and thus there is no value to crediting to the cost of replacement during the interconnection upgrade. Fresh Energy and other stakeholders have observed that not all utilities make this same assumption, and may credit the remaining value of a transformer, for example, to interconnection customers. Fresh Energy believes this is an important issue to clarify. The accounting treatment of distribution upgrades impacts Minnesota's growing number of DER customers, and depending on how it is done, may impact other customers as well. Fresh Energy recommends that the Commission ask all rate-regulated utilities to publish an Accounting Treatment Guide for DER Interconnection Costs by January 1, 2022 to explain how they consider factors including depreciation, salvage value, and tax implications of contributions in aid of construction.

## **IV. Conclusion and Recommendations**

Xcel's Minnesota DER customers are facing considerable interconnection challenges. The Commission is also faced with a complex record, many potential solutions, and fierce

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<sup>34</sup> Public Service of Colorado's [General Cost Outlines for Typical Distributed Energy Resource System Updates](#), January 3, 2020.

<sup>35</sup> Xcel Response to Fresh Energy IR 48

<sup>36</sup> Xcel [Reply Comments](#), February 22, 2019, Docket No. E002/M-18-714, Attachment A

disagreements. To assist the Commission with its decision-making process, Fresh Energy identified the number of substations and pending interconnection applications that would be affected *today* by each of our recommended solutions. The first three recommendations on this list are solutions that Xcel can put into place or initiate in the next few months, and largely require modifications to internal processes. The fourth item, group studies in non-constrained areas, Xcel proposes to first pilot with willing developers in one or two locations. The fifth and sixth item require more development before solutions can be implemented but also have the potential to benefit a greater number of projects and areas of Xcel’s grid. Fresh Energy recommends the Commission adopt all six of these solutions.

<b>Interconnection Challenge</b>	<b>Fresh Energy Recommended Solution</b>	<b>Impact on Current Queue</b>
Small, behind-the-meter projects facing high interconnection upgrade costs	Enable cost-sharing for certain projects, either shared by all eligible DER applications or alternative to be proposed.	33 residential applications at a known capacity constraint
Fast-Track projects above 40kW on hold in non-capacity constrained areas	Expand parallel screening in non-capacity constrained areas to include all Simplified and Fast Track projects	33 substations 54 applications
Study track projects on hold in non-capacity constrained areas (numbers 1-4 in queue)	Semi-Parallel SIS process to initiate study when the ahead project moves to Facilities Study	8 substations 16 applications
Study track projects on hold in non-capacity constrained areas	Group Study process for non-constrained areas – pilot followed by proposal for permanent program	14 substations 76 applications
Study track projects on hold in capacity constrained areas	Develop a Group Study process for constrained areas for Commission review	29 substations 93 applications
All applications in capacity constrained and Notice areas	Establish a process for studying each capacity constrained or Noticed area to evaluate the issue and determine potential solutions	62 substations 316 applications

A functional and efficient interconnection process is an essential foundation for the grid modernization and decarbonization efforts Minnesota is undertaking. The MN DIP guidelines are a significant improvement on the prior process, but as the Commission has seen, the internal processes utilities use to implement these guidelines matter a great deal as well. After a year of investigating the issues and working to develop solutions with other parties, Fresh Energy urges the Commission to take decisive action in this proceeding to put solutions in

place sooner than later and provide clear direction to Xcel and stakeholders about the Commission's preferences for resolving the longer-term challenges we face.

Thank you for the opportunity to comment on this important issue. Fresh Energy appreciates the Commission's consideration of our recommendations, summarized below.

#### Parallel Screening:

1. Fresh Energy recommends that the Commission direct Xcel to expand its parallel screening process to include all Fast-Track DER Interconnection Applications, except those on capacity constrained feeders or substations, by January 1, 2022.

#### Semi-Parallel SIS:

2. Fresh Energy recommends that the Commission direct Xcel to adopt an earlier SIS trigger point for certain Study track projects:
  - a. For Applications in queue positions 1 through 4, in locations that are not designated as a Known Capacity Constraint, Xcel will commence the System Impact Study process within 1 business day of the ahead-in-queue project submitting to Xcel a signed Facilities Study Agreement. Xcel will begin this process no later than January 1, 2022.

#### Cost-Sharing Upgrade Costs

3. Fresh Energy recommends that the Commission direct Xcel to adopt a program to share the costs of interconnection upgrades for small DER projects. *(To be updated in Reply Comments)*

#### Group Studies

4. Fresh Energy recommends that the Commission direct Xcel to provide the following reporting on any voluntary pilot Group Study processes it implements:
  - a. A compliance filing six months after the Order in this matter describing the participating applications, relevant feeder and substation characteristics, the time in which each phase of the study was completed, any group retention measures (deposits or penalties), the general cost allocation process used, and any disputes that arose.
  - b. A presentation at the next Solar\*Rewards Community stakeholder meeting that follows submission of this report, to be given by Xcel with input from participating applicants about the process and lessons learned.
5. Fresh Energy recommends that the Commission direct Xcel to develop a Group System Impact Study and Group Facilities Study process that could be used at Known Capacity Constraint locations. Xcel shall develop the group study processes in consultation with stakeholders including the parties who commented on group studies in this proceeding. Xcel will submit a Group Study proposal for the Commission's review by

September 1, 2022, or at another date determined by the Executive Secretary.

#### DER Planning Limits

6. Fresh Energy recommends that Xcel discuss any issues that arise as a result of reduced DML on feeders with high DER capacity in its quarterly compliance filings in this docket.

#### Capacity Reservation

7. Fresh Energy recommends that the Commission not approve Xcel's capacity reservation proposal, and require that if Xcel brings forward another capacity reservation proposal in the future:
  - a. The amount of the capacity reservation should be based on expected DER growth and other anticipated changes in electrical conditions.
  - b. The amount of the capacity reservation should be adjusted to the characteristics of each substation and feeder.
  - c. Xcel will include supporting documentation to demonstrate why the capacity reservation is needed and why each proposed reservation amount is justified.

#### Dispute Resolution

8. Fresh Energy recommends that the Commission approve Xcel's proposed DER Dispute Resolution process with the following modification:
  - a. Customers with a complaint about a missed timeline may file a complaint with the CAO at the same time they complete Xcel's Notice of Dispute Form.
9. Fresh Energy recommends that the Commission and Xcel provide information on the updated dispute process on relevant webpages, including a link to the Notice of Dispute Form and a statement that customers may file a complaint with the CAO after filing a Notice of Dispute Form with Xcel. For complaints regarding issues other than compliance with MNDIP timelines, customers can file a complaint with the CAO after the corresponding resolution period (10 business days for non-technical, 20 business days for technical disputes) if they are not satisfied with the response or resolution received.
10. In future quarterly MN DIP compliance filings to the Commission, Xcel should provide:
  - The number of nontechnical and technical dispute notices received that quarter
  - The number of nontechnical and technical disputes resolved that quarter
  - A breakdown of all dispute notices received that quarter by issue area
  - A discussion of work planned, ongoing, or recently completed to address issues highlighted by nontechnical and technical customer disputes
  - Any other relevant information

#### Known Capacity Constraints

11. Fresh Energy recommends that the Commission direct Xcel to provide a full technical assessment of each Known Capacity Constraint location, outlining the technical issues being encountered and the potential avenues are for addressing them, including estimated costs and timelines for the alternative solutions. This assessment will be submitted within two months of the Commission's Order, or as part of Xcel's 2021 Hosting Capacity Analysis.
12. Fresh Energy recommends the Executive Secretary issue a notice of comment period and set a comment schedule after Xcel's Known Capacity Constraint report is filed, to allow stakeholders to comment on the completeness of the assessment, the merits of various solutions Xcel presented, and to offer alternative solutions.
13. Fresh Energy recommends the Commission consider asking the Department of Commerce to utilize an internal distribution engineering expert or an external consultant with this expertise to assist in evaluating Xcel's assessment.

#### Transparency into Interconnection Costs

14. Fresh Energy recommends the Commission direct Xcel to begin providing customers with itemized cost estimates as part of Facilities Study results starting November 1, 2021.
15. Fresh Energy recommends the Commission direct all rate-regulated utilities to develop and publish on their websites a cost guide for typical DER upgrades by January 1, 2022, update it as needed, and notify the Commission in this docket whenever the guide has been updated.
16. Fresh Energy recommends that the Commission direct all rate-regulated utilities to publish an Accounting Treatment Guide for DER Interconnection Costs by January 1, 2022 to explain how they consider factors including depreciation, salvage value, and tax implications of contributions in aid of construction in costs assessed for interconnection.

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