

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

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In the Matter of Xcel Energy's Integrated Distribution Plan and Advanced Grid Intelligence and Security Certification Request

PUC Docket Number: E002/M-19-666

March 17, 2020

Comments on Docket Number: E002/M-19-666. IPS Solar support for Xcel's AGIS certification and significant concerns related to other aspects of Xcel's proposed Integrated Distribution Plan (IDP)

I. Introduction:

IPS Solar appreciates the opportunity to provide this stage of comments to the Minnesota Public Utilities Commission (PUC) related to Xcel Energy's proposed IDP. IPS Solar is a Minnesota based solar developer with 25 years of experience. Our portfolio includes standalone solar PV commercial and industrial projects and significant development of Minnesota Community Solar Gardens (CSGs). IPS Solar has been active in all of the various venues where grid modernization in Minnesota has been discussed and has participated in every Xcel IDP stakeholder dialogue. In those discussions, IPS Solar has consistently pointed to the development of Distributed Energy Resources (DERs) and the role of energy storage in accelerating the distributed grid development.

II. Support for Certification of Xcel's Advanced Grid Intelligence and Security (AGIS) Initiative that Includes a. Advanced Metering Infrastructure (AMI) b. Field Area Network (FAN) c. Fault Location, Isolation, and Service Restoration (FLISR) and d. Integrated Volt-Var Optimization (IVVO):

We understand that certifying these programs will cause modest rate increases that Xcel has clearly articulated in their IDP filing. Demand charge customers in our discussions within this market segment will be most impacted and will also be most benefitted by the certification of this initiative.

An approved roll out of the Advanced Metering Infrastructure (AMI) would be particularly helpful for demand charge rate payers that need the sub-hourly load data to determine the extent of bill savings from peak shaving with on-site solar plus storage systems. This load profile information is also important for demand charge customers who are trying to decrease the amount of fossil fuels used during peak curtailment events and for Xcel to achieve a carbon free grid.

This Behind the Meter (BTM) use case for storage paired with solar is analyzed in the *Minnesota Energy Storage Cost-Benefit Analysis* and deemed cost effective now even without the sub-hourly data that AMI would provide. More on this use case analysis later.

We believe the AGIS is a coherent package some of which is not customer interactive, such as FAN or IVVO, but is foundational communications and distribution grid efficiency IT. FLISR will help reduce outage duration and frequency which will be increasingly important in the face of reliability challenges

from extreme weather driven by climate change. Reducing outage duration will increase the BTM cost effectiveness for reliable back-up power for customers such as hospitals, water treatment facilities, manufacturers, etc. that have resolved to shift away from carbon-based outage protection.

III. IPS Solar Encourages the Commission to Certify the Advanced Distribution Planning Tool (APT):

Xcel's extensive discussion of the APT appears to track with using the granularity produced by the AGIS and needed to develop the aggregate behind the meter (BTM) grid opportunities. *"Combined, a tool that enables these more granular analyses will provide important information and efficiencies in assessing potential non-wires alternatives to identified system upgrade needs. An annual peak load analysis alone cannot communicate whether an identified upgrade is a candidate for **non-wires alternative**; more granular hourly data is required to determine the magnitude of overloads at specific durations"* p.84 Xcel IDP

IV. Concerns about Xcel's Calculation of Non-Wires Alternatives (NWAs):

A. Xcel used the same two feeders in both the 2018 and 2019 IDP filing to show their method for calculating the comparative costs for NWAs and traditional wires upgrades - one for an N-0 risk and one for an N-1 risk. The 2019 battery storage costs for both feeder NWA upgrades are adjusted lower than 2018 costs that we agree reflects a more accurate costing of battery storage. The Energy Storage Association and NREL both expect the cost of Lithium-Ion batteries to continue yearly decreases in the range of 8%-10%.

With two years of Commission-led exploration into Xcel's planning to modernize the grid with DERs the Commission needs to establish a more comprehensive methodology for determining the true value of NWAs. The detailed cost analysis of NWAs in Attachment H of the 2019 Xcel IDP clearly illustrates how Xcel distribution engineers have bundled DERs (Energy Efficiency, Demand Response, Solar and Battery Storage) to determine the costs of NWAs relative to the costs of traditional equipment for nine capacity upgrade projects.

B. We believe the Commission should support Xcel's basic accounting of NWA's costs but frame a further inquiry into NWA's costs that may be offset by several values not included in Xcel's bundle of DERs. Xcel's methodology will identify a few substations and feeders where solar plus storage is less costly than "wires" upgrades but, in its narrow equipment cost comparisons, it excludes rate payer benefits that are visible when other beneficial grid impacts are examined. Framed as a question, what does storage paired with solar produce as a set of avoided costs that should be included when comparing to distribution upgrade costs?

V. Developing the IDP DER Metrics:

Before looking at that question, we would respectfully propose a couple of changes to the NWAs analysis framework. First, we believe the threshold of \$2M estimated traditional upgrade costs needs to be lowered to at most \$1M and include asset health projects as well as new capacity upgrades. The \$2M threshold forces an evaluation of more complex projects with measurably more risks to mitigate than projects at the cost threshold of \$1M or less. Second, a large percentage of the solar sized to mitigate the identified contingencies analyzed by Xcel exceed the <10 MW definition of distributed generation facilities in Minnesota statutes (216B.164 COGENERATION AND SMALL POWER PRODUCTION Subd. 2a. (1) and many proposed risks mitigating solar systems exceed FERC's DG limit of <20 MW. It would be instructive

for Xcel to analyze the NWAs including these two DG limits for solar and a <\$1M threshold for estimated “wires” feeder upgrades. This would be useful for this docket and Docket 16-521 as we enter the initial phases to create an avoided cost methodology for Minnesota DG facilities.

VI. Leveraging Minnesota Cost Benefit Data:

The Commission is very familiar with avoided costs calculations for solar but needs to work with stakeholders like IPS to develop a methodology that includes the available data analyzing the impact of energy storage on Minnesota’s energy economy. Clearly, this is not Xcel specific as all Minnesota utility sectors have developed noteworthy solar plus storage programs. The Commission as early as July 2017 was presented with *An Economic Analysis of Energy Storage Opportunities in Minnesota* conducted by Strategen Consulting. This report demonstrated that storage coupled with solar is already a competitive alternative to natural gas peakers in Minnesota (and as a standalone resource starting in 2023). While very important, it is clear that there needs to be a standard for cost comparison that converts avoided peaker plant, fuel and transmission costs to offset traditional distribution network upgrade costs.

Minnesota Energy Storage Cost-Benefit Analysis conducted by E3 (Authorized by the Minnesota legislature) and recently presented to both Minnesota House and Senate Energy committee leadership should be formally presented to the MN PUC as well. This analysis looks at both BTM and front of the meter (FTM) use cases and concludes that with standalone storage modeled for one hour duration it would be cost effective in 2020 even when it is not paired with solar (pg. 47) and 2025 when modeled for four hour duration.

Several states, like Massachusetts, have conducted energy storage cost-benefit studies. That study demonstrated that one of the largest system values energy storage can provide for their state is the reduction of the costs and emissions to meet peak demand. In fact, Massachusetts identified that over one third of the value of deploying 1,700 MW of energy storage comes from reducing peak demand.

Xcel’s *Building a Carbon-free Future Report* is a clear declaration of its decision to place implementation of a carbon free energy grid at the core of its planning. This is an important step in avoiding the damage predicted from un-mitigated climate change. In the context of planning, this Xcel document discusses the importance of energy storage to integrate a higher penetration of renewables such as solar. However, the emphasis on centralized utility scale projects rather than more dispersed <10 MW projects we believe deserves more attention in this IDP docket as well as Docket 16 – 521.

VII. Conclusion:

IPS Solar urges the Minnesota PUC to approve Xcel’s request for certification for its AGIS initiative and the APT. We urge a wider set of avoided costs in the calculation of NWAs and suggest revisions to Xcel’s NWAs analysis framework. Data from studies quantifying the costs and benefits of projects where energy storage is paired with solar or operates in standalone mode should be considered by the Commission to determine the full value of DERs in the development of Minnesota’s clean energy grid.

Sincerely:

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