

June 26, 2023

Will Seuffert  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 350  
St. Paul, MN 55101

IN THE MATTER OF: Xcel Energy's Integrated Distribution Plan (IDP): Resilient  
Minneapolis Project Docket: E002/M-21-694

Renewable Energy Partners, Inc. (REP) opposes Xcel's petition to withdraw its petition for an increase in the cost cap for the Resilient Minneapolis Project (RMP) to the extent that such withdrawal prejudices the likelihood that the RMP can proceed with development. As an alternative, REP requests that the PUC extend the project for at least 180 days and allow community partners to submit an alternative development approach for these projects.

REP is a certified minority business and solar energy developer based in North Minneapolis. REP has been a development partner for the North Minneapolis resiliency hub with Minneapolis Public Schools and has supported the solar energy development at Sabathani Community Center and Minneapolis American Indian Center (MAIC).

**Background.** The concept for a North Minneapolis solar-microgrid and "community resiliency hub", has been in planning stages since before May 2018, when a team from the community, REP, technical firms, Xcel and UMN's Energy Transition Lab workshopped the project at Rocky Mountain Institute's E-Lab Accelerator in Sundance, Utah.

After that, REP entered into a co-development agreement for the project with Siemens and submitted a proposal to Minneapolis Public Schools (MPS) for development of a solar microgrid at three adjacent school buildings in July 2021. REP worked with a senior engineering team at the University of St. Thomas' Center for Microgrid Research during the 2021-22 academic to evaluate energy loads and storage options. Working with the University of Minnesota, we also implemented a solar-plus-battery storage demonstration project for "virtual power plant" modeling at our training center in North Minneapolis.

In response to the RFP for the Resilient Minneapolis Project, REP submitted the North Minneapolis site, and was selected by Xcel along with Sabathani Community Center and Minneapolis American Indian Center (MAIC). All three sites were part of Xcel's filing with the PUC in November 2021 and the PUC's approval of a \$9.0 million Xcel investment in July 2022. With Xcel now developing the battery system for the North Minneapolis project, Siemens withdrew from its co-development agreement with REP.

As the Commission may know, the three sites and a team of community stakeholders have been working with the National Renewable Energy Laboratory (NREL) on technical issues related to the community resiliency hub projects. This assistance, through DOE's Communities LEAP pilot program, is ongoing through 2023 and includes training in the use of NREL tools for analysis of grid system benefits and energy cost benefits from the proposed solar microgrids and resiliency hubs. REP used NREL's Renewable Energy Integration and Optimization (REopt) modeling tool to review alternative proposals for the North Minneapolis microgrid project. We understand that a similar analysis is underway for the microgrid projects at Sabathani and MAIC.

Xcel filed its petition for an increase in the project cost cap on April 18 with the PUC, 14-1/2 weeks after final bids were received in response to its RFP, seeking to raise the cap on project costs for the RMP from \$9.0 million to \$17.6 million. Xcel also suggested in its petition that it could delay the North Minneapolis resiliency hub project by one year, pending a PUC decision on additional funding, and said it could proceed with just the projects at Sabathani and MAIC within the original \$9 million cost estimate if the project cost cap was not increased.

Based on the original project timetable, earlier this year REP secured project financing for an estimated 1,453 kilowatts-dc of rooftop solar capacity at Hall Elementary, Franklin Middle and the Nutrition Center, all Minneapolis Public Schools facilities. Initial one-line drawings and the draft interconnection applications for the rooftop solar are complete and REP has facilitated several meetings with MPS and Xcel to confirm the location for the BESS proposed by Xcel on school property.

There was limited transparency into Xcel's design process or costs for the BESS portion of the project, and we just received a copy of Xcel's RFP for the BESS on June 20.

#### Findings:

- Xcel does not plan to recharge the batteries from the on-site solar and Xcel's BESS sizing appears to be based primarily on arbitrage of energy pulled from the utility grid at night and deployed during daytime hours to shave peak demand. While solar energy could theoretically flow through the batteries if there was excess production, the sizing of the on-site solar arrays is such that it is unlikely that any of the solar generation would exceed on-site demand and be exported to the batteries for deployment into the grid;
- Although Xcel's RFP requires the BESS to be integrated with the on-site solar, if the solar generation will only be used in an emergency, it raises questions about cost-effectiveness and reliability of these demonstration microgrids in an emergency;
- As the REopt analysis shows, a new, underground lateral distribution line to connect the three school sites in North Minneapolis, integrated with the battery, is essential to achieve even a modest level of resiliency and yet it is unclear whether the lateral line is included in Xcel's design;

- Xcel's RFP appears to request bids for battery systems at the three sites with only 3 megawatt-hours in North Minneapolis and 1 megawatt-hour at Sabathani and MAIC;
- Community stakeholders have requested that more of the long-term ownership of the solar facilities and battery systems be in the hands of the hosts sites and the community but this is not included in Xcel's plans as we understand them.

While REP might have agreed to live with the costs and limited functionality of Xcel's BESS proposal as it was originally proposed, the request to nearly double the budget highlighted questions about whether the low-income, mostly BIPOC residents of these three neighborhoods would receive sufficient benefits from such a large investment of Xcel ratepayer funds. While we were engaging and asking some of these questions, Xcel appears to be withdrawing from the project altogether.

Based on our REopt analysis of the North Minneapolis microgrid, Xcel's original proposal for a 1.5 MW BESS with 3 MWhs of storage would have a 44% probability of surviving a 48-hour outage if solar was available from all three school buildings. Based on a revised Xcel proposal for a 1.0 MW BESS but access only to the solar at the Nutrition Center, the microgrid had a 1% probability of surviving a 48-hour outage.

REP used the REopt tool, and worked with some of its local engineering and microgrid development partners, to model its own design concept for the North Minneapolis site, which integrated the solar generation at all three school buildings with a BESS of 800 kW and 8 MWhs of storage capacity that would support critical loads at just the islanded Nutrition Center. This conceptual design had a 97% probability of surviving a 24-hour outage and an 83% probability of providing emergency power for 48 hours.

We also used NREL's June 2021 study, "Cost Projections for Utility-Scale Battery Storage" (<https://www.nrel.gov/docs/fy21osti/79236.pdf>) to estimate project costs for the system we designed. While Xcel is no doubt correct that supply chains remain volatile for batteries, controls and switchgear equipment to build microgrids, industry analysts expect procurement timelines to improve and costs to stabilize moving into 2024 and 2025. Our admittedly high-level analysis suggests the rooftop solar work could be done in 2024 with BESS integration in 2024 and 2025 at costs within the original \$9 million investment requested by Xcel.

The REopt analysis uses conservative assumptions (i.e. an annual increase in utility rates of 1.9%) and it does not assume any payment for grid benefits that would accrue to the utility from the deployment of energy stored in the BESS during periods of peak demand. We should also note that we will be following the proposed docket to determine a rate tariff for energy supplied to utilities that helps them manage periods of peak demand, a new tariff that could be beneficial to these projects.

This REopt analysis also does not assume any additional grant funds will become available to support the development of the resiliency hubs although we believe that

could be the case. Shortly after news of Xcel's request to withdraw was reported in national publications, REP was contacted by the U.S. Department of Homeland Security and subsequently referred to the Federal Emergency Management Agency (FEMA) about federal support for projects like this one. Other organizations that support our community-based efforts contacted us to offer support, and we have noted the \$5.3 million in "grid resiliency" grants appropriated by the 2023 legislative session as a possible source.

Given the challenges with Xcel and the changes from what we saw as the original resiliency goals for the RMP, REP is requesting 180 days to revisit its original plans and assemble a team of qualified partners to develop the North Minneapolis site on its own, without Xcel development and ownership of the BESS and switchgear. REP supports this approach for the other two sites as well and has offered to collaborate with them in an analysis of other options. We may still ask that Xcel be required to invest the original \$9 million in exchange for the right to dispatch energy from the batteries to shave peak periods of use.

**Requested Action.** Minnesota must develop resiliency hub models that can respond to extended grid outages, whether triggered by weather conditions, mechanical failures, or cyber terrorism. These resiliency hubs will be particularly critical for Environmental Justice communities such as the ones included in the Resilient Minneapolis Project as resiliency hubs are increasingly included in emergency preparedness planning. The learning from these solar microgrid models in the RMP will be valuable to many communities throughout the state.

Earlier this year, on April 5, Quebec including the City of Montreal was hit with a large-scale ice storm. About 1.1 million households were without power and two people died. While the majority of homes had power restored within 48-60 hours, some homes and businesses were without power for five days or more, and long-term restoration of the grid is expected to take months. Could that happen here and are we ready if it does?

REP strongly urges the PUC to take steps that pause, not cancel, the Resilient Minneapolis Project and give community stakeholders an opportunity to conduct further due diligence and assemble a team to develop these facilities. REP will start by re-evaluating some of the due diligence and partnerships it had for the North Minneapolis resiliency hub prior to the RMP solicitation. And REP is committed to working with all of the sites, the City, and community stakeholders on a revised strategy that meets community needs and interests.

We ask the PUC to extend its original approval of the RMP and request that parties interested in working on an alternative approach submit a proposal within 180 days for how the project could be designed, implemented and paid for, with no more than the original \$9 million contribution from Xcel. Our approach will be based on the following:

- Size battery capacity to better match the estimated on-site solar capacity at the sites, plus “future proofing” of battery capacity for any additional on-site generation capacity that could be added at the sites over the next 3-5 years;
- Engineer the recharge of the BESS to come from both the on-site solar and the grid during normal operations;
- Construct the new lateral distribution line connecting the three school buildings at the North Minneapolis site and integrate all of the solar with the BESS to enhance the islanding capacity at the Nutrition Center;
- Leverage development of the resiliency hubs to establish skills training in solar microgrid systems and BESS technologies at REP’s training center and the other sites;
- Identify federal and state grant funds and partnerships to implement the RMP resiliency hubs as models for other communities in Minnesota and across the country;
- Identify the necessary resources for scenario exercises and more thorough community-based planning for use of the resiliency hubs in an emergency;
- Work with primarily Minnesota organizations and vendors to develop, construct and operate the resiliency hubs.

Thank you for your consideration of our comments.

Respectfully submitted,

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