

February 13, 2025

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

VIA E-FILING

**Re: In the Matter of a Commission Inquiry into Xcel Energy's Advanced Rate Design for Load Management, Docket No. E-002/CI-24-115**

Dear Mr. Seuffert:

The Citizens Utility Board of Minnesota ("CUB") and the Chan Lab at the University of Minnesota Center for Science, Technology, and Environmental Policy ("Chan Lab") submit this letter to inform the Minnesota Public Utilities Commission ("Commission") of developments relevant to this proceeding and to invite input from the Commission and interested parties.

**I. Background**

In a July 5, 2024 order, the Commission fully implemented its Open Data Access Standards.<sup>1</sup> This order allows researchers from qualified institutions, such as the University of Minnesota, to request anonymized customer energy use data ("CEUD"). As has been discussed at length in Docket No. E,G-999/M-19-505, such data can be used to analyze whether different types of residential households contribute differently to the total cost of serving the residential class. For example, a 2019 study conducted by the Illinois Citizens Utility Board ("Illinois CUB") found that, in the Chicago area, low-income households generally used less on-peak electricity than the average household, meaning that low-income households on the whole paid more than their cost of service under flat electricity rates, subsidizing their higher-income neighbors.<sup>2</sup>

Since July, CUB and the Chan Lab have coordinated to scope a similar study of anonymized CEUD from residential electricity customers of Northern States Power Minnesota d/b/a Xcel Energy ("Xcel"). It is our intent to largely follow the methodology employed by the Illinois CUB study. Dr. Gabriel Chan has engaged Dr. Destenie Nock (Carnegie Mellon University) and Dr. Lucy Qiu (University of Maryland) who have conducted similar studies using anonymized CEUD from other utilities.<sup>3</sup> Their respective teams are beginning to outline the contours of the research project.

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<sup>1</sup> *In the Matter of a Petition by the Citizens Utility Board of Minnesota to Adopt Open Data Access Standards*, Docket No. E,G-999/M-19-505, Order Refining Open Data Access Standards (July 5, 2024).

<sup>2</sup> Jeff Zethmayr & Ramandeep Singh Makhija, *Six Unique Load Shapes: A Segmentation Analysis of Illinois Residential Electricity Customers*, 32 THE ELECTRICITY JOURNAL 9 (2019).

<sup>3</sup> See, e.g. *In the Matter of a Petition by Citizens Utility Board of Minnesota to Adopt Open Data Access Standards*, Docket No. E,G-999/M-19-505, Reply Comments of Elise Harrington at 5-9, 12-13 (Apr. 29, 2024) (detailing CEUD studies conducted by Drs. Nock and Qiu).

CUB and the Chan Lab have invited Xcel's partnership in this study. CUB previously conducted a similar study with Minnesota Power in 2020,<sup>4</sup> which reinforced our belief that cooperative efforts on data analysis are beneficial for both the utility and stakeholders. That said, this analysis can move forward even if Xcel declines to participate. Pursuant to the Open Data Access Standards, we are submitting a request for anonymized CEUD to Xcel.

Meanwhile, the Commission raised the question whether to direct Xcel itself to conduct this same type of study. In its December 5, 2024 order regarding Xcel's Automatic Bill Credit Pilot Program, the Commission directed the Executive Secretary to issue a Notice of Comment Period "on whether Xcel should perform a study evaluating the contribution to Minnesota system costs caused by residential customers with different usage profiles," which "may consider segmenting Xcel's residential customers into groups based on usage profile, consulting the Citizen's [sic] Utility Board Illinois study as an example."<sup>5</sup> In its January 17, 2025 Notice in this docket, the Commission indicated its intention to seek comments on this question "through a future Notice."<sup>6</sup>

We appreciate the Commission's attention to this important question. Understanding residential customers' usage patterns and contributions to total system costs on an intra-class basis can help answer questions like: How equitable is a utility's existing flat rate design? Are there opportunities for a different rate design to both better reflect cost causation and promote affordability for low-income customers? How might utility rates or programs be designed to more efficiently target greenhouse gas reductions? How is electrification of heating and transportation impacting cost causation and affordability for low-income customers?

We hope that this study may provide information relevant to topics that the Commission and parties are currently considering, such as time-of-use rates and affordability for cost-burdened households.

## **II. CUB/Chan Lab planned study**

The outline of this research project is described below, but we note that we may discover information that changes some of the details of our research plan. At this time, we envision the following steps:

1. Request and collect anonymized residential customer usage data from Xcel spanning a minimum of twelve consecutive months and at intervals of 30 minutes. Such data will be identified by U.S. Census block group and must satisfy the 15/15 anonymization standard adopted by the Commission in Docket No. E,G-999/M-19-505.

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<sup>4</sup> *In the Matter of Minnesota Power's Compliance Report for its Temporary Rider for Residential Time-of-Day Rate for Participants of the Smart Grid Advanced Metering Infrastructure Pilot Project*, Docket No. E015/M-12-233, Petition for Approval of Changes to Minnesota Power's Residential Rate Design, Appx. E, "Customer Segmentation of Minnesota Power Residential Customers" (Dec. 1, 2020).

<sup>5</sup> *In the Matter of Xcel Energy's Petition for an Automatic Bill Credit Pilot Program*, Docket No. E-002/M-24-173, Order Approving Automatic Bill Credit Pilot Program as Modified at Order Point 15 (Dec. 5, 2024)

<sup>6</sup> *In the Matter of a Commission Inquiry into Xcel Energy's Advanced Rate Design for Load Management*, Docket No. E-002/CI-24-115, Notice of Docket Process and Topics for Comment at 3 (Jan. 17, 2025).

2. Clean and compile data. After receiving the relevant data from Xcel, researchers must remove errors and convert the data into workable formats for study evaluation.
3. Conduct analysis to cluster Xcel customers into distinct load profiles.
4. Correlate these customer clusters with U.S. Census data in order to identify correlations between load profiles and household income, age, race/ethnicity, and/or other relevant variables.
5. Compile and prepare a report communicating the study's methodology and conclusions, taking care that public reporting does not enable de-identification of customers.

We expect this study to be analytical in nature, without any regulatory or policy recommendations. However, we expect that the conclusions will be informative for Commission proceedings and more broadly.

We anticipate that this study will take up to 12 months to complete. We will develop computer code for this analysis that can be used to readily update findings as additional vintages of data, covering more customers, could be requested. While we recognize that Xcel's advanced metering infrastructure (AMI) deployment is still in progress, and not all customers currently have their consumption data collected—let alone collected for 12 months—we believe that our analysis plan can still develop relevant insights for the questions outlined above by taking into account the socio-economic representativeness of available data for Xcel's customer base as a whole.

### **III. Next steps**

As discussed, CUB and the Chan Lab are in conversations with Xcel. We understand that Xcel is evaluating their participation in this study, and we look forward to a chance to collaborate.

Additionally, we intend to organize a stakeholder meeting in order to invite input from any others who may be interested in this study, and we would welcome input from the Commission if appropriate. We know that questions of affordability, equity, and reducing peak demand are of keen interest to many in Minnesota, and we welcome feedback on the study's design. A date for this meeting has not yet been determined, but we would be happy to file a notice in the present docket if appropriate.

When the study is complete, we intend to make it accessible to the public. We would be happy to file a copy with the Commission if desired.

### **IV. Conclusion**

We appreciate the opportunity to inform the Commission of our research plans, and we understand these plans may be relevant to the Commission's upcoming consideration of whether to direct Xcel to perform a similar study. We would be happy to provide any additional information that would be helpful.

Thank you for your consideration.

Sincerely,

/s/ Annie Levenson-Falk

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