



414 Nicollet Mall
Minneapolis, MN 55401

April 28, 2023

—Via Electronic Filing—

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

RE: REPLY COMMENTS
GENERAL TIME-OF-USE SERVICE PILOT
DOCKET NO. E002/M-20-86

Dear Mr. Seuffert:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission these Reply Comments in response to the April 20, 2023 Comments of the Minnesota Department of Commerce, Division of Energy Resources in the above-referenced docket.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact me at Holly.R.Hinman@xcelenergy.com or (612) 330-5941, or Becky Billings at Becky.J.Billings@xcelenergy.com or (612) 270-1730 if you have any questions regarding this filing.

Sincerely,

/s/

HOLLY HINMAN
REGULATORY MANAGER

Enclosures
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
Joseph K. Sullivan	Commissioner
John Tuma	Commissioner

IN THE MATTER OF THE PETITION OF
NORTHERN STATES POWER COMPANY
FOR APPROVAL OF A GENERAL TIME-
OF-USE SERVICE TARIFF

DOCKET No. E002/M-20-86

REPLY COMMENTS

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission (Commission) these Reply Comments in response to the April 21, 2023 Comments of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the above-referenced docket. We appreciate the Department's thorough review of our March 31, 2023 Compliance Filing and their thoughtful comments.

With this Reply Comments, we seek to provide additional information to clarify the pilot design and how the pilot will be assessed. Specifically, we provide additional information about the following topics, as requested by the Department.

1. Incremental pilot costs
2. CPP event criteria
3. Pilot assessment – segment analysis

Finally, we appreciate the Department's conclusion that the tariff modifications we proposed in our March 31, 2023 Compliance Filing were reasonable. As there does not appear to be any dispute with these proposed modifications, we reiterate our request for the Commission to approve the modifications.

REPLY COMMENTS

A. Incremental Pilot Costs

In response to the Department's request for clarification of the incremental costs of the pilot, we would like to clarify previous information we provided about the incremental costs that will be incurred for the pilot.¹ The discussion of this topic in our March 31, 2023 Compliance Filing was not as clear as we intended. In that filing we stated that we would incur about \$5,700, plus contract labor, to engage and enroll potential pilot participants.² However, the \$5,700 amount was inclusive of contract labor. We expect the contract labor amount to be about \$2,000, leaving \$3,700 for other costs. It is those additional costs that we itemized in greater detail in Table 1 of our March 31, 2023 Compliance Filing. These amounts do not include any internal labor costs which are not incremental to labor included in our currently in-effect interim rates.

We have also received approval to recover costs related to labor, pilot administration, advertising and promotion, and contract labor for measurement and verification (M&V) through the Conservation Improvement Program (CIP) Rider.³ These are the costs primarily dedicated to the Critical Peak Pricing (CPP) rate. We expect to incur, and recover through the CIP Rider, about \$280,000 per year for the costs, along with about \$1.2 million in costs for the M&V consultant work.

B. CPP Event Criteria

In response to the Department's request for additional information about situations when a CPP event may be called, the Company provides the following discussion.⁴

As a reminder, the Company believes it is important to maintain flexibility throughout this pilot with respect to when, and under what conditions, it will call CPP events. It is the Company's understanding that the Commission has recognized the benefits of maintaining this flexibility. With that said, we understand the Department's desire for us to provide as much clarity as possible about when these events could be called, and how the Company will decide to when to call an event. Tier 2 events will be based on the day-ahead load forecasts, generator availability, and forecasted renewable resource generation. If the day-ahead forecast indicates that system peaking conditions may occur, or the forecasted total available generation to load ratio falls below 120 percent, this information is not regularly announced publicly, but is indicated when referring to

¹ See Page 12 of the Department's April 20, 2023 Comments

² See Page 4 of our March 31, 2023 Compliance Filing

³ See the January 19, 2023 Decision in Docket No. E,G002/CIP-20-473

⁴ See Page 12 of the Department's April 20, 2023 Comments

events being called based on system conditions and aligns with other demand management event conditions. This is one of the conditions when the Company may call an event. Forecasted energy and fuel costs will also factor into a potential event if curtailments would lower the overall system costs compared to what the overall system costs would be in the absence of a curtailment event.

As previously stated, anticipated energy costs, weather conditions, system constraints and conditions, and generation and transmission resource limits all contribute to the need for an event. To provide additional guidance, the pilot team will be using the NSP Load Locational Marginal Price, a publicly available data source. The pilot team within the Company will work with the internal distribution and operations team to monitor pricing daily. From current data available, if the pilot sees day ahead pricing exceeding \$120/MW or higher during defined “Peak hours” the Pilot team will have the discretion to call a CPP event

Currently in our Minnesota service territory we often do not see the same conditions for events as are experienced in Public Service Company of Colorado’s (PSCo) service territory.⁵ Often in the PSCo service territory CPP events are called due to capacity or contingency system conditions driven by forecasted or actual potential shortages that stem from changes in renewable forecasts and plant outages. Forecasts in our Minnesota service territory typically have higher resiliency to weather conditions. Regardless, the Company will monitor weather forecasts watching for multiple expected days of 85+ degree weather. Under these conditions, the Company may call events and will possibly call multiple event days in a row to gather information on customer responses.

C. Pilot Assessment - Segment Analysis

In response to the Department’s request to provide a detailed description of the limitations precluding the use of a pooled model by segment analysis for this pilot, the Company provides the following discussion.⁶

We recognize that, from the limited perspective of gathering the information, a pilot in which customers could not choose whether they could participate would be easier to administer and obtain useful results. This model is obviously challenging to customers in the near term in ways we want to avoid. Allowing customers to opt-in to the pilot should provide a positive customer experience, while still allowing for a study of how the pilot impacts customers. While there are customer experience benefits, we acknowledge that opt-in recruitment can make it more difficult to

⁵ PSCo is an Xcel Energy Operating Company with a service territory entirely in Colorado.

⁶ Ibid.

generate statically significant data than having randomized groups. Opt-in also limits the ability to establish a standard control group. The Company has taken steps to mitigate these issues by using randomized recruitment groups that limit the rate that participating customers may opt into. This means that customers will not be able to self-select into what they believe will be the most beneficial rate structure. The hope is that this will foster more representative groups by encouraging participation from customers who would otherwise not opt in because they believe that their bills could significantly increase.

Regardless of the design of the pilot (i.e., opt-in or opt-out), assessment of the pilot's success requires considering metrics across a range of criteria, including:

- Load impacts, particularly during peak periods
- Customer experience, including:
 - Acceptance (likely to opt into and remain on rate)
 - Bill impacts
 - General satisfaction
- Revenue impacts

Even with an opt-out pilot (i.e., one in which customers are randomly defaulted onto the rate), it would be important to evaluate the pilot across this range of quantitative and qualitative factors. Even if a rate produces indisputable load impacts, those impacts would not be sustainable in the absence of positive performance on other metrics, such as customer acceptance.

The need to rely on directional results specifically to assess load impacts is because of two anticipated challenges of this pilot:

- There may be too few participating customers to produce statistically significant load impact estimates
- The customers that participate in the pilot may be too different from the overall customer base to generalize the results. This could be for one or both of the following reasons:
 - Eligible customers differ from the average C&I customer
 - Even within the group of eligible customers, those that opt in are structural winners on their rate, or have systems or processes in place that support their participation, which an average customer does not have

The Company is working with Opinion Dynamics (Consultant) in an embedded evaluation capacity to address these challenges in the following ways.

- First, each challenge is minimized where possible. For example, the Consultant is working with the Company to increase the variety of types of customers that

are recruited for the pilot. This variation is important for understanding both the load impacts and customer experience of a variety of customer types.

- Second, the Consultant will take the following steps in the evaluation phase to aid the Company and the Commission in interpreting the pilot evaluation results:
 - Collection of qualitative data to supplement and triangulate quantitative results. For example, for customers from under-represented industries, qualitative research can provide important insights for interpreting a limited set of quantitative results and understanding how generalizable they are to nonparticipating customers in the same segment.
 - Selection of the most rigorous impact estimation approach available given the number and types of customers participating in the pilot. This includes exploring a variety of impact estimation approaches in order to utilize the most rigorous approach whenever possible (i.e., using pooled models for common customer segments and individual models for larger customers with more anomalous load patterns).
 - Transparent assessment of the possibilities of and limits to extrapolating from the pilot's findings so that results are situated within and can be interpreted from this context.

The benefit of a pooled model is that, even absent a comparison group, with enough customers, this type of model can effectively cancel out much of the noise observed in individual customer models, resulting in a decrease in the margin of error and improved t-statistics of estimated coefficients. Pooled models can be run with or without the inclusion of a comparison group, where the inclusion of a comparison group has the added benefit of controlling for self-selection bias. With enough customers in a pooled model, even absent a comparison group, one can feel confident that the estimates produced by the model could be extrapolated to other similar customers (e.g., other customers that share the same characteristics that caused those customers to opt into the pilot) and are not just representative of the experience of a particular customer.

Pooled models are appropriate when load shapes and other key characteristics are similar within a group of customers. The consultant cannot define an exact number of customers needed to estimate load impacts with a pooled model, as the number of customers required is highly dependent on the characteristics of those individual customers and how the customers are segmented. The number and characteristics of eligible customers that will ultimately opt into the pilot is still an unknown data point, rendering this question currently unanswerable. However, the Consultant will assess the ability to run pooled models on all or a portion of the pilot participants once this information becomes available. The Consultant will consider two approaches to generating segments on which the pooled models can be run:

- First, the Consultant will review the load shapes of enrolled participants by industry segment (i.e., NAICS code category) to determine if there are sufficient participants and enough similarity in load shapes within each group to warrant pooling customers by industry.
- If this approach is not appropriate given the participant pool, the Consultant will use a clustering approach, based on the load shapes of enrolled participants, to arrive at several distinct participant pools.

Nevertheless, there are certain cases, in particular with large C&I customers, in which neither the use of comparison groups nor a pooled model is appropriate. For customers that have highly variable and unique load shapes, it is difficult to identify appropriate matched comparisons, and a pooled model may not be able to accurately estimate the impacts for those customers since they are quite different than other participants. In these cases, the use of individual pre-post regressions is considered an appropriate industry standard.

CONCLUSION

We appreciate the opportunity to respond to the Department's Comments. We appreciate the engagement in this process and look forward to launching a successful General TOU Service Pilot.

Dated: April 28, 2023

Northern States Power Company