MINNESOTA
PUBLIC UTILITIES COMMISSION

Staff Briefing Papers

Meeting Date	March 6, 2025		Agenda Item 5**
Company	Northern States Power Co. d/b/a Xcel Energy		
Docket No.	E002/M-23-524		
	In the Matter of the Petition of Xcel Energy for Approval of a Residential Time of Use Rate Design		
Issues	Should the Commission approve Xcel Energy's petition for a residential time-of-use rate design as found in its August 16, 2024 letter?		
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✓ Relevant Documents	Date
Xcel Energy, Letter	August 16, 2024
Public Comment, S. Adams	August 30, 2024
Public Comment, M. Kreuzer	August 30, 2024
Public Comment, A. Adams	September 30, 2024
Minnesota Solar Energy Industries Association, Comments	October 15, 2024

✓ Relevant Documents	Date
Fresh Energy, Comments	October 15, 2024
Office of the Attorney General, Residential Utilities Division, Comments	October 15, 2024
GridX, Inc., Comments	October 15, 2024
Citizens Utility Board of Minnesota, Comments	October 15, 2024
Department of Commerce, Comments	October 15, 2024
Uplight, Comments	October 15, 2024
Center for Energy and Environment, Comments	October 15, 2024
Institute for Local Self-Reliance, Reply Comments	November 13, 2024
Fresh Energy, Reply Comments	November 14, 2024
Office of the Attorney General, Residential Utilities Division, Reply Comments	November 14, 2024
Minnesota Solar Energy Industries Association, Reply Comments	November 14, 2024
Xcel Energy, Replies	November 14, 2024
Clear Energy Coalition, Reply Comments	November 14, 2024
Public Comment, J. Holm	November 14, 2024
Citizens Utility Board of Minnesota, Reply Comments	November 14, 2024
Department of Commerce, Reply Comments	November 14, 2024
Public Comment, J. Jacoby	November 21, 2024
Additional Relevant Documents	
Xcel Energy Initial Petition Residential Time of Use Rate Design	December 22, 2023
Order Approving Pilot Program, Setting Reporting Requirements, and Denying Certification Request issued in Docket Nos. E002/M-17-775 and E002/M-17-776.	August 7, 2018
Xcel Residential Time of Use Rate Design Pilot Program filed in Docket No. E002/M-17-775	November 1, 2017

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1. Acronyms

AMI Advanced Metering Infrastructure (may also be called "smart meters")
CBG Census Block Group
CPP Critical Peak Pricing
DR Demand Response
EAP Energy Assistance Program (formerly referred to as LIHEAP)
ECO Energy Conservation and Optimization
EV Electric Vehicle
KWh Kilowatt Hour
LMP Locational Marginal Pricing
ME&O Marketing, Education, and Outreach
MISO Midcontinent Independent System Operator
NEM Net Energy Metering
PRMR Planning Reserve Margin Requirement
PTR Peak Time Rebates
QF Qualified Facility
TOD Time-of-Day
TOU Time-of-Use

2. Statement of the Issue

Should the Commission approve Xcel Energy's petition for a residential time-of-use rate design as found in its August 16, 2024 letter?

3. History of Xcel's Time of Use Rate

On November 1, 2017, Xcel Energy (Xcel or the Company) filed its 2017 Biennial Distribution Grid Modernization Report under Minn. Stat. § 216B.2425, subd. 2 (e). Within its report, Xcel requested certification of its Residential Time of Use (TOU) Rate Design Pilot Program (Pilot) in Docket E002/M-17-775. Xcel's Pilot had the following goals:

1- Send adequate price signals to reduce peak demand.
2- Identify effective customer engagement strategies.

3- Understand customer impacts by segment.
4- Support demand response goals.
5- Operate a pilot focused on significant energy data in its service territory.[1]

On August 7, 2018, the Commission approved the Pilot, along with the applicable tariff, and granted Xcel's request to certify the Pilot as a distribution project under the Grid Modernization Statute which would allow the Company to petition for cost recovery through the Transmission Cost Recovery rider. Further, the Commission required the Company to work with interested parties to plan a full implementation of a TOU rate for all residential customers after Pilot completion.[2]

Xcel operated its Pilot from November 2020 through October 2022. During this time, 17,500 total customer participants from Eden Prairie and Minneapolis (Hiawatha West/Midtown area) were studied; of those, 10,000 were enrolled in the TOU rate, with an opt-out option. All were given Advanced Metering Infrastructure (AMI; "smart") meters. The 10,000 opt-out participants were placed on a 3PM- 8PM TOU rate while 7,500 others, the control group, stayed on the standard rate.[3] During Pilot operation the Company made monthly compliance filings.[4] After two years, Eden Prairie customers had reduced their energy use during the peak period during both years, but Minneapolis customers only had reductions in the first year.[5] Annual energy consumption increased slightly.[6] Some customers realized small reductions in average bills, whereas others experienced slight increases during summer months.[7]

On July 17, 2023, the Commission required Xcel to propose a permanent Residential TOU rate by December 31, 2023. More, the Company was required to revise its Residential Space Heating Tariff.[8]

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[1] Xcel Energy Residential Time of Use Rate Design Pilot Program, November 1, 2017 in docket no. E002/M-17-775 at 14-15
[2] ORDER APPROVING PILOT PROGRAM, SETTING REPORTING REQUIREMENTS, AND DENYING CERTIFICATION REQUEST in Docket Nos. E002/M-17-775 and E-002/M-17-776 issued August 7, 2018 at ordering paragraphs 1 & 6.
[3] Xcel Energy final compliance report in docket no. E002/M-17-775, 10 February 2023, see Exec. Summary. In attachment A, 9-11.
[4] Per ordering paragraph 2 from the Commission's ORDER APPROVING PILOT PROGRAM, SETTING REPORTING REQUIREMENTS, AND DENYING CERTIFICATION REQUEST in Docket Nos. E002/M-17-775 and E-002/M-17-776 issued August 7, 2018
[5] Xcel Compliance Filing Feb. 10, 2023 in docket no. E002/M-17-775, Attch. A at 15, "In Eden Prairie, on average participants reduced their On-Peak demand by approximately 1.3% of baseline demand in both summers of the pilot. In Minneapolis, participants reduced their On-Peak demand by approximately 1.6% of baseline demand in the first summer, but on average did not reduce On-Peak demand during the second summer of the pilot. During both summers and in both study areas participant demand during the Off-Peak period increased by 1-4%."
[6] Xcel Energy's initial filing on January 4, 2024, at 4. Average annual consumption increased by an average of 30 kWh per year, indicating that while customers shifted demand, they maintained stable energy usage.
[7] Xcel Energy's initial filing on January 4, 2024, at 5.
[8] FINDINGS OF FACT, CONCLUSIONS, AND ORDER in Docket No. E002/GR-21-630 issued July 17, 2023 at ordering paragraphs 68 and 69 as well as pages 125-128. Including conclusion that all parties, not just those involved with Rate Case should be able to weigh in on space heating rate.

On December 22, 2023, Xcel Energy submitted a petition for approval of a TOU rate design for all Minnesota residential customers. The petition built on the learnings from Xcel's TOU Pilot, stakeholder feedback, and experiences from a similar rollout of TOU rates in Xcel's Colorado service territory. Xcel's initial petition received mostly negative feedback from stakeholder groups and 83 members of the public. Some groups' comments and major themes from public comments are included in this briefing paper.

On August 16, 2024, based on extensive customer and stakeholder feedback, Xcel Energy submitted a revised petition for approval of a Residential TOU rate design.

By October 15, 2024, eleven groups filed initial comments on the revised proposal, including three members of the public. By November 21, 2024, ten groups filed reply comments, including two members of the public. Xcel's revised TOU petition received fewer public comments; those comments are integrated into the text of this briefing paper.

4. Decisions Before the Commission

TOU rates are one type of demand response tool available to the Commission and to Xcel Energy. When designed and used properly, TOU rates can provide benefits to customers and to the electrical grid. Since 2017, the Commission has been considering data from and modifications to Xcel's residential TOU rate. At its March 6, 2024, agenda meeting the Commission can decide if it will permanently install a three-period, market-responsive, residential TOU rate as a tool for demand response. Alternatively, the Commission may decide it will rely on other programs that may offer benefits to customers and the grid.

Thus, the biggest question before the Commission, as written in the Statement of the Issue above, is the approval, denial, or modification of Xcel's revised Residential TOU rate design:

- **Rate Design.** Xcel's revised proposal discussed peak hours, peak price ratios, seasonal price differences, and fuel adjustment. Commenters disagreed primarily on the timing and duration of the peak period and the methodology used to determine the periods.

Should the Commission choose approval or modification, additional decisions become relevant concerning the rate itself:

- **Implementation.** Xcel's revised proposal included an opt-in (voluntary) pilot design. Commenters disagreed about the choice for an opt-in program, as some wanted an eventual opt-out (default) design. Xcel's revised petition also discussed Timeline, Budget, Cost Recovery, and Tariff Modifications, but no stakeholders provided modifications to the proposal on these matters.

If the Commission approves a TOU rate, additional decisions become relevant for certain customer segments on other rate offerings. More, for medical equipment-dependent customers, selection of an opt-out rate design will trigger decisions about customer protections.

- **Electric Space Heating Rate.** Stakeholders supported Xcel's new electric space heating rate proposal but encouraged implementation of that specific rate as soon as possible, regardless of decisions made about the general residential TOU rate.

- **Demand Response (DR).** Commenters were silent on DR apart from Fresh Energy's recommendation for critical peak pricing alongside the TOU rate.

- **Net Energy Metered (NEM) Customers.** Industry advocates felt Xcel's new pricing plan for NEM customers undervalued these customers' contribution to Xcel's system.

- **Electric Vehicles (EV).** Xcel requested to update two existing EV tariffs to the new TOU rates, aligning with an earlier Commission decision. Only the Department of Commerce (Department) commented on the revised proposal, in support of Xcel.

- **Existing TOU Rate Customers.** Xcel planned to discontinue its existing TOU program and transition all those customers to its new TOU rate. The Department supported Xcel.

- **Low-Income Customers.** The Company is not proposing special protections for low-income customers under a voluntary, opt-in rate. No stakeholders commented on this matter specifically but did speak to bill protections for all TOU rate participants.

- **Medical Device Dependent Customers.** The Company is not proposing special protections for medical device dependent customers under a voluntary rate. The Department recommended that, if an opt-out TOU rate is approved, these customers be exempted.

If the Commission approves a TOU rate (regardless of whether the rate has an opt-in or opt-out design) and makes decisions about applicability to specific customer segments, the Commission can then move to considering broader customer impacts.

- **Bill Protection.** Though Xcel has said it will not include customer bill protections due to its revised opt-in TOU rate design, commenters have advocated for protections which may differ based on the eventual TOU rate design being opt-in or opt-out.

- **Shadow Bills.** All commenters recommended Xcel study the feasibility of shadow bills—where customer bills include a secondary calculation showing what the bill would be under a different rate, i.e., under the previous standard rate.

Finally, if a TOU rate is approved (regardless of whether that rate has an opt-in or opt-out design), after considering customer impacts, the Commission can consider more administrative practices.

- **Marketing, Education, & Outreach (ME&O).** Xcel has outlined a plan for ME&O. Stakeholders all support robust ME&O efforts and want more details on Xcel's plan.

- **Program Evaluation.** Xcel provided evaluation criteria for its TOU rate implementation and operation. Stakeholders support evaluation but offered their own set of evaluation criteria and supported the opportunity for notice and comment periods.

- **90-Day Compliance Filing.** To ensure shared understanding of what the ultimate residential TOU residential rate design will include and how it will be implemented, stakeholders have recommended a 90-day compliance filing that would provide greater detail on Xcel's plan for ME&O, overall rate implementation, and several other items.

5. Xcel's Initial Proposal

Xcel Energy's, initial, December 22, 2023, proposal for TOU rates had three distinct pricing periods: on-peak, base/mid-peak, and off-peak, each designed to reflect the cost of energy delivery at different times of the day (Table 1). The time periods proposed were unchanged from Xcel's Pilot. The rate also had seasonal adjustments. Compared to the Pilot, Xcel proposed no changes to on- and off-peak prices but an increase to the mid/base rate during summer, June- September. Then, in winter, October-May, Xcel proposed no changes to off-peak rates but a decrease for both on-peak and mid/base period rates. A constant off-peak rate was proposed for the entire year. Xcel also proposed a three-period electric space heating rate with lower winter prices than the proposed residential TOU rate.

Xcel proposed to implement its TOU rate with a budget of $9-14 million for marketing and customer support. The initial TOU rate was proposed as the new default option for all residential customers. To protect customers, everyone would be given the option to opt-out of the TOU rate and remain on the standard, one-period residential rate. Xcel would also offer additional resources and bill protections for income-qualified customers; however, Xcel did not propose any protections for customers who would *not* be classified as income-qualified.

Table 1. Initial Residential TOU Rate Design (Rates in cents per kWh)[7]

Period	Time Period	Summer Rate	Winter Rate	Summer Ratio	Winter Ratio
On-Peak	3 PM-8 PM Weekdays	27.845	19.125	7.3	5.0
Base/ Mid- Peak	All Other Hours	14.824	9.563	3.9	2.5
Off-Peak	12 AM-6 AM, All Days	3.825	3.825	1.0	1.0

In response to Xcel's initial petition, commenters, like the City of Minneapolis, Citizens Utility Board (CUB), and the Office of the Attorney General (OAG), argued that Xcel's Pilot produced insufficient results to justify implementing the proposed TOU rate as a default for all residential customers. To this extent, the OAG and CUB found that education during the Pilot was insufficient; for example, many participants were unaware of key aspects of the TOU rate structure. Thus, commenters believed that Xcel was unprepared to offer education for customers more broadly.

Commenters were also dissatisfied with the rate design itself. For example,

- The Department recommended an alternative methodology to calculate the peak period, and correspondingly modified the mid- and off-peak periods.
- The Department and CUB recommended reducing the seasonal price differential as well as differentials between on-, mid-, and off-peak periods. Similarly, the OAG recommended reducing the summer mid-peak (base) rate.
- CUB recommended a shorter peak period.

With respect to the space heating rate, Center for Energy and Environment (CEE), CUB, and the Department supported the rate, though the City of Minneapolis and American Council for an Energy-Efficient Economy (ACEEE) highlighted the importance that such a rate include protections for low-income customers.

OAG and CUB also took issue with the lack of bill protections, including shadow billing.

Finally, most public commenters felt the rate design was too expensive, others also expressed the opinion that the rate should be opt-in, rather than a default for all customers, and that Xcel's design may not change behavior as Xcel expected.

6. Xcel's Revised Petition: Rate Design

Xcel Energy's revised TOU rate structure, filed on August 16, 2024, was based on customer and stakeholder feedback as well as updated forecasted load and system cost data from its 2024 Integrated Resource Plan (IRP). For a total of $6-8 million, Xcel plans to implement a revised residential TOU rate, that was modified from its initial TOU proposal and TOU pilot to include: voluntary participation (opt-in), a shorter on-peak period, reduced on-to-off peak ratios, and reduced seasonal differentiation (Table 2).

Xcel's revised proposal maintained three distinct pricing periods: peak, base or mid-peak, and off-peak. Each aligns with the Company's load forecast in future years. The Company maintained two distinct seasons in its revised proposal 1) Summer, June-September, and 2) Winter, October–May.

Table 2. Xcel's Revised Rate Design

Period	Time Period	Summer (June-Sept)	Winter (Oct-May)
On-Peak	7 PM- 10 PM Weekdays	20.443	16.247
Base/ Mid-Peak	All Other Hours	13.313	11.364
Off-Peak	12 AM-6 AM, All Days	7.479	7.479

A. 90-Day Compliance Filing

Commenters appear to agree on many design and implementation components of Xcel's revised residential TOU rate. Commenters also agree on many areas where the revised design

lacks detail. Indeed, throughout this briefing paper, Staff will highlight where groups are seeking clarification or further information from Xcel. These details would necessarily precede the implementation of any final TOU rate and would offer a final "check" the TOU rate design. If the Commission chooses to require a 90-day compliance filing with **Decision Option 4**, it may select which items are included in the filing with **Decision Options 29 and 30**.

Procedurally, with **Decision Option 4**, Staff supports CUB and the Department's recommendation to delegate authority to the Executive Secretary to initiate a Notice and Comment period after Xcel's 90-day compliance filing on its marketing, education, and outreach plan is received. Staff believes the same compliance filing and accompanying comment period could be extended to include any other TOU rate design or implementation components in need of clarification.

If Staff and stakeholders are satisfied, the item could pass through the Commission's consent agenda process. Or, if discrepancies cannot be reconciled through comments, the matter may be brought to an agenda meeting, workgroup, or otherwise. Staff underscores the importance of giving everyone a final review of Xcel's residential TOU rate design, ensuring the design has the greatest potential to result in demand and bill reductions *before* implementation.

B. Methodology

Xcel's initial rate design, filed in December 2023, relied on forecasts developed in 2017 for Xcel's residential TOU pilot. The initial design selected on-peak periods aligned with anticipated *net peak load* hours—the periods of highest demand after subtracting renewable generation on Xcel's system.[9] Xcel then used its Cost Duration Method to assign system costs to each period.[10] This method assigns the cost of system assets to the time periods in which they are used, with a goal of accurately reflecting the cost to serve customers during on-peak, mid-peak, and off-peak periods. The initial proposal and analyses, the same as used for Xcel's Residential TOU Pilot, resulted in a longer peak period earlier in the day, compared to the revised proposal.

For Xcel's revised proposal, the Cost Duration Method initially developed for the Residential TOU pilot was updated with hourly system load and cost data from the 2024 IRP, a forward-looking forecast of 2025-2030 and using costs as of the Company's "most recent electric rate case."[11]

To identify the system's net peak period, Xcel's revised analysis compared average hourly weekday load net of renewable generation during the month of July, across multiple forecast years. It is common for Xcel's gross annual peak to occur on a July afternoon. The Company

[9] "Net load" refers to load minus a utility's renewable generation. "Net Peak" is the peak demand minus renewable generation during, or forecast to occur during, that time. These concepts have become more common over time as utilities and grid operators shift from planning to meet an annual gross peak to planning that ensures adequate supply in risk periods throughout the year, which are strongly influenced by renewable generation.

[10] Xcel Energy filing made 1 November 2017 in docket no. E002/M-17-775, Residential Time of Use Rate Design Pilot Program, at 22.

[11] Which rate case the Company is referring to was not clarified; see revised petition filed August 16, 2024 at 6&9.

evaluated its *net peak* during these times due to the growing share of renewable resources on its system and on the MISO system, which makes the net peak more challenging to meet than the gross peak. At such times, the Company will need to utilize additional non-renewable resources and/or wholesale purchases, which will typically be more expensive than renewables.

C. Peak Periods

Xcel forecasted that in 2025, its system peak net of renewables will occur between 7PM and 8PM, moving later to 8-9 PM in subsequent years. These shifts are driven by declining daytime net loads due to increasing solar generation and increasing evening demand. This updated analysis directly informed Xcel's decision to revise the proposed on-peak period to occur later, 7-10PM, on weekdays.[12]

Figure 1 below summarizes the net peak forecast analysis that Xcel performed for its December 2023 TOU proposal compared to the analysis for its August 2024 revised proposal. High net peak load hours are in red and low net peak load hours are in blue. The chart shows peak periods moving later in the day while the off-peak period is forecasted to be more stable.

Figure 1. Analyses for Xcel's Pilot and Revised Petition: Net System Average Weekday Loads – July Forecasts Percentile of Peak Hour[13]

Residential TOU Pilot Analysis

Hr Ending	TOU Period	2017	2024	2030
1	Off	0.621	0.637	0.639
2	Off	0.583	0.603	0.612
3	Off	0.563	0.582	0.602
4	Off	0.555	0.572	0.597
5	Off	0.570	0.585	0.601
6	Off	0.617	0.632	0.641
7	Mid	0.697	0.699	0.698
8	Mid	0.773	0.758	0.759
9	Mid	0.828	0.802	0.791
10	Mid	0.867	0.832	0.809
11	Mid	0.916	0.884	0.839
12	Mid	0.942	0.905	0.850
13	Mid	0.965	0.933	0.872
14	Mid	0.976	0.959	0.890
15	Mid	0.984	0.972	0.913
16	On	0.993	0.974	0.922
17	On	0.999	0.985	0.939
18	On	1.000	1.000	0.986
19	On	0.984	0.995	1.000
20	On	0.948	0.975	0.995
21	Mid	0.909	0.947	0.963
22	Mid	0.880	0.906	0.924
23	Mid	0.792	0.782	0.815
24	Mid	0.701	0.676	0.710

Residential TOU Voluntary Rate Offering Analysis

Hr Ending	TOU Period	2025	2026	2027	2028	2029	2030
1	Off	0.551	0.615	0.585	0.485	0.467	0.471
2	Off	0.499	0.555	0.524	0.422	0.403	0.397
3	Off	0.468	0.514	0.476	0.354	0.340	0.336
4	Off	0.450	0.494	0.457	0.324	0.319	0.320
5	Off	0.461	0.496	0.459	0.331	0.328	0.348
6	Off	0.517	0.554	0.524	0.422	0.416	0.421
7	Mid	0.598	0.603	0.589	0.482	0.467	0.478
8	Mid	0.676	0.640	0.629	0.547	0.520	0.516
9	Mid	0.690	0.638	0.634	0.563	0.556	0.538
10	Mid	0.819	0.769	0.758	0.690	0.681	0.673
11	Mid	0.840	0.793	0.782	0.702	0.690	0.691
12	Mid	0.860	0.808	0.783	0.730	0.693	0.690
13	Mid	0.886	0.829	0.797	0.769	0.729	0.705
14	Mid	0.921	0.859	0.828	0.800	0.759	0.732
15	Mid	0.937	0.874	0.848	0.823	0.774	0.735
16	Mid	0.956	0.889	0.874	0.839	0.812	0.772
17	Mid	0.970	0.903	0.896	0.860	0.843	0.811
18	Mid	0.979	0.917	0.910	0.891	0.886	0.856
19	Mid	0.976	0.929	0.928	0.906	0.903	0.884
20	On	1.000	0.986	0.982	0.984	0.986	0.973
21	On	0.983	1.000	1.000	1.000	1.000	1.000
22	On	0.940	0.968	0.973	0.959	0.961	0.967
23	Mid	0.801	0.826	0.832	0.794	0.781	0.790
24	Mid	0.656	0.683	0.692	0.624	0.595	0.593

12 Xcel's letter on August 16, 2024, at 5.
13 Xcel revised petition August 16, 2024 at 5.

The revised TOU design has a shorter on-peak period (3 hours) than the Pilot and initial TOU proposal, which both used the on-peak period of 3-8PM (5 hours). Xcel said the shorter on-peak period recognized stakeholder feedback on its initial TOU petition[14] from the OAG, CUB, Department, Fresh Energy, and City of Minneapolis (City), who all commented that shorter peak periods are easier for customers to respond to.

The off-peak period was unchanged from the initial proposal of 12AM-6AM.Wind production tends to be highest and net system load lowest overnight and during early morning hours. Ideally, Xcel explained that a low off-peak rate will incentivize more customers to engage in high-energy-use behaviors, like electric vehicle (EV) charging, overnight. In response to the initial TOU proposal, the Department had recommended an earlier 11PM start to the off-peak period, which they said would better capture low-cost periods and provide customers with additional flexibility to shift energy usage.

The Company noted the potential for "snap-back," or a sharp uptick in electricity use, after the on-peak period, which can cause stress on the system. Its revised design has a two-hour mid-peak period from 10PM-12AM, between end of on-peak and the start of off-peak, in part to moderate the impact of any snap back effects.

i. Stakeholder Feedback on Revised Method and Peak Periods

In its revised TOU rate design, Xcel cited a closer adherence to the Department's feedback on Xcel's initial petition. However, it is important to note that the Department's alternative, provided in comments on Xcel's initial proposal, used a different methodology for setting peak, mid- and off-peak periods than Xcel used in either the original or revised petition.

Indeed, the Department offered its own analysis using recent Midcontinent Independent System Operator (MISO) locational marginal prices (LMPs) to establish an on-peak period when it expects wholesale electricity costs to be highest, versus setting the on-peak period to times that may be most capacity-constrained or when Xcel may need to rely on non-renewable generation and the MISO market. The Department's methodology resulted in an on-peak period from 4PM-7PM and off-peak from 11PM-6AM. The Department explained that its recommended on-peak period, "would allow for easier shifting of behavior after dinner and be more aligned with June-September hourly costs, when LMPs are the highest."[15] More, the Department stated that an early evening peak period is more in-line with the peak time periods used in other jurisdictions; in fact, Xcel's proposed peak is later than any TOU rate design studied by the Department.[16] The Clear Energy Coalition agreed with the Department's

14 Xcel Petition Residential Time of Use Rate Design filed December 22, 2023 in docket no. E002/M-23-254.
15 Department comments filed 17 May 2024 at 17.
16 Department of Commerce comments filed 15 October 2024 at 4

methodology, stating that an on-peak period from 4PM to 7PM will benefit customers with home solar panels and will make it easier for customers to shift behavior.[17]

CUB, however, did not support the Department's use of the LMP methodology. CUB agreed that LMP does reflect current economic vulnerability in the MISO market but does not reflect Minnesota's changing generation mix, for example, to comply with state renewable and carbon free electricity standards, nor MISO's expectation that generation changes will impact the timing of the riskiest periods on its system. CUB underscored the importance of capturing the availability of renewables on Xcel's system in the rate design, because renewable generation will help to protect Xcel customers from exposure to LMPs, a protection that obviously does not occur when renewable generation is offline.[18]

Minnesota Solar Energy Industries Association (MnSEIA) found Xcel's method inaccurate as it was net of renewables and thus, did not reflect actual peak load. More, MnSEIA criticized using only July to determine peak periods. Fresh Energy echoed this critique, explaining that in the past, study of just July was fine, as Xcel relied on thermal generation and its annual peak usually occurred in July. However, as Xcel's system becomes more renewable-based and electrified, the peak will shift to later in the day and beyond summer months.[19] Analyses should thus include the full year.[20]

Fresh Energy pointed to recent MISO modeling, such as that in the 2023 Reliability Attributes Roadmap, showing system risk clustering around 6PM-9PM in multiple seasons for the 2027 and 2032 studies. This MISO modeling evaluates loss of load probabilities and the frequency of loss of load or risk events occurring in certain hours during each season—rather than looking at LMPs or net load forecasts.[21] Fresh Energy also stated that the Clean Energy Organizations modeling in Xcel's 2024 IRP indicated that the Company's "future annual energy market purchases would be highest from 6PM to 9PM."[22] Fresh Energy therefore concluded that 6-9PM is a more appropriate peak period since "shifting load out of these hours would reduce Xcel's energy market exposure and could avoid costly new generation resources" and would recognize *annual* system challenges and costs.[23] CUB agreed with this peak time and methodology[24] as did MnSEIA.

The OAG agreed with Xcel's methodology to derive the on-peak period.

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17 Clear Energy Coalition filed 14 November 2024.
18 CUB reply comments 14 November 2024 at 4.
19 Fresh Energy initial comments filed 15 October 2024 at 2
20 Fresh Energy reply comments filed 14 Nov 2024 at 5.
21 MISO Attributes Roadmap, December 2023 at 11-12.
https://cdn.misoenergy.org/2023%20Attributes%20Roadmap631174.pdf
21 Fresh Energy initial comments filed 15 October 2024 at 2
22 Fresh Energy initial comments filed 15 October 2024 at 2
23 Fresh Energy initial comments filed 15 October 2024 at 2
24 CUB replies filed 14 Nov 2024 at 4

ii. Staff Analysis on Revised Method and Peak Periods

If the Commission chooses to approve TOU rates for Xcel's residential customers, the Commission will need to make a policy decision as to which methodology, and resulting on-peak period, it will choose for that TOU rate design. Staff understands the following.

Xcel's approved Commercial & Industrial and Residential TOU Pilot pricing periods were both determined using a net load forecast, focusing on the summer net peak. For its revised residential TOU rate design, Xcel used a very similar methodology, assigning TOU periods based on average July weekday hourly net load forecast in 2025-2030. Xcel then developed pricing for each TOU period using its Cost Duration Model which assigns system costs by linking "the recovery of system costs to the time periods during which system assets are being utilized."[25]

This methodology identifies the peak period as the period during which customer load is most challenging to meet and assigns the cost of infrastructure to periods in which it is used. Xcel's analysis shows that it expects summer evenings to be the most challenging periods to serve and when its *most expensive* load is expected to occur. This coincides with the period when load is highest relative to renewable production. These periods may be challenging and/or more expensive to serve because the Company may be required to purchase higher-priced energy on the MISO market or operate its higher-priced generators. Shifting usage away from these times may reduce the need for new generators to serve these time periods.

While the methodology used by Xcel is forward-looking, the Department relied on a "backward-looking" methodology by using recent actual LMPs. As explained by CUB, the LMP method will likely become less relevant as renewable generation increases, shifting system needs and market pricing patterns.[26]

Using LMPs to identify the peak period implies that periods with predictably high LMPs are a primary driver of ratepayers' cost and that over time, avoiding these periods will lower ratepayer costs. However, Xcel is a net exporter and will receive revenue from MISO at these high LMPs when it has generation available. Therefore, ratepayers are exposed to more generation cost risk during periods when Xcel does not have generation available or when Xcel must operate plants at a loss. Further, most of Xcel's costs are driven by infrastructure investments (such as those needed to meet capacity obligations) rather than by high market prices.

Staff also notes that MISO's current Planning Reserve Margin Requirement (PRMR) proposal, which has yet to be finalized or filed at FERC, would allocate a utility's PRMR based on its load during risk hours on the MISO system, not using its MISO-coincident peak as has historically been done.[27] To the extent that risk hours migrate to later in the evening, Xcel or Fresh

25 Xcel revised petition filed August 16, 2024 at 5.
26 CUB replies 14 November 2024 at 4-5.
27 *See* MISO PRMR Allocation Proposal at the January 16, 2025 Resource Adequacy Subcommittee.

Energy's proposals appear to be more aligned with reducing Xcel's capacity obligation than the Department's proposal if MISO pursues its current proposal.

Staff does acknowledge the Department's concerns that Xcel's chosen on-peak period is a deviation from most other TOU rate designs. Therefore, the Commission and stakeholders may not have any revelatory background information about customers' ability to change behavior during the 7PM to 10PM on-peak time period.

A final consideration comes from the need to consider when the on-peak period would need to be updated. As evidenced from the difference in on-peak hours between Xcel's initial and revised proposal (using forecasts developed in 2017 and 2024, respectively), the data used to derive peak periods can strongly influence the outcome. As mentioned by the Institute for Local Self-Reliance (ILSR), updating the peak period too frequently may be confusing for customers.[28] As such, the Commission may want to consider which methodology will produce a TOU peak period that will be relevant to Xcel's system for the longest duration, and begin to consider how often that peak time frame would need to be updated.

A. Peak Ratios: Differences Within Each Season's High-, Mid-, and Off-Peak Rates

As shown in Table 3, Xcel's revised TOU rate design has a much less dramatic price difference between on- and off-peak rates and mid- and off-peak rates, compared to the initial TOU rate design.[29] (The difference between peak or mid-peak and off-peak pricing is commonly evaluated using the ratio between them.) This is because in the revised rate design, on-peak prices decreased but off-peak prices increased. Xcel's revised prices, though determined by its Cost Duration Model, are also responsive to public and stakeholder comments that the Pilot and initial TOU rate design had too large of a difference (or ratio) between on- and off-peak prices.

Table 3. Proposed Residential TOU Rate Design (Rates in cents per kWh)

Period	Proposal	Time Period	Summer (June-Sept) Rate	Winter (Oct-May) Rate	Summer Ratio	Winter Ratio
On-Peak	*Initial*	*3 PM- 8 PM Weekdays*	*27.845*	*19.125*	*7.3*	*5.0*
	Revised	7 PM- 10 PM Weekdays	20.443	16.247	2.7	2.2
Base/ Mid-Peak	*Initial*	*All Other Hours*	*14.824*	*9.563*	*3.9*	*2.5*
	Revised	All Other Hours	13.313	11.364	1.8	1.5
Off-Peak	*Initial*	*12 AM-6 AM, All Days*	*3.825*	*3.825*	*1.0*	*1.0*
	Revised	12 AM-6 AM, All Days	7.479	7.479	1.0	1.0

Yellow highlight used to emphasize the revised rate design.

28 ILSR comments filed 5 November 2024 (listed in eDockets as 13 November 2024) at 2.
29 As shown in Table 3, Summer and winter ratios are the on- or mid-peak peak rate divided by the off-peak rate. The number tells us how much larger the on- or mid-peak rate is compared to the off-peak rate.

First, 52 of the 83 public comments filed in response to Xcel's initial proposal expressed concern that Xcel's TOU rate was too expensive for residential and small business ratepayers, especially seniors and low-income families.

Second, in its comments on the initial proposal, CUB noted that though the Pilot's price differences between on- and off-peak were large, 8.1 to 1 (summer) and 6.9 to 1 (winter), customer behavior did not shift significantly. To CUB, this suggested that non-price factors, like structural and behavioral barriers, limited the ability of many households to adjust their energy usage. Renters, low-income customers,[30] and those without access to enabling technologies like smart thermostats were particularly constrained in their ability to benefit from TOU rates.[31] CUB was also concerned with the larger price ratios in Xcel's initial proposal.[32]

Third, in comments on Xcel's initial proposal, the OAG cited research showing a median price ratio across other residential TOU designs of 2.7:1.[33] The OAG also referenced a United States Energy Information Administration (EIA) study showing increased peak demand reductions when the price ratio is greater than 4:1; however, the same study also revealed that across the range of price ratios, changes in peak usage spanned a 29% decrease to a 1% increase, suggesting, like CUB, that factors other than price signal can influence customer behavior.[34]

Last, in its feedback on Xcel's initial proposal, the Department also commented that Xcel's initial on/off-peak ratios, within each season, were too steep. The Department posited a different impact of this pricing than CUB, offering that the steep price differences could lead to customer resistance and reduced participation. In response, Xcel wrote that its revised rates align with the Department's recommendation for peak rates to be approximately 50% higher than the base in summer, and 25% higher than base in winter.[35]

iii. Stakeholder Feedback on Revised Peak Ratios

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[30] Per Xcel's final report filed Feb 10, 2023 in docket no. E002/M-17-775, low-income customers were those customers who had received LIHEAP. Per Xcel's initial TOU petition filed Dec. 22, 2023 in docket no. E002/M-23-524, more income-qualified customers were located in Minneapolis (vs Eden Prairie). "the impacts from income qualified participants was not drastically different from the general population. Income qualified participants showed modest-on peak demand savings and small bill impacts. On average, the income qualified customers saw annual bill reductions of about 3 percent, which was consistent between customer location and pilot years." However, income-qualified customers were more satisfied with the Pilot, both from pages 5-6.

31 CUB's comments on May 17, 2024, at 7.

32 CUB's comments on May 17, 2024, at 12.

33 OAG comments 17 May 2024 at 4 citing Faruqui, A Survey of Residential Time-of-Use (TOU) Rates, supra note 10, at 8-9.

34 OAG comments 17 May 2024 at 4 citing U.S. Dep't of Energy, Customer Acceptance, Retention, and Response to Time-Based Rates from the Consumer Behavior Studies 63 (2016), https://www.energy.gov/sites/prod/files/2016/12/f34/CBS_Final_Program_Impact_Report_Draft_20161101_0.pdf.

35 Xcel revised petition Aug 16, 2024 at 8 citing Page 19 of the Department's May 17, 2024 Comments

With respect to Xcel's revised proposal, the Department, which found the price ratios agreed with its own analyses, as well as the OAG and CUB all agreed with Xcel's revised price ratios. CUB described the new ratio as "much more balanced."[36]

Customers, however, are meeting Xcel's proposal in a time when, as public commenters M. Kreuzer and J. Jacoby explained, bill increases are hurting households, especially low earners, retirees on fixed incomes, and middle-class families. As such, public comments focused on the doubling of the off-peak rate, compared to the initial proposal. Member of the public, A. Adams, said that off-peak rates should match the existing Time of Day (TOD) rate.

B. Differences Between Summer and Winter Rates

Xcel's initial TOU rates featured a sharp difference between summer and winter rates, especially in the peak period. In response, stakeholders, like CUB, warned that the proposed default TOU rates could lead to significant summer bill increases, with estimated average summer bills nearly doubling compared to winter bills. These seasonal disparities could exacerbate financial burdens for low-income households and seniors, who may already struggle to afford energy costs, and may not all be aware of average monthly billing.[37] More, considering observed LMPs, the Department concluded that the cost during summer is approximately 30% higher than winter, and as such, pricing differences between summer and winter should reflect this 30% cost differential.

Acknowledging these comments, Xcel's revised TOU design reduced the difference between summer and winter prices (Table 3). For example, Xcel's revised summer versus winter rates differ less than 30% during both on- and mid-peak.[38] Further, as Xcel explained, the revised proposal should work out that average customer experiences no change in bill, rather than go up in summer and down in winter as was expected in the initial proposal.[39]

In response to Xcel's revised TOU rate design, the Department, which found the seasonal price differences agreed with its own analyses, the OAG, and CUB, all agreed with Xcel's revised seasonal price ratios.

C. Fuel Adjustment Rates

Accompanying the 3-period TOU rate, Xcel is seeking approval of a 3-period fuel adjustment factor, like that used during the TOU Pilot. Adjustments will be shown in updated proposed Tariffs. Unchanged from its initial proposal, the Company is proposing the following fuel

36 CUB initial comments filed 15 Oct 2024 at 3
37 CUB's comments on May 17, 2024, at 8-9.
38 Xcel revised at 10
39 Xcel revised petition August 16, 2024 at 9-10. More, Xcel explained that since no bill changes were expected, Xcel did not conduct or provide an updated energy charge impact analysis.

adjustment factors be applied to the fuel charges on TOU rate participants' bills, corresponding to usage during the three periods:

- On-Peak: 1.3653
- Mid-Peak: 1.0700
- Off-Peak: 0.5361

The Department recommended approval of Xcel's revised fuel adjustment values. No other stakeholders commented on this matter.

D. Conclusion on Revised Rate Design

i. Xcel Replies on Rate Design

Xcel continues to favor its chosen 7PM to 10PM on-peak period and noted that any recalculation of the peak time period would be an additional burden as doing so would necessarily require recalculation of the TOU pricing structure.

Xcel responded to the Department's recommendation to calculate peak periods based on LMPs, reiterating that LMPs are backward-looking and represent variable market energy costs rather than focusing on the role of renewables in electricity markets and the fixed costs of energy provision that are captured by Xcel's rate design. The Company also believes it is unnecessary to start the off-peak period one hour earlier.[40]

Xcel also acknowledged that Fresh Energy's 6PM to 9PM peak fell within potential high market exposure times, but reiterated the Company's preference for calculating peak periods based only on Summer (July) to address its highest cost periods and future trends in which solar production is shown to shift later in the day.[41]

ii. Staff Analysis

Commenters have presented many perspectives on TOU rate design, with each perspective providing valuable insights. This record reflects the reality that residential rate design is an art not a science. At the present agenda meeting, the Commission can consider which method for determining peak periods it finds most reasonable and most in the public interest.

Rate design, especially for the residential class, must balance many (sometimes countervailing) factors, including strength of price signals, present accuracy of price signals, future accuracy of price signals, simplicity of understanding, ease of implementation, appeal to customers, and more. The Commission may use its judgement to determine which rate design elements best balance the relevant factors for the public interest.

From a theoretical perspective, the Commission could direct a rate design that adheres closely to granular data and seeks to precisely match price signals with system needs. However, such a

40 Xcel replies filed 14 November 2024 at 10-11.
41 Xcel replies filed 14 November 2024 at 11.

strategy could be difficult for customers to understand and to engage with. More, such a data-intensive strategy may require the rate to be updated more frequently to account for changing system conditions.

Decisions on Rate Design:

The Commission can choose **approval, denial, or modification** of Xcel's Revised Residential TOU Rate Proposal as filed in Docket No. E002/M-23-524 on August 16, 2024. lf choosing to approve or modify (***Decision Option 1 or 3***), Xcel's proposed rate design includes the following. Modifications offered by commenters are shown in bullet points. Staff reproduces the revised rate design, as shown in Table 3 above, to aid in decision-making.

Table 4. Reproduction of Table 3, Showing Revised Peak Periods and Price Ratios Only.

Peak Period	Time Period	Summer (June-Sept) Rate	Winter (Oct-May) Rate	Summer Ratio	Winter Ratio
On	7 PM- 10 PM Weekdays	20.443	16.247	2.7	2.2
Base/mid	All Other Hours	13.313	11.364	1.8	1.5
Off	12 AM-6 AM, All Days	7.479	7.479	1.0	1.0

Peak Periods. On-peak period from 7pm to 10pm non-holiday weekdays, off-peak from 12am-6am, and mid-peak period of all other hours. Included in ***Decision Options 1 and 3.***

- On-peak period from 6-9PM, Fresh Energy (***Decision Option 5***)
- On-peak period from 4-7PM and off-peak period from 11PM – 6AM, Department (***Decision Option 6***)

Method. Peak periods determined using a forward-looking forecast of load net of renewable generation for the month of July. Included in ***Decision Options 1 and 3.***

- Peak periods determined using each season's risk hours (i.e., loss of load hour frequency) informed by MISO modeling, Fresh Energy (***Decision Option 5***)
- Peak periods determined using Locational Marginal Pricing (LMP), Department (***Decision Option 6***)

The following are **uncontested** aspects of Xcel's revised TOU rate design. All are included in ***Decision Options 1 and 3***.

- Structure. As shown in Table 4, three periods (on-, mid/base- and off-peak) and two seasons (winter and summer).
- Price Ratios. As shown in Table 4, proposed differences between peak-, mid- and off-peak prices, as well as between summer and winter prices.
- Fuel Adjustment Factors. Ranging from on-peak (1.3653) to off-peak (0.5361).

7. Xcel's Revised Petition: Implementation

A. Xcel Will First Rollout TOU Rates to High Impact Customers

Xcel proposed to start seeking TOU enrollment with its highest-impact customers, like those with recent electric appliance upgrades and with EVs. Xcel expects a larger up-front cost to enroll these customers, but relatively lower costs to remind these customers to change behaviors, like to avoid on-peak times.

This approach was supported by ILSR, CLEAR Energy Coalition, and Fresh Energy. As the CLEAR Energy Coalition reasoned, encouraging these users to change their behavior would be most impactful to the grid.[42]

B. Xcel Now Proposes Opt-In Structure

To administer the TOU rate, initially, Xcel had proposed an opt-out program, where all residential customers would be automatically put on the TOU rate and any customers who did not want the rate would have to contact Xcel to be placed on a different rate. In its revised TOU rate, the Company has pivoted to an opt-in structure where customers can voluntarily enroll in the TOU rate.

i. Stakeholder Feedback: Preference for Opt-In, Voluntary Rates

Informing the decision to pivot to an opt-in rate, Xcel cited 70 public comments and a "pulse survey" of 439 Minneapolis customers which showed a lack of customer support for opt-out rates. Indeed, nine public commenters preferred opting-in to a TOU rate, rather than opting-out. Xcel's revised, opt-in rate design, was supported by members of the public, J. Jacoby and J. Holm.

The opt-in rate structure also aligns with stakeholder feedback on the initial petition from the OAG and the City of Minneapolis (City). The City cited findings from Xcel's Pilot program, which showed that only a small, highly engaged subset of participants contributed significantly to peak reductions. The City argued that households unable to shift energy usage, particularly low-income residents, could face higher bills and reduced comfort under a mandatory TOU structure.[43]

In response to Xcel's initial petition, the OAG stated that Xcel was not ready to administer an opt-out, default pilot. Indeed, the OAG cautioned that "Xcel's Pilot does not instill confidence that moving its entire customer base to TOU will succeed at this time."[44] To this extent, the OAG explained that analysis of Pilot results did not identify the most effective Marketing, Education, and Outreach (ME&O) strategies, did not explain the impact on low-income customers, and would benefit from more granular data collection on topics like bill impacts and

42 Clear Energy Coalition comments filed 14 November 2024
43 City of Minneapolis's comments on May 17, 2024, at 2.
44 OAG comments filed May 17, 2024 at 6

customer satisfaction. CUB echoed the conclusion that Xcel was not ready to administer a default rate, stating, "Given the minimal demand reductions realized under the pilot, we question the reasonableness of rolling out the rate as a default option without engaging in further development and analysis."[45] Finally, the OAG cautioned that strong, negative public response could accompany a failed TOU rate.

In response to Xcel's initial petition, the OAG also underscored the benefits of an opt-in rate for Xcel's system. The OAG explained that under opt-in rate designs, individual participants typically achieve greater demand reductions, even if overall fewer customers participate. For example, in Xcel's Pilot, approximately 17% of customers were "high-impact" and yielded over 55% of the observed demand reductions.[46]

Currently, in response to Xcel's revised petition, the OAG explained that it continued to support an opt-in rate. The OAG explained that an opt-in rate is preferred because the revised TOU rate design is un-tested and thus, an opt-out rate would place the risk of an untested rate on all customers. From a different lens, the OAG also concluded that as the revised rate is untested, ultimately this new rate may turn out to be more favorable to customers, lead to greater opt-in participation, and thus more demand reduction, than was seen in the Pilot.[47]

More, said the OAG, most Xcel customers are unexperienced with and have a concerning level of understanding about residential TOU rates. The OAG suggested addressing concerns of low participation associated with an opt-in rate with robust customer education, including use of shadow billing.[48]

ii. Stakeholder Feedback: Preference for **Opt-Out, Default** Rates

In contrast, Fresh Energy, CUB, MnSEIA and the Department recommended an opt-out TOU rate. CUB explained that its initial hesitancy with Xcel's TOU rates was because of the rate structure, not the opt-out strategy.[49] CUB explained that default rates generally yield higher enrollment which are necessary for greater demand reductions. Fresh Energy supported default rates with this same logic.[50] More, CUB explained that the ME&O needed to raise awareness for a new opt-in rate would be significant, especially as compared to enrollment; whereas an opt-out rate could utilize a more directed ME&O focus on how to reduce demand and could spread ME&O costs over the entire rate base.[51]

45 CUB initial comments May 17, 2024 at 12
46 OAG comments filed May 17, 2024 at 11 citing, In the Matter of Xcel's Residential Time of Use Rate Design Pilot Program, MPUC Docket No. E-002/M-17-775, Compliance Filing – Pilot Completion, Att. A at 8 (Feb. 10, 2023)
47 OAG reply comments filed 14 Nov 2024 at 5-8
48 OAG reply comments filed 14 Nov 2024 at 5 and 8
49 CUB comments filed October 15, 2024 at 4.
50 Fresh Energy comments 15 October 2024 at 3.
51 CUB comments filed October 15, 2024 at 4-5. Note, ME&O will be discussed later in this briefing paper.

The Department concluded that adopting Xcel's revised proposal for an opt-in rate likely would achieve no meaningful impacts for Xcel's system or learnings because too few customers would be likely to participate and those customers' behaviors may already align with peak periods.[52]

Like the OAG, above, MnSEIA also referenced Xcel's untested, revised rate design but believed this instead to mean that a second pilot was necessary.[53] To this extent, and in alignment with Minnesota Power's (MP) TOU rate implementation, the Department offered a similar strategy for a phased-in approach to implementing Xcel's TOU rate:

First, following Commission approval of the new TOU rate, Xcel would "pilot" the new rate with a subset of 20,000 customers. The new rate would be evaluated by studying customer response, bill impacts, and feedback after 12 months, mirroring MP's timeline.

Second, after reviewing the Pilot evaluation, changes to the rate design, implementation, or other components could be made before expanding the pilot by defaulting additional residential customers onto the TOU rate.

Third, another, more formal and expansive analysis would be conducted after a broader group of customers was enrolled in the rate. The analysis would collect information on "bill impacts and customer response, with the goal to gather enough information so that future rates could be designed with specific, measurable objectives in mind such as reducing peak loads by a specific MW amount. Xcel would determine whether the existing rate structure and time periods need to be updated for optimal alignment and benefit."[54] Xcel would make changes to the rate design or implementation plan as indicated by these evaluations.

Ultimately, all residential customers would be transitioned to TOU rates.[55]

Underlying this phased approach, the Department explained that customers could opt out of the TOU rate at any time, returning to a flat rate. Also, by rolling out the new rate in phases, the Commission would be able to monitor and adjust the rate design, implementation, or other aspects iteratively during the rollout to the entire residential customer base.[56]

iii. Xcel Response

Xcel continued to support offering its TOU rate on an opt-in basis only. The Company cited previous negative public feedback and customers' preference to choose a rate that makes the most sense for their home and lifestyle.[57] With respect to recommendations for a phased transition, if the Commission decides to go with the opt-in structure the Company would support modifying the Department's phase-in approach to suit an opt-in TOU rate. Xcel

52 Department comments filed October 15, 2024 at 7.
53 MnSEIA comments filed 14 Nov 2024 at 8.
54 Department comments filed November 14, 2024 at 5.
55 Department reply comments 14 November 2024 with quoted text at 5.
56 Department reply comments 14 November 2024 at 4.
57 Xcel replies filed 14 November 2024 at 2

explained that Company resources can better support smaller batches of customers transitioning to a new rate, rather than one large, unmanageable group.[58]

iv. Staff Analysis on Opt-In vs Opt-Out

As the Department has based its recommendation on MP's phased TOU rollout, Staff briefly summarizes MP's implementation. In 2012 MP petitioned,[59] and the Commission approved, a residential Time-of-Day (TOD) pilot. The Pilot began with a voluntary customer behavior study after which study participants were asked to voluntarily participate in TOD rates—an "opt-in" pilot. MP ended its TOD pilot in 2018 and worked with stakeholders to analyze the program. In 2019, the Commission ordered MP to propose a TOU rate and implementation timeline. MP proposed a default TOU rate in 2020, which would transition residential customers from its existing inverted block rates. MP's phased approach first transitioned customers from the inverted block rate to a flat rate, and then gradually phased in customers to its TOU rate. MP began by targeting its TOU rate to Pilot, new, volunteer, and low-income customers. After one year of participation, MP planned to analyze customer data before enrolling more customers. A second, more expansive evaluation was planned for after this second set of enrollments to allow for further TOU rate refinements. MP planned to conclude transition of all residential customers to its TOU rate in 2027.

Though the OAG and Fresh Energy argued that the phased rollout process was too long, the Commission reasoned, "The four phases of the second part of the transition process are intended to limit rate impacts to customers and allow sufficient time to educate and engage customers. Further, these breaks create clear opportunities for Minnesota Power to continue discussions with stakeholders, ensuring that the transition process is seamless and fair for all." MP began its TOU rate rollout in 2022. The Commission Ordered MP to report every 6 months on status of customer transition to default time-of-day rates, its outreach efforts, an analysis actual customer bill impacts, customer opt-outs, revenue impacts, load shifting, price elasticity, and customer feedback.[60]

Decisions on Implementation:

If approving TOU rates, the Commission should decide which customers can participate in those rates. The Commission may choose to:

- Proceed with an opt-in rate as proposed by Xcel **(Decision Option 1 or 3).**

OR

58 Xcel replies filed 14 November 2024 at 4

[59] Minnesota Power's Petition for Approval of a 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

60 Summary of MP TOU Pilot from Order Approving Transition from Inverted Block Rate to Time-of-Day Rates issued August 27, 2021 in docket nos. E015/M-20-850 and E015/M-12-233. Quoted text at 5.

- Follow the Department's pathway for a gradual transition to an opt-out TOU rate **(Decision Option 7 with subparts A-E).**
- To clarify how the Company will implement its revised TOU rate, the Commission may require any 90-day compliance filing describe that implementation plan as well as proposed tariff changes. The filing would be made to reflect any changes or decisions made during the Commission's Agenda meeting. This decision option was supported by Xcel and the Department **(Decision Option 30A)**

Both the opt-in and opt-out/default rate approaches may be reasonable options for moving forward with Xcel's revised rate design. Should the Commission have interest in an opt-out approach, Staff recommends the Commission either decide now to pursue the Department's phased implementation strategy or, if the Commission would like additional time to gain information about the rate's success, require a mid-term (six-month) report after the initial rate rollout **(Decision Option 35).** Following a six-month analysis, and before the first year of operation has concluded, the Commission can decide if it will require Xcel to pursue a default opt-out TOU rate for all residential customers. Requiring a mid-term evaluation removes interruption to the provision of the TOU rate while waiting for data to make a final decision. More, a mid-term evaluation mirrors the Commission's approach with Xcel's Automatic Bill Credit petition, where the Commission required regular program evaluations beginning six months after the program launch,[61] and is like the approach used in MP's phased TOU rate rollout.

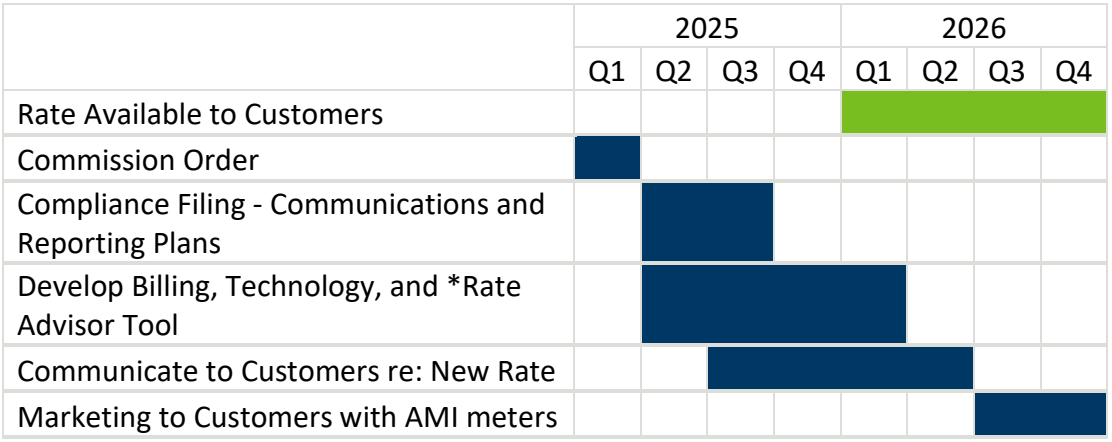
C. Timeline

With its new voluntary, opt-in TOU rate proposal, the Company is seeking to modify the terms of the TOU rate tariff to prevent customers who have opted out of the rate from reenrolling in the TOU rate for 12 months. Xcel explained, "This will ensure that customers are not able to opt-out at times when the rate could be disadvantageous for them, like during summer months for example, and then opt back in when the rate could be advantageous for them again."[62]

Considering when the Order following the Commission's March 6 agenda meeting would likely be issued, the Company expects the following implementation timeline. During each quarter the Company would undertake some of the following actions (listed in Figure 2):

61 Order Approving Automatic Bill Credit Pilot Program as Modified, issued December 5, 2024, in docket nos. E-002/M-24-173 and E-002/M-22-266 and E-002/RP-19-368 at 8 and ordering paragraph 10.
62 Xcel revised petition filed 16 August 2024 at 31.

Figure 2. Revised Timeline for Residential TOU Rate Implementation[63]



*Xcel would launch a Rate Advisor Tool in Q3 of 2025

i. Staff Analysis

No stakeholders recommended Decision Options to modify Xcel's proposed timeline. The Commission can approve Xcel's timeline with either **Decision Option 1 or 3.**

D. Budget, Cost Recovery, & Tariff Modifications

Table 5. Budget, Excluding Labor Costs:

Item	Cost (in millions)
Education and Awareness	$5.0 – $6.8
Ongoing Awareness	$0.05
Billing Implementation*	$1.0
TOTAL	$6.0 - $8.0

*Costs will be used to create an enrollment process and to configure the billing system for the new rate, including caring for customers transitioning onto the TOU rate.[64]

Xcel's revised TOU rate petition included the budget shown in Table 5, the Company's estimate for implementation costs for an opt-in TOU rate over the next few years (excluding labor costs). The Company designed its new rates to be revenue neutral such that revenue from the new TOU rate would be equal to current revenue anticipated from the residential class. Therefore, Xcel is not proposing a revenue true-up but may ask for one in a future rate case.[65]

Modifications to Xcel's initial petition required simultaneous tariff modifications. Updates included the pricing structure and peak period definition for the TOU residential rate and adjustments to certain EV tariffs as well as to net energy metered customer rates.[66]

63 Xcel revised comments 14 November 2024 at 4
64 Xcel revised petition August 16, 2024 at 16.
65 Xcel revised petition filed 16 August 2024 at 13.
66 Xcel revised petition filed 16 August 2024 at 31.

Stakeholders did not comment on nor recommend Decision Options to modify Xcel's proposed budget. Therefore, the Commission can approve Xcel's budget with either **Decision Option 1 or 3.** However, Xcel did not share how it would recover the costs needed for TOU implementation and the Commission may wish for Xcel to provide this information at its March 6, 2024, agenda meeting.

With respect to tariffs, MnSEIA recommended denial of Xcel's revised TOU rate design and with that, rejection of Xcel's proposed tariff changes **(Decision Options 2 and 2a).**

8. Xcel's Revised Petition: Special Customer Circumstances

Changes to the overall TOU rate impact other special rates that are currently based on the existing TOD rate or pilot TOU rate. Staff notes that in many instances there are still unresolved questions about the implementation of these special rate options. Staff believes the Commission can make decisions on the direction it would like to go in terms of the overall TOU rate design but also require information in a compliance filing to clear up any remaining confusion on the following special customer groups. The decisions on special rates are important, as customers that are enrolled in these rates are often some of the most engaged customers and likely to have impactful contributions towards peak demand reductions. Given there is still time prior to TOU rate implementation, Staff emphasizes there may be benefits to taking time to ensure the special rate options do not have unintended consequences that may impact the success of the TOU rate.

A. Space Heating

Xcel has modified its space heating rate to complement its revised TOU rate design. During the winter, Xcel proposes to charge space heating customers a flat rate for energy, regardless of what time of day energy is used. The new rate is lower than the existing residential energy charge during winter. In the summer, space heating customers will follow the same TOU rate structure as all other customers (Table 6). A lower, flat rate for this group was supported in Xcel's initial petition by stakeholders including CUB, ACEEE, and CEE.

Xcel proposed the new space heating rate become available at the same time its TOU rate is available as an "opt-in" for all residential customers. The new space heating rate would only be available to customers opting into a TOU rate, not automatically applied to all electric space heating customers, but Xcel will "complete a robust communication plan with our existing space heating rate customers, as recommended by Fresh Energy, to ensure that those customers understand the rate options available to them going forward."[67]

67 Xcel revised petition 16 August 2024 at 12

Table 6. Comparison of Space Heating Rates (in cents per kWh)

TOU Rate Period	On-peak	Mid-peak	Off-peak
Initial Winter Space Heating Rate	8.778	5.657	3.825
Revised Winter Space Heating Rate	6.537	6.537	6.537
Revised Summer Space Heating Rate (TOU rate)	20.443	13.313	7.479
Existing Energy Charge- Winter	8.215	8.215	8.215
Existing Energy Charge- Winter + Interim Rate Surcharge*	8.802	8.802	8.802
Existing Energy Charge- Summer	13.069	13.069	13.069

Yellow highlight used to emphasize the revised rate design. Currently, residential space heating rates can be found in Xcel's Rate Book rate codes A01 and A03 and include a $6 / month customer charge for Overhead (A01) and Underground (A03) customers. In certain communities, an interim rate surcharge of 7.14% goes into place January 1, 2025.

i. Stakeholder Feedback on Space Heating

The OAG, Fresh Energy, CUB, Department, CEE, and member of public, J. Holm, all support Xcel's revised, flat winter rate for electric space heating customers. CEE specifically cited the importance of the new rate to increase the cost-effectiveness of heat pumps for Minnesotans. ACEEE, in response to Xcel's initial proposal, recommended restricting the heating rate to heat pump customers only.[68] However, CUB disagreed with this restriction for many reasons, one being that because Xcel is "a summer peaking utility, space heating customers do not materially contribute to incremental base rate costs."[69] More, the OAG and CEE supported implementation of the rate as soon as possible, independent of the Commission's decision on the TOU rate and any timeline associated with that decision.

CEE also recognized that the revised space heating rate will only be available to customers who opt into the broader residential TOU rate. Therefore, CEE recommended Xcel explore auto-enrollment in its space heating rate. However, until feasibility is determined, CEE also said that Xcel could consider training its staff on manual enrollment. For example, when applying for a heat pump rebate through ECO, the rebate form could include details about the space heating rate and could trigger additional staff outreach to customers **(Decision Option 8A**).[70]

Further, CEE recommended a set of ME&O opportunities to ensure customers could understand heat pumps and the space heating rate as well as take advantage of the synergistic benefits of heat pump adoption alongside the space heating rate **(Decision Options 8 with subparts B-F).**

To explain its support for the revised space heating rate, CEE modeled the impact of a space heating rate on the heating component of customer bills (not the full bill). CEE studied the impact of the new proposed rate for multiple heat pump HVAC types comparted to a 95% efficiency natural gas furnace. CEE concluded that Xcel's revised electric space-heating rate

68 ACEEE's comments on May 16, 2024, at 2.
69 CUB comments filed 15 October 2024 at 10-11.
70 CEE comments filed 15 October 2024 at 15.

reduced annual operating costs for both dual-fuel and all-electric ASHP customers, compared to both the existing one-period electric space heating rate and the proposed TOU rate.

CEE also found that the proposed space heating rate would make dual-fuel and all-electric HVAC systems cost competitive with the operating costs of natural gas heating. In many cases, CEE expects customers with dual fuel HVAC systems on this rate would save money compared to a gas-only furnace system.[71] Customers with all-electric heat pump systems can expect to pay higher operating costs than dual-fuel or natural gas systems, but costs will be meaningfully lower than under rates available today. Thus, according to CEE, one of the barriers to home heating electrification—operating costs—will be significantly lessened under Xcel's revised space heating rate.

ii. Xcel Replies to Space Heating Rate

Xcel acknowledged the near-unanimous support for its space heating rate. Xcel also agreed it would not restrict the space heating rate to customers with heat pumps. Xcel explained that 1) the goal of the TOU rate is not exclusively heat pump adoption, 2) Xcel has no way of knowing at this time which customers have heat pumps, and 3) such restrictions could increase heating costs for some customers.[72]

With respect to CEE's recommendations on ME&O on the space heating rate, the Company explained that it regularly offers contractor training on a variety of topics and that it will include information on space heating rates too (**Decision Options 8D and F**). More, Xcel, "intends to include the space heating option alongside such programs as water heating and heat pump rebates. We offer information relating to rebate eligibility on our website, rebate applications, and other promotional materials" (**Decision Option 8B, E, and F**).[73]

In response to recommendations to implement the space heating rate as soon as possible, independent of the Commission's decision on the TOU rate, Xcel said that, "starting the space heating rates ahead of the corresponding TOU rates would create a revenue imbalance that would lead to the Company not collecting its approved revenue."[74]

iii. Staff Analysis on Space Heating Rate

Staff understands that all stakeholders weighing in on this matter support Xcel's revised space heating rate. This rate is included with **Decision Option 1 or 3.** More, some commenters have asked for expedited implementation of the new space heating rate, which Xcel opposed. Staff discusses challenges to immediate implementation below.

71 CEE 15 October 2024 at 19, noting that the actual savings customers can expect are highly impacted by natural gas fuel prices.
72 Xcel replies filed 14 November 2024 at 15
73 Xcel replies filed 14 November 2024 at 16-17.
74 Xcel replies filed 14 November 2024 at 15

Specifically, the space heating rate is set up as to align with the TOU rate in the summer but offer a flat rate in the winter months. As the flat winter rate would be lower than both the TOU rate and the existing residential rate, implementing the new space heating rate prior to the full TOU rate would result in lower rates for space heating customers and a revenue deficiency for Xcel.

Staff agrees that implementing the space heating rate without simultaneous or closely-following implementation of the proposed residential TOU rate would make it harder for Xcel to collect their approved revenue. Under current sales true-up practice, Xcel would get any missing revenue back in the true up which should make Xcel "revenue agnostic." However, a sales true-up will result in some sort of cross-subsidy within the residential class. Considering the potential for interactions between the space heating rate and TOU rate, this issue may be relevant for discussion the next time Xcel brings an electric rate case before the Commission.

Based on the tariff sheets Xcel filed with its revised petition, Staff's understanding is that customers will still be able to choose between the existing, flat rate space heating option, or the new TOU space heating rate. [75] However, Staff recommends confirming this with Xcel at the agenda meeting. If Xcel *is* planning to discontinue the flat rate space heating option, that could impact existing space heating customers who may not understand or be aware of the changes. In that instance, Staff suggests the Commission may wish to have Xcel provide more information on what the transition would look like in the 90-day compliance filing (**Decision Option 30B**).

Decisions on Space Heating Rate:

The Commission may wish to clarify availability of winter space heating rates, independent of TOU participation. The Commission will also need to decide whether to approve the revised space heating rate and whether that rate can be rolled out without or prior to a new TOU rate.

No comments were made to suggest alternate space heating rates. If the Commission is satisfied with Xcel's proposal, Xcel's revised space heating rates can be approved with **Decision Option 1 or 3.**

With respect to ME&O on space heating rates, Staff suggests that, per Xcel's replies, the Commission may request to hear from groups who administer heat pump rebates regarding the sufficiency of Xcel's efforts described above and on pages 16-17 of replies and in **Decision Option 8**. More, Staff recommends requiring a preview of any webpages containing space heating rate information as part of any 90-day compliance filing **(Decision Option 8G).** Finally, Staff suggests that if the Commission is interested in CEE's recommendation to actively

75 Xcel's revised petition includes red-line tariff sheets, included as Attachment C at page 4, which show the existing space heating rate replaced with the new winter space heating rate of 6.537 cents per kWh with no change to the summer rate of 13.069 cents per kWh for space heating customers.

facilitate enrollment in space heating rates, the details of such a plan be provided in any 90-day compliance filing with **Decision Option 8A.**

B. Coordination with Demand Response Programs

Following Xcel's initial TOU petition, Fresh Energy requested Xcel consider review of additional rate options, specifically Critical Peak Pricing (CPP), especially if the Commission selects a TOU rate design with lower price differentials. Fresh Energy also discussed the potential for a similar program model called a Peak Time Rebate (PTR) but noted certain administrative challenges with PTR.[76]

Similarly, the Department requested the Company consider whether any changes to its demand response offerings (DR) were necessary to accommodate the proposed TOU rate.[77] Xcel responded that it is not proposing changes to DR programs. Xcel's existing DR programs are part of the Company's Energy Conservation and Optimization (ECO) plan and function to incentivize customers to lower their summer peak usage. Programs include Saver's Switch, AC Rewards, and the new Energy Action Days. The Company explained that existing DR programs can be used by customers regardless of their chosen rate and that TOU rate customers may be incentivized to make additional behavioral changes by enrollment in both a DR program and TOU rate. More, Xcel highlighted that technology incentivized through ECO, like smart thermostats, may also be beneficial for customers with TOU rates.[78]

In its comments on Xcel's revised proposal, Fresh Energy continued to support CPP as an important tool for all customer segments **(Decision Option 9 and evaluation metric option 40Q).** Fresh Energy recommended that Xcel evaluate opportunities for layering a CPP component with the TOU rate, or for a stand-alone demand response program.[79]

i. Staff Analysis on Demand Response

Fresh Energy was the only party to comment on this matter. Thus, Staff believes current record is not sufficiently developed for the Commission to decide on CPP offerings. More, it is possible that Fresh Energy's recommendation for a CPP or PTR offering may have been resolved with the Commission's decision in its December 30, 2024 Order referring Xcel's 2024 rate case to the Office of Administrative Hearings. In that decision, the Commission ordered Xcel to file a Peak Time Rebate proposal by March 17, 2025,[80] and opened Docket No. 24-432 for this purpose.

C. Net Energy Metering (NEM) Customers

Xcel's initial TOU filing contained limited information on how a TOU rate would apply to distributed generation customers, especially those on the Excess Generation – Average Retail

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[76] Fresh Energy comments filed May 17, 2024 in Docket No. E002/M-23-524 at 12-13.
[77] Department comments filed May 17, 2024 in Docket No. E002/M-23-524 at 31.
[78] Xcel Energy letter filed August 16, 2024 at 28-29.
[79] Fresh Energy replies filed November 14, 2024 at 7-8
[80] Notice of and Order for Hearing, Docket No. E002/GR-24-320, December 30, 2024, Order Point 4

Utility Energy Service A50 rate (A50 rate), which is the most broadly used among residential customers. This drew concern from rooftop solar installers who requested that Xcel provide sufficient details on how A50 rate customers would be impacted. In its August 16, 2024 revised filing the Company included a more specific plan for how the TOU rate would apply to A50 rate customers who opt-in to the rate.

Under Xcel's proposal, A50 rate customers would enroll in the TOU rate and their DER production would off-set (or "net") against their consumption as follows:

1. DER generation is netted against consumption within the same time periods (on peak to on peak, mid to mid, off to off)
2. Any remaining generation from the mid-peak period is netted against consumption in the off-peak window.
3. Remaining on-peak generation is netted against remaining mid-peak consumption
4. Remaining on-peak generation is netted against remaining off-peak consumption
5. Any remaining consumption is charged at the corresponding time-period rate
6. Any remaining production is compensated at the existing "average retail utility energy rate" (also known as the A50 rate), which has one flat price across the entire winter season (Oct-May) and one price for the summer season (June-Sept). [81]

Staff created Table 7 to show a hypothetical example of the netting process for a residential solar customer under Xcel's proposal. For purposes of the example, Staff used the Jun-Sep rates from Xcel's filing and existing A50 rate.

Table 7: Example of Xcel's proposed netting process (kWh)

	Generation			Consumption		
	On	**Mid**	**Off**	**On**	**Mid**	**Off**
Initial Generation / (Use)	5	800	0	(105)	(500)	(150)
Net: Like for Like	*-5*	*-550*		*+5*	*+500*	
Subtotal 1 Gen/Use	0	250	0	(100)	0	(150)
Net: Mid Peak Gen-> Off Peak Use		*-150*				*+150*
Subtotal 2 Gen/Use	0	100	0	(100)	0	0
Net: On Peak Gen-> Mid Peak Use						
Subtotal 3 Gen/Use	0	100	0	(100)	0	0
Net: On Peak Gen-> Off Peak Use						
End Total Gen/Use	0	100	0	(100)	0	0
kWh credit rate / (cost)	$0.15874	$0.15874	$0.15874	($0.20443)	($0.13313)	($0.0749)
Subtotal	$0	$15.87	$0	$ (20.44)	$0	$0

In this example, a customer consuming 805kWh and generating 805kWh in the billing period will see a charge of **$4.57 for the energy components** of their bill.

[81] Xcel Filed Tariff Page 9.2, August 16, 2024

i. Stakeholder Feedback on A50 Rate Customers

Of the 83 public comments on Xcel's original residential TOU proposal, 5 commenters expressed concern that the proposed rate did not work well for those with rooftop solar, EV charging, or geothermal systems.

MnSEIA, The CLEAR Energy Coalition (CLEAR)[82], and ILSR all recommend the Commission not approve the Company's proposed A50 rate implementation plan and language. They disagreed with Xcel's proposal to offset consumption for the mid and off-peak periods with mid- or on-peak generation and credit excess consumption at the existing A50 rate.

MnSEIA explained that Xcel's proposal does not align with the plain language of Minn. Stat. 216B.164, subd. 3(d), which states that the Average Retail Utility Energy Rate (ARUER) should be calculated "according to the applicable rate schedule of the utility for sales to that class of customer." As Xcel would be creating a new rate schedule, the TOU rate, MNSEIA argued that the ARUER should be a three-part rate calculated based the new TOU schedule, and not the existing flat residential rate.[83] MNSEIA pointed out that Minnesota Power has requested this methodology in its transition to default time-of-use rates, and recommended the Commission order a similar methodology for Xcel.[84]

CLEAR and ILSR pointed out that Xcel's proposed netting structure is unnecessarily complicated and deprives customers of their full compensation under Minnesota's NEM statute. They similarly recommended the Commission require Xcel to follow Minnesota Power's methodology and suggested targeted outreach to existing A50 rate customers to promote participation in the TOU rate.[85]

The Department disagreed with MNSEIA's analysis for two reasons. First, Xcel does not appear to have another rate alternative to offer residential customers for excess generation other than the A50 rate. Together, Minn. Rule. 7835.4012 and 7835.4013 can be read to require utilities to compensate net-metered customers "at the average retail utility energy rate" or A50 rate.[86]

Second, the Department maintained that MNSEIA's argument that the average retail rate should be a three-period rate is "misplaced and unreasonable."[87] The Department expressed concern that under MNSEIA's proposal net metered customers would be compensated at a higher rate than Xcel's, resulting in negative rate impacts for non-participating customers.

The Department reviewed Xcel's proposed tariff changes and concluded they reasonably reflect the implementation of a new three-part residential time-of-use rate, while being consistent

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[82] Comprised of Solar United Neighbors, Community Power, Cooperative Energy Futures, Sierra Club North Star Chapter, Institute for Local Self Reliance, Black Visions, Vote Solar, Minnesota Environmental Justice Table, and Minnesota Interfaith Power and Light.
[83] MNSEIA, Initial Comments, October 15, 2024, p. 10-11
[84] MNSEIA, Reply Comments, November 14, 2024, p. 8
[85] CLEAR, Reply Comments, November 14, 2024, p. 2; ILSR, Reply Comments, November 14, 2024, p. 1-2
[86] Department Reply Comments, November 14, 2024, page 7.
[87] Department Reply Comments, November 14, 2024, page 7.

with the existing net metering parameters as set forth in relevant tariffs. The Department recommended approval of Xcel's proposed changes to its net metering tariff.[88]

ii. Xcel Replies on A50 Rate Customers

Xcel disagreed with MNSEIA's interpretation of the net metering statute, stating that it did not align with the "practical application of the net metering tariff." The Company reemphasized that under its proposal excess solar consumption is credited at a higher rate than the mid- or off-peak TOU rates, and that very little, if any, solar generation would occur during the peak time period due to its shift to later hours.[89] Xcel also stated that MNSEIA's proposal may not comply with statute, which requires the ARUER to be calculated dividing total retail revenues by total retail revenues, including non-time varying revenues such as the monthly customer charge. Trying to divide non-time varying components could add unnecessary complexity.[90]

iii. Staff Analysis on NEM Customers

Xcel's most recent IDP forecasted between 500 and 625 MW of incremental rooftop solar additions over the next decade,[91] in addition to the 260 MW of existing rooftop solar.[92] Having a properly designed TOU rate for NEM customers will be critical to maximizing the value of these resources while simultaneously encouraging customers to engage in shifting their energy usage to off-peak periods.

Staff is concerned that the existing record on creating a TOU rate for A50 customers is confusing and underdeveloped and may lead to unintended consequences for solar customers. This could result in poor adoption of a TOU rate by some of the most engaged energy customers. Staff's overall recommendation is for the Commission to decide the direction it would like to pursue for the TOU A50 rate and if necessary, require an updated proposal and tariff sheets with the 90-day compliance filing. Below Staff outlines considerations for the Commission when choosing the direction for the TOU A50 rate.

The primary disagreement between stakeholders was whether Xcel's proposal would fairly compensate A50 rate customers and whether an alternative approach was warranted. Staff compared the compensation a customer could expect under Xcel's proposed TOU A50 rate structure, the 1:1 approach taken by Minnesota Power, and under the existing flat A50 rate in Table 8. For this example, the customer has a net zero energy production/consumption, as they produce 805 kWh of generation and consume 805 kWh.

[88] Department Reply Comments, November 14, 2024, page 8.
[89] Xcel, Reply Comments, November 14, 2024, p. 12
[90] Xcel, Reply Comments, November 14, 2024, p. 13
[91] Xcel Energy, 2023 IDP, Docket 23-452, Appendix A, p. 64, Figure A1-27
[92] Xcel Energy, Annual DER Report, Docket 24-10

Table 8. Hypothetical NEM Customer Bill Under Current, Proposed, and 1:1 Methodology

	Energy Bill Component*
Existing A50 Rate[93]	$0.00
Xcel TOU A50 Proposal	$(4.57)
Minnesota Power 1:1 Proposal[94]	$4.93

**Positive values indicate a bill credit, negative values (in parentheses) indicate a bill charge.*

Under Xcel's proposal there may be a disincentive for existing A50 rate customers to participate in the TOU option as they would potentially have a greater financial benefit on the existing A50 rate because of more favorable buyback terms for their excess energy, especially if they are unwilling or unable to adjust their usage to the new rate structure. Under the existing flat A50 rate, a customer would not be incentivized to shift their usage to off peak and would likely have larger financial benefit than Xcel's proposal. Under the Minnesota Power structure A50 rate customers may be more incentivized to enroll in the rate and shift their usage, however in many cases compensation would be higher than under the existing structure.

CLEAR also suggested adopting a "compromise" on-peak period for the overall TOU rate that occurs earlier in the day when solar is still producing. Staff's concern with changing the entire rate structure to match solar customer production is that it focuses on a subset of customer energy use, rather than the overall system. If the Commission would like to examine different TOU time periods to encourage solar production, Staff believes that rate should be developed

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[93] Example netting under existing NEM methodology

	Generation	Consumption
Initial Generation/Use	805	(805)
Net	*-805*	*+805*
End Total Gen/Use	0	0
kWh credit/cost	0.15874	0.13069
Subtotal	$0	$0

Customer will have **no charge or credit** for the energy portion of their bill

[94] Example netting under Minnesota Power methodology.

	Generation			Consumption		
	On	Mid	Off	On	Mid	Off
Initial Generation/Use	5	800	0	(105)	(550)	(150)
Net: Like for Like	*-5*	*-550*		*+5*	*+550*	
End Total 1 Gen/Use	0	250	0	(100)	0	(-150)
kWh credit/cost	$0.22487	$0.14644	$0.08239	$0.20443	$0.13313	$0.0749
Total	$0	$36.61	$0	$(20.44)	$0	$(11.24)

Customer will see a **credit of $4.93** for the energy portion of their bill.
Note: as there is not currently data to calculate a time-period specific average retail utility energy rate for Xcel, Staff used the proposed TOU rate in each time period increased by 10%, as the excess NEM compensation rate is higher than the retail rate.

as a separate standalone program for solar customers. Staff takes no position on this path but offers **Decision Option 14** if the Commission would like to pursue this option.

As evidenced by the bill comparison, there are tradeoffs for the various options above. The Commission will need to weigh these factors when deciding which methodology to choose for NEM customers on a TOU rate. Staff outlines the following options based on the record above:

1. Approve Xcel's proposed NEM approach. (**Decision Option 10** - Xcel, Department)
2. Require Xcel to file an amended tariff implementing a 3-part average retail utility energy rate and 1:1 netting and excess energy compensation within the approved TOU time periods with the 90-day compliance filing. (**Decision Option 13** – MNSEIA, CLEAR, ILSR)
3. Require Xcel to propose a solar-specific TOU rate under the Excess Generation-Average Retail Utility Energy Service with the 90-day compliance filing. (**Decision Option 14** – Staff interpretation of MNSEIA, CLEAR, ILSR alternative)

Regardless of which direction the Commission proceeds with the NEM rate, Staff believes that creating a new rate code for the "Excess Generation – Average Retail Utility Energy Service" (Section No. 9, Revised Sheet No. 2) in addition to the A50 rate code would reduce overall confusion. This is consistent with how Xcel added in options for the new TOU rate for other distributed generation rates (See, for example, the addition of the A57 rate code under Sale to Company After Customer Self Use, PDF. p. 92 of the Company's August 16 filing). This would alleviate the Department's concern that there is not an alternative rate for excess generation aside from the existing A50 rate. As with other special rate options, Staff also recommends the Company develop additional outreach to distributed generation customers on the A50 to A56 rate codes to inform them of the new rate options and include it in the 90-day compliance filing. Additionally, Staff recommends the Company hold a training for DER developers on the new rate options at a quarterly DER Workgroup meeting prior to rate implementation.

Decision Option 11 would require Xcel to amend the tariff language for its Excess Generation – Average Retail Utility Energy Service to include a new rate code.
Decision Option 16 would require the Company conduct additional outreach on the new rates.

Finally, Staff notes that Xcel plans to update its other distributed generation rates to offer additional options that align with the new TOU rate. No participants commented on these changes and Staff's understanding is they are additive to existing options. Regardless of the decisions the Commission makes on the NEM rate, Staff recommends approving the new A57 (Sale to Company After Customer Self-Use), A58 (Monthly Net Metering), and A59 (Annual Net Metering (kWh Banking Option) tariffs subject to a compliance filing with the calculated rates with the 90-day compliance filing.

Decision Option 15 approves the new A57, A58, and A59 rates.

D. Electric Vehicle (EV) Owners

Xcel's EV Accelerate at Home program, which includes both a subscription (flat monthly charge) option and a TOU option already use the Company's three part time-of-use structure established in Xcel's 2017 pilot. Thus, as both programs have been authorized by the Commission to use a TOU structure, Xcel reasoned that the programs would only need to be updated with final TOU rates.[95]

i. Stakeholder Feedback on EVs

The City of Minneapolis was concerned that under the new three-part rate structure the 6-hour off-peak charging window available for EV customers is a significant reduction compared to the 12-hour off peak window under previous EV rate offerings. It also noted that Xcel had not updated the EV Subscription Rate[96] pricing to reflect the shorter off-peak period in its tariff filing, which it should do to reflect the reduced number of available hours for charging. Therefore, the City recommended that the Company lower the monthly customer charge.[97]

Xcel disagreed with the City of Minneapolis's recommendation regarding the EV Charging Subscription Service Program, stating Minneapolis's position "does not accurately represent how the monthly customer charge is determined." Xcel explained that the monthly charge is calculated to cover the anticipated monthly usage, and not the hours charging is available.[98]

Xcel's revised TOU petition stated the Company would update all EV tariffs to maintain the existing pricing relationship to residential TOU rates. The Department agreed with this approach, an approach that was also consistent with Xcel's initial petition.[99]

One member of the public, J. Holm, commented on modifications to EV pilot rates, opining that the EV Accelerate at Home program should be discarded in favor of meter-based time of use. Member of the public S. Adams also commented on the impact of the broader TOU rate on EV owners, explaining that nearly doubling the off-peak rate, compared to the initial proposal, may negatively impact customers charging EVs.

ii. Staff Analysis on EVs

Staff notes that adjusting the Company's EV Accelerate at Home (EVAAH) pricing to align with the new TOU rate will result in a 96% increase to the off-peak rate from the ***current*** price of 3.825 cents/kWh to 7.479 cents/kWh. Staff is concerned that the increase in the off-peak rate, combined with a 17% increase in the mid-peak rate, will significantly impact the attractiveness of this rate option, as the monthly savings will be diminished.

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[95] Xcel revised petition filed August 16, 2024 at 19-20

[96] Staff notes that while Minneapolis filed these comments on Xcel's original proposal, the Company did not update the subscription rate pricing in its August 16 revised proposal

[97] Minneapolis, Initial Comments, May 17, 2024, p. 4

[98] Xcel revised petition filed August 16, 2024 at 20.

[99] Department of Commerce comments filed October 15, 2024 at 10.

Additionally, the Company's proposed updated tariff sheets for the EV rates do not include the updated rate structures from the Commission's May 9, 2024 Order approving changes to the EVAAH TOU and Subscription offerings, which makes it difficult to assess the overall impact to EV programs. As noted by the city of Minneapolis, Xcel did not update the Subscription offering to reflect the updated energy rates. While Staff agrees with Xcel that the monthly subscription fee is based on anticipated energy usage, it disagrees the rate does not need to be updated. The Company would need to update the fee to reflect the increased off-peak energy charge, which would increase the monthly subscription fee from approximately $39/month to $53/month (a 36% increase) for a customer on the bring your own charger option.[100]

Staff notes that Xcel offers an additional EV rate, the Residential Electric Vehicle Service (Rate Code A08) that currently aligns with the existing residential TOD rate's 12 hour on/off peak structure. This rate gives EV customers with a separate service (or meter) exclusively for EV loads an off-peak charging option, and allows those who charge using a standard wall outlet (also called Level 1 charging) a longer window, which is helpful when charging at this lower voltage. Level 1 charging has a distinct advantage over higher-voltage Level 2 chargers: it places far less demand on the distribution system, potentially avoiding costly transformer upgrades to accommodate the additional load. While Xcel's filing did not mention this rate option, with the proposal to discontinue the existing TOD rate Staff is unclear whether this program would be impacted. As of Xcel's most recent EV annual report 1,605 customers participated in this option.[101] It is also the only EV rate currently available for those without a Level 2 charger.

As discussed in the Company's Transportation Electrification Plan and in the Optimize Your Charge Pilot, secondary "timer-peaks" are also a concern. This occurs when electric vehicle chargers on off-peak rates all activate at the start of the off-peak period, which can cause localized strains on the distribution system. With shorter off-peak periods, there is less flexibility for the utility to stagger charging start times while still allowing customers sufficient time to charge on the lower off-peak rate.

Given the complexities of offering managed charging options for transportation electrification, the impact of the large off-peak increases, and the lack of current tariff sheets for rate comparisons, Staff recommends the Commission deny without prejudice the Company's request to update its EV rates to align with the new TOU rate and instead require Xcel to propose modifications to the programs outlined above in its next TEP, due November 1, 2025. (**Decision Options 20 and 21**)

If the Commission adopts Xcel's recommendation, Staff recommends requiring the Company to update its subscription service monthly fee to reflect the increased off-peak rate (**Decision Option 18**) and perform targeted outreach to customers on the rates to inform them of the

[100] Estimate based on Xcel's 2023 Integrated Distribution Plan 3 of 3, Appendix H5 (PDF p. 133)
[101] Xcel Energy, 2024 EV Annual Report, Docket 15-111

changed time periods and rates, and to offer assistance with reprogramming charging devices to reflect the updated time periods. (**Decision Option 19**).

E. Existing Time of Day Rate

Xcel currently serves approximately 1,000 customers on a two-period Time of Day rate established in the 1980s (Table 9). The rate's on-peak period is from 9AM – 9PM weekdays and all other times are off-peak. Xcel intends to close this rate and transition all customers to the revised TOU rate. Xcel explained that doing so will send more accurate price signals reflecting service provision costs throughout the day and decrease customer confusion that may come from the existence of multiple time-varying rates.[102]

Table 9. Existing Time of Day Service (Rates in cents per kWh) compared to New Petition

	Summer (June-Sept)		**Winter (Oct-May)**	
Peak Time Period	Existing 9AM - 9PM Weekdays	Proposed 7 PM- 10 PM Weekdays	Existing 9AM - 9PM Weekdays	Proposed 7 PM- 10 PM Weekdays
On-Peak Rate	25.879	20.443	21.408	16.247
Mid-Peak Rate	n/a	13.313	n/a	11.364
Off-Peak Rate	5.171	7.479	5.171	7.479

Yellow highlight used to emphasize the revised rate design. Existing rates include a $6.00 customer charge. Also, in certain communities, an interim rate surcharge of 7.14% goes into place January 1, 2025.

i. Stakeholder Feedback on Existing TOU Rate Customers

In response to Xcel's proposal to transition **all** existing TOD rate customers to Xcel's revised TOU rate, the OAG reasoned that Xcel's new TOU rate is not really opt-in rate after all, if some customers would be automatically enrolled and not have the choice to stay on their current rate. However, the OAG does not appear to support the existing TOD rate, stating, "The undesirability of a TOD rate that doubles a customer's rate for the majority of their waking weekday hours was cited as a reason that Xcel needed to develop what became the currently proposed TOU rate. In short, the current TOD rate has low participation because it is a bad deal for most customers."[103] MnSEIA wrote that customers on the existing TOD rate should be given the opportunity to, not be required to, opt-in to the revised TOU rate (**Decision Option 22**). MnSEIA believed that a voluntary transition could gauge the appeal of the revised rate to customers on the existing TOD rate.[104]

The Department supported discontinuing the current TOD rate (included in **Decision Option 1 or 3**) and recommended that Xcel share a customer transition plan in a 90-day compliance filing with **Decision Options 30D and E**.

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102 Xcel revised petition filed 16 August 2024 at 19.
103 OAG replies filed 14 Nov 2024 at 6.
104 MnSEIA comments filed 14 Nov 2024 at 9.

ii. Staff Analysis on Existing TOD Rate Customers

Staff understands that at present, only around 1,000 customers participate in the TOD rate so whether the Commission decides to retain or discontinue the existing rate, outreach will be necessary only to a limited customer subset.

While there are only 1,000 customers on the existing TOD rate, they have likely made investments and/or behavioral changes to align their energy use with the existing on/off peak timeframes. For example, EV owners strategizing to maximize off-peak "trickle" charging (level 1) may have invested in a separate service for their garage or EV charger, in order to use the Residential EV Service rate. Other customers on the TOD rate may have multiple devices programmed not to operate before 9PM. Automatically switching these customers to the new rate would necessitate significant changes in behaviors and habits and could create financial challenges or require some to install expensive new devices—such as a level 2 charger in order to provide sufficient charge in the shorter 6-hour window.

Instead of eliminating this rate, Staff recommends that it be closed to new customers and existing participants be given information about switching to the new rate, with the option to remain on the existing 12 hour on/off peak structure, 9AM -9PM (**Decision Option 23**). Over time natural attrition will likely result in rate participation dwindling to zero, at which point the rate could be eliminated. This approach has been taken by other utilities, for example in its current rate case, Dakota Electric proposed to eliminate its Residential and Farm Demand Control rate due to low uptake of the rate. However, the cooperative explained that there are 15 members currently taking service who "have made adjustments to their usage patterns to maximize their benefit," and therefore the Cooperative determined that closing the rate to new customers, while allowing existing customers to stay on, would strike an appropriate balance.[105]

F. Low-Income Customers

When questioned about protections for low-income customers by stakeholders like the Department, Fresh Energy, and CUB, Xcel explained that because the TOU rate is now proposed to be opt-in, Xcel does not plan to offer low-income customer protections. The Company pointed to its other low-income programming and resources, available through ECO and the new Automatic Bill Credit (docket no. E002/M-24-173) as viable resources. Additionally, the Company cited results of its TOU Pilot, which showed that low-income participants, who comprised 35% of residential TOU Pilot customers, saw an average 3% bill reduction and were more satisfied than the general population of Pilot participants.[106]

Stakeholders did not comment on these aspects of Xcel's revised TOU petition. However, Staff notes that potential customer protections, which could include protections for low-income

[105] Dakota Electric, Prefiled Direct Testimony of Adam J. Heinen, Docket E111/GR-24-400, p. 55-56

106 Xcel's letter on August 16, 2024, at 25. Though as mentioned previously, these savings were not meaningfully different from the general population.

customers, are discussed later in this briefing paper. There may also be benefits to further engagement with low-income customers for voluntary rate enrollment.

G. Medical Device Dependent Customers

With the new opt-in program design, the Company will offer its TOU rate to customers dependent on medical equipment. The Company explained that customers can decide if the TOU rate is right for them.

The Department recommended that *if* an opt-out rate is approved, the Commission should require Xcel to exempt medical-equipment dependent customers from participation, consistent with Xcel's Pilot **(Decision Option 24).**

iii. Staff Analysis on Medical Device Dependent Customers

Minn. Stat. Ş 216B.098, subd. 5 requires special protections for public utility customers with medically necessary equipment, including requirements to "reconnect or continue service to" customers with certified medically necessary equipment. Exempting these customers from participation, unless they choose to opt-in to a TOU rate, may be another way to ensure continued service to customers dependent on electric medical devices.

9. Xcel's Revised Petition: Bill Protections

Though bill protections were important to stakeholders like the OAG and Department, the Company has chosen **not** to include bill protections in the revised TOU rate explaining that the opt-in design acts as a sufficient customer protection. The Company reasoned a participant could choose to leave the TOU rate at any time.

i. Stakeholder Feedback on Bill Protections

Several commenters supported bill protections for TOU rate participants explaining that the revised TOU rate remains untested. Support also came from one member of the public, J. Jacoby, who supported both increased education and bill protections saying, "The TOU program will negatively impact those that would be most tragically impacted by an unexpected energy bill." The OAG further underscored the need for bill protections stating, "Because the effects of Xcel's new proposal remain unknown, customers who opt into the new TOU rate must receive bill protection."[107] The OAG further explained that bill protections may make the new TOU rate more attractive and less risky to customers. Last the OAG underscored that bill protection had been included in Xcel's TOU Pilot and that, "Xcel itself stated that bill protection was important "to maintain customer satisfaction and avoid major or unanticipated billing impacts."[108]

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107 OAG comments filed 15 October 2024 at 9.

[108] OAG initial comments 10 October 2024 in docket no. E-002/M-23-524 at 10 citing Docket No. E-002/M-17-775, Initial Filing at 27 (Nov. 1, 2017).

Depending on *if* a TOU rate is approved and *if* that TOU rate is opt-out or opt-in, stakeholders recommended different types of bill protection.

a. Stakeholder Recommendations if the TOU Rate is designed to transition to Opt-Out.

The OAG, CUB, and Department supported applying the same pilot bill protections that were in the Company's initial pilot. The Department recommended applying those bill protections during the Department's one year 20,000 customer pilot of Xcel's revised rates **(Decision Option 26 A and B).** Then, after this 12-month pilot, the Department recommended evaluating the need for subsequent bill protections (**Decision Option 27)**.

For reference, Xcel's two-year Pilot filed in Docket No. E002/M-17-775, included the following bill protections.[109] For all enrolled customers, Xcel proposed that if, for the first year of participation, a customer's bill under the new TOU rate was >10% of what that customer's bill would have been under the standard flat rate, Xcel would credit the customer the bill difference above the 10% difference. For all Energy Assistance Program (EAP) customers, the Company would provide a full bill true-up to what the customer's bill would have been under the standard flat rate. Then, during the second year of the Pilot, **only** EAP customers would be protected; EAP customers would be offered those same protections that had been available to all customers under the first year of the pilot.

b. Stakeholder Recommendations if the TOU Rate is designed as Opt-In only.

The OAG recommended different bill protections for an opt-in TOU rate. This plan did not differentiate between low-income / non-low-income customers; all customers would receive the same protection. The OAG explained that if, within the first 12 months of participation in the new TOU rate, a customer receives a monthly bill that exceeds their prior monthly bill (the Baseline Bill) by more than 10 percent, the excessive bill would be capped at a 10 percent increase over the Baseline. The customer would get a letter letting them know they'd received this bill protection and providing energy behavior tips. The Customer would *also* be protected on their next month's bill, if it was also an increase over baseline, because they wouldn't have received the bill and informational letter until partway through the following month.[110] Fresh Energy agreed with this recommendation. See **Decision Option 25**.

CUB, however, disagreed with the OAG's proposal. CUB stated that "proposed mechanism fails to account for natural increases and decreases in energy use from month to month due to weather and other factors."[111] In replies, CUB recommended that if the Commission wants month-to-month customer bill protections, those protections should follow the EAP protection mechanism from Xcel's pilot, described above, and more, that those protections should be paired with additional customer education **Decision Option 26C**.

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[109] Xcel pilot in 17-775 at 27
110 OAG initial comments 15 Oct 2024 at 10-11
111 CUB replies filed 14 November 2024 at 9.

Despite disagreement in how to offer that protection, both CUB and the OAG underscored the need for bill protections, even for an opt-in rate. The OAG explained that even customers who make the choice to opt-in will not have complete information, especially as Xcel is opposed to shadow billing (discussed below) about how the pilot will impact them and may suffer rate shock or an unaffordable bill and should be protected.[112] More, the protection offers an important education opportunity that can be calmly pursued, as the ratepayer is not in shock and despair over their unexpectedly huge bill. Further, conversations with trained customer service agents can help provide understanding about a customer's bill.

ii. Xcel Replies to Bill Protections

In response, Xcel explained that during the Pilot, few customers experienced bills high enough to trigger bill protections. Delivering the credits that *were* requested required developing internal computer program. Xcel explained that scaling up that program would not be feasible due to the complexity of calculating different protections for customers transitioning from different rates to the TOU rate.[113]

Xcel also feared that bill protections could limit the efficacy of the TOU rate as protections "could hamper customers' behavioral changes and lessen their engagement with the rate. Encouraging behavioral changes and engagement with the rate is ultimately needed for customers to be successful on the program and drive system change." More, Xcel feared that customers who did *not* experience bill savings would simply leave the TOU rate.[114]

To the OAG's proposal to offer month-by-month bill protections, the Company viewed the proposal as "artificially capping bills" and believed that the protections may be shielding customers from the bill impacts attributable to other factors, like weather or behavior, rather than the TOU rate design.

Finally, Xcel cautioned that as the TOU rate is designed to be revenue neutral, it would need a mechanism to recover money spent on customer bill protections. Doing so, Xcel argued, would increase the cost of TOU program delivery.

iii. Staff Analysis on Bill Protections

Through an ex parte communication[115] Staff requested, and Xcel provided, the number of customers who took advantage of bill protections during Xcel's TOU Pilot. Table 10 shows that for a total of 10,000 pilot participants, relatively few customers received bill protections. More,

112 OAG replies filed 14 November 2024 at 11.
113 Xcel replies filed 14 November 2024 at 6
114 Xcel replies filed 14 November 2024 at 6, including quoted text.
115 Ex parte communication made January 30, 2025 and filed in docket no. E002/M-23-524.

Xcel reported a modest Pilot opt-out rate of ~3% (from Nov. 1, 2020, through Sept. 30, 2022).[116] This suggests customers were not opting out of the TOU rate *en masse* due to high bills.

Table 10. Bill Protections Received in Residential TOU Pilot

	Year 1	**Year 2**
Low-Income Customers	250	16
All Other Customers	592	N/A*

*Protections only available to EAP customers in Pilot Year 2.

Despite relatively few customers taking advantage of the bill protections, Staff understands the benefit of such protections after reading arguments from commenters. Indeed, commenters explained that having such protections in place can provide confidence for customers who may otherwise be reticent to try a TOU rate. Staff reasons that if the TOU rate and ME&O are designed properly, then *ideally*, customers will never need to use the bill protections in the first place. Customers would be properly incentivized and have the knowledge and tools needed to change behavior to take advantage of off-peak rates, and would therefore have lower bills than if they had been on a standard, flat rate.

Xcel did not share the estimated cost of bill protections, especially as compared to the full $6-8 million Xcel proposed as necessary to implement its TOU residential rate. However, Xcel did describe the cost of developing computer programming and recovering bill protection dollars as "expensive."

Decisions on Bill Protection:

To provide everyone a holistic view of bill protections, Staff suggests that if the Commission requires a 90-day compliance filing on ME&O strategies **(Decision Option 30F),** the filing could include information on the cost of bill protections and a timeline for readying Xcel's system to offer those protections. In addition, or as an alternative, the Commission could decide it needs no further information and opt to require bill protections with the following:

- Two months of protection, maximum, for customers whose current bill is 10% or more expensive than their previous month's bill (**Decision Option 25**), use with an opt-in rate.

OR

- A replication of Xcel's Pilot which would offer EAP customers a monthly true-up to what their bill would have been on the basic flat residential rate for 12 months and then another 12-month period after that, if necessary (**Decision Option 26A**). All other customers would be offered a true-up after 12 months on the new rate if their annual

116 COMPLIANCE FILING – PILOT COMPLETION RESIDENTIAL TIME OF USE RATE DESIGN PILOT DOCKET NO. E002/M-17-775 filed February 10, 2023, at 11.

bill is more than 10 percent greater than it would have been on the flat rate (**Decision Option 26B**). Use with a default rate.

Finally, the Department recommended a one-year check in on bill protections after which, the need for subsequent bill protections would be evaluated (**Decision Option 27**).

10. Xcel's Revised Petition: Shadow Billing

While shadow billing was important to stakeholders reviewing Xcel's initial TOU rate design, like CUB and Uplight, Xcel decided not to offer shadow bills in its revised TOU rate proposal. A "shadow bill" is a graphic generated and placed on the bills of individual customers to illustrate what the customer's bill would have been, had they been on a different rate than the TOU rate. Shadow bills can be a form of customer protection as well as an educational tool.

i. Stakeholder Feedback on Shadow Billing

Many commenters including the Department, OAG, CUB, Fresh Energy, and ILSR, supported Xcel's inclusion of shadow bills as a form of customer protection and education. Member of the public J. Holm also supported as a method because, "Promoting the [TOU] service using actual usage details for that residence could be a way to educate and drive adoption." Fresh Energy and CUB supported shadow billing as a means of increasing customer access to TOU rate. Their comments explained that a shadow bill is easy for customers to access—it is simply a graphic on a customer's bill; whereas the digital tools Xcel has proposed would require manual data entry into a secondary app or platform. The OAG underscored this point, stating that, "[a]s CUB and Fresh Energy have pointed out, shadow billing is likely the most effective method available for marketing and customer education."[117]

Fresh Energy, CUB, and the Department recommended Xcel look into the feasibility of developing a shadow billing tool. If the Company could not do so internally, ILSR recommended Xcel issue an Request for Proposals to develop the option. CUB suggested that a progress update be put into the 90-day compliance filing with **Decision Option 28.**

ii. Xcel Replies to Shadow Billing

Xcel reiterated that its current system is not set up to provide shadow bills. As explained with respect to bill protections, Xcel opposes shadow bills as "costly, redundant, and unnecessary."[118] In response to suggestions that Xcel discuss the feasibility of providing shadow billing, Xcel explained how it would approach such a study and estimating that "it would take at least two years and cost a minimum of $2 to 3 million."[119]

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117 OAG replies filed 14 Nov 2024 at 8 citing Initial Comments of the Citizens Utility Board of Minnesota at 13-14 (May 17, 2024); Supplemental Comment of CUB at 6-8; Supplemental Comments of Fresh Energy at 5-6.
118 Xcel replies 14 November 2024 at 8.
119 Xcel replies 14 November 2024 at 8.

In addition to explaining difficulties in conducting a feasibility study, Xcel also felt that a shadow bill is not a panacea as it would only be a comparison tool, not a tool that could guide behavioral change under TOU rates. The Company favors its rate comparison tool, discussed below, because Xcel's tool would be forward-looking rather than only using historical data. More, Xcel stated, "On-going communications will remind customers to continue the behavior changes and check their usage through online tools."[120]

In response to critiques that Xcel's rate comparison tool puts greater onus and burden on the customer to operate, the Company replied that, "we disagree that engaging with our proposed rate advisor tool is necessarily a much larger lift and it comes with added engagement benefits."[121] However, Xcel is still developing the functionality of this tool.

iii. Staff Analysis on Shadow Billing

Xcel favors its Rate Comparison tool, finding it to be a more active channel for education and engagement than commenters' recommended shadow bills. Staff understands the allure of a theoretical, sophisticated tool to assist customers in optimizing their behavior under a TOU rate.

However, if customers do not use Xcel's rate comparison tool, it is no longer effective. Xcel's initial survey of customers within its Pilot study sites revealed that, "most customers spend very little time reviewing their bill" and "Customers prefer an email from Xcel Energy to learn about new rate pilots. Tools, such as an app, would be used occasionally by customers and most prefer an email with a webpage link to be notified about personal or household energy use."[122]

Staff understands that some tool, be that shadow billing and / or a Rate Comparison tool, will be critical to bolstering customer success on a TOU rate. Staff offers that if the Commission selects an opt-in rate only, deploying a set of digital-only tools that require customer interaction may be appropriate. However, an opt-out rate may necessitate greater explanation of how the TOU rate works and should utilize a greater breadth of communication channels to ensure sufficient customer education. Thus, an opt-out rate may benefit from shadow bills and further, may prompt reconsideration of Xcel's exclusive or heavy reliance on digital tools.[123]

Staff is also curious whether an application could be developed that would use information from the billing system, or directly from meters, which could be accessed via a link included in customer bills, rather than having the information itself appear directly on the bill. As ILSR suggested, Xcel could issue a request for information to see if there are developers that offer

120 Xcel replies filed 14 November 2024 at 10.
121 Xcel replies 14 November 2024 at 9.
122 Xcel initial petition for TOU Rates filed 1 November 2017 in docket no. E002/M-17-775 at 12.
123 Opinion Dynamics study for Xcel Energy shared in revised petition filed by Xcel 16 August 2024 in Attachment B page 3.

this kind of application. (**Decision Option 30G**) The Commission can decide its stance on shadow bills with **Decision Option 28.**

11. Xcel's Revised Petition: Marketing, Education, and Outreach (ME&O)

A. Opinion Dynamics Study Results

At the request of Xcel, Opinion Dynamics prepared a research study of four ME&O case studies, focused on utility TOU rates.[124] Relevant takeaways include an emphasis on simple messaging[125] as well as findings that fewer customers will participate, overall, with an opt in rate, compared to out-out approaches. Researchers interpreted this to be a function of low customer awareness of the new rate option, as opposed to customer hesitation or preference.

In Table 11, Staff summarizes additional research results and uses two columns to indicate where Xcel's revised ME&O plan aligns with and did not adopt Opinion Dynamics' research findings.

Table 11. Opinion Dynamics Research Findings

	Xcel's Plan Aligns with Research	Xcel's Plan Did Not Adopt
Enrollment	Target customers identified as structural benefiters	Select a hybrid enrollment strategy
Customer Protection	Only 1 of 4 cases offered bill protection. Xcel has not included bill protection.	Shadow bills provided.
ME&O	Use an online rate comparison tool	Train customer service representatives to help TOU participants
ME&O	Customer research[126]	Study on effective messaging
ME&O	An opt-in structure may focus on more digitally engaged customers and use digital outreach.	A more complicated TOU structure with higher risks for bill rewards/losses will need more outreach.
ME&O	Prioritize digital / online outreach.	Physical mail outreach, personalized customer emails, and Community events

[124] Xcel revised petition Letter filed August 16, 2024 in docket no. E002/M-23-524, attachment B. Cases Ameren in Missouri and utility in Arizona, both where regulators mandated transition to TOU rates; Portland, OR where legacy TOU rate was expiring; and Sacramento, CA offering an opt-in rate that transitioned to out-out.
[125] Focused on TOU explained as non-threatening program and less on savings tips or behavior change (Ameren) and avoid the peak, take control of energy bills, achieve bill savings, customer rate choice, strengthen the grid, sustainable energy, and keep energy prices down for everyone (Portland) and transition to new rate and how to save money (CA).
[126] Xcel initial TOU filing made December 22, 2023, at 6 explained that Guidehouse collected information about customer demographics, homes, energy-related attitudes and behaviors, understanding of the Pilot, behavioral changes, and satisfaction before, during, and after pilot implementation.

Last, Opinion Dynamics' research showed that the cost of ME&O varies greatly across jurisdictions and by decisions to use opt-in or opt-out TOU rate designs. Indeed, there are mixed findings on the relationship between ME&O spending and customer opt-ins such that greater spending on ME&O did not necessarily lead to more customer participation.[127] However, according to an Ask E Source research report prepared for Xcel Energy in August 2023 on the cost of ME&O, "the default rate pilots ranged in costs from $4 to $20 per participant, while the opt-in pilots ranged from $382 to $613 per participant."[128]

B. Xcel's Proposed ME&O Strategy

Xcel explained its ME&O strategy builds on findings from its CO service territory[129], its MN TOU Pilot, and the Opinion Dynamics study, discussed above. Xcel will continue to refine its ME&O plan by incorporating lessons learned during TOU rate implementation. To this extent, Xcel outlined a three-stage ME&O plan. From its total TOU implementation budget of $6-8 million, $5-6.8 million would be used for:

- **Messaging** will first target customers most likely to opt-in, like EV owners. Though sample text was not provided, Xcel stated that its messaging will focus on the:
    - concept of TOU rates,
    - associated potential benefits for consumers,
    - cost-savings opportunities afforded by the TOU model, and
    - convenient ways to change energy usage behaviors.
- **Decision-Making Support** will direct customers to Xcel's website to engage with a Digital Rate Advisor.

- Then, **Ongoing Engagement** will focus on optimizing energy usage behaviors and would receive an additional $50,000 from Xcel's budget. Xcel noted that a key learning from CO and the MN Pilot was that customers who engaged in program and received education on energy usage had positive perceptions and saved more money.[130]

C. Stakeholder Feedback on ME&O

i. Poor Pilot Outcomes Not the Fault of Rate Design

Stakeholders like the OAG and CUB explained that similarly structured rate designs *had* been successful in TOU pilots in other jurisdictions; however, Xcel's Pilot did not yield significant demand reductions. Indeed, as CUB pointed out, though the Pilot's summer ratio of 8.1:1 and a

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127 Xcel revised petition submitted August 16, 2024, Attch B at 14. Researchers also noted that while costs per participant were lower for opt-out rates compared to opt-in, ME&O budgets were hard to define and thus, the difference between opt-in/out may be less stark.

128 Xcel revised petition submitted August 16, 2024, Attch B at 14.

129 Colorado's residential opt-in TOU pilot was conducted from 2017-2019. Then, a default (opt-out) residential TOU rate was implemented with a phased approach, beginning in 2022. See Xcel revised petition filed August 16, 2024 in docket no. E002/M-23-524 at 14 and 20.

130 Xcel revised petition August 16, 2024 at 24

winter ratio of 6.9:1 had large differentials, customer behavior did not shift significantly. To CUB, this suggested that non-price factors, like structural and behavioral barriers, limited the ability of many households to adjust their energy usage.[131]

The OAG echoed CUB's criticism. The OAG noted that in Minneapolis, for example, peak demand reductions dropped from 1.6 percent in the first year of the pilot to 0 percent in the second year. Further, the OAG stated that the pilot results indicated that many participants were unaware of key aspects of the TOU rate structure, with fewer than half understanding the tiered pricing or tools provided to help manage energy use. This lack of awareness persisted in other Xcel offerings; the OAG cited similar shortcomings in Xcel's Colorado TOU rollout.[132]

ii. Poor Pilot Outcomes Linked to Poor ME&O

Thus, CUB and the OAG blamed, in part, poor Pilot outcomes on insufficient ME&O efforts. Indeed, Xcel's pilot results revealed that many participants were unaware of key aspects of the rate structure and how their behavior could influence bills, leading to dissatisfaction and disengagement.[133] Fresh Energy agreed that customers did not understand TOU principles during the Pilot and CUB identified customer understanding and engagement as critical barriers to the success of TOU rates.[134]

Without a robust education plan, the OAG argued a full-scale transition to TOU rates would likely lead to widespread confusion, dissatisfaction, and potentially elevated bills for customers.[135] Further, eight members of the public, in response to Xcel's initial residential TOU rate proposal, stated that they did not believe the proposal would change customer behavior in the way Xcel thought it would. However, at present, the OAG concluded, "ultimately, a clear sense of what worked and what didn't remains elusive."[136]

iii. Simple Messaging

Opinion Dynamics' work showed the need to test messaging with a smaller subset of customers before rolling out to a larger TOU pilot group or all residential customers. Messaging could consider Xcel's initial survey of pilot sites which showed that Xcel will have a limited window of time to engage with its customers as, "most customers spend very little time reviewing their bill." However, customers *were* interested in energy. Indeed, customers had tried to save money by reducing electricity use but ultimately had lack of confidence in ability to actually make a difference in their energy use.[137]

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[131] CUB's comments on May 17, 2024, at 6-7.
[132] OAG comments on May 17, 2024, at 18-19.
133 CUB's comments on May 17, 2024, at 11.
[134] CUB comments on May 17, 2024, at 11-12; Fresh Energy comments May 17, 2024 at 3.
135 OAG's comments on May 17, 2024, at 18.
136 OAG's comments on May 17, 2024, at 18.
137 Xcel initial TOU rate design petition filed 1 Nov 2017 in docket no. E002/M-17-775 at 12, quoted text in previous sentence also on page 12.

In replies, Xcel said it will test communications approaches and collect feedback from existing TOU customers transitioned to new rate and from "a targeted group of new customers who are most likely to consider moving onto the rate." Learnings will inform subsequent marketing campaigns.[138]

iv. Diverse Outreach Focus

Further, while there may not have been a clear sense of effective ME&O strategies, commenters are seeking greater diversity of focus for ME&O. For example, while some Pilot participants, identified as "high-impact customers," achieved significant reductions, they constituted only 8–11 percent of participants and were responsible for over 55 percent of demand reductions. Thus, concluded the OAG, this is a disparity which has highlighted the limited engagement and effectiveness of the TOU design across the broader customer base. As such, commenters agreed that an important place to *start* could be designing a portion of ME&O efforts for customer segments under-represented in energy decision-making.[139]

Though not explained, Xcel also said it will make special communication plans for customers who may benefit from or be burdened by TOU rates.[140] Later, in replies, Xcel said it expects its ME&O plan, "will incorporate and discuss specific provisions for traditionally underrepresented communities and those uniquely affected by the TOU rate plan."[141] Staff notes that if the Commission selects a compliance filing that includes ME&O, identifying efforts for under-represented customers may be part of that filing (see **Decision Option 29E**).

v. Cost

Opinion Dynamics' research showed a difference in ME&O cost for opt-in versus opt-out strategies; the OAG acknowledged this but explained that the cost per participant is higher for opt-in rate because fewer customers are targeted to opt-in. However, OAG has concluded that either an opt-in or opt-out rate will require, "better customer education and shadow billing, both of which are necessary and should have comparable costs under either an opt-in or an opt-out TOU rate."[142] Regardless of cost, GridX recommended the Commission authorize cost recovery for Xcel's education plan **(Decision Option 31).**[143]

Xcel stated it would be open to discussing cost recovery mechanisms if the Commission felt doing so was appropriate.

D. Staff Analysis on Marketing, Education, and Outreach, part 1

Stakeholders believed that Xcel's Pilot ME&O was ineffective. Staff sees the issue as both 1) problematic research design and 2) too narrowly focused ME&O strategies. Staff will first speak

138 Xcel replies filed 14 November 2024 at 5.
139 Fresh Energy comments filed 17 May, 2024 in E002/M-23-524 at 16; CUB replies filed 14 November 2024 at 7.
140 Xcel Energy Revised Petition filed 16 August 2024 at 22.
141 Xcel replies filed 14 November 2024 at 16.
142 OAG 14 November 2024 at 8.
143 GridX initial comments made 15 October 2024.

to research design. Then, Staff will present additional information on the role of technology in Xcel's TOU pilot and petition and analyze additional ME&O strategies.

vi. Research Design: Problem

Xcel's TOU Pilot manipulated two variables at once—the TOU rate design and Xcel's customer ME&O strategy. Xcel's TOU Pilot manipulated rate design, so some customers were moved to a TOU rate while a control group remained on Xcel's standard flat rate. However, only customers on the TOU rate received ME&O. Xcel did not include a control group of residential customers who experienced *no* change in their rate but *did* receive ME&O about optimizing their behaviors *absent* a price signal.

Therefore, outcomes of the pilot cannot be attributed specifically to either the rate design or the education strategy. Further, factors that cannot be controlled in a natural experiment, like customers who despite incentives cannot change their behavior (i.e., when they use energy) may also help explain the modest results in observed in the pilot.

In terms of variables that may have influenced the outcome of Xcel's TOU pilot, Staff also considered the impact of bill protections on behavior change. Staff dismissed bill protections as a variable that could have impacted pilot outcomes because while the protections could incentivize customers to *stay on* the rate rather than opting out when receiving a larger-than-expected bill, they would likely *not have* incentivized engagement with the TOU rate to achieve load shift and bill-decrease benefits. Therefore, Staff feels confident that focus on rate design and ME&O is sufficient to explain variation seen in TOU customer outcomes.

vii. Research Design: Current Petition

Xcel's revised TOU petition continues to manipulate two variables at once—the TOU rate design and Xcel's customer ME&O strategy. Many commenters seem convinced that after poor Pilot performance, Xcel's new rate design and peak differentials are far more preferable and more likely to produce the energy changing behavior that makes a TOU rate of benefit to Xcel's system and customers' bills. However, Xcel has only provided a brief overview of a single ME&O strategy for all customers, focused on digital communication through Apps and a Digital Advisor. Commenters have underscored the importance of a robust ME&O strategy and have requested more details on Xcel's plan.

viii. Research Design: Staff Recommendation

Therefore, Staff supports a 90-day compliance filing on ME&O strategies and plans (**Decision Option 29 A-I**).

To address problems with research design, Staff suggests that the initial group of TOU rate participants, the treatment group, be divided into at least two sub-treatment groups and offered different ME&O strategies along with a subset of "control" residential customers who are not on the TOU rate. This would allow testing the impact of different ME&O strategies on customer behavior as well as that impact without the stimulus of TOU rate price signals.

Staff finds value in shadow billing as one of the ME&O strategies offered. Additional strategies could include Xcel's proposed Rate Comparison Tool and / or could be based on best practices ultimately determined by Xcel and stakeholders. Of use, perhaps, Opinion Dynamics' research also presented four case studies, each with an ME&O strategy. However, each utility employed multiple ME&O strategies, and it may not be possible to elucidate which strategy was ultimately most effective (or if the combination of strategies themselves is what is effective).

E. Xcel's Proposed Use of Technology in TOU Rate Design

Xcel explained the importance of AMI meters to support customers' efficient use of the TOU rate, especially the digital tools that will support customer participation.[144] The Company reported that as of September 30, 2024, it had installed a total of approximately 1,050,000 AMI meters in Minnesota; this represents 75% of the total expected deployment. Additional meters were expected to be deployed in 2024 and 2025 (Table 12).[145] AMI deployment is anticipated to be complete in 2025, allowing for the new rate to be implemented in 2026, as shown in the Company's TOU Rate Implementation timeline, discussed above.

Table 12. AMI Meter Deployment Schedule

Year	Actual Deployment (# meters)	Deployment Target (# meters)
2022	128,000	
2023	537,000	
2024	382,500 (as of September 30, 2024)	527,000
2025		208,350
TOTAL		**1,400,350**

Enabled by its AMI, Xcel is developing a set of Digital Energy Insight Tools to support its TOU customers. Tools will show factors that contribute to bills, use MyAccount mobile app to show energy usage in 15-minute increments, and let customers use three months of historic data to examine the impact of different rates on their bill. Responding to learnings from Colorado, Xcel explained that in Colorado, "customers have expressed frustration with the absence of tools to compare usage and costs."[146] Indeed, the Company wrote that, "Anecdotally, customers that are not as curious about their energy data insights, but are aware that these tools are available, are also likely to modify their behaviors to leverage the benefits of the TOU rates."[147] Customers who are more curious about their energy usage may take greater advantage of these tools. Of note, additional Low Tech Tools, like refrigerator magnets, will also be explored.

ix. Stakeholder Feedback on Use of Technology in TOU Rate Design

144 See Xcel Energy revised petition filed August 16, 2024 at 17 and 24.
145 Xcel Energy Compliance filing made in docket no. E002/M-24-371 on November 1, 2024 at 9-11
146 Xcel revised petition filed 16 August 2024 at 21
147 Xcel revised petition filed 16 August 2024 at 25

CUB and Opinion Dynamics noted that the type of outreach should match the decision to require either opt-in or opt-out TOU rate implementation.[148] As explained previously, an opt-in strategy may require a less-robust strategy for ME&O focusing only, for example, on digital communications. The Commission will need to consider different types of ME&O, explained in the Comments and Staff Analysis below, and potentially select strategies for Xcel to use based, in part, on the decision for an opt-in or opt-out plan TOU rate.

x. Regarding AMI

Uplight and GridX underscored the importance of AMI data to provide customer education, including shadow billing and personalized rate comparisons. GridX recommended waiting to deploy TOU rates until a year of AMI data are collected because, "with a year of individualized household AMI data, Xcel could utilize tools to provide each customer a personalized understanding of how their utility bill - based on their historic energy usage - will change on the new [TOU] tariff."[149] In general, Uplight, Clear Energy Co. And GridX support the use of digital tools to enhance customer success with TOU rates and support Xcel's data collection about participation (in part, captured in Uplight's **Decision Option 32)**.[150]

xi. Digital Opposition

As mentioned earlier, when discussing shadow bills, some commenters were hesitant to rely solely on digital tools, stating that digital tools, like a bill simulator, put too much onus on the customer to input data into a digital interface. Thus, to avoid burdening customers, stakeholders like Fresh Energy, CUB, and ILSR supported non-digital education tools (or tools that may have both a digital and non-digital interface) to improve access to TOU rates.[151]

xii. Beyond Digital

In considering what form ME&O may take, beyond a set of digital tools, commenters have stated support for Shadow Bills, as explained earlier. Additionally, CEE focused on Xcel's space heating rates; however, and applicable to ME&O in general, CEE said it was "crucial" to have a "well-informed and knowledgeable customer service staff."[152]

In response to CEE, the Company said it appreciated CEE's recommendation and said that it anticipates all call center representatives having access to the Company's Rate Comparison Tool to walk customers through use of the tool as well as having access to "robust" materials on TOU rates and enrollment.[153]

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[148] CUB replies filed 14 November 2024 at 4 and Opinion Dynamics research for Xcel Energy in Xcel's revised filing made August 16, 2024 in Attachment B.
[149] GridX comments filed 15 October 2024 at 3
[150] For example, see GridX comments filed 15 October 2024 at 17
[151] Fresh Energy 14 November 2024 at 2; CUB 15 October 2024 at 6; ILSR 5 November 2024
152 CEE comments filed 15 October 2024 at 20.
153 Xcel replies 14 November 2024 at 16.

xiii. Pairing

Commenters highlighted the importance of pairing information about TOU rates with existing Xcel rebates, trainings, and technology, like smart thermostats,[154] as well as expanding rebates that could, for example, could provide no cost devices to low-income customers.[155] To this extent, CUB, noted that during the Pilot, customer behavior did not shift significantly and that renters, low-income customers, and those without access to enabling technologies like smart thermostats were particularly constrained in their ability to benefit from TOU rates.[156]

The Company explained that it does offer trainings to contractors and that it intends to include information about its space heating rate in these going forward. Additionally, Xcel explained the current ECO offerings that would likely complement TOU rates but did not explain how it would actively facilitate the beneficial pairing of ECO programs or technology, like smart thermostats, with new TOU rates.[157]

F. Staff Analysis on Marketing, Education, and Outreach, part 2

As mentioned above, Staff also sees the ineffectiveness of Xcel's Pilot ME&O as a problem of ME&O and research design. Staff has just presented additional information on the role of technology in Xcel's TOU Pilot and petition and now analyzes how, considering Xcel's revised TOU residential rate, ME&O efforts could extend beyond digital Applications and Advisors.

i. Digital

Xcel stated it intends to exclusively use digital tools for ME&O of its opt-in program design. However, there are conflicting results on whether this is the only, or one among many, strategy that Xcel's customers would prefer. On one hand, as mentioned above, Xcel noted its CO customers wanted tools to compare costs of different rates and their usage. However, Xcel's Initial Survey of Pilot Sites found that, "Customers prefer an email from Xcel Energy to learn about new rate pilots. Tools, such as an app, would be used occasionally by customers and most prefer an email with a webpage link be notified about personal or household energy use."[158] Thus, it is unclear which, if any, digital tools are preferred by participants.

ii. Beyond Digital

However, it does seem clear that digital tools are not the only way customers and commenters envision ME&O. Despite this knowledge, Xcel remains dedicated to pursuing only digital tools for its revised TOU rate design implementation and support. Based on comments, Staff sees that outreach in beyond-digital-means could take three different forms:

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154 CEE 15 October 2024 at 20-21. Uplight's comments on May 16, 2024, at 5. Uplight comments October 15, 2024.
155 Fresh Energy comments 15 October 2024; Supported by Uplight comments 15 October 2024.
156 CUB comments filed May 17, 2024 at 4.
157 Xcel replies filed 14 November 2024 at 17.
158 Xcel TOU Pilot petition filed in E002/M-17-775 on 1 Nov 2017 at 12

1. Training Customer Service Representatives: both CEE and Opinion Dynamics' report prepared for Xcel, both emphasized the importance of such training.
2. Shadow Bills: throughout the development of Xcel's TOU rate design, commenters have underscored the importance of shadow bills as an educational tool, as well as a customer protection. Mentioned earlier in research design, Staff highlights once again the commenter commitment to consideration of shadow bills.
3. Personal Communication: commenters and Opinion Dynamics' report[159] highlighted strategies like paper mail, email, mass media, and community events as effective ME&O strategies.

Feasibility of each could be explored in Xcel's 90-day compliance filing.

iii. Pairing

Staff believes that both academic and practical experience substantiate the engagement principle "go where people already are." By pairing existing customer touch points, like Xcel's ECO program and smart thermostat offerings, with information about TOU rates, Xcel will reduce the work of trying to get customers' attention. Xcel can leverage places where they already have a customer's interest and maximize that customer's limited bandwidth by showing how a device or program that customer is *already interested in* can further enable that customer to save money (and help the electrical grid).

Decisions on ME&O:

Recommended by OAG &CUB and Uplight, Xcel has agreed to make a 90-day compliance filing with more detailed information about its marketing, education, and outreach plan.[160] **(Decision Options 4 and 29).**

CUB agreed with Department that stakeholders should be given 30 days to comment on the ME&O plan **(Decision Option 4).**

Staff recommends the filing should include plans or results of a messaging study that goes beyond customers likely to adopt TOU rate as well as details as to how digital, non-digital, and paired ME&O approaches will be leveraged and for which customer segments and/or geographies those approaches will be deployed **(Decision Option 29 H and I).**

12. Xcel's Revised Petition: Program Evaluation

A. Reporting Metrics

159 Opinion Dynamics research for Xcel Energy in Xcel revised petition filed 16 August 2024 in Attachment B beginning at 5.

160 Xcel Energy Revised Petition filed 16 August 2024 at 22, "These groups may include non-English speakers, electric heat customers such as Income Qualified customers, Senior Citizens, solar rooftop customers, space heating customers, current TOD rate customers, etc."

The Company proposed to report annually on participation, including customers leaving the TOU rate and why; customer satisfaction; energy usage; and an overview of ME&O.

i. Stakeholder Feedback on Reporting Metrics

The OAG explained that analysis and evaluation of customer and system impacts are key because Xcel has a new rate that has not been tested.[161] To that extent, the OAG stated that OAG, Fresh Energy, and the Department agreed upon and recommended a set of reporting metrics to evaluate Xcel's revised and untested TOU rate. CUB also supported these metrics.

In reply comments filed 14 November 2024, Xcel indicated its ability to provide some of the requested information. Table 13 shows the 14 topics, into which 118 unique reporting metrics were organized, as well as Xcel's responses. Some metrics were requested to be reported for customers overall, by census block group (CBG), and by customer segments: low-income, senior, renter, EV owner, and smart thermostat owner.[162] Some groups proposed additional metrics. Attachment A shows all recommended metrics and Xcel's responses.

Table 13. Proposed Reporting Metrics Organized by Xcel's Response

Xcel Supports	Xcel Does Not Have Capability to Report	Xcel Did Not Respond	Xcel Prefers in IRP & IDP
Participation: overall, by customer segment, and by CBG	Load Shifting: by Customer Segment	Actual hourly load net of renewables	Carbon dioxide emissions
Bill Protection: overall and by customer segment*	System coincident peak impact**	Energy consumption impacts for each TOU period	% Renewable energy per MWh
Disconnections	Bill Impacts: overall and by customer segment**	Load Shifting: participants on TOU rate vs traditional rate	
Peak Impact: overall and by customer segment		Forecasted load vs actual load, by various methodologies	
Customer Satisfaction		Planning	
Load Shifting: Overall			

*Only if bill protection is required; Xcel does not support bill protection. ** Xcel's system not capable of providing this information. Previously provided by external consultant.

B. Timing

[161] OAG replies filed November 14, 2024 at 12.

162 The same customer segments that were utilized by Xcel in its Pilot proposed on November 1, 2017 in docket no. E002/M-17-775.

The Company, OAG, Fresh Energy, CUB and the Department all agree that an evaluation report should be filed the first year after Xcel's residential TOU rate is implemented. However, the OAG and Department believe that Xcel should file a report annually for the foreseeable future. Xcel supported annual reporting with the caveat that, "[c]onsidering the timeframe for all phases of our planned implementation, and in the interest of administrative efficiency, we recommend reevaluating whether all ongoing reporting requirements remain valuable after the initial phases are completed."[163] (**Decision Option 37**) The Commission can decide the start date and duration for which Xcel's annual reports are filed with **Decision Options 33-35**.

C. Comment Periods

Stakeholders also agree that a notice and comment period should follow Xcel's annual residential TOU rate evaluation reports. As Fresh Energy explained, reporting that is followed by a stakeholder process could be used to examine the impact of the TOU rate and identify changes needed to transition to the opt-out rate.[164] Further, the Department, CUB, and MnSEIA recommended Xcel revise the TOU rate and programming, as necessary, after review of a 12-month evaluation.

However, groups disagree on whether those comment periods should begin at the request of stakeholders within 60 days of Xcel's annual report, as recommended by the OAG, or that a stakeholder process should be automatically prompted by the filing of Xcel's reports, as recommended by Fresh Energy. The Commission can decide which action prompts comment periods on annual reports by selecting **Decision Option 38 or 39**.

D. Staff Analysis on Program Evaluation

Staff understands the need to evaluate an untested rate that could potentially be the default rate for all residential customers. To define the scope of reporting, Staff first considers the utility staff time, and subsequent ratepayer expense, that accompanies data analysis as well as the potential expense of contracting with consultants, which may be required to provide an evaluation of system coincident peak impact and bill impacts.

To define the scope of reporting, Staff recommends that the five goals of Xcel's Pilot, and now this TOU rate, inform the evaluation requirements and process. These goals are:

1. Send adequate price signals to reduce peak demand.
2. Identify effective customer engagement strategies.
3. Understand customer impacts by segment.
4. Support demand response goals.
5. Operate a pilot focused on significant energy data in its service territory.[165]

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[163] Xcel replies filed 14 November 2024 at 18.
[164] Fresh Energy replies filed November 14, 2024 at 3.
[165] Xcel Residential Time of Use Rate Design Pilot Program, Nov 1, 2017, docket no. E002/M-17-775 at 14-15.

Report on all TOU Goals. Considering the goals of Xcel's TOU rate and Pilot, commenters' proposed reporting supports goals 1, 3, and 4 listed above. However, few metrics support the second goal, related to engagement strategies. Therefore, Staff believes there is need to measure the efficacy of the ME&O and if possible, differential success across ME&O strategies. Currently, the OAG et al.'s list of recommended metrics includes customers' relationship to TOU rates in terms of satisfaction, preferences, attitudes, acceptance, comprehension, and awareness. With these metrics, we will know **if** customers are aware of TOU rates but not **how** they learned about the rate. Staff believes greater nuance could be achieved in metrics and would recommend, as an example, asking customers to respond by using a drop-down list to select how they heard about TOU rates and by which method they learned how to modify their energy behaviors (**Decision Option 40P**).

Reduce Reporting Volume. Seeing the considerable resources required with reporting, Staff ultimately recommends reducing the volume of reported metrics with the following:

Require Xcel to provide short annual report(s) in the instant docket. Those reports would provide only a subset of the data proposed and supported by OAG, Fresh Energy, CUB, and the Department. This subset of data would function as a publicly available "snapshot" of the efficacy of the TOU rate in terms of customer savings and demand reductions.

A reduced reporting volume, as a start, may exclude data that would require the services of an external consultant. For example, Xcel budgeted for two consultants to analyze Pilot data at a total of $1,300,000.[166] Any increase in participation in the revised TOU rate would likely increase consultant costs.

Staff also cautions against requiring reporting be disaggregated over many customer segments, especially if those data are not already available to Xcel. Xcel's TOU Pilot could collect granular customer segment data because the Pilot focused on a small subsection of Xcel's customer base within a defined geographic area. By surveying individual customers, Xcel could obtain data on age and income, which it does not otherwise collect. Significant external resources would be needed to collect similarly detailed survey data for a larger number of customers, with no guarantees that there would be a high customer response rate.

Second, some customer segment categories are not mutually exclusive, for example, an EV owner may also be a renter. However, this should not present a problem when analyzing disaggregated data to explore trends by customer segment. Conclusions may be drawn about, for example renters, *overall,* with the understanding that there might be great diversity within the segment of renters.

Select Reporting Data. The Commission could select the data it would like to see in annual reports from those reporting metrics already proposed by stakeholders. Alternatively, Xcel

[166] Xcel Residential TOU Rate Design Pilot Program, Docket no. E002/M-17-775 November 1, 2017 at 34.

could meet with interested stakeholders to propose a reduced set of reporting metrics. The revised metrics could be submitted with the 90-day compliance filing (**Decision Option 41**).

This group could also determine any remaining details for data collection strategies. For example, commenters recommended that load shifting behavior be compared to historical customer usage. Stakeholders did not specify which customers will comprise that historical value—a TOU participant's own history or an average group of residential customers. Further, the time period considered "historical" and whether this will include the COVID-19 pandemic, winter storms, or notable policy events also needs to be defined. This is important as Xcel's Pilot did include time during the pandemic, and this could have influenced customer behaviors in a way that may not be replicable moving forward.

Future Need for Additional Data. Staff expects that AMI meters, which will be fully rolled out to Xcel's residential customers in 2025, will collect the necessary interval data. The Commission could also require Xcel to retain 15-minute interval AMI data for TOU customers once the rate is implemented for a set period, whether an opt-in or opt-out design is chosen. If needed by stakeholders in the future for subsequent analyses, the Commission could require Xcel to make those data available within a reasonable time frame subject to existing data privacy standards.

Alternatively, Staff suggests Xcel could be required to file a more comprehensive report, that includes data on customer segments, at the end of a set period, like three or five years, rather than every year in an annual report.

Decisions on Program Evaluation:

The Commission will need to decide how often it would like to receive TOU rate program evaluation reports (**Decision Options 33-35**). More, the Commission can choose how stakeholders give feedback on those reports with **Decision Options 38-39.**

In terms of the content of reports, Staff suggests a reduced volume of metrics is selected and provided in any 90-day compliance filing, with the provision that Xcel retain raw data and make those data available upon stakeholder request (**Decision Option 41**).

13. Conclusion

For over a decade, the Commission has reviewed insights and recommendations on the residential TOU rates that are before the Commission on March 6. Broadly, commenters seem pleased with Xcel's rate design and have offered reasonable suggestions for ME&O strategies. Staff believes that if the Commission remains interested in offering a TOU rate, the ideas contained in this document could result in a reasonable TOU program. However, if the Commission is no longer interested in TOU rates, it could seek opportunities to expand or strengthen other programs that support customer behavior changes that reduce system demand. For example, ECO incentives for Xcel's four Residential Demand Response program products: Saver's Switch®, AC Rewards, Behavioral Demand Response, and Smart Water

Heaters[167] as well as a potential Peak Time Rebate program (to be filed March 17, 2025 in Docket No. 24-432).

14. Decision Options

Revised Proposal Approval or Denial

The Commission may select Decision Options 1, 2, or 3. Staff recommends selecting Decision Option 4 with either DO 1 or 3. If the Commission selects DO 3, it may select proposed modifications starting with DO 5. For each issue, if no modification is selected, Xcel's proposal on that issue will be approved by default through Decision Option 3.

1. Approve Xcel's August 16, 2024 Revised Residential TOU Rate Proposal and updated tariffs. (Xcel, GridX, Uplight)

OR

2. Deny Xcel's August 16, 2023 Revised Residential TOU Rate Proposal and updated tariffs and require Xcel to file a new proposed pilot program with the updated proposal's structure and constraints. The new pilot shall include residential ratepayers utilizing Net Energy Metering (NEM) on the Excess Generation – Average Retail Utility Energy Service (A50). (MNSEIA, CLEAR, ILSR)

OR

3. Approve Xcel's August 16, 2024 Revised Residential TOU Rate Proposal and updated tariffs as modified below. (CUB, Department, Fresh Energy, OAG)

4. Require Xcel Energy to make a compliance filing in this docket within 90 days of the Commission's Order (90-day Compliance Plan) that includes the information as detailed in subsequent Decision Options. Delegate authority to the Executive Secretary to issue notices and set comment periods on the 90-day Compliance Plan. Where not otherwise noted require Xcel to file tariff updates consistent with the Commission's Decisions. (Staff modification of Department, CUB)

On Peak Period

The Commission may select DO 5 or 6, or neither option. If the Commission does not make a selection, Xcel's proposed 7pm-10pm on peak period will be implemented.

5. Require Xcel to revise the on-peak period to be from 6 p.m. to 9 p.m. (Fresh Energy; CUB)

[167] Xcel 2024-2026 ECO Triennial Plan Docket no. E,G002/CIP-23-92 at 193.

OR

6. Require Xcel to revise the on-peak period to 4 p.m. to 7 p.m. on non-holiday weekdays. The off-peak period shall be 11 p.m. to 6 a.m., and the base period all other hours. (Department; CLEAR)

Rate Implementation- Opt-In or Opt-Out

The Commission may select Decision Option 7 and its subparts. If the Commission does not select DO 7, the TOU rate will be an opt-in rate.

7. Require Xcel to use an opt-out approach with phased implementation modeled on Minnesota Power's (MP) approach approved by the Commission in Docket No. E015/M-20-850 as follows: (Department, CUB, MNSEIA)
    A. Following Commission approval of a new TOU rate, require Xcel to conduct a TOU rate pilot with approximately 20,000 customers.
    B. Require Xcel to allow customers to opt out of the TOU rate at any time, returning to a flat rate.
    C. Require Xcel to default an additional group of customers to TOU rates.
    D. Require Xcel to continue evaluations and make changes to the TOU rate and programming as necessary.
    E. Require Xcel's TOU rate to become the default rate for all customers, rolled out strategically to customers in groups.

Special Customer Circumstances

Space Heating Rate

The Commission may select Decision Option 8 and any or all of its subparts relating to enrollment and outreach for the Electric Space Heating Rate.

8. Require Xcel to take the following actions related to implementation of the Space Heating Rate and include information on the proposed outreach in its 90-day Compliance Plan.
    A. Require Xcel to develop a process to actively facilitate enrollment in the electric space heating rates for customers that receive an ASHP rebate through ECO. (CEE)
    B. Require Xcel to incorporate customer education and awareness of the residential electric space heating rates into customer communications for heat pump rebates to show the full value proposition of installing an ASHP. (CEE)
    C. Require Xcel to ensure implementers of complementary programs, such as local government campaigns and future state ASHP rebates, receive education about the new electric space heating rates and materials to promote the new rates. (CEE)

D. Require Xcel to provide educational resources to contractors to ensure appropriate sizing and switchover temperatures to optimize customer benefits. (CEE)
E. Require Xcel to cross market TOU rates with ECO programs (CEE)
F. Require Xcel to educate heat-pump related staff, contractors, and customers with a broad range of topics, beyond new TOU rates, including electric heating systems that affect operating costs, such as system efficiency, rebate eligibility, proper sizing, and switch-over temperatures. (CEE)
G. A preview of what webpages containing space heating rate information will look like. (Staff offered based on CEE recommendation and Xcel's intent to include such information on its website)

Critical Peak Pricing

The Commission may select DO 9, or not.

9. Require Xcel to evaluate the opportunities for layering a CPP component with the TOU rate, or for a stand-alone demand response program. (Fresh Energy)

Net Energy Metered (NEM) Customers

The Commission may select DO 10, and 11; or DO 12 and 13; or DO 14. DO 15 and 16 can be adopted with any of the above options.

10. Approve Xcel's proposed changes to the Excess Generation – Average Retail Utility Energy Service rate tariff. (Xcel, Department)

AND

11. Require Xcel to amend the tariff language for its Excess Generation – Average Retail Utility Energy Service to include a new rate code that implements its approved changes. (Staff recommended if 10 is selected)

OR

12. Deny Xcel's proposed changes to the Excess Generation – Average Retail Utility Energy Service A50 rate tariff. (MnSEIA, CLEAR, ILSR)

AND

13. Require Xcel propose a method for netting generation against consumption and calculating compensation with a continuation of 1:1 net metering compensation as a new rate code under the Excess Generation – Average Retail Utility Energy Service with the 90-day Compliance Plan. Require Xcel to monetize the net kilowatt-hour credit for each TOU period in each billing period (month) at the applicable rate for that TOU period. (Staff interpretation of CLEAR, MNSEIA, ILSR)

OR

14. Require Xcel to propose a solar-specific TOU rate that complies Excess Generation-Average Retail Utility Energy Service and has a peak that aligns with solar generation with the 90-day Compliance Plan. (Staff interpretation of MNSEIA, CLEAR, ILSR)

15. Approve Xcel's proposed new A57 (Sale to Company After Customer Self-Use), A58 (Monthly Net Metering), and A59 (Annual Net Metering (kWh Banking Option) rates subject to a compliance filing that contains the proposed rate calculations with the 90-day Compliance Plan. (Staff recommended)

16. Require Xcel develop and perform targeted outreach to existing distributed generation rate customers on the existing A50 to A56 rate codes to inform them of the new rates and include it in the 90-day Compliance Plan. Require the Company to hold a training for DER developers on the new rate options at a quarterly DER Workgroup meeting prior to rate implementation. (Staff recommended)

Electric Vehicles

The Commission may select Decision Options 17, 18 and 19; OR Decision Options 20 and 21

17. Approve Xcel's request to change the rates, peak periods, and customer charges in the Residential EV Accelerate At Home Pay As You Go Service, Residential EV Accelerate at Home Subscription Service, and Multi-Dwelling Unit Electric Vehicle Service Pilot tariffs, to reflect the approved residential TOU rates and peak periods. (Xcel, Department)

AND

18. Require to Xcel update its EV Accelerate at Home - Subscription Service (A82, A83, A84) monthly fee to reflect the increased off-peak rate. (Staff recommended if 17 is adopted)

AND

19. Require Xcel to develop and perform targeted outreach to customers on the impacted EV rates to inform them of the changed time periods and rates and offer assistance with reprogramming charging devices to reflect the updated time periods. (Staff recommended if 17 is adopted)

OR

20. Deny without prejudice the Company's request to update its residential EV rates to align with the TOU rates approved in this docket. (Staff recommended)

AND

21. Require the Company to provide an analysis of, and any recommended changes to, its existing residential EV charging rates in order to accommodate longer off-peak time periods that allow for Level 1 charging and the ability to stagger the start time of EV charging in its Transportation Electrification Plan due November 1, 2025. (Staff recommended)

Existing TOU Rate Customers

The Commission may choose Decision Option 22 and/or 23. If the Commission does not adopt DO 23, the Company's existing TOD rate (Rate Code A02/A04) will be cancelled.

22. Require Xcel to give current Time of Day ratepayers the option to opt into the new TOU rate and provide direct communications about doing so. (MNSEIA)

23. Deny Xcel's cancelation of its existing residential TOD rate (A02, A04) and instead close the rate to new customers but allow customers currently enrolled on the rate to remain on the rate. Once the A02 and A04 rates have no remaining customers, allow Xcel to make a compliance filing cancelling the rate. Direct the Company to conduct targeted outreach to existing TOD customers informing them of the new TOU rate. (Staff recommended)

Medical Device Dependent Customers

The Commission should consider selecting the following only if an opt-out rate is approved.

24. Require Xcel to exempt medical-equipment dependent customers from the residential TOU rate. (Department)

Bill Protection

If the Commission would like to require customer bill protection under Xcel's new TOU rate, commenters have recommended different customer bill protection options specifically for opt-in versus opt-out rates.

*If the Commission approves **a permanent opt-in** TOU rate, it may consider this following customer bill protection strategy:*

25. Require Xcel to adopt a bill protection strategy such that all customers who **opt in** receive bill protection up to two times for the first 12 months of their participation in the new rate. If a customer receives a monthly bill that exceeds their prior monthly bill (Baseline Bill) by more than 10 percent, Xcel shall cap the increased bill at a 10 percent increase over the Baseline Bill and provide the customer with communications about effective load shifting, energy efficiency, and how to change their residential rate. If that customer's bill for the immediately following month also exceeds the Baseline Bill by more than 10 percent, Xcel shall also cap that successive bill at a 10 percent increase over the Baseline Bill. (OAG; Fresh Energy)

*If the Commission approves an **opt-out TOU rate or an opt-in TOU rate that will transition to an opt-out** TOU rate, it may consider the following customer bill protection strategy:*

26. Require Xcel to adopt a bill protection strategy such that all customers on the new rate receive the bill protection that was available in Xcel's initial residential TOU pilot, modified as follows: (OAG, Department, CUB, Fresh Energy, MnSEIA)

A. Xcel shall provide customers who receive EAP assistance or self-certify as low-income a monthly true-up to what their bill would have been on the basic flat residential rate for 12 months, and another true-up 12 months later if their annual bill is more than 10 percent greater than it would have been on the flat rate. This true-up at the end of 24 months must be to their flat rate annual bill;
B. Xcel shall provide all other customers a true-up after 12 months on the new rate if the customer's annual bill is more than 10 percent greater than it would have been on the flat rate. The true-up must be to their flat rate annual bill.
C. Xcel shall provide customers who trigger the bill protection an on-bill alert along with additional information about effective load shifting, energy efficiency, and choosing the best rate for a household. (CUB)

The Commission may choose to evaluate the need for further bill protections after one year with the following decision option:

27. Require Xcel to offer bill protections for one year with the need for subsequent bill protections evaluated afterwards. (Department)

Shadow Billing

28. Require Xcel to explore the feasibility of developing and implementing a shadow billing program and file an update with the 90-Day Compliance Plan. If the Company is unable to implement shadow billing internally, require it to conduct an RFI to identify the feasibility, costs, and estimated timing associated with implementing shadow billing within 6 months from the date of the Commission's Order and file the results in this docket. (Staff modification of Fresh Energy, CUB, Department, ILSR)

90-Day Compliance Filing

The Commission may select DO 29 and any combination of subparts A-I.
The Commission may also select DO 30 and any combination of subparts A-G.

ME&O

29. Require Xcel to file a detailed ME&O plan for the approved TOU rate rollout with the 90-day Compliance Plan outlined in Decision Option 4. This plan shall describe, at a minimum, the following: (OAG, CUB, Fresh Energy, and Department, except where the exclusive support of one group / Staff is noted)
    A. What customer communications will look like and what form they will take (emails, mailers, notices on customer bills, etc.);
    B. More detailed cost estimates for each feature in Xcel's proposed outreach plan;
    C. Xcel's consideration of additional customer-support staff training to ensure employees are well prepared to answer questions about the new rate; (CEE)
    D. The timeline of when each step or communication strategy will be implemented;

E. Xcel's plan to engage and communicate with customers who are traditionally underrepresented in energy-decision making, including communities of color and low-income communities;
F. Any other relevant aspects of Xcel's proposal for customer outreach and education, including those adopted in other decision options (Staff supported);
G. The potential for automatic enrollment options; (CUB and Fresh Energy only, OAG does not support, Department supports eventual transition to default TOU rate for all customers)
H. Plans or results of a messaging study that goes beyond customers likely to adopt a TOU rate. (Staff recommended)
I. How digital, non-digital, and paired ME&O approaches will be leveraged and for which customer segments and/or geographies those messages will be deployed. (Staff recommended)

Additional Items for Compliance Filing, detailed throughout briefing paper

30. With the 90-day compliance plan outlined in Decision Options 4 and 29, require Xcel to file the following:
    A. An implementation plan and proposed tariff changes reflecting any modifications approved by the Commission (Xcel, Department)
    B. Clarification of, if applicable, the transition of existing space heating customers to Xcel's revised space heating rate, following the discontinuation of the flat rate space heating option. (Staff)
    C. Clarification on the intersection of the space heating and net metering rates prior to offering these rate options, especially if the Commission were to choose an opt-out rate. (Staff)
    D. The timing of the cancellation of Xcel's existing TOU rate and the timing to transition existing TOU rate customers to Xcel's revised TOU rate from its August 16, 2024 filing (Department)
    E. The plan to transition existing TOU rate customers to Xcel's revised, as detailed in its August 16, 2024 filing, TOU rate (Department)
    F. The cost of bill protections and a timeline for preparing its system to offer those protections. (Staff recommendation, if not clarified during Agenda Meeting)
    G. Clarify whether an application could be developed that would use information from the billing system or even directly from the meters itself that could be included as a link in customer bills, rather than having the information appear directly on the bill. Include information from any RFI may issue exploring existence of developers that offer this kind of application. (Staff, drawing on ILSR suggestion)

ME&O Cost Recovery

31. Authorize cost recovery for Xcel to have the opportunity to pursue and fund solutions that will enable personalized rate education. (GridX)

32. Authorize cost recovery for Xcel's proposed Digital Energy Insights Tools, customer education and engagement plan, and rate implementation process. (Uplight)

TOU Program Evaluation Reporting

The Commission may set reporting by selecting some combination of Decision Options 33 through 41.

Timing

The Commission may choose DO 33, 34, or 35. It may also choose DO 36 and/or 37.

33. Require Xcel to make a program evaluation filing 12 months after implementation of the new TOU rate. (Fresh Energy, MnSEIA)

OR

34. Require Xcel to make an annual program evaluation filing, beginning 12 months after implementation of the new TOU rate. (OAG, Department)

OR

35. Require Xcel to make a six-month program evaluation filing and then annually thereafter, beginning six months after implementation of the new TOU rate. (Staff)

- 36. Require Xcel to file, after one year of rate implementation, a detailed report evaluating the current rate design and analyze the potential for transitioning to a systemwide default time-of-use rate. (CUB)

- 37. Delegate authority to the Executive Secretary to reevaluate whether all ongoing reporting requirements remain valuable after the initial phases of TOU rate implementation are completed. (Xcel)

Comment Periods on Regular Program Evaluations

The Commission may select DO 38 or 39.

38. A comment period may be requested within 60 days of each program evaluation filing if it appears that changes need to be made to the rate design. (OAG)

OR

39. Each program evaluation filing shall be followed by a stakeholder process to evaluate the program's impact and to identify changes needed to ensure successful TOU implementation generally and the eventual transition to a default TOU rate. (Fresh Energy)

Content of Regular Program Evaluations

The Commission may select DO 40 and any combination of subparts A-P. If the Commission choses an opt-out rate it may choose any combination of subparts Q-T. Alternatively, the Commission may select Staff option 41.

40. Require Xcel to include in its program evaluation filings the following information (OAG, CUB, Fresh Energy):
    A. Participation metrics, including the number of customers who have opted into the new TOU rate and opted out of the new TOU rate, overall and by customer segment (including but not limited to: low-income, senior, renter, EV, smart thermostat, and participation by census block group);
    B. Customer bill impacts for the full population and by customer segment, including minimum, maximum, and average bill increases, and charts showing the full distribution of bill impacts annually and by season, as included in Attachments D and E to the new proposal;
    C. The number of customers who received bill protection, overall and by customer segment, as well as the number of customers who opted out of the TOU rate after receiving bill protection;
    D. The number of customers on the TOU rate who have had their service disconnected;
    E. Minimum, maximum, and average household peak impact overall and by customer segment, annually and by season;
    F. Actual hourly load net of renewables;
    G. System coincident peak impact of TOU customers annually and by season;
    H. Load shifting (percent of load shifted to and from off-peak, peak, and shoulder periods) based on historical customer usage, overall and by customer segment, annually and by season;
    I. Load shifting comparison of participants in TOU versus residential ratepayers on the traditional rate, annually and by season;
    J. Energy consumption impacts for peak, shoulder, and off-peak periods, annually and by season;
    K. Customer experience, including satisfaction, preferences, attitudes, acceptance, and comprehension, including awareness of the specific on-peak, mid-peak, and off-peak periods;
    L. Any trends or changes (forecast or historical) related to the carbon dioxide emissions and renewable energy profile of the Company, including hourly annual data presented showing hourly CO2 emissions, hourly CO2 emissions per MWh, percentage of renewable energy per MWh, with corresponding worksheets;
    M. Updated system data to evaluate the appropriateness of the TOU rate design and potential modifications:
        1) A comparison of the forecasted net load during peak, base, and off-peak periods (as used to design the rate), to the actual net load during each reporting year;

2) A comparison of the forecasted LMP ratios between peak, base, and off-peak periods (as used to design the rate), to actual LMPs during each reporting year;
3) Updated forecasts of residential customer load, Xcel net load, actual market purchases, and LMP through 2035; and

N. An explanation of how the reported peak reductions will factor into future resource and distribution system planning, including an estimate of costs avoided due to peak reductions.
O. Updated projections of the costs and benefits of their tariffs, if the proposed TOU rates were to go into effect. (MNSEIA only)
P. Additional information on the efficacy of ME&O strategies including but not limited to such questions as, "How did you hear about TOU rates?" and "By which method did you learn how to modify your energy behaviors?" (Staff)
Q. An evaluation of opportunities for a Critical Peak Pricing component to the TOU rate or utilizing CPP as a stand-alone demand response program. (Fresh Energy)
R. A plan for coordinating the TOU rate alongside DSM and enabling technology programs including electric vehicle programs, ECO incentives for thermostats or other flexible appliances. (Fresh Energy)
S. An evaluation of whether to expand its rebate options to provide load flexibility devices at no cost to under-resourced consumers to ensure their ability to access the benefits of TOU rates. (Fresh Energy)
T. An evaluation of whether to expand programs that help customers have energy management technology installed and programmed, especially for lower-resourced customers. (Fresh Energy)

OR

41. Require Xcel to co-create with a stakeholder group a set of annual reporting metrics, reduced number compared to those listed in staff briefing papers at Attachment A. Require Xcel to provide the group's agreed upon metrics in the 90-day Compliance Filing, with the provision that Xcel retain 15-minute interval data and make those data available upon stakeholder request consistent with existing data privacy standards. (Staff recommendation)

15. Attachment A- Proposed Reporting Metrics

#	REC. #	CATEGORY	METRIC	SEGMENT, IF REQUESTED	FREQUENCY
			Xcel supports; *only if bill protections are required		
1	1	Participation	Customers who opted into TOU rate	overall	Annual
2	1	Participation		low-income	Annual
3	1	Participation		senior	Annual
4	1	Participation		renter	Annual
5	1	Participation		EV owner	Annual
6	1	Participation		smart thermostat cust.	Annual
7	1	Participation		by census block group	Annual
8	1	Participation	Customers who opted out of TOU rate	overall	Annual
9	1	Participation		low-income	Annual
10	1	Participation		senior	Annual
11	1	Participation		renter	Annual
12	1	Participation		EV owner	Annual
13	1	Participation		smart thermostat cust.	Annual
14	1	Participation		by census block group	Annual
15	3	Bill Protection	Customers receiving bill protection*	overall	Annual
16	3	Bill Protection		low-income	Annual
17	3	Bill Protection		senior	Annual
18	3	Bill Protection		renter	Annual
19	3	Bill Protection		EV owner	Annual
20	3	Bill Protection		smart thermostat cust.	Annual
21	3	Bill Protection		who then opted out of TOU rate	Annual
22	4	Disconnections	Customers on TOU rate who have been disconnected		Annual
23	5	Peak Impact	Minimum household peak impact	overall	Annual, Seasonal
24	5	Peak Impact		low-income	Annual, Seasonal
25	5	Peak Impact		senior	Annual, Seasonal
26	5	Peak Impact		renter	Annual, Seasonal
27	5	Peak Impact		EV owner	Annual, Seasonal
28	5	Peak Impact		smart thermostat cust.	Annual, Seasonal
29	5	Peak Impact	Maximum household peak impact	overall	Annual, Seasonal
30	5	Peak Impact		low-income	Annual, Seasonal
31	5	Peak Impact		senior	Annual, Seasonal
32	5	Peak Impact		renter	Annual, Seasonal
33	5	Peak Impact		EV owner	Annual, Seasonal
34	5	Peak Impact		smart thermostat cust.	Annual, Seasonal
35	5	Peak Impact	Average household peak impact	overall	Annual, Seasonal
36	5	Peak Impact		low-income	Annual, Seasonal
37	5	Peak Impact		senior	Annual, Seasonal

38	5	Peak Impact		renter	Annual, Seasonal
39	5	Peak Impact		EV owner	Annual, Seasonal
40	5	Peak Impact		smart thermostat cust.	Annual, Seasonal
41	11	Customer	Satisfaction with peak periods		Annual, Seasonal
42	11	Customer	Preferences toward peak periods		Annual, Seasonal
43	11	Customer	Attitudes toward peak periods		Annual, Seasonal
44	11	Customer	Acceptance of peak periods		Annual, Seasonal
45	11	Customer	Comprehension of peak periods		Annual, Seasonal
46	11	Customer	Awareness of peak periods		Annual, Seasonal
47	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	Overall	Annual, Seasonal
48	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	Overall	Annual, Seasonal
49	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	Overall	Annual, Seasonal
50	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	Overall	Annual, Seasonal
51	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	Overall	Annual, Seasonal
52	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	Overall	Annual, Seasonal
Metrics currently unavailable to Xcel					
53	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	low-income	Annual, Seasonal
54	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	low-income	Annual, Seasonal
55	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	low-income	Annual, Seasonal
56	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	low-income	Annual, Seasonal
57	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	low-income	Annual, Seasonal
58	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	low-income	Annual, Seasonal
59	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	senior	Annual, Seasonal
60	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	senior	Annual, Seasonal
61	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	senior	Annual, Seasonal
62	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	senior	Annual, Seasonal
63	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	senior	Annual, Seasonal
64	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	senior	Annual, Seasonal
65	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	renter	Annual, Seasonal
66	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	renter	Annual, Seasonal

67	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	renter	Annual, Seasonal
68	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	renter	Annual, Seasonal
69	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	renter	Annual, Seasonal
70	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	renter	Annual, Seasonal
71	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	EV owner	Annual, Seasonal
72	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	EV owner	Annual, Seasonal
73	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	EV owner	Annual, Seasonal
74	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	EV owner	Annual, Seasonal
75	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	EV owner	Annual, Seasonal
76	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	EV owner	Annual, Seasonal
77	8	Load Shifting	% of load shifted **to off-peak**, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
78	8	Load Shifting	% of load shifted **from off-peak**, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
79	8	Load Shifting	% of load shifted **to peak**, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
80	8	Load Shifting	% of load shifted **from peak**, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
81	8	Load Shifting	% of load shifted **to shoulder** periods, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
82	8	Load Shifting	% of load shifted **from shoulder** periods, vs historical customer usage	smart thermostat cust.	Annual, Seasonal
Xcel said these should be addressed in IRP/IDP					
83	12	Emissions	Hourly C02 emissions		Annual, Hourly
84	12	Emissions	Hourly C02 emissions per MWh		Annual, Hourly
85	12	Renewables	Percent of renewable energy per MWh		Annual, Hourly
No Response from Xcel; Perhaps because recommendation was made in replies					
86	6		Actual hourly load net of renewables		Annual
87	9	Load Shifting	participants in TOU vs residential ratepayers on the traditional rate		Annual, Seasonal
88	10	Consumption	Energy Consumption Impacts for peak periods		Annual, Seasonal
89	10	Consumption	Energy Consumption Impacts for shoulder periods		Annual, Seasonal
90	10	Consumption	Energy Consumption Impacts for off-peak periods		Annual, Seasonal
91	13	Rate Design	Forecasted net load during peak, base, and off-peak periods (as used to design the rate) vs actual net load		Annual

92	13	Rate Design	Forecasted LMP ratios peak, base, and off-peak periods (as used to design the rate) vs actual LMPs		Annual
93	13	Rate Design	Forecasted residential customer load		Annual thru 2035
94	13	Rate Design	Forecasted Xcel net load		Annual thru 2035
95	13	Rate Design	Forecasted actual market purchases		Annual thru 2035
96	13	Rate Design	Forecasted LMP		Annual thru 2035
97	14	Planning	Explanation of how the reported peak reductions will factor into future resource and distribution system planning		
98	14	Planning	Estimate of costs avoided thanks to peak reductions		
99			Projected costs and benefits of Xcel's tariffs (MnSEIA)		
100		ME&O	How did you hear about TOU rates? (Staff)		Annual
101		ME&O	By which method did you learn how to modify your energy behaviors? (Staff)		Annual
102		Opt-out only	Opportunities for CPP (Fresh Energy)		
103		Opt-out only	Plan to coordinate TOU rate alongside DSM and enabling technology programs (Fresh Energy)		
104		Opt-out only	Evaluate rebate options to provide free load flexibility devices to low-income customers (Fresh Energy)		
105		Opt-out only	Evaluate programs to install and program energy management technology (Fresh Energy)		
Xcel's system not capable of providing; Previously provided by external consultant					
106	2	Bill Impacts	Minimum bill increase	Full Population	Annual
107	2	Bill Impacts	Maximum bill increase	Full Population	Annual
108	2	Bill Impacts	Average bill increase	Full Population	Annual
109	2	Bill Impacts	Minimum bill increase	low-income	Annual
110	2	Bill Impacts		senior	Annual
111	2	Bill Impacts		renter	Annual
112	2	Bill Impacts		EV owner	Annual
113	2	Bill Impacts		smart thermostat cust.	Annual
114	2	Bill Impacts	Maximum bill increase	low-income	Annual
115	2	Bill Impacts		senior	Annual
116	2	Bill Impacts		renter	Annual
117	2	Bill Impacts		EV owner	Annual
118	2	Bill Impacts		smart thermostat cust.	Annual
119	2	Bill Impacts	Average bill increase	low-income	Annual
120	2	Bill Impacts		senior	Annual
121	2	Bill Impacts		renter	Annual
122	2	Bill Impacts		EV owner	Annual
123	2	Bill Impacts		smart thermostat cust.	Annual

124	2	Bill Impacts	Charts showing the full distribution of bill impacts annually and by season, as included in Attachments D and E to Xcel's revised proposal filed 16 Aug 2024.		Annual
125	7		System coincident peak impact of TOU customers		Annual, Seasonal