STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

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In the Matter of the Petition of Northern States Power Company, dba Xcel Energy, for Approval of a Residential Time of Use Rate Design	Docket No. E002/M-23-524

Initial Comments of the Citizens Utility Board of Minnesota on Xcel Energy's Revised Time-of-Use Rate Proposal

The Citizens Utility Board of Minnesota ("CUB") respectfully submits these Initial Comments in response to the Minnesota Public Utilities Commission's ("Commission") Fourth Notice of Extended Comment Period issued on August 8, 2024 in the above-referenced matter.

I. DISCUSSION

CUB is generally supportive of aligning residential electricity rates with cost-causation principles through time-varying rate structures. As detailed in our May 17 Comments in this docket, time-of-use ("TOU") rate designs can lower peak demand, avoid infrastructure investments to serve coincident peaks, and help customers take more control over the cost of their energy bills.[1] By facilitating demand management, time-varying rates can also better match utility load with when intermittent renewable generation is available, thereby contributing to climate goals and enabling better access to low-cost energy resources.

However, CUB expressed several concerns with Northern States Power Company d/b/a Xcel Energy's ("Xcel" or the "Company") initial petition in this docket. As detailed in our prior comments, Xcel's original proposal fell short of providing customer and system benefits at the scale necessary to justify fundamental rate design changes.[2] We were concerned that the high price differentials and seasonal variations proposed by Xcel could lead to vulnerable populations being negatively impacted by the rate modification.[3] We also found the Company's proposed method of rolling out the rate all at once could produce confusion and frustration, especially if outreach and education efforts were inadequate to familiarize customers with the rate or its expected impacts.[4] In addition to these concerns, CUB emphasized the importance of customer acceptance and offered several overarching recommendations about the types of information that would better enable households to understand and adapt to time-of-use rates. Many of the sentiments expressed by CUB were reflected in the

[1] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Initial Comments of the Citizens Utility Board of Minnesota at 2-4 (May 17, 2024) (hereinafter "CUB May 17 Comments").
[2] *Id*. at 6, 12.
[3] *Id*. at 8-11.
[4] *Id*. at 15-17.

comments of other parties to this docket.

In response to parties' recommendations, and in recognition of its changing load profile, Xcel submitted a fundamentally revised proposal on August 16, 2024.[5] CUB appreciates many of the Company's adjustments. We believe the updated rate design will be easier for residential households to manage and respond to, and therefore more likely to achieve the goal of reducing peak demand. However, we have several outstanding recommendations to improve customer education and maintain flexibility in rate development. In particular, we strongly recommend Xcel implement an on-bill rate comparison tool and incorporate a timeline for implementing time-of-use rates as the Company's default rate structure. In these comments, we make general recommendations on these issues and a number of other topics.

Based on our conversations with other parties, we anticipate a large degree of agreement. To avoid potential confusion, we intend to review other parties' positions and return in Reply Comments with specific recommendations in each of the areas addressed below. We look forward to continued conversations and hope to coalesce around recommendations to the extent possible.

II. ANALYSIS AND RECOMMENDATIONS

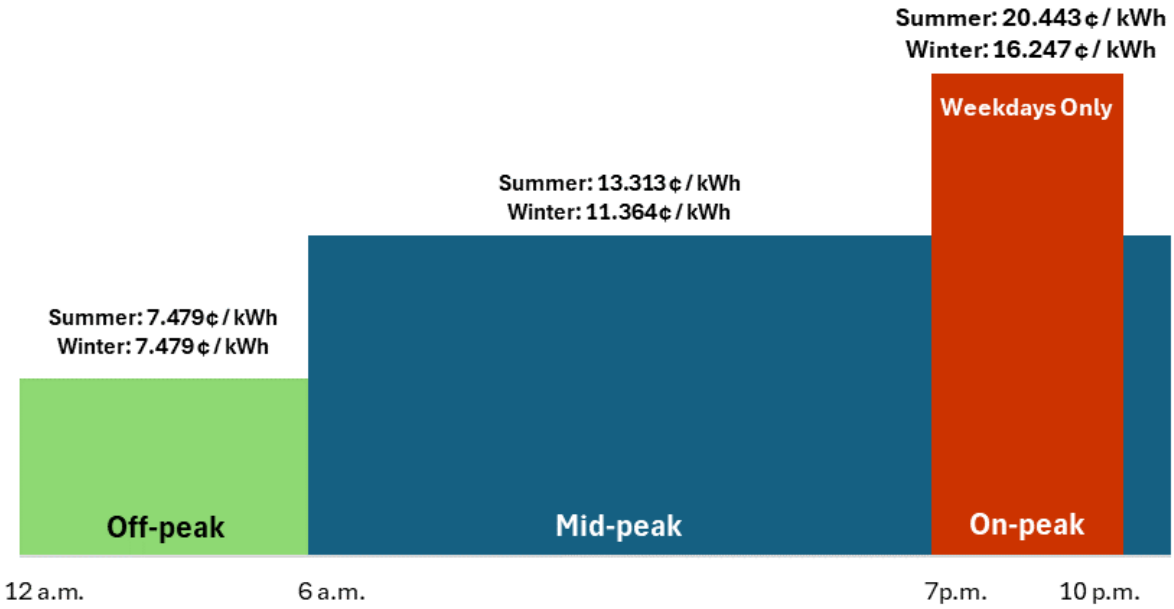
A. Peak and Off-Peak Periods

Xcel's originally proposed peak period of 3:00 to 8:00 p.m. resulted in significant pushback from customers and stakeholders. Many of the Company's customers were apprehensive about potential bill increases due to the long peak period aligning with when they were most likely to use electricity.[6] These concerns were further exacerbated by the selection of an off-peak period of midnight to 6:00 a.m. which, despite aligning with when wind energy is cheap and abundant, would make it difficult for customers to adjust energy usage patterns.[7]

In submitting its initial proposal, Xcel also failed to capture updated load profile data and instead relied on load forecasts from 2017 to inform its peak period selection.[8] More recent forecasts from the Company's 2024 integrated resource plan ("IRP") show a significant change in net load, with the addition of renewable generation shifting net peak hours later in the day. Xcel now estimates its net system peak will fall between 7:00 and 8:00 p.m. in 2025, and will move even later in subsequent years.[9] In response to customer concerns and this new load profile data, the Company's revised TOU proposal includes a much more reasonable peak period of 7:00 to 10:00 p.m.[10] As captured in Figure 1 below, the off-peak period will remain the same, but mid-peak rates will now be in effect from 6:00 a.m. to 7:00 p.m. and from 10:00 p.m. to midnight.

[5] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Xcel Supplemental Filing (Aug. 16, 2024) (hereinafter "Xcel Revised TOU Proposal").
[6] *See*, *e.g.*, CUB May 17 Comments at 7 (summarizing public commentary).
[7] *Id*.
[8] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Time of Use Rate Design Pilot Program*, Docket No. E002/M-17-775, Time of Use Pilot Petition, Att. E at 6 (Nov. 1, 2017) (hereinafter "TOU Pilot Petition").
[9] Xcel Revised TOU Proposal at 4-5.
[10] *Id*. at 5-7.

Figure 1: Supplemental Peak and Off-Peak Time Selection



CUB is supportive of these changes and believes they will both reduce customer frustration and allow for greater responsiveness to pricing signals.

B. Peak Price Differentials and Seasonal Variations

In addition to long peak periods, Xcel's initial TOU petition included peak- to off-peak price differentials of 7.3:1 in the summer and 5:1 in the winter.[11] CUB expressed concern that the scale of these price ratios could be detrimental to households unable to adjust when they use energy.[12] The potential for significant bill increases was further amplified by seasonal variations in energy charges under the initial proposal. Average summer bills were expected to increase by nearly 18 percent, while winter bills were expected to decrease by 10.6 percent.[13] Although Xcel anticipated these adjustments to even out over the course of the year, these substantial variations in seasonal costs could place additional stress on households' monthly budgets and exacerbate affordability challenges for residential customers.[14]

In its revised proposal, Xcel offers a much more balanced rate design with lower seasonal variations and peak price differentials. As reflected in the table below, these reductions are achieved both by lowering the peak price and increasing off-peak energy costs. Xcel also moderated the difference between summer and winter energy rates, reducing seasonal differentiation to less than 30 percent for both on- and mid-peak periods.[15] Average residential customers are no longer expected to

[11] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Xcel Initial Petition at 11 (Dec. 22, 2023) (hereinafter "Xcel Initial TOU Proposal").
[12] CUB May 17 Comments at 7.
[13] Xcel Initial TOU Proposal at 13.
[14] CUB May 17 Comments at 9.
[15] Xcel Revised TOU Proposal at 10; *see also In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Initial Comments of the Minnesota Department of Commerce at 5 (May 17, 2024) (hereinafter "DOC Comments on Initial TOU Proposal") (noting that Xcel's originally proposed peak and base rates were respectively 45.6 and 55.0 percent higher in summer than in winter).

experience any difference in monthly bills.[16] We believe this new structure will be easier for customers to adapt to and could enable more widespread acceptance of time-varying rates.

Table 1: Comparison of Original and Revised Energy Rates (Rates in cents per kWh)

TOU Rate Period	Original Proposal	Revised Proposal	Original Ratio	Revised Ratio	Difference (Ratio)	Difference (¢ per kWh)
Summer						
On-Peak	27.845	20.443	7.3	2.7	(4.6)	(7.402)
Mid-Peak	14.824	13.313	3.9	1.8	(2.1)	(1.511)
Off-Peak	3.825	7.479	1.0	1.0	0	3.654
Winter						
On-Peak	19.125	16.247	5.0	2.2	(2.8)	(2.878)
Mid-Peak	9.563	11.364	2.5	1.5	(1.0)	1.801
Off-Peak	3.825	7.479	1.0	1.0	0	3.654

C. Default Rate Structure

Rather than developing a default rate structure for residential customers, the Company is now proposing to maintain its existing one-period rate as the default rate and pursue TOU as opt-in only. CUB's hesitancy around Xcel's initial proposal was due to our concerns related to the design of the rate. We believe the revised proposal is much better designed, and we continue to recommend that Xcel move toward a default, rather than an opt-in, TOU rate.

Xcel's own third-party analyst confirms that an opt-in TOU rate is likely to require a large outreach effort for limited impact.[17] The Opinion Dynamics Study found "dramatically fewer customers [would] opt into a new rate relative to default approaches."[18] Rather than being driven by customer hesitation or opposition to the time-varying rate structure, the low level of customer opt-ins was "consistently found to be largely a function of low customer awareness."[19] If customers are unaware of the rate, then opt-in approaches will produce low participation and generate minimal system benefits. Substantial marketing, education, and outreach ("ME&O") efforts are therefore necessary to motivate enrollment and overcome any proclivity for customer inaction.[20] While similar ME&O investments will be needed to educate households about default rate designs, those costs are spread out over a larger number of customers and reduce the per-customer cost.[21]

In addition, ME&O can be better focused under a default TOU rate. Rather than encouraging enrollment for opt-in rates, default ME&O can focus on educating customers about how to be

[16] Xcel Revised TOU Proposal at 9.
[17] *Id*. at 2, Att. B (noting that Xcel engaged expert consultants Opinion Dynamics to conduct research on industry best practices related to TOU rate transitions and customer engagement, which is included in Xcel's supplemental filing as Attachment B).
[18] Xcel Revised TOU Proposal, Att. B at 14 (hereinafter "Opinion Dynamics Team Study").
[19] Opinion Dynamics Team Study at 14.
[20] *Id*. at 4, 14.
[21] *Id*. at 14 (estimating ME&O costs for default rates to be approximately $4 to $20 per customer, with opt-in rate expenses much higher at $382 to $613 per participant).

successful under the rate.[22] Achieving the desired system benefits of TOU rates requires customers to modify their energy usage behaviors to reduce peak and coincident peak demand. As evidenced by Xcel's pilot, facilitating these reductions is no easy endeavor and will require substantial amounts of public engagement and education. Average pilot participants in Minneapolis and Eden Prairie reduced peak demand by less than two percent, with coincident peak demand reductions only slightly higher at up to 2.6 percent.[23] The changes in Xcel's supplemental rate design will make it easier for customers to respond to pricing signals and could bolster these results. Nonetheless, widespread adoption of time-varying rates is essential if system benefits are to materialize. Lackluster enrollment in an opt-in rate structure would stymie residential demand management opportunities and cause TOU to fall short of its full potential.

These concerns are especially profound as the Company evaluates how it will reach Minnesota's carbon-free standard by 2040. In its recent IRP filing, Xcel proffered a plan to build 2,244 megawatts ("MW") of firm peaking resources prior to 2030, with an additional 1,350 MW planned by 2040.[24] Modeled as natural gas peaker plants, these additions could result in ten or more new emissions-producing units coming online,[25] which would be the primary carbon sources remaining on the Company's system.[26] The 40-year life of these plants would extend well beyond both the 2040 deadline for carbon-free electricity generation and the 2050 goal for a net-zero emissions economy.[27] Although Xcel has since scaled back its plans, the Company continues to believe that expensive fossil fuel peaking resources will be necessary to serve peak load.[28] Time-of-use rates can—and should—be used to offset the demand requirements underlying these proposed investments.

For these reasons, we believe a default TOU rate should remain Xcel's—and the Commission's—end goal. Under a default rate, the aggregate demand reductions achieved by customers throughout the Company's service territory will be much higher than if the rate were offered on a voluntary basis. We recommend an implementation timeline be developed to allow for the eventual transition to default TOU rates. We look forward to reviewing other parties' perspectives on this issue and offering a specific recommendation regarding the timeline in Reply Comments.

D. Customer Concerns, Understanding, and Acceptance

Xcel's revised proposal reinforces the need to be responsive to customer concerns and increase public understanding about time-varying rate options. As explained in its supplemental filing, the Company faced substantial backlash after revealing its originally proposed default TOU rate.[29] Numerous public comments criticized the selection of peak periods and price differentials or questioned what anticipated bill impacts might be. Now that Xcel has fundamentally revised its proposal, it is unclear whether these criticisms persist, or whether customers would be more willing to accept and adapt to

[22] *Id*. at 4.
[23] *In the Matter of Xcel Energy's Residential Time of Use Rate Design Pilot Program*, Docket No. E002/M-17-775, Xcel Compliance Filing - Pilot Completion, Att. A at xiv, 8 (Feb. 10, 2023) (hereinafter "Guidehouse Pilot Evaluation - Final Report").
[24] *In the Matter of Xcel Energy's 2024-2040 Integrated Resource Plan*, Docket No. E002/RP-24-67, Xcel Energy's 2024-2040 Upper Midwest Integrated Resource Plan, Ch. 4 at 2 (Feb. 1, 2024) (hereinafter "Xcel IRP").
[25] *In the Matter of Xcel Energy's 2024-2040 Integrated Resource Plan*, Docket No. E002/RP-24-67, Initial Comments of Clean Energy Organizations at 2 (Aug. 9, 2024) (hereinafter "CEOs' Initial Comments on Xcel's IRP").
[26] Xcel IRP, Ch. 1 at 12.
[27] CEOs' Initial Comments on Xcel's IRP at 5.
[28] *See* Walker Orenstein, *Minnesota wants carbon-free power by 2040. Xcel wants at least one new gas plant.*, MINN. STAR TRIBUNE (Sep. 21, 2024).
[29] Xcel Revised TOU Proposal at 14.

the modified rate structure.

In order to facilitate understanding of the rate—and assist households in adjusting demand—customer education and protection must be a focal point of rate implementation. We offer several recommendations to foster acceptance of the new rate design and ease the residential transition to time-varying rates.

i. Gradual Transition to Default Rates

Transitioning to a default TOU rate is a significant undertaking that represents a fundamental shift in how residential households are charged for electricity. As further discussed below, we strongly recommend that the Company actively engage with customers to bolster understanding of any TOU rate approved by the Commission. Ensuring customers are familiar with the rate will require the development of tools and resources, and will take time to get right. In addition, given the untested nature of Xcel's supplemental rate proposal, further analysis may be warranted prior to a systemwide default rollout.

For these reasons, we recommend that default rates be slowly phased in and that the timeline associated with rate implementation be adjusted.

ii. Shadow Billing

CUB continues to recommend the Commission require Xcel to report on the feasibility of developing and implementing shadow billing.[30] Shadow billing uses actual household consumption data to create a personalized comparison of customer costs under different rate options. This comparison appears on customers' monthly bills and allows them to easily consider the cost impacts of enrolling in TOU rates. Some utilities have implemented more robust forms of shadow billing that provide "what if" scenarios showing multiple versions of a customer's bill under a TOU rate, plus a hypothetical bill reflecting if peak load had been shifted.[31]

CUB,[32] other stakeholders,[33] and Xcel's own third-party consultant[34] have emphasized the importance of customer education as a critical component of TOU rate success, and utilities consistently regard rate comparison tools as the cornerstone of effective outreach.[35] Regardless of whether the rate is implemented as opt-in or default, individualized rate comparisons allow households to make informed decisions about whether to participate in TOU rate offerings and help reinforce desirable customer behavior that contributes to bill savings and peak demand reductions.

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[30] *See* CUB May 17 Comments at 13.
[31] *See id*. at 14 (describing how this approach was used in a TOU pilot rate in Maryland, where customers were provided bill impact calculations under three scenarios: no load response, 5 percent peak load shifting, and 10 percent peak load shifting).
[32] *Id*. at 13-14.
[33] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Comments of the Office of the Attorney General at 17 (May 17, 2024) (hereinafter "OAG Comments on Initial TOU Proposal") (noting that "[s]tudies have established that a robust customer education program is necessary for TOU rates to achieve optimum demand reductions and to increase the likelihood of public acceptance"); DOC Comments on Initial TOU Proposal at 23 (concluding that "robust marketing and education certainly is warranted").
[34] Opinion Dynamics Team Study at 3 (noting that "[r]egardless of the enrollment strategy, extensive, sustained, and thoughtful communication with customers is key to their enrollment, success on the rate, and satisfaction").
[35] *Id.* at 3-4 (highlighting that "[a]ll the utilities [Opinion Dynamics] spoke with underscored the importance of a rate comparison tool to their success and customer engagement").

Critically, shadow billing can boost rate acceptance by helping customers understand which bill impacts are attributable to time-varying rates as opposed to general rate increases or rider charges. Xcel's electric rates are continually increasing, and on November 1 the Company anticipates filing yet *another* request to increase rates with the Commission.[36] Public comments in the docket have already shown customers' distrust of TOU rates with the misunderstanding that they are an underhanded way for Xcel to further raise rates and turn profit.[37] Comparing customers' monthly energy usage and bills under different rates will avoid confusion around whether TOU or other external factors are contributing to bill increases.

Xcel recognizes the importance of rate comparison tools in its new proposal.[38] Reflecting on its TOU rate rollout in Colorado, the Company noted that customers "expressed frustration with the absence of tools to compare usage and costs," and that such tools would "help customers understand the impact of TOU on their bills and why TOU is important while empowering them to make educated decisions about the rate that best meets their needs."[39]

To this end, the Company proposes a "Bill Analyzer/Bill Factors Tool" that "provides a picture of how cost drivers impact a customer's bill," considering factors like weather, days in a billing cycle, usage and base rate, as well as an online "Bill Simulator/Rate Advisor Tool" that "will enable customers to explore rates by applying different rate designs to their actual historical usage to see the difference in results."[40] Xcel notes it also does not intend to provide customers individualized comparisons of bills under the standard flat rate versus the TOU rate in their My Energy Connection mobile app.[41] CUB understands this online My Account tool would require customers to manually enter their energy usage and historic billing information,[42] and that Xcel plans to "drive customers" to the tool through marketing.[43]

Xcel's proposal to develop an online, manual-entry tool falls short of providing the type of bill comparisons necessary for rate success. A key element of shadow-billing is its ease of access: customers are presented with information about the impacts of different rate options on their bills, and do not have to take additional steps to collect, input, and analyze usage data. While some highly-engaged customers might utilize the online tool, the difficulties associated with its use will hinder broader rate acceptance and understanding.

Over the course of this docket, CUB has had several conversations with Xcel, issued information requests, and asked the Company to respond in Reply Comments about whether it can implement

[36] *See generally* Minnesota Public Utilities Commission Docket No. E002/GR-24-320.
[37] *See, e.g.*, Public Comments of Dwight Hillmer (Feb. 13, 2024) and Dan Christiansen (June 28, 2024) (responding to Xcel's TOU proposal saying that "[Xcel is] again trying to get [the Commission's] approval to increase the ratepayer's rates, especially during [the] AC time of the year," "Xcel has got to reduce some of their expenses and quit continually asking for an okay for rate increases," and "Xcel's current request is just a way for Xcel to get a huge rate increase without any benefit in reducing pe[a]k demand").
[38] Xcel Revised TOU Proposal at 17 (observing that "[w]hen digital tools are available and leveraged by customers, they can be more engaged and aware of the rate options available and have a better understanding of the impact of the TOU rate design").
[39] *Id*. at 21.
[40] *Id.*
[41] *In the Matter of the Petition of Northern States Power Co. d/b/a Xcel Energy for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Fresh Energy IR-008 (May 3, 2024) (attached as FE IR-008).
[42] Xcel Revised TOU Proposal at 21.
[43] *Id.* at 23-24.

shadow billing and what the estimated costs would be.[44] Xcel has noted only that shadow billing is "not a native feature in [its] current billing system" and would therefore "considerably increase the time, resources, and cost necessary to implement the overall rate."[45] CUB is troubled by this response and Xcel's apparent lack of consideration for potential shadow billing implementation. Xcel is in the midst of investing an estimated $560 million in grid modernization for advanced metering infrastructure (AMI) and field area networks (FAN) to deploy state-of-the-art technology to its customers.[46] The Commission approved these costly investments because of the extensive benefits Xcel promised AMI meters would provide for customers. Successful implementation of TOU rates and shadow billing technology is exactly the kind of programming AMI should be capable of enabling. Rather than utilizing AMI to its full potential through shadow billing, CUB is concerned that the Company will spend additional time and money developing an outdated, ineffective tool that will not adequately serve customers in understanding or adopting TOU rates.

CUB recommends the Commission require Xcel to solicit bids and evaluate the cost of implementing shadow billing for its TOU rate.

iii. Customer Bill Protections

While CUB supports Xcel's revised TOU rate, we acknowledge it is materially different from the originally piloted rate and thus far, untested. To ensure that customers are not subject to unforeseen and excessive bill increases, Xcel should implement customer bill protections similar to those piloted by the Company, regardless of whether the rate is offered as opt-in or default.

Xcel's TOU pilot included protections to insulate participants against negative bill impacts.[47] If a customer's average annual bill under the TOU rate was more than ten percent higher than it would have been under the flat, one-period rate, the customer would receive a one-time bill credit for the difference. This protection applied to all customers on the piloted TOU rate for the first year, but customers receiving LIHEAP were eligible for additional protections. LIHEAP recipients were eligible for credits on a monthly basis for year one, and eligible for a one-time average annual bill credit at the end of year two.

Xcel argues that bill protections are unnecessary under the current opt-in proposal because customer participation is voluntary, and those who are unable to save on the rate can opt out at any time.[48] However, we believe temporary bill protections for customers initially joining the rate will be beneficial under both opt-in and opt-out rates. As Xcel experiments with its rollout and customer education strategy moving forward, customers who voluntarily choose the TOU rate should be protected from potential shortfalls in initial implementation. The Opinion Dynamics study found that bill protections

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[44] *See In the Matter of the Petition of Northern States Power Co. d/b/a Xcel Energy for Approval of a Residential Time of Use Rate Design, Docket No. E002/M-23-524,* CUB IR-007 (Sept. 16, 2024) (attached as CUB IR-007) (responding to CUB's IR explicitly asking for an estimate of the cost to implement shadow billing by stating the Company would require a secondary billing system and that it "does not currently have an estimate on the cost…but it is anticipated to be significant"). CUB is not assured at this point that a secondary billing system would be required, nor are we encouraged by the fact that the Company cannot provide a loose estimate of those costs but remains assured it would be "significant."

[45] Xcel Revised TOU Proposal at 18.

[46] *In the Matter of Northern States Power Company d/b/a Xcel Energy's Petition for Approval of the Transmission Cost Recovery Rider Revenue Requirements for 2021 and 2022, Tracker True-up and Revised Adjustment Factors*, Docket No. E-002/M-21-814, Order Approving Rider Recovery, Capping Costs, and Setting Filing Requirements, at 7-8 (June 28, 2023).

[47] Guidehouse Pilot Evaluation – Final Report, Attachment A at 37.

[48] Xcel Revised TOU Proposal at 18.

are "highly consequential as they affect enrollment, customer experience, and willingness to try the rate given the perceived level of risk."[49] Xcel also recognized that "[t]he bill protections included as part of the Minnesota TOU pilot were primarily to retain customers in the opt-out pilot[ ]by providing customers peace of mind that if they were unable to respond to the price signals built into the pilot rate design that their bill would not substantially increase."[50]

Applying this framework to the Company's opt-in rate design would alleviate customer concerns and contribute to the overarching objectives associated with time-varying rates. Over time, customers will become familiar with the rate—however, at the beginning of TOU implementation, temporary bill protections will likely encourage use and bolster customer acceptance during that learning curve. As discussed above, significant demand reduction benefits are unlikely to materialize unless the aggregate number of customers enrolled in the rate surpasses a minimum threshold. Xcel's claim that customers can simply choose not to enroll in the opt-in rate—or opt out if bill savings are not realized—ignores the overarching goals of TOU. Offering temporary bill protections can reduce hesitancy around enrollment and provide customers with an opportunity to learn how to successfully shift demand before withdrawing from the rate too soon.

Under a default rate, bill protections would provide a necessary buffer for the inevitable segment of customers who are caught unaware of the change in rate structure. Numerous public comments filed by Minnesotans in response to Xcel's initial opt-out proposal evidence that many customers are already experiencing confusion about the ability to opt-out of a default rate.[51] In this case, establishing a guardrail for a limited time while customers adjust would reduce negative impacts to those that cannot make immediate changes to meaningfully shift their load use from peak hours, or allow those customers to opt-out before facing negative rate impacts. Xcel's pilot results further indicate that even when customers *are* aware of the new rate, customer understanding and subsequent responsiveness is difficult to achieve.[52] Implementing temporary bill protections allows customers to familiarize themselves with TOU with limited risk exposure and will likely result in greater acceptance and a willingness to engage with the rate.

If the Commission requires similar bill protections as were piloted, customers would only be credited if TOU charges exceed ten percent of what the customer's bill would otherwise be on the standard rate. This provides a safety net for more extreme deviations while still allowing for some fluctuation under the rate, as can be expected.

E. Customer Segmentation Study

Understanding the potential impacts of TOU rates on residential households requires going beyond the "average" customer and examining the differences between various population segments. As expressed in our previous comments, Xcel's pilot evaluation touched on some of these distinctions, but a more thorough analysis would better inform education efforts and potentially ease customer

[49] Opinion Dynamics Team Study at 2.
[50] Xcel Revised TOU Proposal at 18.
[51] *See, e.g.*, Public Comments of Bob Esson (Feb. 16, 2024); Robert Fischer (Apr. 9, 2024) (suggesting that customers have "no way out of" the previously-proposed default rate).
[52] Guidehouse Pilot Evaluation – Final Report at 127 (stating that even if customers were aware of the rate design, they exhibited a "lack of understanding on how adjusting usage in accordance with those different prices [would] ultimately impact their monthly bill").

concerns about time-varying rates.[53]

We appreciate the Commission's decision in its October 10 agenda meeting to open a comment period in Xcel's advanced rate design docket (Docket No. E002/CI-24-115) to address the methods of conducting such an analysis. As Commissioner Sullivan stated in that hearing, "there are different types of categories within the residential class, . . . [with some population segments] just not contributing to peak costs."[54] For example, in its groundbreaking study on how customers use electricity, CUB Illinois discovered that many low-income households exhibited flatter load curves and, in effect, subsidized the more costly energy required to serve their higher-income neighbors.[55] In 2020, CUB partnered with Minnesota Power and CUB Illinois to conduct a comparable analysis of Minnesota Power customers' usage patterns to inform the development of a default TOU rate.[56]

A similar study conducted in Xcel's service territory could inform not only the development of time-varying rates, but also rate design more generally. Understanding the differences between residential population segments would be invaluable to creating a more equitable utility system. To this end, we have spoken with researchers that are interested in evaluating residential rate impacts and look forward to contributing to the conversation in Docket No. E002/CI-24-115.

F. Space Heating Rate

CUB supports Xcel's new proposal for an electric space heating rate, and recommends approval independent of the Commission's decision on the rest of the Company's TOU petition. Under the Company's offering, electric space heating customers would receive a flat-rate of 6.537¢/kWh during the winter months while paying standard TOU rates during the remainder of the year.[57]

As outlined in our May 17 Comments, implementing a lower electric space heating rate now will encourage customers to take advantage of air-source heat pump incentives available through the Inflation Reduction Act (IRA), as well as state- and utility-level rebates.[58] Utilizing such offerings can help reduce the up-front costs that otherwise make adoption of low-emission, electric heating technologies inaccessible to many households.

In response to Xcel's initial proposal, the American Council for an Energy-Efficient Economy (ACEEE) recommended Xcel limit availability of its new space heating rate to only customers with heat pumps, excluding those who use electric resistance heat sources.[59] CUB agrees with Xcel that the Commission

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[53] CUB May 17 Comments at 10, 12-13.
[54] *See* Minnesota Public Utilities Commission, Recorded Webcast of October 10, 2024 Hearing, at 1:12:55, *available at* https://minnesotapuc.granicus.com/player/clip/2430?view_id=2&redirect=true.
[55] Jeff Zethmayr & Ramandeep Singh Makhija, *Six Unique Load Shapes: A Segmentation Analysis of Illinois Residential Electricity Consumers*, 32 THE ELECTRICITY JOURNAL 7 (2019), *available at* https://www.citizensutilityboard.org/wp-content/uploads/2019/06/ClusterAnalysisFinal.pdf.
[56] *In the Matter of Minnesota Power's Compliance Report for its Temporary Rider for Time-of-Day Rates for Participants of the Smart Grid Advanced Metering Infrastructure Pilot Project*, Docket No. E015/M-12-233, Petition for Approval of Changes to Minnesota Power's Residential Rate Design, Appx. E, "CUSTOMER SEGMENTATION OF MINNESOTA POWER RESIDENTIAL CUSTOMERS" (Dec. 1, 2020).
[57] *See* Xcel Initial TOU Proposal at 16-17 (proposing an initial time-varying space heating rate that followed the same three-period rate structure of the standard TOU rate); *but see* Xcel Revised TOU Proposal at 10-11 (revising its proposal to include only a flat, one-period electric space heating rate).
[58] CUB May 17 Comments at 17.
[59] *In the Matter of the Petition of Northern States Power Company, d/b/a Xcel Energy, for Approval of a Residential Time of Use Rate Design*, Docket No. E002/M-23-524, Initial Comments of the American Council for an Energy-Efficient Economy (ACEEE) at 2 (May 16, 2024) (hereinafter "ACEEE May 16 Comments").

should reject this recommendation.[60] Incentivizing customers to adopt energy efficient heating technology isn't the only benefit of the reduced electric space heating rate. As a summer peaking utility, space heating customers do not materially contribute to incremental base rate costs. Lowering space heating rates therefore more fairly reflects the actual costs of providing electricity used for heating in winter.[61] Moreover, Xcel's proposal for the new rate *replaces* the Company's already-existing electric space heating rate, which is currently available to all electric space heating customers. CUB agrees with the Company that implementing a new restriction to remove customers currently on the reduced rate would unnecessarily drive up those customers' heating costs with no additional benefit to customers or Xcel's system.[62]

For these reasons, CUB supports Xcel's new proposed one-period electric space heating rate and recommends the Commission approve for immediate implementation.

III. CONCLUSION

CUB appreciates the significant improvements to Xcel's revised rate design and believes many of the Company's adjustments will allow residential households to more effectively shift energy usage away from peak demand periods. Nonetheless, we recognize that further modifications are necessary to facilitate customer understanding and generate materially impactful demand reductions on a systemwide basis. In particular, CUB strongly believes the Commission should require an on-bill comparison tool and establish a timeline for default TOU rate implementation. We look forward to reviewing parties' comments and providing actionable recommendations in Reply Comments.

Sincerely,

October 15, 2024

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[60] Xcel Revised TOU Proposal at 11.
[61] CUB May 17 Comments at 17.
[62] Xcel Revised TOU Proposal at 11.

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Xcel Energy		Information Request No.	8
Docket No.:	E002/M-23-524		
Response To:	Fresh Energy		
Requestor:	Isabel Ricker		
Date Received:	April 23, 2024		

Question:

On page 24 of the Petition, the Company states, "the costs for customer experience enhancements are primarily related to technical developments necessary to implement the rate. These technical developments will enhance the customer portal and mobile application in order to assist customers in understanding the TOU rates, helping them estimate the impact of the rates on their bills, and empowering them with insights on how to use the rate to save energy and money."

A. Please describe the Company's plans for enhancing capabilities within MyAccount and the My Energy Connection mobile application (or other pertinent sources for customer bill information) for Minnesota customers. What additional capabilities are planned or in consideration, and what is the Company's timeline? If a roadmap exists, please provide it.
B. Does the timeline or list of capabilities described in request A differ between the Minnesota and Colorado jurisdictions? If so, please describe how and why.
C. Does the Company intend to provide customers individualized information about how their bill would change under the TOU rate before the rate takes effect, or to make that function available in MyAccount or My Energy Connection? Did Xcel make this type of information available in Colorado during the TOU rate transition?
D. Does the Company intend to provide customers individualized information about what their bill would be on standard flat rates after the TOU rate takes effect, or to make that function available in MyAccount or My Energy Connection? Is Xcel making this information available in Colorado during the TOU rate transition?

Response:

A. Within My Account, we currently have the ability for customers to view their interval usage information at the invoice, monthly, daily, and 15 minute intervals with a smart meter. For TOU customers, they can also see their usage at these same time intervals "bucketed" by the TOU time periods. In addition, these customers can use the Green Button Download and Green Button

Connect functionalities within my Account to share data with authorized third parties. Beyond usage presentation and data sharing, customers have access to energy saving tips and program recommendations, which, over time, and as customers transition to TOU, will become more tailored to TOU-specific recommendations. By the end of 2024, we plan to bring additional educational TOU content to the forefront in My Account for our current TOU customers in Colorado, and this functionality will be available to MN customers as they transition as well. In 2025, educational content will move more into actionable customized insights as customers gain more historical interval usage information, with a focus on performance on their current rate and ways that they may save energy and money by adjusting behaviors. Within My Energy Connection, potential feature components may be added in late 2024 with a focus on TOU education/functionality. These components may include:

a. Energy Usage Presentment/Energy Cost Calculation with TOU peak periods highlighted and displaying the current rate period with corresponding time frames.
b. Energy Usage Forecasting with TOU peak periods highlighted.
c. Disaggregation with TOU peak periods highlighted.
d. Goal Setting with a focus on TOU-related goals.
e. Recommendations with a focus on TOU-related recommendations.
f. Notifications with a focus on TOU-related notifications.

B. No. Once the components are added to the application, they are available to all eligible and applicable customers, regardless of state.

C. This information will not be included in My Energy Connection functionality. The Company is exploring the possibility of residential rate advisor tool options within My Account. This information was not available to Colorado customers during their rate transition to TOU.

D. This information will not be included in My Energy Connection functionality. The Company is exploring the possibility of residential rate advisor tool options in My Account. This information was not available to Colorado customers during their rate transition to TOU.

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Xcel Energy		Information Request No.	7
Docket No.:	E002/M-17-775 & E002/M-23-524		
Response To:	Citizens Utility Board of Minnesota		
Requestor:	Olivia Carroll		
Date Received:	September 5, 2024		

Question:

Reference page 16 of the Company's Supplemental filling. The Company estimates incurring costs of around $1,000,000 for "billing implementation for an opt-in TOU rate." The Company states these funds will be used "to develop an enrollment process as well as to ensure that the billing system is configured for the new rate and able to handle transitioning new customers onto the rate when they enroll."

a. Please provide a further description of what changes will be made as part of the estimated $1 million upgrades.

b. Would these changes make it possible for Xcel to implement shadow billing (i.e. an on-bill rate comparison tool)? If not, please provide an estimate of the cost to implement shadow billing.

Response:

a. The scope of this project has not been fully defined, but as we continued to assess the project, the planned cost to implement the billing for an opt-in TOU rate is estimated to be closer to $500,000.
    a. These costs are needed to configure the new rate in the billing system, including activities such as:
        i. Building New Rate Tables: Develop & implement new rate tables within the billing system.
        ii. System Integration: Integrate the billing system with various meter configurations to upload customer usage data seamlessly.
        iii. Custom Software Development: Create custom software to transition existing TOU customers, including those who participated in the pilot, as well as those opting into the new rate from their current rate schedule to the new TOU rate schedule. Also ensuring the software performs necessary checks, such as verifying the customer eligibility for the TOU rate.

b. Billing System Enhancements: Enhance the billing system to automatically calculate customers' bills using the correct rate tables and usage data.
c. Bill Format Updates: Update the bill template to clearly display the various billing components.
d. Testing: Performing regression testing against existing systems and programs.

Although not currently planned, automating this process and providing customers with a self-service enrollment option, is estimated to cost an additional $250,000-$750,000.

b. "Shadow Billing", or bill protections, were not included in the proposed TOU rate or in this Supplement. This functionality is not a native feature in our current billing system. The Company does not currently have an estimate on the cost to develop a secondary billing system, but it is anticipated to be significant. Additionally, it is unnecessary under this voluntary opt-in TOU rate, as customers can use a rate advisor tool before deciding to opt-in.

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