MINNESOTA DEPARTMENT OF COMMERCE

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November 10, 2015

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, Minnesota 55101

RE: **Report on Alternative Rate Design Options**
Docket No. E002/M-15-662

Dear Mr. Wolf:

In its May 8, 2015 Findings of Fact, Conclusions, and Order in *the Matter of Northern States Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota* (Docket No. E002/GR-13-868), the Minnesota Public Utilities Commission (Commission) directed the Minnesota Department of Commerce, Division of Energy Resources (Department) to convene stakeholder meetings for the purpose of considering alternative rate designs and report on the stakeholder process within 180 days of the date of the Commission's Order.

Attached please find the Department's *Report on Alternative Rate Design Options*. The Department is available to answer any questions the Commission may have.

Sincerely,

/s/ SUSAN L. PEIRCE
Rate Analyst

SLP/ja
Attachment

MINNESOTA DEPARTMENT OF COMMERCE

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

COMMENTS OF THE MINNESOTA DEPARTMENT OF COMMERCE DIVISION OF ENERGY RESOURCES

DOCKET NO. E002/M-15-662

I. BACKGROUND INFORMATION

In its May 8, 2015 *Findings of Fact, Conclusions and Order* in Xcel's 2013 rate case (Docket No. E002/GR-13-868), the Minnesota Public Utilities Commission (Commission) accepted a stipulation on inclining block rates (IBR) with additional modifications. Specifically, the Commission directed the Minnesota Department of Commerce (Department) to undertake a stakeholder process to consider IBR rate structures and "other alternative rate designs that result in rates that promote energy conservation, reduce peak demand, and/or send more accurate, useful price signals to customers." The Department was directed to complete the stakeholder meetings and issue a report to the Commission on the stakeholder process within 180 days of the Commission's Order.

On July 13, 2015, the Department issued a letter to parties to Xcel's rate case seeking comment on:

- Specific rate design alternatives that would meet the Commission's goals, including information and supporting documentation on rate design alternatives in other jurisdictions;
- Pros and cons to the identified rate design alternatives; and
- Any other considerations that may be required to implement such a design.[1]

The Department received written comments from the following parties:

- Clean Energy Organizations (CEO),[2]
- Energy Cents Coalition (ECC),

[1] The Department's letter and written comments from stakeholders are filed in eDockets.
[2] The Clean Energy Organizations are Fresh Energy, Minnesota Center for Environmental Advocacy (MCEA) and Sierra Club.

- CenterPoint Energy,
- Office of Attorney General – Residential Utilities and Antitrust Division,
- Suburban Rate Authority, and
- Xcel Energy.

On September 11, and October 5, 2015, the Department held stakeholder meetings. Participants included representatives from the commenting organizations, as well as Commission staff.

The Department notes that several of the participants to the stakeholder group expressed concern that the original agreement of parties to Xcel's last rate case was for a process to further evaluate the specific IBR proposal submitted in the rate case with an expectation that some type of IBR would be adopted at the end of the process. The Department understands the language in the final ordering point, noted above, to expand consideration to additional rate structures, not just the proposed IBR. However, as indicated below, the stakeholder group did decide to expand the goals in the Commission's Order to include consideration of effects on low-income ratepayers.

The Department offers the following Report summarizing the stakeholder comments and meetings.

II. REPORT ORGANIZATION

In response to the Department's July 13, 2015 request for written comments, stakeholders identified the following rate design alternatives for consideration:

1. Inverted Block Rates (IBR)
2. Time-of-Use Rates (TOU)
3. Critical Peak Pricing (CPP)
4. Demand Charge rates for Residential Customers
5. Reduce the Customer Charge/Increase Energy Charge

In the stakeholder meetings, discussion centered on several areas including the Commission-established goals of promoting energy conservation, reducing peak demand, and sending useful, accurate price signals to customers, as well as the impact a particular rate design might have on low-income customers. In addition, the parties discussed design considerations and metering requirements, and how alternative rate structures might affect incentives to participate in distributed generation programs.

Finally, in the course of the stakeholder meetings and as part of the follow-up, participants considered the following questions:

1. Does the impact of the rate alternative unduly burden certain ratepayers? If so, are there straightforward protections available?
2. Does the rate alternative impact decoupling?
3. Does the rate alternative change the incentives for installing distributed generation?
4. Does the rate alternative impact net metered customers?
5. Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?
6. Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)?
7. Does the rate alternative require additional metering? If so, what is required and what is the cost?
8. What implications, if any, are there for implementing the rate alternative as a mandatory rate structure? Opt-in? Opt-out?
9. What billing system changes, if any, are required to implement the rate alternative?
10. What challenges does the rate alternative present with respect to consumer education?
11. Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?
12. What other issues does this rate alternative raise?

The Department provides a summary of the discussions below. Participant responses to the questions listed above are provided in Attachment A to this report. Attachment B to these comments contains links to various articles and studies on a number of the rate design alternatives. Attachment C provides several August 17, 2015 presentations on rate design before the "e21" group. Attachment D provides Commission Orders from a 2001 study of ways to use rate design to encourage energy conservation.

III. SUMMARY OF ALTERNATIVE RATE STRUCTURES

A. SUMMARY OF THE FIVE ALTERNATIVES CONSIDERED

1. Inverted Block Rates (IBR)

Inverted block rates are characterized by increasing energy rates for higher blocks of energy usage. For example, Minnesota Power currently has a five-block rate structure. Similarly, a four-block IBR rate design was proposed in Xcel's last rate case.

In designing an IBR, the main decision points are the number and size of usage blocks and the rates to be assigned to each block. Since the goal is for a utility's revenue to be the same under an IBR rate design as under a flat energy charge, usage blocks are priced so that the lowest block has rates below the current average flat energy charge, with the highest block above the current average energy charge. Implementing an IBR would not require metering changes, but would require changes to the billing system to bill usage under the different rate tiers.

IBR rates encourage customers to reduce energy consumption over a month, and especially encourage customers with monthly usage in the highest rate blocks to reduce consumption below their highest usage block in order to reduce their monthly bill. However, like flat energy charges, IBR does not provide a price signal to conserve energy during the highest *cost* periods of the day (i.e. on-peak). Moreover, IBR does not provide information to customers as to which block of usage they are currently in during the course of a month. Xcel expressed concern that rates for the highest usage blocks are often well over the cost of service; likewise, rates for the lowest usage blocks are below the cost of service, thus resulting in other ratepayers paying for those costs.

Below are examples of IBR that were identified in this study.

a) CenterPoint Energy

In Minnesota, in its 2008 general rate case (Docket No. G008/GR-08-1075), CenterPoint Energy had an IBR structure that was later discontinued by the Commission due to issues such as higher rates caused simply by ended billing periods moving ratepayers into higher blocks.[3]

Natural gas usage is highly seasonal, which may have contributed to the customer concerns with the rate structure. However, many public comments identified concerns that IBR rates resulted in significantly higher bills for people who live in old homes, people on fixed incomes, renters whose landlords would not implement energy conservation measures, daycares and other people who work at their homes, and households with more people. However, some public comments offered alternative approaches to IBR rates, such as the following:

Filed January 11, 2011:

> I am 100% in support of anything that encourages energy conservation. I am also 100% in support of recognizing the

[3] See Attachment B for a list of relevant Commission Orders in CenterPoint Energy's rate case, Docket No. G008/GR-08-1075

> challenges of low-income or elderly people who are doing all they can to pay their bills and stay in their home.
>
> There's a downside of Centerpoint's tiered pricing approach; it penalizes those of us who are doing all WE can to conserve energy but happen to live in larger homes. You've likely already concluded I am wealthy and thus am whining. I completely understand how you could arrive at that feeling. The truth, however, is due to continued unemployment, my family is struggling to pay our bills. I've liquidated my retirement funds and borrowed money on my credit cards. I don't ask for sympathy. What I do ask for is fairness.
>
> A better approach would be to look at a household's usage and reward them for decreasing their OWN usage (or penalize them if they don't). I'd be willing to turn down my thermostat to 61 instead of 64 if it meant avoiding higher rates. Under the current policy, I'd have to turn my furnace OFF to avoid being charged more for the energy I use.

Filed January 11, 2011:

> If the commission and CenterPoint are interested in the public good…I would suggest simplifying the entire issue by removing the "risk" from CenterPoint. CenterPoint should not put their business at risk…they should charge one authorized rate for delivering their service. The State of Minnesota/Legislature should place a "tax" on users like myself to promote reduced use. Proceeds from penalizing high use users should be returned to the public through incentives to modernize and reduce. Not CenterPoints [sic] bottom line.

Filed January 18, 2011:

> If you want people to use less gas, offer free installation of programmable thermostats or something that can actually make a home more efficient.

Several other commenters suggested more conservation rebates.

Filed January 31, 2011:

> If tiered rates are used, they should be adjusted to reflect the number of people in a home.

Filed February 14, 2011:

> Rate should be targeting those who haven't taken any steps to conserve if that is the purpose of the rate.

In addition, as noted above, elongated billing periods contributed to moving some customers into higher usage blocks; thus, if there were a way to ensure that longer billing periods would not happen, such a measure would reduce inappropriately higher bills.

b) Minnesota Power

Minnesota Power (MP) has had a five-tier IBR since its last rate case in 2009 (Docket No. E015/GR-09-1151) without significant customer complaint. However, as noted in Minnesota Power's most recent (May 5, 2015) report on IBR rates, MP has had IBR rates for decades, such that switching away from IBR rates would have been a material change for ratepayers.[4]
As to its ability to encourage ratepayers to use less energy, MP has not been able to conclude that the use of a five-tier IBR has had a material effect:

> Minnesota Power does not expect that the change in rate design was an important driver, primarily because customers were previously receiving a similar signal to conserve energy under increasing three-block rates. Based on the available information, Minnesota Power does not have a reliable way to isolate the impacts of switching from three-block to five-block rates to determine whether the five-block rate design has resulted in additional conservation.

c) California Public Utilities Commission (CPUC)

As discussed further in a presentation in Attachment C, the California Commission recently began the process of phasing out IBR rate structures, with the goal of moving toward a mandatory TOU rate structure. Among the concerns in California was pressure over time to limit or freeze rate increases for the lowest usage blocks, resulting in sizeable rate increases to the highest usage blocks. The CPUC is holding forums with ratepayers to explain this change:

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[4] See Attachment B for a link to Minnesota Power's Compliance Report on its IBR Rate Structure.

What is residential rate reform?

Residential rate reform refers to a multi-year process of changing the way electricity rates are structured, and therefore, the way you are billed for electricity. This process will end in 2019 with the introduction of default time-of use rates for all customers.

During the 2001 energy crisis, the California Legislature froze the bottom two of four electricity billing tiers. This meant that in the last 14 years, any increases in costs have gone to the upper two tiers (you move up billing tiers the more electricity you use). Practically, this meant that a person might use twice as much electricity as a neighbor but pay four times as much. Lower usage customers were paying less than it costs to serve them, and higher usage customers were paying more than it costs to serve them. Rate reform lowers the differentials between the tiers so that the price for lower usage increases and the price for higher usage decreases. The result is that in 2018 we will have only two tiers of usage, with the second tier costing 25 percent more than the first.

Will my bill go up or down?

It depends on your usage. **This change does not allow the utilities to collect more money.** It changes the way that it is collected. In Pacific Gas and Electric Company's (PG&E) service territory, customers who do not regularly go above Tier 2 in usage will see a bill $2-$6 a month higher by 2019. Customers in higher tiers will see more dramatic decreases of $4-$25 in their bills as there are fewer of these customers. These changes are gradual over the next few years.

What are time-of-use rates?

The CPUC has ordered PG&E, San Diego Gas & Electric, and Southern California Edison to introduce time-of-use (TOU) rates in 2019. This means the price of electricity will depend on the time of day you use energy. TOU rates charge customers more when the cost to generate electricity is high (late afternoon and early evening) and less when the cost is low (all other times). This is a system that is beneficial for the electricity grid and allows customers the most power to reduce their bills. You can choose to stay on two-tiered rates if you prefer.

What other changes are included in rate reform?

- The CARE discount for low income consumers will go from more than 40 percent to 35 percent by 2020.
- For those who zero out their bill, through solar power for example, the minimum amount will increase from $4.50 to $10 ($5 for CARE customers).
- Starting in 2017, a "super user" electric surcharge will be introduced to penalize excessive energy use. This will apply to those who use 400 percent or greater of baseline, which is more than twice the average usage.

2. Time-of-Use Rates (TOU)

As noted in the CPUC forum notice above, TOU rates vary by the time of day in which electricity is used, depending on costs of power. A 24-hour timeframe is typically divided into two or three rate periods: Off-peak, on-peak and a shoulder period with rates between on-peak and off-peak if 3 rate periods are used. Customers receive a price signal to reduce electricity consumption during the most expensive peak times of the day. Because rate periods typically align with periods of the day when energy is more or less expensive, rates are closer to the cost of service than a flat energy charge, or an IBR charge. Full implementation of TOU rates would require upgrades to the current meters.

Xcel Electric has voluntary TOU rates in place – that is, ratepayers already can choose to take service under TOU rates. In practice, generally only ratepayers whose pattern of electricity use results in lower bills under TOU rates take such service.

On July 20, 2001, the Commission opened an investigation into the rate design of Xcel Electric as to how rate design could encourage energy conservation (Docket No. E002/CI-01-1024). TOU rates and Critical Peak Pricing (discussed in the next section) were discussed extensively in that docket, with studies and proposals developed. While that investigation did not lead to material changes in rate design, many of the issues discussed in that proceeding may be helpful here. As a result, the Department attaches in Attachment D to this report the relevant Commission Orders and notes by reference the studies that were developed in that proceeding.

3. Critical Peak Pricing (CPP)

Under a CPP, near real-time prices are applied during a period when a utility expects the highest usage and highest price of energy. CPP periods are usually limited to specific periods of time, and the frequency of events is usually limited, as well. A CPP rate structure may be designed to charge a high price for usage during the critical period, or to give a rebate for usage reductions during the critical period. With a rebate program design, rebates are generally based on usage reductions from baseline usage consumption during a

previous period of time. In Colorado, Xcel's Residential Critical-Peak Pricing Service uses consumption for the same period for the 5 highest of the previous 10 days to determine the baseline from which to measure usage reductions.

CPP may be used in conjunction with other rate designs, and provides a better price signal to conserve when energy costs are highest. Implementing a CPP rate structure would require meters capable of measuring hourly interval usage along with billing system changes to reflect the hourly metering. Stakeholders generally viewed a CPP rate structure as an optional rather mandatory rate alternative because of the significant impact it could have on customers with inflexible peak usage, and the metering upgrade requirements.

4. Demand Charge for Residential Service

Typically residential customer rates are structured with two rate components: a per-kWh energy charge, and a flat monthly customer charge. Alternatively, residential rates could be structured as a three-part rate with the addition of a residential demand charge (per kW) based on customer demand during peak periods. The addition of a demand charge would provide customers with a more direct price signal to reduce peak load, and better align with the cost of service; however, customers would require education to clearly understand the rate design as this is not typically how energy costs are recovered from residential customers. Implementing a demand charge rate structure would require installation of demand meters for residential customers.

5. Variation on existing structure – lower customer charge/higher energy charge

As noted above, residential customers are currently charged a flat monthly customer charge along with a per-kWh energy charge. Reducing the customer charge and recovering more of the revenue requirement through the energy charge would send customers a price signal to reduce their usage. As a continuation of the existing rate design, customers would understand the structure. Customers with low usage would benefit from lower bills. Concerns center on whether reducing the customer charge would result in moving rates further from the cost of serving a customer, and whether the shift to higher energy rates would be sufficient to result in meaningful usage reductions.

B. IMPACT ON SPECIFIC CUSTOMER GROUPS

The impact of the alternative rate designs on specific customers, specifically low-income customers, was the topic of much discussion in the stakeholder group. The underlying disagreement within the stakeholder group centered on the extent to which income and usage is correlated. Concerns that the alternative rate structure would unduly impact low-income, high-usage customers was expressed for both the IBR rate structure and the modification of the existing structure to raise energy charges and lower the monthly customer charge. In evaluating the various rate designs, ECC and CEO point to evidence

from Xcel's last rate case to assert that an IBR would benefit low-income customers based on their claim that such customers tend to be low-usage customers, and often lack access to large electricity-using appliances such as central air conditioning. Xcel asserted that the correlation between income and electric usage is less significant than ECC and CEO contend, and consequently, IBR would harm some low-income customers who fall into higher usage blocks, as well as benefit low-usage customers who are not low-income and are able to pay higher rates. In addition, the Company expressed concern that an IBR would result in energy rates that exceed the cost of service for higher usage blocks.

Protecting low-income, high-usage customers from harm under the IBR depends on the ability to identify and exclude those customers from the IBR. For example, the IBR proposal from Xcel's last rate case excluded electric heating customers, along with customers with medical conditions requiring large electricity consumption.

California's experience suggests that over time, pressure to minimize rate impacts on the lowest usage-block customers will lead to significant rate increases for the highest blocks.

As with the IBR, the stakeholder group had considerable discussion on the impact that a TOU rate structure would have on low-income customers (the Commission's Order from the TOU rate study noted above state similar concerns). Several participants raised concerns that some customers may not be able to respond to high on-peak rates by reducing their consumption because they lack the ability to shift load to off-peak periods or otherwise reduce their usage.

Both CPP and residential demand rates were viewed by the stakeholder group as optional rate structures rather than a structure to be mandated because of the need for extensive metering requirements. If mandated, customers with inflexible energy usage due to medical usage or other factors would need to be exempted from the CPP. In the case of residential demand rates, additional information would be required to more fully understand the impact on various customer groups.

C. IMPACT ON OTHER RATE PROGRAMS

With respect to the impact of an IBR on other programs, Xcel asserted that it could result in additional decoupling rate adjustments due to increased revenue and bill variation. Other participants indicated that decoupling adjustments could be triggered by any number of factors, and that lost revenues due to energy conservation under an IBR was only one of many factors that could trigger an adjustment.

The Saver's Switch program, which provides participating customers with a 15 percent discount on their energy and fuel costs for the period May through September, would likely need some modification under IBR, TOU rates, and a residential demand rate. CEO indicated that Xcel offers both an IBR and Saver's Switch program in Colorado, suggesting

that both programs could be structured to work together. Both the Saver's Switch program and CPP would provide customers an incentive to reduce usage during periods of highest usage, and consequently, both programs would not be available to the same customer.

D. IMPACT ON DISTRIBUTED GENERATION

With respect to the impact on distributed generation, concerns were raised that IBR, because it charges above-cost rates for the highest usage blocks, would encourage higher usage customers to install distributed generation under net metering, or participate in a solar garden. Or that, for ratepayers with lower use, IBR might discourage distributed generation for similar reasons. Likewise, TOU rates could create some incentive to install solar generation that more closely aligns with periods of peak usage.

For all of the rate alternatives, the general consensus was that if the alternative was designed to be revenue neutral it would not change the calculation of the applicable retail rate credit available under the solar garden program. In the case of net metering, Xcel currently pays for excess generation at either the average energy rate or a time-of-use rate, if ratepayers have opted to take service under the existing voluntary TOU rate. If a residential demand charge were implemented, the rate structure would reduce the energy rate and thus the benefit to customers of net metering.

E. CUSTOMER EDUCATION

Some level of customer education would likely be necessary with all of the alternative rate structures. Modification of the existing rate structure by reducing the customer charge and increasing the energy charge would require the least amount of customer education, although highlighting the increased incentive to reduce usage would ensure customer awareness and a better conservation response. Generally, stakeholders expressed the need to align customer education about the rate structure changes with additional information on the impact various conservation measures could have their customer bills. In addition, customers should be informed about the availability of rebate or other programs to assist in reducing their energy usage.

The stakeholder group also expressed the idea of obtaining feedback from ratepayers before making significant changes to rate design to learn from ratepayers what they would like to see in rate design. Such an approach would not only give ratepayers an opportunity to express their concerns and ideas, it may also help develop better ideas for ways to encourage energy conservation. For example, at a public hearing for one of Xcel's rate cases, a member of the public who lived in a low-income area suggested the idea of identifying geographical areas with the lowest incomes, identifying community leaders who could work with neighbors and energy conservation organizations to identify needs for energy conservation, and hiring and training people from the neighborhood to install energy conservation measures.

While obtaining input from ratepayers would take time and resources that are currently not available to state agencies, the stakeholder group expressed the desire for such outreach if it could be feasibly done.

IV. NEXT STEPS

The Commission may wish to request additional information on the costs and benefits of particular rate designs, narrow the focus to specific rate design(s), or direct Xcel to submit pilot programs to examine various rate designs in its current rate case (Docket No. E002/GR-15-826) or its next rate case.

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Attachment A: Summary of Participant Comments

In conjunction with stakeholder meetings, participants provided comments to the following questions:

1. Does the impact of the rate alternative unduly burden certain ratepayers? If so, are there straightforward protections available?
2. Does the rate alternative impact decoupling?
3. Does the rate alternative change the incentives for installing distributed generation?
4. Does the rate alternative impact net metered customers?
5. Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?
6. Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)
7. Does the rate alternative require additional metering? If so, what is required and what is the cost?
8. What implications, if any are there for implementing the rate alternative as a mandatory rate structure? Opt-in? Opt-out?
9. What billing system changes, if any, are required to implement the rate alternative?
10. What challenges does the rate alternative present with respect to consumer education?
11. Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?
12. What other issues does this rate alternative raise?

Attached are the summary comments submitted by participants along with responses to the specific questions listed above.

Inverted Block Rate

1. **Does the impact of the rate alternative unduly burden certain ratepayers? If so, are there straightforward protections available?**

Xcel: Yes. It applies rates that are significantly above the cost of service to a large share of customers with above average energy usage, often those that have larger household sizes or with appliances that use electricity in place of natural gas. There is no available protection for this inherent rate design feature other than exemption from the rate design.

Energy Cents Coalition: Current flat rates burden low-income and low-use customers and benefit higher usage/high income customers. See Attachment 1 (Particularly p. 51) from Docket No. 13-868, Exh. 241. Of course, those with incomes below $40,000, $30,000, $20,000/year, etc. will be even less likely to own multiple appliances or live in homes with central air conditions. See also, Attachment 2 from Docket No. 13-868, Exh. 234 (modified).

CEO/MCEA/Fresh Energy: No. An appropriately designed IBR does not unduly burden certain ratepayers. Because consumers can change their usage based on the price signal, it treats all ratepayers equally. As was established before the ALJ a proper IBR structure would opt-out those consumers who have little control over their electricity use for specific reasons, such as electric home heating customers and those with medical devices that use large amounts of electricity. These users would not be unduly burdened if this common sense approach, accepted by the ALJ, is incorporated into IBR.

Department of Commerce: The Department has concerns that the IBR does not send an appropriate cost-based price signal to consumers to conserve energy when the price is highest, and use electricity when it the price is lowest. The Department has concerns that low-income high usage customers in the highest usage blocks will be harmed, and lack the financial resources to invest in the energy saving appliances or programs that will reduce their usage. While exclusions for electric home heating and medical conditions may limit the harm in the highest usage blocks, the Department expects the IBR rate structure to unduly harm some low-income high usage customers.

OAG: Yes. Some groups of ratepayers have limited ability to reduce consumption in response to an IBR rate design. As the OAG discussed in testimony and briefing during Xcel's rate case, the ratepayers at risk can include seniors, low income/ high consumption ratepayers, ratepayers with medical conditions, renters and others who are at particular risk.

2. **Does the rate alternative impact decoupling?**

Xcel: Yes. The increased revenue and bill variation by customer, season and weather would correspondingly increase required decoupling rate adjustments.

Energy Cents Coalition: IBR would not affect the overall structure or revenue neutrality of decoupling.

CEO/MCEA/Fresh Energy: Not initially. The IBR proposal in Xcel Energy's rate case was designed to meet Xcel Energy's proposed revenue requirement. Should reductions in energy use result from the IBR, decoupling adjustments may be triggered to recover the lost revenues. Variations in energy use by customer, season, and weather occur in any rate design.

Department of Commerce: The Department agrees with CEO's response on this issue.

OAG: No response.

3. **Does the rate alternative change the incentives for installing distributed generation?**

Xcel: Yes. It creates an artificially high and economically unjustified incentive for installing DG for customers with above average usage.

Energy Cents Coalition: Before implementation, there is no definitive way to conclude that IBR would motivate higher proportion of high consumption customers to install DG than the proportion who install DG under current flat rates. Price alone is not the only motivating factor for installing DG. Providing education to customers about the usage block they historically fall into will also help more customers choose energy efficiency options.

CEO/MCEA/Fresh Energy: Yes, an IBR structure has sped the implementation of DG in California. Any DG that offsets energy use would be more attractive for high-energy users under an IBR, and consequently less attractive for low-energy users.

Department of Commerce: Yes, an IBR structure could create an incentive for customers in the highest usage blocks to install DG.

OAG: Yes. IBR can create increase economic incentives to install DG, especially for high use customers looking to avoid high marginal costs. As seen in California, this can have negative impacts on load curves.4. **Does the rate alternative impact net metered customers?**

Xcel: Yes. It produces different tiers of compensation for customer energy production.

Energy Cents Coalition: No. Amounts may vary but compensation process remains the same.

CEO/MCEA/Fresh Energy: Yes, net metered (NEM) DG offers a direct kilowatt-hour offset on the customer's energy use. Under an IBR structure, NEM DG would reduce kilowatt-hours in the customer's highest usage tier, making DG more attractive for high-energy users. Calculating the average retail rate for net excess generation from for a NEM DG system would have to account for the new rate design.

Department of Commerce: Minn. Rule pt. 7835.3300 Subp. 3 requires utilities to pay for energy produced by a qualifying facility at the average retail utility energy rate. If it were designed as a revenue neutral offering, the Department would not expect much change in the average retail utility energy rate; however, it could impact the incentive obtain DG under a net metering arrangement for customers in the highest usage blocks.

OAG: Yes.

5. **Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate, which would not change the solar garden bill credit.

Energy Cents Coalition: No.

CEO/MCEA/Fresh Energy: Yes. The Applicable Retail Rate would have to be recalculated to account for different energy charges within the same customer class. This could be a material change for subscribers that were already subscribed to a garden under contract, if the new rate structure applied to those customers. A shift to the Value of Solar rate would not be required, but would not present these challenges (as described in the demand charges section).

Department of Commerce: Assuming the IBR structure is revenue neutral, the calculation of the Applicable Retail Rate would not result in a change to the solar garden bill credit.

OAG: No response.

6. **Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)**

Xcel: Yes. The Saver's Switch program, which provides credits as a percentage of energy charges, would not properly function with multiple IBR energy charge levels. The resulting credits would be too high for customers with above average usage and too low for those with below average usage.

Energy Cents Coalition: Saver's Switch could be modified for compatibility with IBR. Xcel should be required to proposed appropriate and/or alternative modifications.

CEO/MCEA/Fresh Energy: Yes. The Saver's Switch program relies on a $/kWh compensation, so reducing the portion of a customer's bill that functions in this way would require a change in the program. However, there is no reason to believe this would be significantly more difficult than for TOU. In fact, Xcel Colorado offers both an IBR structure during summer months as well as a Saver's Switch program without any apparent difficulties. Further, Saver's Switch participation could be a tool to help customers avoid entering higher usage blocks during hot summer days when air conditioning use is high.

Department of Commerce: Saver's Switch provides a 15 percent discount off energy and fuel charges from June through September. Some modification would be necessary to address the impact of higher rates at the highest usage levels.

OAG: No response.

7. **Does the rate alternative require additional metering? If so, what is required and what is the cost?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate, which would not change the solar garden bill credit.

Energy Cents Coalition: No.

CEO/MCEA/Fresh Energy: No.

Department of Commerce: No.

OAG: No response.

8. **What implications, if any are there for implementing the rate alternative as a mandatory rate structures? Opt-in? Opt-out?**

Xcel: Mandatory participation is required with this rate alternative as a result of its basis on substantial departures from the cost of service.

Energy Cents Coalition: No different than the flat rate structure; all customers would participate. Lower usage customers and older/lower income communities may actually be more closely aligned with cost-of-service than under flat rates. PUC has always considered the significance of non-cost factors.

CEO/MCEA/Fresh Energy: The IBR proposal in Xcel Energy's last rate case exempted certain customers that would be unduly impacted by a mandatory IBR structure, including customers with medical needs and electric space heating. Mandatory implementation of IBR would be most effective to optimize conservation outcomes, low-use low-income customer protection, and revenue stability.

Department of Commerce: Optional participation would result in the highest usage customers opting out of the rate structure. Consequently, mandatory participation will be necessary to obtain any conservation savings.

OAG: High participation rates are important for an IBR, but an out-out option would be required to accommodate some customers. If too many customers opt-out, an IBR could be difficult to administer.

9. **What billing system changes, if any, are required to implement the rate alternative?**

Xcel: Required billing system changes and complexity significantly increase with the number of energy charge tiers.

Energy Cents Coalition: Xcel should be required to offer a specific proposal for billing changes and associated costs. MN Power should be consulted about the costs required to bill under IBR.

CEO/MCEA/Fresh Energy: Many utilities, including Minnesota Power and Xcel Energy in Colorado, have successfully made the billing system changes required to implement IBR with little difficulty.

Department of Commerce: IBR would require billing changes to accommodate the rate tiers, but it is not clear what the cost of such a change would be nor the time it would take to accomplish the change.

OAG: No response.

10. **What challenges does the rate alternative present with respect to consumer education?**

Xcel: The significant changes in customer bills, with a potentially variable impact by month, would require substantial customer education.

Energy Cents Coalition: Bill comparisons/historical usage information/the importance of conservation and efficiency can all be provided to customers and should compare the most recent Xcel proposals to increase flat rates to the proposed IBR rates.

Significantly less customer education is required to convey the message "if you use more, you will pay more" than to convey the message about prices over several intervals of time or at critical peak times.

CEO/MCEA/Fresh Energy: Strong customer education would be critical to ensure successful implementation of an IBR structure, as with any new rate structure that is implemented as a mandatory default for most customers.

Department of Commerce: Customer education would be necessary to help customers, particularly those in the highest usage blocks understand the rate impact, and the impact various conservation alternatives could have on their bill.

OAG: Customer education would be essential to capture the claimed conservation benefits of IBR and to ensure that customers are able to adapt to avoid unexpectedly high charges.

11. **Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?**

Xcel: Yes. California is moving away from tiered rates because the actual extent of any resulting conservation is not clear, and affordability benefits have not been realized. (Page 103, Rulemaking 12-06-013, 7/12/2015) http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF

In Minnesota, the tiered natural gas rates offered by CenterPoint were unsuccessful and canceled.

Energy Cents Coalition: To overlay California's experience with IBR to Minnesota is meaningless for several primary reasons:

1) CA electric industry is deregulated and MN's is not
2) Prices for electricity between the two states are extreme different (Average CA price 17.5- 21.1 cents vs. 7.4-8.7 cents, in addition, the Chernick proposal included four blocks, not five as in CA. CA's highest block was

priced at 44.3 cents/kWh vs. 9.4-12.7 in the highest block under the Chernick proposal.

3) Effect of IBR on MN customers is less than CA because of the decreased reliance on air-conidtioning.

Even in modifying the CA IBR, the CA PUC stated: "Based on the studies and analysis presented in this proceeding, it is clear that the proposed rate design changes will reduce the structural incentives for conservation present in the existing rates to some degree."

Major consumer and environmental groups opposed the change; one CA Commissioner's proposal to retail IBR was rejected in a last minute vote that excluded major parties and the public.

Alleged overreliance on utility influence and closeed meetings, as well as promised utility executive bonuses for adopting mandatory TOU rates suggests that the outcome of this proceeding was more about politics than evidence.

In MN, the MN Power IBR evaluation shows "many low-usage customers are also low-income customers…[and] 65% of all bills issued to LIHEAP-eligible customers…were … for 750 kWh or less. This demonstrates the benefit provided by IBR to low-use, low-income customers (Minnesota Power Evaluation of Residential Five-block Rate Design, Docket No. 09-1151, January 11, 2013, p.3)

Chernick found that IBRs are operative in 55 utility service areas within 29 U.S. and Canadian jurisdictions.

CEO/MCEA/Fresh Energy: Yes. Minnesota Power has successfully implemented an IBR structure for several years, recently increasing the energy tiers from three to five, with few customer complaints or implementation issues. Continued comparison of a potential Xcel Energy electric IBR structure with a natural gas utility's experience with IBR is unfounded and not helpful in this discussion. Furthermore, comparison with California's IBR structure is not relevant as that structure had significant differences with what has been proposed here in Minnesota. We have experience with IBR from a Minnesota electric utility (which has not resulted in customer pushback, and has been implemented too recently to show conservation outcomes) and Xcel's own experience in Colorado to draw on (which showed annual energy use reductions of up to more than four percent, slide 11). We should focus comparisons on these examples.

Department of Commerce: Minnesota Power has had an IBR in place for some time. As noted, California is moving away from an IBR to TOU rates. CenterPoint's experience with IBR highlighted the problem of elongated billing periods.

OAG: Yes. While there are some differences because it is a gas utility, CenterPoint's experience with IBR are important context because they indicate that IBR can cause unanticipated problems. Additionally, California IOUs will be transitioning from IBR to

mandatory TOU over the next five years, and is an example of the shortcomings of IBR.

12. **What other issues does this rate alternative raise?**

Xcel: Price signals that significantly differ from the cost of service seriously compromise equity between customers and reduce economic efficiency. Conservation incentives are not cost based and are not targeted to higher cost periods. Conservation incentives are also reduced for a majority of customers. Affordability is not materially improved because energy use is poorly related to customer income.

Energy Cents Coalition: Currently IBR is the most developed of all rate design alternatives. Colton testimony provided in the rate case demonstrated – by several different measures – the causal connection between income and energy usage. Xcel's Residential Energy Use Survey does the same. Low income energy advocates support IBR because it increases affordability for the vast majority of residential customers and because it benefits the lowest income (fixed income seniors) and lowest consumption households the most (e.g. renters in smaller dwellings who also have lower incomes than homeowners.)

Under the Chernick proposal, only 2-3% of Xcel customers' bills reflect usage in the 3rd tier and only 1 % fall ingot the 4th tier (block).

CEO/MCEA/Fresh Energy: Following a full evidentiary hearing in which IBR was thoroughly vetted, including expert witnesses being subject to cross examination, the ALJ, an impartial fact finder, concluded "that the record demonstrates IBR is an effective tool for promoting conservation, and agrees with the parties to the stipulation that the proposed IBR warrants further review." As established by expert testimony before the ALJ in the formal hearing leading to this stakeholder process: IBR is going to lead to significant energy conservation and will likely benefit low-income users, who are low energy users on average. This has been established on the record and parties have had the opportunity to air its arguments and cross examine witnesses. The ALJ ultimately did not find those arguments— that IBR does not create conservation—persuasive and there is no reason to adopt them now, without the benefit of the impartial hearing or the experts who made their case before it.

Department of Commerce: Energy savings may not result in much cost savings because the rates do not provide a signal as the most cost effective time to reduce energy usage.

OAG: Because the rates in an IBR program are not set according to the cost of service, IBR incorrectly inserts policy concerns into rate design. It is more appropriate to accurately set prices and then address policy concerns. Additionally,

while IBR addresses some conservation concerns, IBR is not likely to have any impact on reducing peak demand. Furthermore, other rate design changes, such as reducing or eliminating the customer charge, could provide similar conservation benefits without requiring such a significant change in rate design.

Time-of-Use Rates

1. **Does the impact of the rate alternative unduly burden certain ratepayers? if so, are there straightforward protections available?**

Xcel: The impact depends on the difference between on-peak and off-peak energy charges and individual customer on-peak usage percentages. Typically the range of impacts is not wide or unmanageable and customers may be given a protective bill cap during a transition period.

Energy Cents Coalition: Unlike the IBR proposal, no TOU proposal has been developed. Because of that lack of specificity, it is difficult to answer the following questions.

The three most fundamental, general questions about TOU should be:

1) Does the cost outweigh the benefit and even if the answer is yes, who quantifies those benefits and which customers benefit'
2) Customers with low-usage do not have the elasticity to respond to TOU rates. Mandatory TOU will adversely impact low-usage/low-income customers.
3) What affect does TOU have on customer data privacy/consumer protections (e.g. pre-pay, remote service disconnection, affordability programs)?

Households with limited incomes are not able to respond to price signals and do not have the ability to shift load because they do not own as many appliances/computers/TVs and their demand therefore is less elastic.

Metering technology is very expensive and targeted demand response programs can be expanded at a much lower cost.

CEO/MCEA/Fresh Energy: This would depend on the details of a specific TOU proposal, but generally a TOU rate structure matches energy costs to the actual cost to the system and provides opportunities for customers to lower their energy use and bills a specific times of the day. Some customers may struggle to lower their use during those times, and a protective cap (as Xcel stated) may be utilized to protect those customers. Guiding those customers to Xcel's CIP programs would also provide resources to lower energy use during peak times.

Department of Commerce: TOU provides a better cost-based price signal to consumers to conserve during times of the day when energy costs are highest. Some customers may have less ability to respond to the price signal. (i.e. customers working from home, the elderly, or low-income customers)

OAG: Some ratepayers may have a limited ability to shift energy consumption from on-peak to off-peak. Using an opt-in structure, exempting certain customer, applying bill caps, or assisting customers in investing peak-shifting appliances through CIP programs may be able to address some policy concerns related to TOU rates. However, the underlying prices charged under a TOU rate design are more equitable since those causing the system costs are paying for those costs.

2. **Does the rate alternative impact decoupling?**

Xcel: Although not likely to a significant degree, further analysis would be required for changes in relative on-peak energy usage.

Energy Cents Coalition: This same analysis should be conducted for the IBR alternative.

CEO/MCEA/Fresh Energy: Similar to the proposed IBR structure, a TOU policy could be designed to meet Xcel's approved revenue requirement. To the extent that reductions in energy use result from the new rate design, decoupling adjustments may be triggered in the near-term. However, again, variations in customer energy use occur for a variety of reasons regardless of rate design.

Department of Commerce: The Department agrees with CEO's response on this issue.

OAG: No Response

3. **Does the rate alternative change the incentives for installing distributed generation?**

Xcel: A more precise representation of time-varying costs would produce more economically efficient incentives, such as increasing the incentive for on-peak solar generation

Energy Cents Coalition: Low-income people can't afford to install solar generation.

CEO/MCEA/Fresh Energy: A TOU structure could impact incentives for installing distributed generation depending on how system peaks evolve, technology, and how the DG is compensated. Much depends on the overlap between peak time on the system (when TOU rates are highest) and when DG production happens. If DG is on a single tariffed rate (such as Value of Solar) where compensation for DG production is set regardless of customer use, then impacts would be eliminated. DG compensation could also evolve to a Time of Production-based rate.

Department of Commerce: A TOU structure could have an impact on incentives to install DG with peak production that more closely aligns with the peak TOU period.

OAG: Yes. There are many variables that impact how incentives will change such as the ratio of on-peak to off-peak and storage. Utilities also have an incentive to implement TOU rate designs before there are high penetrations of DG because those investments become sunk costs when considering storage decisions.

4. **Does the rate alternative impact net metered customers**?

Xcel: Yes, it would time differentiated the value of customer energy production

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: This impact depends on which net metered (NEM) technology is being considered and when peak times are structured in the TOU rate. For NEM solar generally, as NEM solar penetration increases one would expect those resources to shift peak later in the day, which in turn would weaken NEM solar economics under a TOU rate structure. NEM wind, as a less time-correlated resource, might benefit from on-peak production but would be hurt by low prices at night.

Department of Commerce: Xcel currently has a TOU rate option for net metering customers. The rate may require some adjustment to conform with the TOU structure put in place.

OAG: No response.

5. **Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate, which would not change the solar garden bill credit.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Similar to the impact from an IBR structure, the Applicable Retail Rate would have to be recalculated to account for different energy charges within the same customer class. A shift to the Value of Solar rate would not be required, but would not present these challenges.

Department of Commerce: Assuming the TOU rate is structured to be revenue neutral, there would be no change in the Average Retail Rate (ARR).

OAG: No response.

6. **Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)**

Xcel: Yes. A revision to the Saver's Switch discount would be required to recognize the additional incentive of the on-peak rate to reduce on-peak energy usage.

Energy Cents Coalition: Why isn't Xcel's answer to this question under the IBR alternative the same as it is here?

CEO/MCEA/Fresh Energy: Yes. The Saver's Switch program relies on a $/kWh compensation, so reducing the portion of a customer's bill that functions in this way would require a change in the program.

Department of Commerce: Saver's Switch provides a 15 percent discount off of energy and fuel charges for the months of June through September. As with IBR, some modification may be required to address off-peak and on-peak rates, and the use of the Saver's Switch program to cycle participants air conditioning during the on-peak period.

OAG: No response.

7. **Does the rate alternative require additional metering? If so, what is required, and what is the cost?**

Xcel: Yes. Metering must be capable of recognizing energy usage by TOU. Although more basic TOU metering is now available, more practically this capability will be a part of a smart metering upgrade to the current system that will provide other benefits.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Xcel has indicated that current metering systems are TOU-capable, and Xcel currently offers an optional TOU rate for customers. While enhanced metering infrastructure would likely expand the capabilities of a TOU rate, it should be noted that simple TOU rate designs are possible now in Xcel's service territory. Regarding advanced metering infrastructure, while Xcel has not given a date for when the additional meters would be available, they did say at the second stakeholder meeting that it would likely not be until a current contract with the metering supply company expires in 2022. Xcel has not indicated what the cost of upgrading to smart meters would be to the company or to customers.

Department of Commerce: The Department understands some very basic TOU structures may be possible with the existing metering; however additional metering capabilities are likely necessary.

OAG: This is unclear. Xcel currently operates a TOU rate without AMI meters, but more information about metering capabilities is necessary. Xcel's answers, including to the one in this matrix, have been unclear and contradictory. In this matrix, Xcel states both that TOU rate design requires additional metering, but that basic TOU metering is now available. Additionally, Xcel has not provided any cost information with respect to new meters.

8. **What implications, if any are there for implementing the rate alternative as a mandatory rate structures? Opt-in? Opt-out?**

Xcel: Much higher participation and system benefit is typical of default TOU with an opt-out provision to a flat rate with an added risk premium, rather than an opt-in structure. Typically, the higher price response per customer with opt-in is significantly outweighed by much higher default participation, measured by total load response.

Energy Cents Coalition: Opt-out TOU will adversely affect low income customers. The risk of much higher bills will lead to increased service disconnections and undermine current consumer protections. For example, if low and fixed income households do have air conditioning and deicde not to use it on the hottest/highest priced intervals, what are the risks to the health and safety of those households?

Opt-in TOU allows the highest usage customers (those with central air, numerous appliances etc. to shift their load without adversely affecting average ratepayers.

Customers in current, mandatory TOU programs are demand opt-out provisions.

CEO/MCEA/Fresh Energy: The higher participation and system benefit from a well-designed default TOU would outweigh benefits from an optional TOU structure. However, any mandatory TOU program would have to be accompanied by an effective policy of identifying and considering the needs of low-income customers who may not be able to easily alter energy use during peak times.

Department of Commerce: A TOU structure could be mandatory or optional. Higher participation would result likely result in higher conservation or shifts in peak load, but could unduly burden customers unable to respond to the price signals. Optional participation is likely to result in participation by only customers who could easily shift load.

OAG: Studies appear to indicate that there are higher overall system benefits for opt-out TOU rate designs. But an opt-in structure may provide more consumer

protections for those that would be overly impacted by the design. The success of an op-in program will likely depend on how when the utility or third parties can educate customers and whether the utility is really behind the program.

9. **What billing system changes, if any, are required to implement the rate alternative?**

Xcel: The current billing system is TOU capable, although current TOU participation is relatively minor

Energy Cents Coalition: Xcel should be required to provide information about any required billing system changes and the cost of implementing those changes. The Commission should review the current MP pilot for guidance.

CEO/MCEA/Fresh Energy: Xcel indicates that its current billing system is capable of supporting a TOU rate structure.

Department of Commerce: The Department understands Xcel's billing system to be capable of handling TOU rates.

OAG: No response.

10. **What challenges does the rate alternative present with respect to consumer education?**

Xcel: Some customer education would be required, with significantly more education required with three TOU periods than with two TOU periods

Energy Cents Coalition: Current TOU pilots (including MN Power) have found that customer interest in monitoring electric usage is weak and that continuous education efforts are required to sustain even a low level of interest and participation.

CEO/MCEA/Fresh Energy: A customer education program is a critical to the successful implementation of both a default and optional TOU rate structure.

Department of Commerce: Educating customers on the peak and off-peak rate periods would be necessary. In addition, information regarding CIP programs or other rebates that might assist in shifting and/or reducing load would need to be made available to customers.

OAG: Education will have to be the central theme of any rate design change. The success of the change depends largely upon the education component.

11. **Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?**

Xcel: Yes. Our optional residential TOU rate has been available for over 35 years, but was very low participation. Many utilities through the country offer or require TOU service. California, for example is moving to default TOU service.

Energy Cents Coalition: The most relevant example in Minnesota is MN Power's TOU pilot. See ECC Comments.

CEO/MCEA/Fresh Energy: Yes. Sacramento Municipal Utility District recently completed a TOU (and other rate design) pilot in its service territory. The pilot included opt-in and opt-out customer samples, was designed and analyzed in conjunction with an independent third party, and included rigorous post-pilot customer survey results. Significant lessons can be learned from this effort. The report can be found here: https://www.smartgrid.gov/files/SMUD-CBS_Final_Evaluation_Submitted_DOE_9_9_2014.pdf

Department of Commerce: The examples cited by other stakeholder participants all appear relevant.

OAG: No response.

12. **What other issues does this rate alternative raise?**

Xcel: The primary issue is whether the additional cost and complexity of TOU service, and it's advisability as a default service, are justified by incremental benefits. Incremental TOU metering costs may be mitigated by a metering system upgrade that is independent of the rate design approach

Energy Cents Coalition:

1. Expense versus net-benefits
2. Data privacy and smart grid security concerns
3. Consumer protections/complaints
4. Remote service disconnections/pre-payment programs
5. Commission should review all current investigations about TOU cost overruns and jurisdictions with mandatory TOU rates that are now allowing customers to opt out of those rates.
6. Even the California Commission concluded that changes to the IBR structure "will reduce the structural incentives for conservation present in the existing rates to some degree."

CEO/MCEA/Fresh Energy**:** The specific design details of a TOU rate structure are critical to its effectiveness and to mitigating unintended consequences as a result of implementing this rate design.

Department of Commerce: Need to evaluate the costs of metering against the benefits TOU would provide, and the impact on customer groups unable to respond to the price signals.

OAG**:** The costs and benefits need to be clearly weighed, which is currently impossible with the lack of information provided by Xcel on metering.

Coincident Peak Pricing

1. **Does the impact of the rate alternative unduly burden certain ratepayers? if so, are there straightforward protections available?**

Xcel: No, CPP would most likely be an optional service. However, if mandatory, customers with inflexible peak usage such as medical equipment or required air conditioning usage could be burdened. Protection would require an opt-out provision and corresponding non-CPP rate design.

Energy Cents Coalition: Yes, if structured as a mandatory rate and if it requires AMI. If so, all of the concerns about TOU apply to CPP.

CEO/MCEA/Fresh Energy: If this is only offered as an opt-in program there should be no significant danger of unduly burdening certain customers. If offered as a default rate design, customers that were not properly educated about the rate design would be unduly burdened.

Department of Commerce: The Department does not expect this rate structure to be mandatory.

OAG: No. The OAG would recommend that this be an opt-in program.

2. **Does the rate alternative impact decoupling?**

Xcel: Although not likely to a significant degree, further analysis would be required for the degree and variability of usage during coincident peak periods.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Due to the relatively infrequent nature of coincident peak pricing events, and the rate design's use as more of a demand response resource, CPP would likely not have a significant impact on decoupling.

Department of Commerce: Any effect is likely to be small.

OAG: No Response.

3. **Does the rate alternative change the incentives for installing distributed generation?**

Xcel: No.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: The impacts from a CPP structure are similar to those of a TOU rate structure, as described above. Compared to a TOU structure, these impacts would be intensified by a high CPP on-peak rate but would come in to play far less often.

Department of Commerce: The Department expects that any CPP rate structure would be an optional rate, not a mandatory rate. As such, CPP would have little or no impact on the installation of DG.

OAG: No response.

4. **Does the rate alternative impact net metered customers?**

Xcel: No.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: The impacts from a CPP structure are similar to those of a TOU rate structure, as described above. Compared to a TOU structure, these impacts would be intensified by a high CPP on-peak rate but would come in to play far less often.

Department of Commerce: Likely not.

OAG: No response.

5. **Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate, which would not change the solar garden bill credit.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: The impacts from a CPP structure are similar to those of a TOU rate structure, as described above.

Department of Commerce: The Department does not expect an impact on solar garden projects.

OAG: No response.

6. **Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)**

Xcel: Yes. Saver's Switch load targeting and price incentives are similar enough to CPP that both options would not be available to the same customer.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Yes. The Saver's Switch program relies on a $/kWh compensation, so reducing the portion of a customer's bill that functions in this way would require a change in the program. It is unclear why both options would not be provided to the same customer

Department of Commerce: A customer participating in a CPP program would already be provided an incentive or penalty for energy usage during a critical peak period, the same period Xcel would be likely to cycle air conditioners under the Saver's Switch program. Consequently, a customer would not be eligible for participation in both programs.

OAG: No response.

7. **Does the rate alternative require additional metering? If so, what is required, and what is the cost?**

Xcel: Yes. Hourly interval metering would be required, which is a typical feature of smart metering.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Yes. Xcel has indicated it currently has no plans to upgrade its meters to make this rate design possible for residential customers

Department of Commerce: The Department understands CPP would require smart meters able to measure energy usage during the CPP period.

OAG: This question cannot be answered because Xcel had not produced any information about the cost of additional metering.

8. **What implications, if any are there for implementing the rate alternative as a mandatory rate structures? Opt-in? Opt-out?**

Xcel: CPP would likely be an optional service, although currently some states are discussing it as a potential default service, such as Massachusetts and California.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: As a mandatory rate design this would require effective across-the-board customer education and would necessarily require a highly effective opt-out mechanism. It should not be considered as a mandatory structure.

Department of Commerce: As noted, the Department would not expect this to be a mandatory rate structure.

OAG: No. The OAG would recommend that this be an opt-in program. After experience with CPP as an opt-in program changes to the structure could be discussed.

9. **What billing system changes, if any, are required to implement the rate alternative?**

Xcel: The billing system must be capable of accessing and reading hourly usage intervals.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy – No response.

Department of Commerce: No Response.

OAG: No response.

10. **What challenges does the rate alternative present with respect to consumer education?**

Xcel: Although a likely optional service, significant promotion and customer education would be required for a successful program.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Effective customer education would be key, particularly if it were implemented as a mandatory or opt-out rate design.

Department of Commerce: Providing sufficient information to customers to know when a CPP is being called, and the potential rate impact would be necessary.

OAG: Outreach and education about this optional program would be largely determinant of the benefits it could provide to the system and ratepayers

11. **Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?**

Xcel: Several CPP pilots have been conducted throughout the country and several utilities with smart metering have optional CPP programs. Minnesota Power began a TOU pilot with CPP in October 2014. Oklahoma Gas and Electric Company has a sophisticated combination TOU and CPP rate program that includes a five-hour on-peak period during summer weekdays with prices that can vary daily.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Minnesota Power's pilot should offer important lessons for Minnesota electric customers. The Sacramento Municipal Utility District piloted default and optional CPP rate designs, providing detailed information on outcomes and customer responses. The report can be found here: https://www.smartgrid.gov/files/SMUD-CBS_Final_Evaluation_Submitted_DOE_9_9_2014.pdf

Department of Commerce: See other participant responses.

OAG: No response.

12. **What other issues does this rate alternative raise?**

Xcel: Similar to TOU, the primary issue is whether the additional cost and complexity of CPP is justified by incremental benefits, including recognition of its similarity with the Savers Switch program.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: Education and the unavailability of necessary metering and billing technology seem to be the highest hurdles.

Department of Commerce: Implementing a CPP rate structure would require a clear understanding and evaluation of the costs and benefits.

OAG: The costs and benefits need to be clearly weighed, which is currently impossible with the lack of information on metering costs and system benefits.

Demand Charge for Residential (Three-Part Rate)

1. **Does the impact of the rate alternative unduly burden certain ratepayers? If so, are there straightforward protections available?**

Xcel: No. Residential service with a demand charge would most likely be an optional service or limited to customers with distributed generation. However, if mandatory, the impact would depend on the range and distribution of customer load factors that represent the relationship between peak demand and total energy usage, and the relative difference in demand and energy rates.

Energy Cents Coalition: ECC assumes this alternative is not applicable to general residential usage. Even as an optional service, low-income customers should not be required to subsidize required metering/billing modifications and DG installations that they could never afford to benefit from.

CEO/MCEA/Fresh Energy: No, if limited to an optional service or imposed only on customers with distributed generation. If mandatory, the rate design would unduly burden all customers by limiting the incentive to pursue measures that lower their energy use, contrary to requirements in state statute.

Department of Commerce: The Department foresees significant barriers to implementing this rate structure on more than an optional basis. Barriers include significant customer education to understand the rate, along with metering and billing changes. Additional analysis to clearly understand the impact on various customer groups would need to be done before implementing such a structure.

OAG: The answer to this question depends on many factors. First, will coincident or non-coincident peak demand be used? If non-coincident peak is used, prices are not accurate and could unduly burden some customers. If coincident peak is used, the prices would lead to efficient outcomes but they could be unfair because of a lack of transparent pricing. The question could also turn on whether customers are aware of when peak days occur. There are still significant equity issues that need to be worked out with demand changes for the residential class, and the OAG does not currently support this rate design.

2. **Does the rate alternative impact decoupling?**

Xcel: Although not likely to a significant degree, further analysis would be required for variations in customer load factors.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: No.

Department of Commerce: No response.

OAG: No response

3. **Does the rate alternative change the incentives for installing distributed generation?**

Xcel: Possibly if a requirement for DG customers, by more precise recognition and recovery of fixed costs.

Energy Cents Coalition: No response.

CEO/MCEA/Fresh Energy: If DG can offset energy use at the customer's peak, the incentives for DG would increase for a customer with a demand charge. If not, a demand charge would weaken the incentives for DG.

Department of Commerce: The addition of a demand charge could increase the incentive for customers to install DG generation that coincides with the system peak.

OAG: A demand charge would likely decrease the adoption of DG. Demand designs could also become significantly more complicated as storage becomes a more cost-effective option for consumers.

4. **Does the rate alternative impact net metered customers?**

Xcel: Yes. The retail energy charge would be reduced to the extent that fixed costs are recovered through a demand rate, which would reduce the benefit to net metered customers.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: If DG can offset energy use at the net metered customer's peak, the incentives for DG would increase for a customer with a demand charge. If not, a demand charge would weaken the incentives for net metered DG.

Department of Commerce: The addition of a demand charge could increase the incentive for customers to install DG generation that coincides with the system peak.

OAG: No response.

5. **Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate, which would not change the solar garden bill credit.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: If the Applicable Retail Rate under community solar gardens includes a demand charge (which Fresh Energy interprets that it does) then a switch to this rate structure would have no impact. A shift to Value of Solar would not be required.

Department of Commerce: If the rate structure was fashioned in a revenue neutral manner, it would not impact the calculation of the ARR

OAG: No response.

6. **Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)**

Xcel: Yes. The Saver's Switch program, which provides credits as a percentage of energy charges, would not function properly.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Yes. The Saver's Switch program relies on a $/kWh compensation, so reducing the portion of a customer's bill that functions in this way would require a change in the program,.

Department of Commerce: Some modification to the Saver's Switch program would likely be necessary if a three-part residential rate structure was adopted.

OAG: No response.

7. **Does the rate alternative require additional metering? If so, what is required, and what is the cost?**

Xcel: Yes. Demand indicating metering is required, which can also be provided by interval metering from smart metering.

Energy Cents Coalition, CEO/MCEA/Fresh Energy, Department of Commerce, and OAG: No Response.

8. **What implications, if any are there for implementing the rate alternative as a mandatory rate structures? Opt-in? Opt-out?**

Xcel: A three-part rate would most likely be an optional service.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: See above under question 1.

Department of Commerce: See response to question 1.

OAG: No response.

9. **What billing system changes, if any, are required to implement the rate alternative?**

Xcel: The billing system must be capable of accessing and reading customer peak demand or hourly usage intervals.

Energy Cents Coalition, CEO/MCEA/Fresh Energy, Department of Commerce, and OAG: No Response.

10. **What challenges does the rate alternative present with respect to consumer education?**

Xcel: Although a likely optional service, significant promotion and customer education would be required for a successful program.

Energy Cents Coalition, CEO/MCEA/Fresh Energy, Department of Commerce, and OAG: No Response.

11. **Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?**

Xcel: Residential demand rates have not been used in Minnesota and have limited but growing use through the country, particularly for DG applications to recover costs not recognized with net metering.

Energy Cents Coalition, CEO/MCEA/Fresh Energy, Department of Commerce, and OAG: No Response.

12. **What other issues does this rate alternative raise?**

Xcel**:** Demand rates are increasingly being explored as a method to reduce peak loads and to more precisely and equitably recognize and recover fixed costs of service. A significant issue with demand rates is increased complexity of rate design.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy**:** It is not clear that the complexities and educations demands of this rate design are worth the possible benefits of the price signals generated by the rate. More information and utility pilot case studies should precede any attempt to implement this policy in Minnesota.

Department of Commerce: Additional analysis to clearly understand the impact on various customer groups would need to be done before implementing such a structure.

OAG: No response.

Reduce Customer Charge and Increase Energy Charge

1. **Does the impact of the rate alternative unduly burden certain ratepayers? if so, are there straightforward protections available?**

Xcel: Yes. This design produces bills over the cost of service to customers with above average electric energy usage, but under recognizing fixed costs and over valuing variable costs. As a direct result of the rate design, there is no available protection.

Energy Cents Coalition: While this alternative is more progressive than the current rate structure, the affordability benefit is not as deep as an IBR design. ECC also questions the comparative conservation effectiveness of this alternative versus the incentive to conserve offered by an IBR design.

CEO/MCEA/Fresh Energy: No this rate design would not unduly burden certain ratepayers as all customers would receive the same price signal. This rate structure would be in line with current statutory requirements that rates be set to encourage conservation.

Department of Commerce: The Department has concerns that such a rate structure would unduly burden low-income, high-usage customers.

OAG: No. The record in Xcel's 2013 rate case demonstrates that Xcel's current customer charge is currently too high based on widely accepted methods for measuring customer costs. Having an inflated customer charge has negative impacts on conservation and does not send proper price signals to customers.

2. **Does the rate alternative impact decoupling?**

Xcel: Yes. The increased revenue and bill variation by customer, season and weather would correspondingly increase required decoupling rate adjustments.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: The impacts should be minimal and not particularly different than decoupling under the current rate structure, as variation by customer, seasons and weather occur with any rate design.

Department of Commerce: Yes, there would be an impact, but it is difficult to say how large the impact would be – depends on how much the fixed recovery under the customer charge is changed and how different energy consumption is from projected levels.

OAG: No response.

3. **Does the rate alternative change the incentives for installing distributed generation?**

Xcel: Yes. It creates an artificially high and economically unjustified incentive for installing DG for customers with above average usage.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Yes, this rate structure should make DG more attractive to customers if DG offsets the energy charge.

Department of Commerce: Because net metering offsets only the energy charge, the Department expects that an increase in the energy charge and a reduction in the flat monthly customer charge could increase the incentive to install DG.

OAG: Although not likely to a significant degree, further analysis would be needed to determine DG adopters price sensitivity.

4. **Does the rate alternative impact net metered customers?**

Xcel: Yes. It produces unjustifiably increases compensation for customer energy production.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Yes, this rate structure should make net metered DG more attractive to customers if net metered DG offsets the energy charge.

Department of Commerce: Because net metering offsets only the energy charge, the Department expects that an increase in the energy charge and a reduction in the flat monthly customer charge could increase the incentive to install DG.

OAG: It is unlikely to produce any significant impact on net metered customers.

5. **Does the rate alternative impact solar garden subscribers? Will a shift to the value of solar be required?**

Xcel: A revenue neutral rate alternative would produce the same Average Retail Rate as the standard rate which would not change the solar garden bill credit.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: If the Applicable Retail Rate under community solar gardens includes the customer charge (which Fresh Energy interprets that it does)

then a switch to this rate structure would have no impact. A shift to the Value of Solar would not be required.

Department of Commerce: No.

OAG: No response.

6. **Are other rates/programs implicated by the rate alternative (e.g. WindSource, Saver's Switch, etc.)**

Xcel: Yes. The Saver's Switch program which provides credits as a percentage of energy charges, would result in excessive credits unless the level or form of the discount was revised.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Yes. The Saver's Switch program relies on a $/kWh compensation, so reducing the portion of a customer's bill that functions in this way would require a change in the program.

Department of Commerce: Depending on the amount of fixed costs being recovered in the energy charge, the amount of the discount on fuel and energy provided under the Saver's Switch program could require adjustment.

OAG: No response.

7. **Does the rate alternative require additional metering? If so, what is required, and what is the cost?**

Xcel: No.

Energy Cents Coalition, CEO/MCEA/Fresh Energy, Department of Commerce, and OAG: No

8. **What implications, if any are there for implementing the rate alternative as a mandatory rate structures? Opt-in? Opt-out?**

Xcel: Mandatory participation is required with this rate alternative as a result of its basis on substantial departures from the cost of service.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Mandatory participation is necessary.

Department of Commerce: As a variation on the existing rate design, the Department expects it would be mandatory.

OAG: No response.

9. **What billing system changes, if any, are required to implement the rate alternative?**

Xcel: None directly, but some changes would be likely for revisions to related programs or riders.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: No direct changes in customer billing systems would be required.

Department of Commerce: None

OAG: No response.

10. **What challenges does the rate alternative present with respect to consumer education?**

Xcel: Increased bills for customers with above average usage would require explanation.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: Customer education would be important so customers know of their increased incentive to lower their energy use.

Department of Commerce: As an extension of existing rate design, the Department does not anticipate the need for significant customer education.

OAG: No response.

11. **Has the rate alternative been implemented in Minnesota or other states? If so, what are the lessons that can be learned?**

Xcel: More recently, there has been movement through the country to reduce the extent that customer charges are set below the fixed cost of service.

Energy Cents Coalition: No response

CEO/MCEA/Fresh Energy: In Xcel's last rate case the Commission rule to keep the customer charge at current levels.

Department of Commerce: No response.

OAG: Recently, there has been a movement to stop utilities from charging excessing customer charges. According to the Regulatory Assistance Projects (RAP) paper "Smart Rate Design for a Smart Future," recovering distribution system costs through a customer charge, which Xcel currently dies is "neither cost-based nor economically efficient." RAP suggests that customer charges "(s)hould not exceed the customer specific costs associated with an additional customer, such as the service drop, billing, and collection." If distribution system costs were not included and RAP suggested costs were calculated, Xcel's customer charge would be significantly lower.

12. **What other issues does this rate alternative raise?**

Xcel: Price signals that significantly differ from the cost of service seriously compromise equity between customers and reduce economic efficiency. Conservation incentives are not cost based and are not targeted to higher cost periods. Conservation incentives are also reduced for a majority of customers. Affordability is not materially improved because energy use is poorly related to customer income.

Energy Cents Coalition: Xcel should explain the basis and provide the documentation for the assumption that energy use is poorly related to customer income, particularly since their own residential electric usage survey found the exact opposite conclusion.

CEO/MCEA/Fresh Energy: No response.

Department of Commerce: Concerns are listed above.

OAG: The OAG believes that Xcel Energy does not calculate the customer charge using an appropriate methodology and therefore comes to false conclusions about price signal with respect to the customer charge.

http://www.raponline.org/documents/download/id/7680

Smart Rate Design for a Smart Future.

Summary Analysis Comments

Xcel Energy

Rates that more precisely represent the costs of electricity service are more equitable and economically efficient. This essential rate design consideration is increasing in importance as price signals are used not only for usage decisions, but also distributed generation supply decisions.

Although policy considerations and practical considerations such as limiting complexity can justify some difference between electric costs and pricing, current rate design now includes a significant difference from cost. Moving to rate alternatives such as IBR or lower customer charges that increase the cost difference would reduce equity between customers and the value of electricity. It would make electricity a less valuable energy resource and provide uneconomic incentives for distributed generation supply decisions that will unnecessarily increase its average cost.

Rate alternatives that more precisely communicate electric costs are necessary to signal the most efficient uses and timing of electricity supplies that will minimize the total cost of service and maximize its value to all customers. It will give customers more accurate prices signals for energy use and supply decisions. It will allow customers to make distributed generation decisions that avoid shifting costs to other customers or increasing total system costs, while providing fair compensation that leads to decisions that minimizes total system costs. More accurate pricing also will more precisely differentiate and value the different types of distributed generation, such as better recognizing that solar has closer match with system loads than wind generation.

The key issues with providing more accurate pricing are obtaining the necessary metering capability and determining how to best use what is a practical limit of complexity to maintain customer understanding. The next refresh of metering will very likely be smart metering will the capability of providing the necessary information for the rate design alternatives of TOU, CPP or demand charges. A critical question is the timing of that metering upgrade and whether there would be a net benefit of advancing the timing for all customers or for customers in a pilot program.

Alternative Rate Design Stakeholder Meetings
Comments of the Energy CENTS Coalition
October 14, 2015

INTRODUCTION

The Energy CENTS Coalition (ECC) provides the following comments and recommendations regarding alternative rate designs and the Department of Commerce, Division of Energy Resource (DER) stakeholder process and report.

In the recent Xcel rate case, the Commission accepted the Inclining Block Rate (IBR) Stipulation and stated that IBR "should be examined in a . . . separate proceeding . . . [to] allow [for] careful consideration of the Clean Energy Intervenor's proposal and the effect an IBR structure would have on low-income customers." The Commission also directed DER to "undertake a stakeholder process to consider IBR rate structure and "other alternative rate designs that result in rates that promote energy conservation, reduce peak demand, and/or send more accurate, useful price signals to customers."

DER convened two Stakeholder meetings to discuss a variety of alternative rate designs—IBR, Time of Use (TOU), Critical Peak Pricing (CPP), Demand Charge for Residential Customers, and Reduced Customer Charge/Increased Energy Charge.

Due to time constraints, Stakeholders were unable to examine any of these alternatives in any detail. Further, very little time was spent examining the potential impact of IBR on low-income customers. The primary discussion about IBR and low-income customers involved a debate about whether electric energy usage increased with increases in household income. ECC believes that this fact was established in the Xcel case (and in several previous cases) and that IBR is the only alternative rate design that can promote *both* affordability and conservation. All of the other (time-based) alternatives negatively affect low-income people.

The only detailed alternative rate design examination involved IBR testimony in Xcel's last rate case. ECC recommends that the Commission direct Xcel Energy to file an IBR proposal that furthers the two explicit rate design goals in Minnesota—affordability and conservation.

While some consensus may have emerged from the Stakeholder meetings about developing pilots for some of the other rate design alternatives, ECC does not believe (at this time) that there is sufficient information about the alternatives to even consider pilot program development. In addition, pilots can be expensive and limited in their ability to allow for more general conclusions. Further, Minnesota Power (MP) is already conducting a TOU/CPP pilot and an additional TOU pilot would be redundant.

RECOMMENDATIONS

ECC recommends that the Commission direct Xcel to file an IBR design based on Paul Chernick's proposal. That proposal was supported by ECC because:

1) Low and fixed income people live in smaller dwellings with fewer appliances and are more likely to rent rather than own their home. Therefore, they have lower electric consumption than

higher income households. They also, therefore, have no ability to shift their load as is required by the other alternatives

2) IBR is the least expensive alternative for promoting conservation
3) IBR is the only alternative that does not adversely impact low-use/low-income customers *and* is the only alternative that provides more affordable rates to the vast majority of residential customers

If the Commission declines to direct Xcel to file an IBR proposal, ECC recommends the following:

1) Rather than educate customers about a rate design that *will be* implemented, provide customers with information about each alternative and conduct forums to allow customers to assess which alternatives they believe promote the State's public policy goals *before* any alternative is considered
2) Carefully consider the outcomes of MP's current TOU pilot[i]
3) Examine the current increased costs/decreased benefits of existing TOU rates[ii] and the recent inclusion of opt-out provisions under mandatory TOU rates

In addition to the recommendations above, ECC believes the Commission should consider the following, deliberative steps before considering any additional rate design alterative (including pilots) and require Xcel to provide:

1) Bill comparisons and potential conservation estimates for each alternative and current, flat energy rates
2) Metering and billing modifications required by each alternative and the costs associated with those modifications
3) Estimates of net benefits from each alternative
4) Criteria for evaluating the effectiveness of each alternative
5) Customer education proposal for each alternative
6) Effect of each proposal on existing tariffs (solar, distributed generation Saver's Switch, etc.)

Alternatively, the Commission could direct DER to continue the Stakeholder process to provide more detail (such as the outlined suggestions above) for further consideration by the Commission.

[i] The Energy Center of Wisconsin evaluated Minnesota Power's Advanced Metering Infrastructure Project AMI Behavioral Research Pilot – Phase 1 in a report, "Interim Results from a Consumer Enhanced Feedback Pilot" in March 2014. MP's pilot was designed to:

> how residential customers would respond to the availability of the type of feedback and price signals that advanced meters would make possible. Advanced meters enable the provision of usage information to customers at much higher resolutions (anywhere from real time to hourly instead of daily and monthly) and the use of rates that provide price signals that more closely match the actual cost of providing electricity during specified time intervals.
>
> Minnesota Power wanted to use the consumer behavior component of its grant to explore whether consumers would value, use, and benefit from higher resolution usage feedback if advanced meters were installed in their homes and study how they would respond to rates that incorporate time-of-day (TOD) pricing with a critical peak price (CPP) when the cost of providing electricity is particularly high. Essentially, Minnesota Power was seeking to understand whether the benefits of installing advanced meters to provide better feedback and more direct price incentives to customers provide further rationale for the investment, beyond system operational benefits, particularly in a utility that has low rates and an active program to encourage energy efficient practices.

The evaluation found that:

1) we cannot confidently conclude from this analysis that exposure to the enhanced usage feedback has an impact on electricity usage in general. The confidence intervals here suggest that if there is an impact, it is unlikely to be more than about two percentage points.
2) Only one-quarter of all participants accessed the online portal at least once during the first year of the pilot. As expected, participants who voluntarily joined the pilot were more likely to log on than those who were simply enrolled (assigned) in the pilot without indicating interest. Still, only half of voluntary participants actually logged on to the portal. This compares to eight percent of assigned participants who logged on at least once.
3) Among the 545 participants who viewed the usage feedback at least once, slightly more than half (55%) saw it just one time. Of the remaining 45 percent of participants who viewed their usage more than once, only three individuals viewed the information once a month or more frequently.. After that, participants viewed their feedback information at about 1/10th their initial rate.
4) One could hypothesize that the hourly data is more effective at providing useful, actionable insights to customers, but the assigned participants viewed their feedback at much lower rates than the voluntary participants
5) The historic energy usage charts received the highest scores for usefulness
6) Whether or not participants viewed their enhanced usage feedback via the online portal did not have a sizable effect on their ability to accurately estimate their annual electricity cost. In fact, those who viewed their enhanced feedback more regularly (more than three times) were slightly less likely to estimate their costs accurately
7) Voluntary participants looked at feedback in much greater numbers than those who were assigned, regardless of the resolution available to them.
8) Customers' information preferences may not align with the features that advanced meters make possible
9) It is possible that customers learn about their usage—or prefer to learn about their usage—through individual snapshots or insights than by studying high-resolution usage over time.

[ii] For example, The Division of Ratepayer Advocates (DRA), an independent consumer advocacy division within the California Public Utilities Commission (CPUC), issued report entitled "California Case Study of Smart Meter System Deployment Recommendations for Ensuring Ratepayer Benefits (March 2012). DRA conducted "an examination of Southern California Edison's (SCE) "SmartConnect" Advanced Metering Infrastructure (AMI), or smart meter

program. The report presents key findings stemming from the Division of Ratepayer Advocate's (DRA) review of cost requests thus far"

DRA conducted the case study

> to alert the CPUC to the challenges of tracking AMI costs and benefits and recommends regulatory actions be taken, if necessary, to ensure AMI systems statewide provide a net benefit to customers. DRA reviewed SCE requests for SmartConnecvt-related cost recovery in multiple CPUC proceedings and compared them to the costs and benefits estimated in SCE's approved SmartConnect business case, which forecasted costs for its AMI program. DRA also evaluated progress toward the CPUC-adopted estimate of $9 million in lifetime net benefits for SCE customers, which should result in a net reduction in customer bills as a result of smart meter deployment.

The DRA found:

1) According to SCE's AMI business case, the total cost to customers will be greater than $5 billion, rather than the $1.6 billion cost explicitly approved by the CPUC (78% deployment)
2) Many forecasted benefits have been delayed or reduced, which erases the projected margin of net benefits as calculated in SCE's business case
3) SmartConnect-related costs not anticipated in SCE's original business case have already been approved by the CPUC in other proceedings, beyond the over $5 billion cost referenced above. In many cases, these costs were approved without a showing of incremental benefits, and DRA anticipates that more will be requested
4) SmartConnect features such as remote disconnect and SmartConnect-enabled time varying rates have a high potential for adverse impacts for low-income and other "at risk" customers

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ATTORNEY GENERAL

October 16, 2015

Ms. Susan Peirce
Minnesota Department of Commerce
Division of Energy Resources
85 7th Place East, Suite 500
St. Paul, MN 55101

Re: *Rate Design Workgroup*
Docket No. E002/CI-15-662

Dear Ms. Peirce:

On October 2, you asked members of the Rate Design Workgroup to provide you with some additional information to help in preparing your report for the Commission. In particular, you specifically asked the members of the workgroup to fill out the issue matrix that you distributed and to provide comments on the next steps for investigating alternative rate designs. I also have some comments about what recommendations should be included in the report.

By copy of this letter, we have served all parties requesting to be served. An Affidavit of Service is also enclosed.

Next Steps

I believe that the next step in investigating alternative rate designs must be the creation of a more structured process for moving forward. While the workgroup collected some useful information for the report, the workgroup's discussions often moved in a circular fashion. Without a structure for moving forward, it will be difficult or impossible to conduct the thorough and reliable investigation that is required to compare the impact of alternative rate designs.

In the letter I sent to you on August 7, I outlined a structure for investigating alternative rate designs developed by the Brattle Group that could be adopted for Minnesota. As I stated in the August 7 letter, "[M]oving forward without a complete understanding of the different rate designs available and their possible impact on the system would greatly increase the risk of unintended consequences, and decrease the likelihood of successful implementation." Developing and sticking to a framework for moving forward will help accomplish these goals.

The workgroup is currently in the early stages of the Brattle Group's framework because we do not have reliable information about what alternative rate designs are currently feasible, what is necessary to enable new alternative rate designs, how much it would cost, or concrete details about what the benefits to ratepayers could be. In particular, Xcel has still not made it clear which alternative rate designs are possible with current metering nor has Xcel provided a cost estimate for upgrades required for alternative rate designs, such as critical peak pricing. The lack of clarity on these points make it impossible to move forward without additional information in writing from Xcel.

A thorough investigation of alternative rate designs cannot progress smoothly without a clear path forward. The OAG continues to recommend that the Commission adopt a formal structure similar to the one outlined in by the Brattle Group, and I request that the report contain an outline of that structure for the Commission to review.

Issue Matrix

I enclose the issue matrix that you asked me to complete and return to you. After completing the matrix, though, I have several concerns. While the questions in the issue matrix cover important topics, they do not address every area of concern. And, by focusing on the answers to specific questions instead of a wide-ranging analysis, the issue matrix creates the risk of focusing on details but missing the big picture. I am concerned that, after receiving the report and an issue matrix from each party, the Commission will be given the impression that the workgroup has answered all the necessary questions and that it has all the information required to move forward with an alternative rate design. But the workgroup did not reach consensus, and I believe that the group is much closer to the beginning of our investigation than the end. For that reason, I recommend that, if the Department chooses to share the issue matrixes with the Commission, it do so by explaining the contexts and limitations of the issue matrix.

Recommendations of the Alternative Rate Design Report

In addition to providing my thoughts on next steps and enclosing the issue matrix, I have several suggestions for what recommendations should be included in the report.

The report should focus on presenting information, rather than recommending specific action.

In its two meetings, the workgroup has had useful discussions about alternative rate designs. But the workgroup meetings have also revealed that it is unlikely that the workgroup will reach consensus on what the Commission should do moving forward. As a result, it is unlikely that the Department's report will be able to recommend a specific course of action to the Commission. Instead, I recommend that the report focus on providing the Commission as much detailed information as possible about alternative rate designs, including the resources and

research the workgroup has gathered, to provide the Commission with base-line information about alternative rate designs.

I also ask that the report recommend that the Commission establish a comment period to allow responses to the report, and to provide the Commission with information that may not be included in the report given the limited time frame for preparing it. While the report will likely include some statements about the opinions and positions of different parties, I believe it would be better for parties to be able to state their specific recommendations and positions on the information contained in the report directly to the Commission, instead of through the report itself. I understand that it is likely that the Commission will establish a comment period after receiving the report, but it would be beneficial to remove any doubt by specifically requesting it in the report.

The report should isolate and summarize comparative meta-analysis results for the Commission.

At the October 2 meeting, the OAG volunteered to isolate some of the information contained in the reports and papers shared by the workgroup so that other members could more easily locate collected information about the results of alternative rate design programs. The two most useful documents are *Dynamic Pricing: Transitioning from Experiments to Full Scale Deployments*, by Sanem Sergici of the Brattle Group, and *Consistency of Results in Dynamic Pricing Experiments – Toward a Meta Analysis*, by Ahmad Faruqui, Sanem Sergici and Eric Shultz of the Brattle Group. Both of these documents provide information on the results that other organizations have had from their alternative rate design programs. For example, after conducting a regression analysis, Faruqui, Sergici, and Shultz indicate that, depending on the ratio of peak to off-peak pricing, dynamic pricing rate designs can result in peak reductions from 12 to 29 percent. This information is also very useful because results from other studies can be used to perform basic cost-benefit analyses with respect to whether pilots or surveys could be useful. It is very important that the report present this information to the Commission, and that any future steps on alternative rate designs make use of this information rather than duplicate work that has already been done.

The report should recommend that the Commission seek more information about Xcel's metering technologies and cost benefit analyses.

I suggest that the report recommend that the Commission direct Xcel to provide more information about its meters. Despite requests from several members of the workgroup, there is still a distinct lack of clarity about the capabilities of Xcel's current metering technology, or additional features that could come from advanced meters. While Xcel has stated that it would need to install advanced meters before using some of the alternative rate designs discussed by the workgroup, at the October 2 meeting we learned that Xcel's current meters already receive energy usage data in discrete intervals. Because Xcel already receives this interval data, it may be possible to consider alternative rate designs without the significant expense of advanced

metering. But the workgroup does not have complete information to provide to the Commission. As a result, the report should recommend that the Commission direct Xcel to provide a complete analysis of the capabilities of its current metering technology, and what would be necessary to permit some of the alternative rate designs discussed by the workgroup.

Furthermore, if Xcel's current meters cannot enable alternative rate designs, the workgroup needs more information about any cost-benefit analyses that Xcel has performed on advanced metering and how these benefits are realized within the distribution system. It is possible that advanced meters could measurably reduce Xcel's operating costs *and* enable alternative rate designs like critical peak pricing, which could significantly reduce overall system costs by lowering Xcel's peak. But all of those benefits have to be balanced against the cost of installing advanced meters, and the workgroup does not currently have reliable information about the either the cost of installing advanced meters or the financial advantages that ratepayers could get from doing so. That type of cost-benefit analysis will likely need to be conducted by Xcel, if it has not already done so, but it may not be in Xcel's financial interest to perform such a study if it could lead to reduced investment in generation down the road. To ensure that the Commission and all members of the workgroup have the necessary information, the report should recommend that the Commission direct Xcel to produce any cost-benefit analyses it has performed, or to conduct one for its Minnesota operations if it has not already done so.

Pilots and Surveys

Finally, I provide a response to the possibility of creating surveys or and conducting limited pilot programs to get more information about alternative rate designs. Surveys or pilot programs may be useful for some purposes. But, as with any project that will create more cost for ratepayers, it is important that the Commission only direct surveys, focus groups, or pilot programs when there are clear, planned benefits for doing so.

In regard to surveys, the Commission could consider the concept of collecting useful information to inform our investigation into alternative rate designs. But, as discussed above, many groups around the country have conducted alternative rate design investigations, and we should not seek to duplicate costs when we can take advantage of research that has already been done. In addition, the OAG is concerned that surveys may not provide reliable information to the Commission, and about the possibility of incurring costs to gain information for which there is no clear use. The OAG is also concerned that none of the members of the workgroup are specialists in constructing surveys. While the OAG is not categorically opposed to seeking information from ratepayers through surveys, the OAG could not support a program that was not designed to seek specific information that would be of definite use to an alternative rate design investigation, and would be more likely to support a program that was designed by an expert not affiliated with Xcel (although that could increase the cost).

In regard to pilot programs, it is possible that limited, experimental pilot programs designed to place small groups of customers into alternative rate designs could provide

information that would allow the Commission to extrapolate and compare the system-wide impact of different rate design options. But as with the surveys, pilot programs could be expensive and useful information has already been collected by other organizations that have already conducted pilots. The Commission should not order expensive pilots unless they are designed to gain some information that has not already been collected from other studies. Furthermore, any pilot program would likely need to be designed by an expert consultant. The OAG does not believe that the workgroup has the necessary expertise to design rate design pilots. Likewise, Xcel should not design pilot programs. While Xcel will obviously have to administer any pilot programs, as a for-profit business Xcel has a preference for whatever rate design will maximize its profits. As a result, Xcel would have an incentive to bias any pilot program in favor of its preferred rate design. The expense of hiring a consultant to ensure that the process is not biased must be considered in determining whether the benefit of any pilot is worth the cost, particularly when there is a significant body of information available from other pilot programs.

To the extent that other members of the workgroup have envisioned a rate design "pilot" program similar to the decoupling pilot ordered by the Commission, in which all customers are moved to a new rate design on a temporary basis, the OAG submits that there has not been a meeting of the minds among the members of the workgroup. A pilot in which all customers are changed to a new rate design, even with a sunset provision, would be a "pilot" in name only. The Commission does not have enough information to compare the impacts of the different alternative rate designs discussed by the workgroup. The proper next steps are to provide a structure for how to move forward, not leap to a final decision without careful consideration of how alternative rate designs can be used to accomplish all of the Commission's goals. As indicated above, it is possible that limited, experimental pilots could produce useful information for the Commission, but the OAG is opposed to any "pilot" that would move all customers to a new rate design at this time.

I hope that these comments and the information I have provided are helpful in preparing your report to the Commission.

Sincerely,

s/ Ryan Barlow

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Enclosure

Kennedy
&
Graven
CHARTERED

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MEMORANDUM

TO: Susan Peirce, Department of Commerce, chair

FROM: James M. Strommen

DATE: October 14, 2015

RE: SRA Comments for Department Report to the Commission

Cc: IBR Study Group

INTRODUCTION

At the October 2, 2015 of the Study Group, the Department (DOC) requested that comments from the participants to be submitted by October 14. The SRA understands these comments to be simply a statement of the party's position on the IBR Study process at this point. The SRA appreciates the opportunity to submit comments for this purpose.

SRA COMMENTS

In reviewing the Commission's action on the Inclining Block Rate ("IBR") issue in its May 8, 2015 Order, the SRA is mindful of the expectation of the Commission as expressed in the Order at page 90-91. Based on the Order and considering the DOC Report, the Commission will "determine whether to require Xcel to file a proposal for an IBR structure or any rate-design alternative that furthers the goals identified above. This proposal will be "examined in a separate docket." This separate docket then is presumptively for "careful consideration of the Clean Energy Intervenors proposal and the effect on IBR structure would have on low-income customers who are unable to limit their usage in response to the conservation price signal sent by the inclining blocks." The Commission also expects that the "discussion" in this separate document include consideration of other possible alternative rate designs that promote energy conservation; reduce peak demand; and/or send more accurate, useful price signals to customers.

Based on the above language, discussions held by the Study Group and review of the submitted written information:

1. **IBR is the only conservation rate design at this point that has the both sufficient detail and merit to allow implementation of a pilot, after the contemplated separate docket.**

The just completed 180 day process has not produced any conservation rate design plan as an alternative to IBR, which was set forth in detail in GR-13-868. That does not preclude further review of e.g. time of use ("TOU") or similar rate designs in the separate docket. The time available during this first 180, however, has not afforded any opportunity to analyze any actual rate design proposal and none in addition to IBR has been presented.

The Commission's Order and the considerable detail to an IBR rate design model developed in GR-13-868, has placed IBR in a position to be considered for a pilot program. The SRA favors any conservation rate design like IBR, or TOU, to be a pilot because it is necessary to study the results before deeming it a permanent, new rate design.

Much helpful information and exchange of views has been shared in the limited time for the Study Group. TOU is an interesting alternative that the SRA is interested in seeing expanded on a voluntary, not mandatory basis. TOU, however, requires significant costs that may well outweigh its benefits at this point. Further, as an expensive, technology dependent rate design, it does not appear to be realistic for the low income customers of interest to the Commission, and to the SRA. The SRA estimates that 20- 25% of its member population is at or near the 150% of poverty level. The SRA is concerned about a rate design proposal that is out of reach for a low income population in multiple ways, including expense and discretionary time and opportunity to implement. The materials provided Study Group included the suggestion that TOU may productively tested on a high income-high use sample to study resulting use and acceptance.

The SRA has a high interest in the effect of conservation rate designs on both low and high energy users and both low and high income groups. Though TOU may better meet the above Commission-noted conservation rate design goals of reducing peak load and sending the most accurate price signals, The SRA is concerned about its cost and workability to all residential customers. Even the accuracy of the TOU price signals themselves has been called in to question in other states due to market manipulation.

2. **Customer acceptance is an important determination for a rate design proposal. It has not yet been explored among Xcel customers and should be explored in the next phase.**

The Study Group had a helpful discussion and offered interesting materials about the effect of rate design on customer energy use and the related issue of customer acceptance. Identifying whether a rate design will be accepted by Xcel's customers should be a part of the process going forward.

Xcel's customer base is large and its ability to obtain opinions that are informed and accurate is no doubt very challenging. Nevertheless, the SRA is interested in an effort in the new docket to gauge potential customer acceptance of a conservation rate design, including IBR. The ideal is getting statistically significant opinions on IBR and possibly another rate design(s) from

the largest group and cross section of customers possible. If the Commission knew that most customers would accept a particular conservation rate design and use less electricity as a result, such a design would be compelling even if it were not perfect in terms of price signals and reduction of peak load.

Alternatively stated, imposing a rate design without vetting it with the public can have the consequences of the recent CenterPoint Energy IBR plan. A necessary element in avoiding strong customer rejection is to formulate means of gaining honest responses to IBR and other rate design options to ensure fairness and the perception of fairness among customers.

This should include obtaining reaction from high use customers of all economic strata. There is an assumption that high use customers will dislike IBR because of its higher rates in the upper tier based on monthly usage rather than use at peak times. The SRA is very interested in a determination whether this assumption will bear out among high use and high income residential customers.

3. **The IBR or other rate design should be a pilot.**

Since customer acceptance and usage patterns cannot be predicted with certainty, it is important from the SRA's perspective to place a limit on the length of a new rate design, i.e. make it a pilot. This allows perhaps greater acceptance by customers who would know it is not "permanent." Finding a proper rate design to promote conservation by residential customers is a vital goal that takes on greater significance each year. Keeping a time limit on any such rate design, followed by careful review of results, is important in the SRA's view.

4. **Electric conservation rate design, including IBR, is less prone to customer hardship than natural gas.**

The SRA continues to believe that IBR for electric use is far less problematic than natural gas because of the heavy component of heating use for gas in the coldest months of the year, and the balanced use of electricity for various needs. See, SRA Exhibits 600-601 from GR-13-868. The SRA remains optimistic that an electricity conservation rate design can be effective for residential, and business, customers in Xcel's service territory. The separate docket, however, must explore creative ways to gauge customer response and promote customer education.

Attachment B: List of Resources on Alternative Rate Designs

A. General Rate Making:

The Decline of Sloppy Electricity Rate Making, Severin Borenstein, https://energyathaas.wordpress.com/2015/08/24/the-decline-of-sloppy-electricity-rate-making/

Smart Rate Design For A Smart Future: www.raponline.org/document/download/id/7680

B. Inverted Block Rates:

Redistributional Impact of Non-Linear Electricity Pricing, Severin Borenstein, NBER Working Paper No. 15822, Issued March 2010, http://www.nber.org/papers/w15822

Decision on Residential Rate Reform for Pacific Gas & Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company and Transition to Time-of-Use Rates, California Public Utilities Commission, Issued July 3, 2015, http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF

Xcel Rate Case, Docket: E002/GR-13-868, Exhibit 296:
https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult#{115B2DC9-4E44-4C16-96BE-7D5136466199}

Xcel Rate Case, Docket E002/GR-13-868, Exhibit 297
https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=eDocketsResult#{48D68E41-3EFC-4EB8-91E3-B669784EE987}

Minnesota Commission Orders in the CenterPoint Rate Case, Docket No. G008/GR-08-1075

- The Commission authorized IBR rates in its January 11, 2010 Findings of Fact, Conclusions of Law, and Order: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={9BAACB94-7AB8-4318-90CA-F241A1BAEC7B}&documentTitle=20101-45867-01

- On June 30, 2010, the Commission issued its Order Authorizing Implementation of Final Rates and Approving Refund Plan: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={503C4DE2-9333-49FB-ABC4-BF3D87AD851B}&documentTitle=20106-52129-01

- On October 4, 2011, the Commission issued its Order Suspending Inverted Block Rate Structure, Authorizing Workgroup, and Requiring Revised Decoupling Rate Adjustment (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={AAF5E547-2151-4434-B504-81D983148320}&documentTitle=201110-66931-01);

- On November 8, 2011, the Commission issued its Order Requiring Bill Adjustment Proposal (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B3C02DF3-1971-4116-9F86-FC53086747A8}&documentTitle=201111-68194-01);

- On April 3, 2012, the Commission issued its Order Approving Bill Adjustment Plan for Inverted Block Rate Pilot Program (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={6D1B83D8-8225-448A-ADCB-0194226E27F9}&documentTitle=20124-73282-01); and

- On August 10, 2012, the Commission issued its Order Terminating Inverted Block Rate Structure, Accepting Evaluation and Workgroup Reports, and Requiring Compliance Filings (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B0DD7E93-D8D8-45C9-9D2E-6B01D2E9ACBD}&documentTitle=20128-77758-01).

Minnesota Power's Compliance Report on its IBR Rate Structure:

(https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={E61B0365-E54D-4405-86A5-FBEB80198E58}&documentTitle=20155-110153-01).

C. Time-of-Use Rates

Compliance Report on Residential Time of Day Service, Xcel Energy before the North Dakota Public Service Commission, http://www.psc.nd.gov/database/docket_view_list.php?s_dept=PU&s_year_case=12&s_seq_num=813&s_company_name=Northern+States+Power+Company&docket_viewOrder=Sorter_filed&docket_viewDir=DESC

Lessons from Time-Variant Pricing: A Detailed Look at Two Leading Residential Pilot Programs, Michael Colby, June 2015, http://www.esource.com/members/DSM-F-14/Load-management

The Impact of Dyamic Pricing on Residential and Small Commercial and Industrial Usage: New Experimental Evidence from Connecticut, Ahmad

Faruqui, http://www.iaee.org/ej/ejexec/EJ%2035-1_08%20Faruqui%20ExecSummary%2012-044%20Templated.pdf

Dynamic Pricing of Electricity for Residential Customers: The Evidence from Michigan, Ahmad Faruqui, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2072658

Household response to Dynamic Pricing of Electricity: A Survey of 15 Experiments, Journal of Regulatory Economics, Ahmad Fauqui http://link.springer.com/article/10.1007%2Fs11149-010-9127-y

Time of US Rates in California: http://www.dra.ca.gov/uploadedFiles/Content/Energy/Management_and_Conservation/Smart_Meters/SmartMeterSystemDeploymentReportMar2012FinalDraft_wcover_Public.pdf

For an overview of TOU's impact on low-income customers, see www.nclc.org/national-elder-rights-training-program/smart-utility-meters-and-the-movement-toward-dynamic-pricing-the-need-for-effective-consumer-protections.html

Sacramento Municipal Utility District Evaluation of its TOU program: https://www.smartgrid.gov/files/SMUD-CBS_Final_Evaluation_Submitted_DOE_9_9_2014.pdf

D. Critical Peak Pricing

Sacramento Municipal Utility District Evaluation of CPP programs: https://www.smartgrid.gov/files/SMUD-CBS_Final_Evaluation_Submitted_DOE_9_9_2014.pdf

E. Minnesota Commission Orders in the CenterPoint Rate Case, Docket No. G008/GR-08-1075

- The Commission authorized IBR rates in its January 11, 2010 Findings of Fact, Conclusions of Law, and Order: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={9BAACB94-7AB8-4318-90CA-F241A1BAEC7B}&documentTitle=20101-45867-01

- On June 30, 2010, the Commission issued its Order Authorizing Implementation of Final Rates and Approving Refund Plan: https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={503C4DE2-9333-49FB-ABC4-BF3D87AD851B}&documentTitle=20106-52129-01

- On October 4, 2011, the Commission issued its Order Suspending Inverted Block Rate Structure, Authorizing Workgroup, and Requiring Revised Decoupling Rate Adjustment

(https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={AAF5E547-2151-4434-B504-81D983148320}&documentTitle=201110-66931-01);

- On November 8, 2011, the Commission issued its Order Requiring Bill Adjustment Proposal (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B3C02DF3-1971-4116-9F86-FC53086747A8}&documentTitle=201111-68194-01);

- On April 3, 2012, the Commission issued its Order Approving Bill Adjustment Plan for Inverted Block Rate Pilot Program (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={6D1B83D8-8225-448A-ADCB-0194226E27F9}&documentTitle=20124-73282-01); and

- On August 10, 2012, the Commission issued its Order Terminating Inverted Block Rate Structure, Accepting Evaluation and Workgroup Reports, and Requiring Compliance Filings (https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={B0DD7E93-D8D8-45C9-9D2E-6B01D2E9ACBD}&documentTitle=20128-77758-01).

Attachment C: E21 Presentations

Rate Design

Amy Liberkowski
August 17, 2015

1

SVH1

Pricing Objectives

Xcel Energy®

- Produce revenues that collect the allowed revenue requirement
- Accurately reflect the resource costs of providing service (send economically efficient and appropriate price signals)
- Balance precision and complexity with practical considerations such as rate continuity and customer understanding

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Slide 2

SVH1 Steve Huso, 8/14/2015

Xcel Energy's Existing Rate Structure

- Residential
  - Customer Charge, Seasonal Energy Charge
  - Optional TOD, EV rate and Saver's Switch
- Commercial
  - Customer Charge, Seasonal Energy Charge, Seasonal Demand charge if over 25 kW
  - Mandatory TOD over 1,000 kW
  - Optional peak controlled
- Municipal
  - Street Lighting
  - Light Rail
  - Municipal Pumping

3

Peak Controlled TOD Rate
Tier 1 at Secondary Voltage

Xcel Energy®

RATES

Customer Charge per Month	$55.00

Energy Charges per kWh

On-Peak	$0.04049
Off-Peak	$0.02224
Credit Over 400 Hours Use	$0.01200

Demand Charges per Month per kW

Firm On-Peak	
June - September	$12.86
Other Months	$8.98
Controllable On-Peak (Jan-Dec)	
Level A: < 65% PF	N/A
Level B: > 65% and < 85% PF	$5.78
Level C: > 85% PF	$5.22
Short Notice Rider	$4.72
Off Peak - Excess of On-Peak (Jan-Dec)	$2.25

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Other Rate Options

- WindSource
  - Replace fuel clause with wind power
- Community Solar Gardens
  - Subscribe to production from a garden and receive a bill credit
- Net Metering
  - Install a generator up to 1,000 kW and net production and usage
- Electric Vehicle
  - TOD pricing with option for all renewable energy
- Economic Development/Competitive Rates

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Optional Rate participation

Xcel Energy®

Residential Savers Switch 2014

- 387,429 Customers (Dec-2014)
- Annual 2014 discount: $22.4M or $59 per customer

Peak-Controlled

- 2,048 Customers (Dec-2014)
- Annual discount: $39.5M
- Average annual discount per customer: $18,500
- Average monthly demand charge discount: $4.57 per kW

WindSource

- **#3 Voluntary green energy program in the country**
- **85,000 customers**

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Considerations

Xcel Energy®

Rates at cost of service

- Are economically efficient
- Provide natural conservation incentive

Moving rates closer to more precisely recognize cost such as TOD

- Increases complexity with greater metering and billing requirements
- Practical limitations to complexity for customer understanding
- Savings from impact on customer peak load and energy use should exceed incremental cost
- Improves customer equity
- Provides more focused conservation incentives

Policy based conservation incentives

- Implies some departures from cost that should be reasonable and justified
- Rate impacts for all customers should be recognized

Distributed generation

- Pricing signals should be based on cost and benefit

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Questions?

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Minnesota Public Utilities Commission

Rate Design and Recent Efforts in California

Presentation for e21

Chris Villarreal

Minnesota Public Utilities Commission

August 17, 2015

Introduction

- History of Rate Design in California
- Rate Design basics
- Need for new rate design
- Technology, EE, conservation
- Policies and principles
- The move to default TOU
  - TOU is not dynamic!

Minnesota Public Utilities Commission

Bit of History

- Tiers and Baselines
  - First adopted by statute in 1976
  - 2 Tiers- would last until 2001
  - Goal to ensure equitable rate and encourage conservation
- Decoupling
  - CPUC adopts decoupling in early 1980s
- Restructuring and Competition
  - AB 1890 passed in 1996 (no opposition!)
  - Retail rates frozen pending recovery of stranded costs from generation divesture
- Energy Crisis
  - SDG&E able to pass through market prices
  - High spot market prices
  - PG&E and SCE unable to pass through costs and see credit rating junked (PG&E files for bankruptcy)
- AB1X
  - State DWR procured electricity as PG&E and SCE became uncreditworthy
  - Prohibits rate increases on usage up to 130% of baseline until DWR recovers its costs for procuring electricity
  - CPUC adopts 5 tier, increasing block rate structure with tiers 1 and 2 capped.

Rate Design Process

- Each IOU submits a rate case application every 3-4 years (PG&E, SCE, and SDG&E)
- 3 main components
  - Cost of Capital proceeding
  - Phase 1- determines revenue requirement
  - Phase 2- determines cost allocation across customer classes (rates)
- If revenue collection is substantially short or long, utility can submit application to change rates in between GRC cycle (ERRA)
- Rate design "art more than science"
- Rate design as social policy
  - Cross-subsidies
- What's a baseline?
  - 50% of consumption of average customer in a climate zone (Tier 1)
  - 16 climate zones throughout California

Relative stability, but change is coming

- Increasing pressure on Tiers 3-5
  - With Tiers 1 and 2 frozen, greater amount of revenue requirement from residential class coming solely from Tiers 3-5, i.e., higher rates
  - Tier 1: $0.12
  - Tier 2: $0.13
  - Tier 3: $0.23
  - Tier 4: $0.34
  - Tier 5: $0.43
- Reasonableness increasingly difficult
- Combined with state policy support for solar, easy to see revenue requirement problems and equity concerns
- New research questioning conservation benefits from multiple tiers ("Do Consumers Respond to Marginal or Average Price? Evidence from Nonlinear Electricity Pricing," Koichiro Ito (2014))
  - Wealth transfers

Original steps to address rates

- Energy Action Plan
  - EE and DR primary means of meeting future energy needs
  - Also, identified benefits to time-variant pricing
  - "existing tiered rate structure has 'no time dimension to their prices that would help encourage reducing usage at peak times when electricity is the most expensive.'" OIR, R.12-06-0013 (quoting EAP II)
- AMI
  - Investigation into AMI started in 2002
  - Support increased DR and move to time-variant prices
- Residential customers offered voluntary TOU or CPP rates
  - Layered on top of tiers.

Rate Design Guidance Framework

- D.08-07-045 (PG&E GRC Phase 2) adopts 5 principles to guide future rate design
  - Rates be based on marginal costs
  - Be based on cost-causation principles
  - Encourage conservation and reduce peak demand
  - Provide stability, simplicity, and customer choice
  - Encourage economically efficient decision-making
- Equity?
  - Marginal cost ratemaking achieve economic efficiency and equity by ensuring rates are in line with costs being caused.
- Set a schedule for transition to time-variant rates for industrial and large and medium commercial customers
  - Default CPP, with opt-out to TOU available
- Schedule for residential tied to DWR paying off its Energy Crisis costs or if Legislature modified the law

Minnesota Public Utilities Commission

Reconsidering rate design

- CPUC opened rulemaking in 2012 to investigate rate design principles (R.12-06-013)
  - Does rate design support state policies?
    - Rate is complex and does not reflect real-time costs
  - Is the rate equitable?
    - Hot climates (even accounting for baseline) pay more of residential revenue requirement
    - Which customer most likely to consider solar???
    - Are customers paying for their cost of service?
- Growth in customer located technologies impacts
  - Avoiding upper tiers
- Questions to guide policymaking
  - Goals of rate design
  - Cross-subsidies
  - Impacts on low income
  - Support for new technologies, and third party products and services
  - Coordination and harmonization across multiple proceedings

Legislature intervenes

- AB 327 passed in 2013
- Allowed CPUC to default residential customers to TOU starting in 2018
- Removed rate freeze in place since 2001
- Allowed CPUC to consider a customer charge of no more than $10.00
- Does other stuff too:
  - Redefines NEM cap and requires a new NEM tariff
  - Restructures low income rate design
  - Directs submission of Distributed Resources Plan

Minnesota Public Utilities Commission

D.15-07-001

- Issued July 3, 2015
- Sets January 1, 2019 for move to default TOU for residential customers
- Adopts 2 tier rate, with "Super User Electric" surcharge
  - 25% differential between Tiers 1 and 2
  - SUE starts in 2017
  - SUE kicks in when 400% above baseline; 219% of Tier 1 starting in 2019
- Adopts $10 minimum bill ($5 for low income) starting 2015
  - No consideration of customer charge until after TOU
- Decision doesn't adopt rates, but adopts rate structure
  - Actual rates to be considered in upcoming compliance proceeding
- Utilities to fund low-income customer education programs for no-cost or low-cost conservation methods.
- http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M153/K110/153110321.PDF

Adopted Rate Design Principles

1. Low-income and medical baseline customers should have access to enough electricity to ensure basic needs (such as health and comfort) are met at an affordable cost;
2. Rates should be based on marginal cost;
3. Rates should be based on cost-causation principles;
4. Rates should encourage conservation and energy efficiency;
5. Rates should encourage reduction of both coincident and non-coincident peak demand;
6. Rates should be stable and understandable and provide customer choice;
7. Rates should generally avoid cross-subsidies, unless the cross-subsidies appropriately support explicit state policy goals;
8. Incentives should be explicit and transparent;
9. Rates should encourage economically efficient decision-making;
10. Transitions to new rate structures should emphasize customer education and outreach that enhances customer understanding and acceptance of new rates, and minimizes and appropriately considers the bill impacts associated with such transitions.

Conclusion

- Lots and lots and lots of considerations
- Enabling technology required
- Even when general policy is agreed upon, other details can bog it down
- DATA! MORE DATA!
- California's proceeding opened in 2012, default TOU decision came in 2015, but proceeding still not closed
  - On-going legal questions
  - Pilots
- Read the full decision, all 338 pages
  - Goes into excruciating detail on variety of policy, economics, and behavioral discussions.
- Clear that continued monitoring of other states important
  - Arizona
  - Ontario
  - SMUD

Questions?

Thank you!

Chris Villarreal
Director of Policy
Minnesota Public Utilities Commission
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Appendix

Impacts on other policies

- Opposition to collapse of tiers and move to TOU focused on several components:
  - Customer understanding
  - Customer Elasticity
  - Conflict with EE and conservation (and GHG) policies
  - Payback period
- Reduction in tiers would delay payback of customer investments in solar, appliances, other technology
- "As the price of a kilowatt hour rises or falls, so does the savings from conserving (or avoiding generation of) that kilowatt hour. Moreover, customers with the lowest payback periods are most likely to invest in a given technology."
- "Even if tiered rates reduce net consumption across the residential customer class, they do so while introducing significant economic inefficiencies. To the extent customers respond to average prices, customers whose average rates are lower than the class average rate will consume more than they otherwise would under a flat rate. This excess consumption imposes costs on others in the form of environmental externalities and undercollection of costs to serve that must be recovered from other ratepayers." (page 62)

Variety of findings

- "Reduction of peak use, integrating renewables, and shifting use to times when energy is more reasonably available cannot be incented by the tiered rate." (pg. 102)
- "there is no evidence that a steep differential [in tiers] will lead to the type of behavioral changes that [is] necessary to sustain a consistent amount of conservation." (pg. 103)
- "However, neither flat rates nor tiered rates are designed to reflect the actual cost of energy. Because energy prices vary by time of day, only a time of use or time variant rate structure can provide price signals that are indicative of actual energy costs." (pg. 104)
- "A two-tier structure will continue to provide a conservation signal, while bringing rates closer to cost and thereby sending more accurate price signals to customers. In addition, it will minimize the risk that some large households will pay a disproportionate share of electricity costs." (pg. 108)

MINNESOTA DEPARTMENT OF
COMMERCE

Kate O'Connell

Manager, Energy Regulation and Planning

For: **e21**

August 17, 2015

Ratemaking requirements

- Statutory requirements for retail rates set by the Commission:

  Every rate made, demanded, or received by any public utility, or by any two or more public utilities jointly, shall be just and reasonable. To the maximum reasonable extent, the commission shall set rates to encourage energy conservation and renewable energy use and to further the goals of sections 216B.164, 216B.241, and 216C.05. Any doubt as to reasonableness should be resolved in favor of the consumer.

  - Retail rates must be reasonable;
  - To the maximum reasonable extent, rates must encourage both energy conservation and use of renewable energy;
  - Any doubt must be resolved in favor of consumer;
  - Burden of proof for reasonableness is with utility.

What are "reasonable rates"?

- Reasonable rates ensure that:
  - the utility has a reasonable opportunity to be financially viable (financial requirement),
  - rates are designed to be fair, i.e. ratepayers generally pay only for the system costs needed to serve them,
  - ratepayers are reasonably able to understand their rates,
  - rate design avoids undue "rate shock."

Energy Conservation vs Load Management

- Conservation usually saves energy while load management usually saves capacity;
- But conservation also saves capacity by reducing energy use all year;
- Load management can also save energy if energy use doesn't increase to offset reduction (e.g. Savers Switch);
- Presentation discusses both.

Rates to encourage reasonable energy conservation

- Overall, rates can:
  - provide clear information about the cost of using more energy ("price signals");
  - compensate customers for reducing energy use;
  - tell customers when energy conservation is especially valuable;
  - pay for cost-effective energy conservation programs;
  - reasonably compensate utility for reductions in sales (lost margins net of sales growth).

Rates to encourage reasonable energy conservation

- Per-kWh rate: use more, pay more.
- Conservation (CIP) costs in rates: other than opt-out customers, all pay for system benefits.
- CIP examples: lighting efficiency (business and home), efficient food service equipment, tailored business programs, Home Energy Squad, energy efficiency in low-income housing
- Decoupling: Compensate utility for net lost margins due to CIP, other factors.

Rates to encourage reasonable energy conservation/load mgmt

- Time-of-day rate: use more at peak, pay even more than higher use at off-peak
  - MN has voluntary rates; standard rates would provide more benefit to system
  - MN's history in studying standard TOD rates
  - Current high-level rate study
- Critical Peak Pricing: TOD rates on steroids
- Dakota's website "Conservation Gauge" and emails.

Rates to encourage reasonable energy conservation/load mgmt

- Interruptible rates: participating ratepayers pay lower rates (or get a credit) for being willing to be interrupted, whether or not any interruption occurs. (Offered to both businesses and homes)
- Released Energy or Buy-Back rider: pay large customers to reduce energy use and sell energy reductions into the (MISO) energy market.

Ratemaking encouragement of renewable energy

- Planning for renewable energy in integrated resource plans,
- Requiring examination of renewable options in certificates of need,
- Requiring/encouraging RFPs for renewables,
- Establishing M-RETS and holding utilities accountable to meeting RES/SES,
- Establishing distributed generation standards.

Renewable energy in rates

- Renewable energy riders,
- Renewable energy projects in CIP and rates,
- Xcel's Renewable Development Fund, costs recovered in rates,
- Supporting transmission built for renewable energy, costs recovered in rates,
- Community Solar Gardens, payments for renewable power will be recovered from all ratepayers.

QUESTIONS?

Attachment D: Commission Orders

Investigation into Using Rate Design to Achieve the Demand-Side Management Goal of Xcel
Docket No. E002/CI-01-1024

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Gregory Scott	Chair
Edward A. Garvey	Commissioner
Marshall Johnson	Commissioner
LeRoy Koppendrayer	Commissioner
Phyllis A. Reha	Commissioner

In the Matter of an Investigation into Using Rate Design to Achieve the Demand-side Management Goals of Xcel Energy

ISSUE DATE: July 20, 2001

DOCKET NO. E-002/CI-01-1024

ORDER OPENING INVESTIGATION

PROCEDURAL HISTORY

On July 10, 2000, Northern States Power Company d/b/a Xcel Energy (the Company) filed its 2000-2014 Resource Plan (Resource Plan), with supplement filed September 6, 2000. The Company's plan was assigned to Docket No. E-002/RP-00-787.

Between November 9 and March 5, 2001, the Commission received comments and reply comments on the Company's Resource Plan from the following: Michael O. Leavitt, Governor of Utah; the Minnesota Department of Commerce (the Department); Communities United for Responsible Energy (CURE); North American Water Office (NAWO); Center for Energy and the Environment (CEE); the Office of the Attorney General (OAG); the Prairie Island Indian Community; Minnesotans for an Energy-Efficient Economy (ME3); the Izaak Walton League of America (IWLA); and Clean Water Action Alliance.

The Commission met on June 7, 2001 to consider the Company's Resource Plan.

FINDINGS AND CONCLUSIONS

In the course of its consideration of Xcel's Resource Plan, the Commission concluded that it would be appropriate to examine the potential for the Company's rate and tariff design to achieve DSM savings and to send appropriate pricing signals to rate payers.

Accordingly, the Commission will open such an investigation, examining how Xcel's rate design can be adjusted (time of use rates, real time pricing, etc.) to promote energy efficiency, conservation, load-shifting, and other consumer energy use response. Optimally, this investigation will proceed at a pace that will enable the Commission, the Company, and the rate payers to benefit from any rate design changes in the summer of 2002.

ORDER

1. The Commission hereby opens this docket to investigate the use of rate and tariff design to promote DSM goals and send appropriate pricing signals to rate payers.

2. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

(S E A L)

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BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Gregory Scott	Chair
Edward A. Garvey	Commissioner
Marshall Johnson	Commissioner
LeRoy Koppendrayer	Commissioner
Phyllis A. Reha	Commissioner

In the Matter of an Investigation into Using Rate Design to Achieve the Demand-Side Management Goals of Xcel Energy

ISSUE DATE: April 24, 2002

DOCKET NO. E-002/CI-01-1024

ORDER MODIFYING PROCEDURAL SCHEDULE AND MAKING OTHER CHANGES

PROCEDURAL HISTORY

On July 20, 2001, the Commission opened an investigation into the rate design of Northern States Power Company d/b/a Xcel Energy (Xcel).

On December 28, 2001, Xcel filed a report discussing the development of rates for electric service that would generally track costs as they varied throughout the day.

On February 14, 2002, the Commission issued its ORDER ESTABLISHING PROCEDURAL SCHEDULE. That Order directed Xcel to design time of use (TOU) rates, which would charge consumers different amounts for electricity consumed at different times of the day. The Order also directed Xcel to design a way for a consumer to learn, on the World Wide Web, the history of how much electricity his or her household consumed each hour of the day. The Commission directed Xcel to initiate the Web site on July 1, 2002, and to file the TOU rates on November 1, 2002, for implementation by April 1, 2003.

On March 28, 2002, Xcel made a status report to the Commission.

On April 9, 2002, Xcel filed a report discussing alterative ways to comply with the February 14 Order.

This matter came before the Commission on April 11, 2002.

FINDINGS AND CONCLUSIONS

I. Xcel's April 9 report

Xcel's April 9 report proposes three scenarios for initiating TOU rates and the World Wide Web site providing customers with knowledge of their consumption history. Xcel recommends conducting an "integrated pilot" project. The goal of such a project would be to measure changes in consumption patterns by customers who 1) are charged the new rates, 2) are given access to the information on the Web site, 3) are both charged the new rates and given access to the information on the Web site, and 4) are neither charged the new rates nor are given access to the Web site. Such a pilot project would permit Xcel to gauge the effectiveness of each element by itself, and in combination with the other.

Xcel also offers two other scenarios called a "phased launch" and a "large-scale launch." These scenarios would have the advantages of making the new rates applicable to more customers sooner, and giving more customers access to the Web site sooner. But these scenarios would cost more, provide less information, and provide less opportunity to adjust the program before full implementation.

The Minnesota Department of Commerce (the Department) expressed concerns about Xcel's more expensive scenarios, but did not oppose Xcel's integrated pilot.

The Commission is encouraged by Xcel's progress in developing its TOU program and the educational Web site. While the Commission is eager to see TOU rates offered to the public, it sees the merit of Xcel's more deliberate and methodical approach. Data from Xcel's proposed pilot project will help inform decisions about a broader implementation in the future. For these reasons, the Commission will adopt Xcel's recommendation and approve the pursuit of the integrated pilot project.

II. The Commission's February 14 Order

Given the context of the integrated pilot program, Xcel requested direction regarding aspects of the Commission's February 14 Order.

A. Deadline for Web site

First, the February 14 Order directs Xcel to have individualized customer data available on its World Wide Web site by July 1, 2002. Xcel's remarks make it clear that the effort required to meet this deadline is making the Web site the central focus of the docket. This was not the Commission's intention.

The Commission selected the July 1 date in the interest of accelerating implementation of this docket. Customers would likely have the greatest interest in learning about their usage patterns during summer months, when their usage is likely to be greatest. But Xcel now informs the Commission that it is just beginning to collect individual customer TOU data on a prospective basis. As a result, Xcel currently has little data available to display. The benefit of providing customers with prompt Web access to their data is diminished if there is little actual data for customers to access.

If customers cannot benefit from a prompt launch of the Xcel Web site, then the Commission finds less reason for haste. It is more important to design the Web site to work within the larger context of Xcel's integrated pilot program. Consequently, the Commission will postpone the date for the Web site until November 1, 2002, the same date for Xcel to file its proposed TOU rates.

Additionally, the Commission will authorize its Executive Secretary to vary the dates within this docket's procedural schedule, as he deems appropriate.

B. Display of hourly data

Second, the February 14 Order directs Xcel to provide customers with hourly data about past energy consumption via the World Wide Web. Xcel argues that the cost of providing data of this detail would outweigh the benefit. Instead, Xcel proposes providing customers with data about their household's electric consumption aggregated into four periods per day.

Xcel notes that it does not anticipate proposing a TOU rate structure that would vary hourly. Rather, Xcel anticipates proposing rates that would apply for set periods each day. Providing customers with data about their electric consumption during, for example, four time blocks per day, rather than during each hour, should provide adequate information to inform customer choice. It would also reduce the volume of data that Xcel would have to display on its Web site by more than 83% (1 - [4 pieced of data/day]/[24 pieces of data/day]).

The Commission finds Xcel's argument reasonable. Consequently, the Commission will relieve Xcel of the obligation to provide customers with data about hourly electric consumption, and instead permit Xcel to provide a customer with data about his or her electric consumption aggregated into four periods per day.

ORDER

1. Xcel may pursue implementation of its "integrated pilot" project as set forth in its April 9, 2002 filing.

2. The date for Xcel to provide customers with access via the World Wide Web to data on their patterns of electric consumption is changed from July 1, 2002 to November 1, 2002.

3. Xcel's World Wide Web site need not provide customers with hourly data on their daily patterns of electric consumption. Rather, the site may provide data aggregated into four time blocks per day.

4. Commission delegates to the Executive Secretary the authority to modify this docket's procedural schedule.

5. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar

Burl W. Haar
Executive Secretary

(S E A L)

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BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Gregory Scott	Chair
Marshall Johnson	Commissioner
LeRoy Koppendrayer	Commissioner
Phyllis A. Reha	Commissioner

In the Matter of an Investigation into Using Rate Design to Achieve the Demand-Side Management Goals of Xcel Energy

ISSUE DATE: November 1, 2002

DOCKET NO. E-002/CI-01-1024

ORDER ADDRESSING ISSUES BEYOND XCEL's RESIDENTIAL TIME OF USE PILOT PROGRAM

PROCEDURAL HISTORY

On May 14, 2001, the Commission approved certain changes to the "Saver's Switch" program of Northern States Power Company d/b/a Xcel Energy (Xcel), which is designed to lower total demand for electricity. As part of this Saver's Switch Order, the Commission also directed Xcel to file a report on how the Saver's Switch program might be improved, how it compares to other ways of improving Xcel's system efficiency, and how to implement rates that change automatically as the cost of providing electricity changes (called "real-time pricing" or RTP).[1] Xcel filed reports on June 15 and July 30, 2001.

On May 18, 2001, Lakehead Pipe Line Company, Inc., (now Enbridge Energy (Enbridge)) asked the Commission to explore changing the way Xcel recovers its "fuel clause adjustment" (FCA) costs, including much of the cost of electricity bought from other generators. Specifically, Enbridge proposed allocating these costs among customers differently depending on the customer uses of electricity at times of high demand and low demand.[2]

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[1] See *In the Matter of a Petition by Northern States Power Company d/b/a Xcel Energy for Approval of Changes to the Controlled Air Conditioning Riders*, Docket No. E-002/M-01-46, and *In the Matter of a Request by Northern States Power for Modification of the Controlled Air Conditioning Riders*, Docket No. E-002/M-99-1734, ORDER APPROVING TARIFF CHANGES WITH MODIFICATIONS AND REQUIRING REPORT (May 14, 2001) (Saver's Switch Order).

[2] *In the Matter of the Review of the 2000 Annual Automatic Adjustment of Charges for all Gas and Electric Utilities*, Docket No. G-999/AA-00-1027 (*2000 AAA Docket*), Comments of Lakehead Pipe Line Company, Inc.

On July 20, 2001, in the context of a docket exploring Xcel's anticipated resource needs,[3] the Commission opened the current investigation into whether and how to change Xcel's rate structure to promote energy efficiency, conservation, load-shifting, and other beneficial responses.

On October, 1, 2001, Xcel filed comments.

On October 2, 2001, the Commission solicited comments on Xcel's reports required by the Saver's Switch Order, as well as on a list of other rate design issues.

On October 22, 2001, the Commission held an informational meeting for Xcel to discuss how total customer demand for electricity changes over time, and how Xcel meets this demand.

On October 26, 2001, the Commission received comments from the American Water Works Association.

On November 8, 2001, in the *RTP Dockets*[4] the Commission permitted Xcel to withdraw its proposed changes to its RTP tariff,[5] noting that the issues relevant to that tariff could be raised in the current docket.

By November 16, 2001, the Commission had received comments from Clean Water Action, Enbridge, Minnesota Power and the North American Water Office. The Commission also held in informal meeting with Schlumberger-Sema on November 16.

On December 17, 2001, the Commission received comments from Xcel, as well as the Department, International Paper and Minnesota Energy Consumers (MEC).

On December 18, 2001, the Commission concluded that the current docket should address the issue of disaggregating the FCA into two components: one component reflecting the cost of providing service during periods of high demand, and another component reflecting the cost of providing service during periods of lower demand.[6]

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[3] *In the Matter of Northern States Power Company's Application for Approval of its 2000-2014 Resource Plan,* Docket No. E-002/RP-00-787.

[4] *In the Matter of a Request by Northern States Power Company d/b/a Xcel Energy to Extend its Existing Experimental Real Time Pricing Pilot Service and for Approval of a New Real Time Pricing Service Tariff,* Docket No. E-002/M-00-1513, *In the Matter of a Petition of Northern States Power d/b/a Xcel Energy to Extend the Availability Period of its Experimental Real Time Pricing Service and Approval of a New Real Time Pricing Service Tariff,* Docket No. E-002/M-01-387 (*RTP Dockets*).

[5] *Id.*, ORDER PERMITTING WITHDRAWAL OF TARIFF, AND EXTENDING CURRENT REAL TIME PRICING PROGRAM.

[6] *2000 AAA Docket.* ORDER ACTING ON GAS AND ELECTRIC UTILITIES' 2000 ANNUAL AUTOMATIC ADJUSTMENT REPORTS AND SETTING FURTHER REQUIREMENTS (December 18 Order).

On December 28, 2001, Xcel filed a discussion proposal for a residential time-of-use (TOU) rate.

On January 31, 2002, the Commission received reply comments from Xcel, as well as the Department, International Paper, MEC, and the Residential and Small Business Utilities Division of the Minnesota Office of the Attorney General (RUD-OAG).

On February 14, 2002, the Commission issued its ORDER ESTABLISHING PROCEDURAL SCHEDULE for the development of a residential TOU tariff, designed to let the price of electricity vary throughout the day to reflect the typical cost of electricity at that time of day.

Thereafter this docket has focused on Xcel's residential TOU pilot program. But the broader issue of how Xcel might use rate design to achieve demand-side management goals came before the Commission on August 8, 2002.

FINDINGS AND CONCLUSIONS

I. Background

The Commission has long expressed an interest in setting prices to better reflect the cost of providing electricity, especially as the cost changes over time.

Historically an electric utility charges residential customers on the basis of the amount of electric energy consumed, regardless of when the electricity is consumed. But the cost of supplying electricity changes over time due to factors such as changes in demand, contract obligations, system reliability concerns, and fluctuations in the spot market for wholesale electricity. For example, a cost-conscious electric utility will tend to use its most efficient electric generators or cheapest supply contracts as much as possible. But as demand increases, the utility must rely on ever more costly sources of supply, resulting in a higher average cost per unit of output.

Efficiency may be reduced when the price of electricity does not reflect its marginal cost. At some point, the cost the utility bears to provide an additional unit of electricity may exceed the value of that electricity to a customer. Some customers may be willing to reduce their electric consumption at times of high electricity cost. This customer response can benefit society at large by conserving energy, reducing pollution, and reducing the costs that a utility passes on to all ratepayers.

There are various ways that an electric utility might encourage customers to reduce consumption permanently (conservation) or temporarily, shifting consumption to a time of lower system demand (load-shifting). The current docket was opened to encourage conservation and load-shifting by changing the formula Xcel uses to charge customers for service.

One way to reduce the need for electricity at times of peak demand is to pay customers to reduce consumption at these times. Xcel's "Saver's Switch" program is an example of this strategy. Alternatively, a utility can charge more for electricity consumed at times of high demand and less for electricity consumed at times of low demand, thereby permitting customers to bear more of the costs of their own consumption, and reap more of the benefits of their own conservation or load-shifting. Time of use (TOU) rates and real-time pricing (RTP) programs are examples of this strategy. These strategies, among others, are discussed below.

II. Saver's Switch

A. Description

Xcel offers its Saver's Switch program[7] to residential customers with electric water heaters or air conditioners, and to commercial and industrial customers with electric air conditioners. In return for a reduction on their electric bills, customers agree to let Xcel turn off these appliances for 15 minutes out of every half hour, up to 300 hours each year. Using this program, Xcel can cause customers to "take turns" in running these appliances, thereby reducing the simultaneous demand that they put on Xcel's system.

Traditionally, Xcel interrupts these appliances only 10 - 15 days each year. The Department suggests that Xcel could achieve greater benefits if it exercised its rights under the Saver's Switch program more often -- specifically, whenever sufficient load is available, and avoided costs outweigh the direct cost for ratepayers. The Department argues that Xcel should, and does, have the flexibility to use the Saver's Switch program for economic purposes, to reduce purchased power costs for ratepayers.

The Department recommends that Xcel annually report on how the program is being used to benefit ratepayers. Xcel expresses willingness to make such filings.

B. Commission Action

The Commission agrees with the Department that the Saver's Switch program tariff gives Xcel the discretion to interrupt a customer's appliances up to 300 hours per year. This gives Xcel the discretion to use the program more broadly, including using it to reduce purchased power costs for its native load customers.

That being said, the Commission also sees the merit in the Department's recommendation to advise current Saver's Switch customers of any change to the program's implementation. Such notice would permit a customer to drop out of the program before any change began, if he or she wished. This practice is consistent with past Orders changing the Saver's Switch program,[8] and would ensure that the only customers remaining on the program would be those who knowingly accepted the costs, as well as the benefits, of the program.

Finally, the Commission will adopt the Department's recommendation and direct Xcel to report annually on the benefits of the Saver's Switch program. An ongoing review would permit all parties to verify that Xcel was using the program to benefit ratepayers. The Commission will direct Xcel to report --

- the number of customers signed up for the program, and the megawatts (MW) of demand they place on the system,

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[7] Residential Controlled Air Conditioning And Water Heating Rider; Commercial and Industrial Controlled Air Conditioning Rider.

[8] See the Saver's Switch Order.

- the number of customers opting out of the program, and the number of MW they represent,
- an estimate of the total MW interrupted during each hour of interruption, and
- an estimate of Xcel's avoided cost during each hour of interruption.

With this safeguard in place, the Commission anticipates that Xcel's Saver's Switch program will yield greater benefits for all parties.

III. Time of Use (TOU) Fuel Clause Adjustment (FCA)

The Commission establishes the rates for electric utility service after a lengthy process known as a general rate case. These "base rates" are designed to recover the utility's cost of providing service, including estimated fuel costs and costs for electricity generated by entities other than the utility (purchased power). But costs for fuel and purchased power tend to vary more than most other utility costs, and represent a sizable portion of an electric utility's budget. Rather than conduct frequent general rate cases to reflect these changes, the Commission permits electric utilities to adjust their rates monthly to accommodate changes in fuel and purchased power costs. Minnesota Rules parts 7825.2390 - .2920. This rate change is called a fuel clause adjustment (FCA).

The FCA allocates the cost for purchased power uniformly to ratepayers in proportion to the amount of energy they consume, regardless of when they consume it. But as noted above, a utility's cost for electricity is not uniform; it tends to increase at times of higher demand.

Minnesota Power stresses the importance designing base rates to reflect fuel costs appropriately; Enbridge and International Paper echo this general concern, but focus it specifically on the FCA allocation. They argue that the FCA allocates too much cost to customers using electricity at times of low demand, and too little cost to customers using electricity at times of high demand. This distorts a customer's incentive to conserve or shift load. They note that Minnesota Statutes § 216B.03 directs the Commission to set rates to encourage energy conservation and renewable energy use.

Parties suggest various ways to address this problem.

- The Department, Enbridge, International Paper and Minnesota Energy Consumers agree that a general rate case would provide the best opportunity to implement the broadest assortment of changes designed to promote demand-side management goals. But the Department and Xcel note that such cases are expensive and time-consuming, delaying any potential remedy.

- Enbridge and International Paper recommend allocating FCA costs to customers based on their time of use (TOU). The cost of power purchased to serve times of high demand should be allocated in proportion to a person's consumption of electricity during those times; purchased power costs for low-demand times should be allocated similarly. The Department agrees with this analysis in principle, but observes that the remedy would require new electric meters able to record the time that electricity was consumed. The cost of these meters would offset the efficiencies the solution is intended to produce.

- The Department, International Paper and Xcel suggest that Xcel could develop some kind of proxy for a TOU FCA. The Department argues that changing the base rates to more accurately reflect the cost of energy and capacity when it is used would be the most effective way to increase the economic efficiency of Xcel's rates. It would permit Xcel to achieve many of the benefits of a TOU FCA at a fraction of the cost.

- International Paper and Xcel also suggest a reallocation of FCA costs among classes of customers with similar usage patterns – classes such as residential, commercial, and industrial customers. They suggest that the FCA may not adequately reflect differences in the costs for serving different customer classes.

While the Commission is not yet persuaded that this issue warrants a full rate case, the Commission agrees that the issue deserves further exploration. Consequently, the Commission will direct Xcel to propose, within 30 days, how to reset its fuel clause adjustment base amount and reallocate the new base to rate classes with updated cost and use information, other than via a rate case.

IV. Real-Time Pricing

As noted above, the cost to provide service varies across time. Generally, a TOU system permits rates to vary across time to reflect this change in the cost of service. For example, a TOU system might charge one rate for electricity used during daylight hours, and another price for electricity used at night. A consumer would know these different rates, and could adjust his or her behavior accordingly.

A "real-time pricing" (RTP) system is a type of TOU system in which the price for electricity is set virtually in real time -- typically one day beforehand. This system has the advantage of informing customers of the cost of service at any given time, and provides the appropriate incentive to change consumption at any time. But the system poses administrative challenges for both the utility and the customer.

Xcel has a RTP pilot program in effect for large industrial customers. Xcel, the Department and other parties were in the process of revising this program in the *RTP Dockets* when Xcel withdrew its proposal.

The Department argues that Xcel's RTP rate could be improved by providing more benefits for ratepayers than is currently provided in the passive savings given to RTP customers who already use less electricity during on-peak periods. The Department argues that participants should be given benefits only if they change behavior to use less electricity during periods of high demand. Xcel expressed a willingness to work with the Department and other parties in addressing RTP again. No party opposed this idea.

Without ruling on the merits of the Department's specific proposal, the Commission is persuaded that Xcel's RTP tariff warrants further exploration. Consequently, the Commission will direct Xcel to file a new proposal for a large industrial RTP rate, addressing the issues raised by the parties in the earlier *RTP Dockets*.

V. Other Options

Parties propose many other options for the Commission's consideration, including --

- conducting an entire rate design proceeding, determining whether the rates allocate costs appropriately among the members of each customer class;
- conducting a cost-of-service study seeking to determine, among other things, whether each customer class (residential, commercial, industrial) is bearing its fair share of the utility's costs;
- exploring TOU and/or RTP rates for residential, small commercial, large commercial, and industrial customers;
- adjusting the periods designated as "high demand" or "low demand" in tariffs that charge different amounts during times of high demand than during times of low demand;
- implementing a company-wide customer-education program similar to the Personal Energy Management program offered by Puget Sound Energy (PSE) at http://www.pse.com, which informs customers about how to save energy and how much a customer's bill would be if he or she were being charged on the basis of a rates that varied at different times of the day ("time of day" rates);
- visiting PSE to discuss the successes and failures of its programs;
- studying the rate at which electric consumption decreases as the price increases;
- changing the discounts given to people who agree to let Xcel interrupt their service;
- expanding the Saver's Switch program to increase participation, or apply to more types of appliances, or apply for more hours per year, or offer increasing incentives to people who agree to be interruptible for more hours each year;
- using non-traditional rate design options such as --
  - a) incorporating the cost of externalities in the price of electricity,
  - b) increasing the price of electricity when consumption exceeds some base level,
  - c) letting customers sell power directly into the reserve power market,
  - d) selling risk management options to customers,
  - e) using demand-limiting devices,
  - f) recovering delivery and transmission costs differently,
  - g) selecting an independent third party to propose, implement and manage new market-based rates, including services to encourage customer-driven demand response;
- adopting specific rate design principles; and
- expanding the docket to include other utilities.

Having reviewed the filings, the Commission is not persuaded to implement these other suggestions at this time. But this finding should not be construed as rejection of these ideas. To the contrary, the Commission will direct Xcel to continue exchanging information on all these options with the Commission and its staff, the Department and Office of Attorney General's Residential and Small Business Utilities Division. This ongoing collaborative analysis may yet yield new and innovative ways to use Xcel's rate structure to advance demand-side management goals.

The Commission will so order.

ORDER

1. The Commission finds that broader use of the Saver's Switch program to reduce purchased power costs for native load customers is allowed under the current Saver's Switch tariff.

2. Xcel shall notify affected customers of any change in the potential frequency of use and the purpose of the Saver's Switch program and allow them an opportunity to opt out.

3. Xcel shall file an annual report to verify that ratepayers are benefitting from any economic use of the Saver's Switch program. The report should include the following:

   A. the number of customers and megawatts (MW) signed up for the program,

   B. the number of customers (and MW) opting out of the program,

   C. an estimate of the total MW interrupted during each hour of interruption, and

   D. an estimate of Xcel's avoided cost during each hour of interruption.

4. Within 30 days of this Order, Xcel shall file a proposal to reset its fuel clause adjustment (FCA) base amount and reallocate the new base to rate classes with updated cost and use information, other than via a rate case.

5. Xcel shall file a new proposal for a large industrial real-time pricing (RTP) rate, addressing the issues raised by parties in the *RTP Dockets*.

6. Xcel shall pursue an ongoing information exchange on issues not addressed in this order with the Commission, Commission staff, the Minnesota Department of Commerce and the Minnesota Office of Attorney General's Residential and Small Business Utilities Division.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

LeRoy Koppendrayer	Chair
Ellen Gavin	Commissioner
Marshall Johnson	Commissioner
Phyllis A. Reha	Commissioner
Gregory Scott	Commissioner

In the Matter of an Investigation into Using Rate Design to Achieve the Demand-Side Management Goals of Xcel Energy	ISSUE DATE: June 23, 2003 DOCKET NO. E-002/CI-01-1024
In the Matter of Xcel Energy's Time of Use Rate Proposal	DOCKET NO. E-002/M-02-1894 ORDER DECLINING TO PROCEED WITH PILOT PROJECT

PROCEDURAL HISTORY

On July 20, 2001 the Commission opened the first case listed above, a comprehensive investigation into the impact of Xcel Energy's rate design on its demand-side management and conservation goals and on the potential for using rate design to further those goals. On February 14, 2002, the Commission issued an Order in that case requiring the Company to develop a residential time-of-use rate pilot project. In subsequent Orders the Commission adjusted implementation dates to accommodate project development needs.

On November 1, 2002, Xcel filed its residential time-of-use rate pilot project; that filing was assigned the second docket number listed above.

Four parties filed comments on the Company's proposal: the Minnesota Department of Commerce, the Residential and Small Business Utilities Division of the Office of the Attorney General, the Energy CENTS Coalition, and the North American Water Office. The Department of Commerce recommended approving the proposal with minor revisions and clarifications; the other parties recommended rejecting the proposal.

The proposal came before the Commission on May 22, 2003. At that time the Company stated that, while it had confidence in the design and efficacy of its pilot project and was prepared to proceed, it was not clear to the Company that this was an opportune time to pursue time-of-use residential rates. The Department then stated that, while it continued to recommend proceeding with the pilot project, it did not oppose declining to proceed at this time.

FINDINGS AND CONCLUSIONS

I. The Company's Proposal

The pilot project was designed to produce statistically reliable data on the economic efficiency of using mandatory residential time-of-use pricing in Xcel's Minnesota service area. The Company planned to compare project data with existing data from its voluntary Saver's Switch program to determine if there were significant efficiencies to be gained by moving to mandatory time-of-use rates.

The Company proposed to randomly assign 4800 residential customers to four test groups with different time-of-use rate structures. Within each of the four rate structures, customers would be further divided into two or three rate groups, with each group assigned a different rate per kilowatt hour. Customers could, and would be encouraged to, monitor their usage patterns over a special website operated by the Company.

The Company concluded that the greatest challenge in determining the conservation potential of time-of-use rates – as well as in designing time-of-use rates to maximize their conservation potential – was the lack of reliable data on how residential customers respond to different price signals. The Company therefore designed the rate structure of the pilot project to secure as much customer response data as possible, even when that meant setting some rates significantly above cost. Customers could, however, be released from the pilot project upon showing either a 35% or $35 increase in three consecutive monthly bills or upon an individualized showing of hardship.

The Company proposed to run the pilot for twelve months, with a twelve-month extension if necessary to ensure reliable data. The four rate structures, which would have different rate levels for different customer groups, are set forth below.

(1) Two-part time-of-use rates
- On-peak rates effective 12:00 p.m. to 9:00 p.m. Monday through Friday;
- Off-peak rates effective all other times.

(2) Three-part time-of-use rates
- Highest on-peak rates effective 2:00 p.m. to 8:00 p.m. Monday through Friday;
- Mid-peak rates effective 8:00 a.m. to 2:00 p.m. and 8:00 p.m. to 10:00 p.m. Monday through Friday and 2:00 p.m. to 8:00 p.m. Saturday and Sunday;
- Off-peak rates effective all other times.

(3) Two-part time of use rates with Critical Peak Pricing
- On-peak rates effective 12:00 p.m. to 9:00 p.m. Monday through Friday;
- Critical peak rates effective 12:00 p.m. to 9:00 p.m. up to ten high system-wide usage days per year;
- Off-peak rates effective all other times.

(4) Extreme Day Pricing
- Super-peaking rates effective entire 24 hours of up to ten high system-wide usage days per year;
- Standard rates effective all other times.

II. Positions of the Parties

A. Residential and Small Business Utilities Division of the Office of the Attorney General (RUD-OAG)

The Residential and Small Business Utilities Division of the Office of the Attorney General (RUD-OAG) opposed the pilot project as unreasonable and inconsistent with the public interest, making the following claims.

First, the RUD-OAG noted that some, if not most, project participants' monthly bills would increase during the pilot project. This, the RUD-OAG argued, was a de facto rate increase that should not occur without the normal procedural and evidentiary protections applicable to rate increases by statute.

Second, the RUD-OAG contended that the pilot project would impose unacceptable costs on participants by causing inconvenience and discomfort far in excess of any benefit they would receive from the project. The RUD-OAG also questioned the appropriateness of subjecting ratepayers, for research purposes, to rates above cost and in excess of amounts ultimately likely to be found reasonable.

Third, the RUD-OAG argued that the Extreme Day and Critical Peak rates, which can be up to four times as high as standard rates and apply only on the ten hottest days of the year, could cause serious harm to vulnerable persons who, out of real or perceived economic necessity, might forgo the essential use of air conditioning or electric fans while those rates were in effect.

Fourth, the RUD-OAG argued that a comprehensive study of residential time-of-use rates recently completed in the state of Washington reduces the need for this pilot project by demonstrating that residential demand for electricity is in fact highly inelastic and that residential time-of-use rates tend to be ineffective in changing usage patterns and unpopular with customers.

Finally, the RUD-OAG argued that the pilot project may result in increased earnings for Xcel, violating the rate freeze provisions of its merger stipulations and Order.[1]

B. Energy CENTS Coalition

The Energy CENTS Coalition opposed the pilot project on grounds that it would adversely affect those residential customers who could not shift their electric usage to non-peak hours. The Coalition expressed special concern for low-income ratepayers, fixed-income ratepayers, and ratepayers dependent upon medically necessary equipment.

C. North American Water Office

The North American Water Office opposed the pilot project, stating that the concerns raised by the RUD-OAG were too grave to permit the project to go forward. The Water Office recommended requiring the Company to file a new time-of-use project more closely reflecting the price and cost structures the Company manages as it purchases power and operates its own generation fleet.

[1] In the Matter of the Application of Northern States Power Company for Approval to Merge with New Century Energies, Inc., Docket No. E,G-002/PA-99-1031, ORDER APPROVING MERGER, AS CONDITIONED (June 12, 2000).

D. Department of Commerce

The Department of Commerce filed comments supporting the pilot project, subject to the correction of technical difficulties with the Company's metering equipment, a final report on procedures used to excuse individual ratepayers from project participation, and the clean-up of tariff provisions. In the alternative, the Department's filed comments recommended a cost-benefit analysis of the pilot project, should the Commission question its value. At hearing the Department stated that, while it continued to recommend approving the pilot project, it did not oppose declining to proceed at this time.

E. Xcel Energy

At hearing the Company stated that, while it had confidence in the design and efficacy of the pilot project and was prepared to proceed, it was not clear to the Company that this was an opportune time to pursue residential time-of-use rates.

III. Commission Action

Having examined the entire record and having heard the arguments of the parties, the Commission finds that mandatory time-of-use rates for Xcel's residential customers should not be pursued at this time.

This has been an important and productive investigation. Energy efficiency is clearly vital to the economy, the environment, and individual households and businesses; it is a core regulatory goal. Exploring the potential contribution of residential time-of-use rates was a necessary step in working toward that goal.

That exploration, however, compels the conclusion that in Xcel's current situation, the energy efficiency benefits of mandatory residential time-of-use rates would not outweigh their costs in confusion, inconvenience, and customer dissatisfaction. The Company's preliminary calculations suggest that the only scenario under which mandatory time-of-use rates would out-perform its existing, voluntary Saver's Switch program would be with the institution of Extreme Day Pricing and Critical Peak Pricing,[2] rate structures that pose unresolved public health and safety issues.

Further, the data from Washington, the state with the most extensive and recent experience with mandatory residential time-of-use rates, is not encouraging. Ninety-four percent of the residential customers who participated in that time-of-use pilot project paid higher than standard rates, and the project was discontinued before its conclusion at the request of the utility.[3] While one state's experience is not directly transferrable to another, it is instructive, and here it does not militate in favor of investing more resources in this project.

[2] Petition of Xcel Energy for Approval of Residential Time-of-Use Tariffs, p. 5.

[3] Initial Comments of the Residential and Small Business Division of the Office of the Attorney General, p. 8.

In fact, the record as a whole does not demonstrate any reasonable likelihood that the pilot project would yield data establishing that moving to mandatory time-of-use rates in the near term would serve the public interest. The data the pilot project would yield would pertain to the elasticity of residential demand in the abstract, which is not sufficient grounds to support mandatory ratepayer participation.

The data and analysis submitted in this case have been extremely useful. On the basis of that data and analysis the Commission concludes that at this time it should not proceed with the pilot project or otherwise pursue mandatory time-of-use rates for Xcel's residential customers.

ORDER

1. The Commission declines to approve the pilot project proposed by Xcel and rejects its petition and proposed tariffs on the merits.

2. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

(S E A L)

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CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Report on Alternative Rate Design Options

Docket No. E002/M-15-662

Dated this 10th day of November 2015

/s/Sharon Ferguson

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