

## RESPONSE TO COMMENTS

### A. Background

We submitted our 2016-2030 Upper Midwest Resource Plan on January 2, 2015, as required by the Commission's May 23, 2014 Order in the Competitive Acquisition Process (CAP) proceeding.<sup>1</sup> The Commission made determinations in the CAP proceeding in December 2014; due to the timing, we were unable to incorporate the Commission's resource determinations into our Initial Filing. In January 2015, the Commission issued a Notice requiring the Company to supplement its Resource Plan to incorporate the resource decisions made in the CAP proceeding, which we did on March 16, 2015 (Supplement).

In our Supplement, we also provided information that responded to several stakeholder requests, including: (1) an expanded explanation of our modeling assumptions and those that were updated; (2) a more detailed approximation of rate impacts of our Preferred Plan by customer class; and (3) additional modeling and discussion regarding the costs and other implications of potential retirements of our Sherco Units 1 and/or 2 generating facilities in the early 2020s.

On February 10, 2015, we held our first in a series of stakeholder meetings where we discussed our Preferred Plan and its assumptions and impacts. We followed that meeting with three additional stakeholder meetings where we outlined the details and assumptions underlying our plan and addressed key areas of stakeholder interest including Strategist modeling, Demand Side Management, and evolving environmental regulations. We have also met with individual stakeholders to discuss aspects of our Preferred Plan and participated in the technical conferences held by the Department of Commerce and the Clean Energy Organizations (CEO).

We believe the level of collaboration that has ensued to-date has furthered a shared understanding of the evolving planning landscape and the proposals that have been made. These collaborative efforts and the diverse perspectives parties shared in their July 2, 2015 Comments informed our thinking about our future system and contributed to the revised Proposal we make in this Reply.

In terms of Comments, in addition to commenting on aspects of our Preferred Plan, the Department and CEO each proposed alternative plans that relied on Strategist modeling. The Minnesota Pollution Control Agency (MPCA) commended our commitment to reduce greenhouse gases (GHG), and concluded that it is reasonable

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<sup>1</sup> Docket No. E002/M-12-1240.

to assume that the mid-2020s represents the likely timeframe when Selective Catalytic Reduction (SCR) could be required on Sherco Units 1 and 2. Liberty Paper highlighted the importance of Sherco Units 1 and 2 to their operation and the important benefits Liberty Paper provides to Minnesota. The City of Becker expressed appreciation for our leadership role in maintaining a balanced fuel source portfolio and aggressive pursuit of renewable energy, noted the need for continued baseload resources, and supported the addition of natural gas resources, potentially located in Becker.

Xcel Large Industrials acknowledged the significant regulatory uncertainty around environmental issues and expressed concern over our rates. Community Power requested that the Minneapolis Clean Energy Partnership work plan be formally included in the Company's Resource Plan. Minnesota Utility Investors noted the importance of the flexibility of the plan we proposed and supported continued reliance on our Sherco and nuclear units in the future. St. Paul Cogeneration recommended the Commission ensure that biomass and Combined Heat and Power (CHP) are part of the Company's future resource mix. Finally, International District Energy Association recommended that we incorporate CHP as a utility generation asset in our plan.

We appreciate the parties' thoughtful comments, and note again that they were taken into consideration when we created our revised proposal. We do not specifically address all of the Comments in this Response; rather, we respond to specific requests for information and provide clarifications in response to certain aspects of Comments by the Department and CEO.

## **B. Strategist Modeling and Greenhouse Gas Emissions Accounting**

We appreciate the alternative plans proposed by the Department and CEO, and the constructive dialogue that has ensued as a result. While we are now advancing the revised proposal outlined in our Reply, in this section, we touch on modeling-related issues, including GHG accounting calculations that we believe require clarification.

### *1. GHG Emissions Accounting*

In this section, we explain the methodology we employed to calculate our baseline and target-year carbon dioxide (CO<sub>2</sub>) emissions under the Next Generation Energy Act (NGEA) GHG goals (Minn. Stat. § 216H.02, subd. 1), and note the importance of using consistent calculations in both baseline and projected CO<sub>2</sub> emissions forecasts. We agree with CEO that the methodology we use to calculate our NGEA

progress is different from the methodology MPCA employs to calculate NGEA progress at the statewide level. We note that while there is an established MPCA methodology for quantifying emissions and reporting on GHG reductions statewide, there is no approved MPCA methodology that applies to individual utilities.

MPCA itself acknowledges this difference:

*In our reporting to the Legislature, we make no attempt to distribute total electric power sector emissions to individual utilities... It is the policy at MPCA that the Next Generation Energy Act goals are state-level goals covering, in aggregate, all economic sectors, and not targets that can be applied to specific economic sectors or any single firm.<sup>2</sup>*

MPCA's statewide methodology and the methodology we have used to calculate our emissions differ in several respects. First, MPCA's quantification for the electric power sector statewide includes GHG emissions from in-state power generating sources such as CO<sub>2</sub>, methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O); emissions from area sources, such as sulfur hexafluoride (SF<sub>6</sub>) emissions from the transmission and distribution (T&D) system; and a state-level term to account for emissions associated with the generation and transmission of net power imported across state borders, including T&D losses.<sup>3</sup> With respect to emissions from imported power, MPCA makes no attempt to allocate emissions to individual utilities.<sup>4</sup> So, while emissions from imported power are a portion of the 30.6 million short tons (MST) in our 2005 baseline, these would not be included in any MPCA estimate for the Company. Additionally, in MPCA's methodology, biogenic CO<sub>2</sub> emissions are estimated but reported separately, whereas they are included in our 2005 baseline.<sup>5</sup>

While MPCA does not generally apply its methodology to individual utilities, it did apply a version of this methodology to Xcel Energy in an October 2013 letter cited by the CEOs, but has since clarified that:

*The estimate of emissions given in our letter to the MPUC is solely for fossil CO<sub>2</sub> from combustion at facilities owned or operated by Xcel Energy. No effort was made to allocate back to Xcel Energy emissions from net imports (or emissions from in-state area sources that, again, are calculated at a state-level) or to distribute emissions from*

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<sup>2</sup> Peter Ciborowski, MPCA, e-mail of September 11, 2015.

<sup>3</sup> The NGEA requires MPCA to include in its estimates of statewide GHG emissions those emissions that result from out-of-state electricity generation that is consumed within Minnesota. Total electricity consumption in Minnesota, net electricity generation in the state and all associated transmission and distribution (T&D) line losses are estimated (Minn. Stat. § 216H.01, subd. 2).

<sup>4</sup> Peter Ciborowski, MPCA, e-mail of September 11, 2015.

<sup>5</sup> *Greenhouse Gas Emissions in Minnesota: 1970 – 2008*, pages 5, 12, 21, 93.

*combustion sources across state lines on the basis of, say, retail sales or retail sales plus sales for resale.*<sup>6</sup>

Applying this methodology, MPCA estimated 2005 emissions for Xcel Energy of 27.25 MST. In contrast, when quantifying our CO<sub>2</sub> emissions – both for the 2005 baseline year and for the NGEA target years of 2015 and 2025 – we included all CO<sub>2</sub> combustion emissions (but no non-CO<sub>2</sub> GHG emissions) from owned and purchased power used to serve customers in all five NSP System states, regardless of emission source location. Stated another way, our calculations include CO<sub>2</sub> from:

- Generating units we own in Minnesota;
- Owned units in other NSP states;<sup>7</sup>
- Biogenic CO<sub>2</sub> from biomass and RDF plants;
- Power we purchase under long-term PPA with fossil resources throughout our five-state area;
- Power purchased from MISO; and
- A very small amount of power purchases with unknown environmental attributes.<sup>8</sup>

Our methodology is more comprehensive than MPCA's October 2013 estimate and, as such, the total is larger both in the baseline year (30.6 MST) and in the target years of 2015 and 2025. Because it only accounts for a subset of our emissions, the 2005 baseline emissions portrayed in the "Goal" line in Figures 9 and 11 through 14 of CEO Comments are inaccurate. Although the Goal line may correctly represent a "trend line" to the NGEA goals, it cannot serve as an accurate point of comparison with the CO<sub>2</sub> forecast of our Preferred Plan.

## 2. *Modeling Techniques and Assumptions*

Strategist modeling results are highly dependent on the input assumptions used and, in some cases, the application of different modeling techniques. Discussion and debate surrounding the different assumptions and techniques constitute an important part of any resource planning proceeding, and we believe that some of the assumptions and techniques employed by CEO and, to a lesser extent the Department, may have produced results that are less reliable than our modeling results.

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<sup>6</sup> Peter Ciborowski, MPCA, e-mail of August 28, 2015.

<sup>7</sup> Gas peakers and biomass in Wisconsin; a gas peaker in South Dakota. The Company currently owns no fossil generation in North Dakota or Michigan.

<sup>8</sup> Assigned the MRO-W emission factor. See our response to Information Request No. DOC-56, question *b*.

## a. Clean Energy Organizations

First, we appreciate the constructive dialogue we have had with CEO. We believe the dialogue has furthered a better understanding of each other's proposals and encouraged discussion about the future of our energy mix. We also applaud the efforts of CEO to develop Strategist modeling results in support of their recommendations in this proceeding. However, we believe CEO employed several assumptions and techniques in analyzing plan impacts that generated results that are imbalanced and lack a reasonable foundation.

Aside from citing differences from the MPCA statewide methodology and a different 2005 baseline, CEO cites three reasons why they believe our CO<sub>2</sub> emissions under the Preferred Plan will be higher than we forecasted:<sup>9</sup>

- 1) Adding 4 GW of wind and solar capacity to the NSP System will not necessarily result in reduced dispatch of and CO<sub>2</sub> emissions from NSP's own coal units,
- 2) The Company has underestimated emissions associated with MISO purchases,
- 3) The Company has overestimated emissions associated with "dump energy."

For each of these, CEO applies adjustments to "correct" the Strategist simulation results for a MISO/regional market-oriented regime, resulting in their conclusion that we will not achieve our "share" of the statewide NGEA goals. We discuss these *ex post facto* adjustments below:

*Renewable Additions Impact Coal Operations.* CEO "hard-wired" a level of coal generation into their modeling for the post-2020 period that was based on their model's forecasted coal operation data for 2017-2019. Fixing the operation of our coal fleet after 2020 at the same levels these Units operated in 2017-2019 (CEO Comments, footnote 24 at 20-21) is not a reasonable reflection of future coal dispatch and operation assumptions. We acknowledge that CEO disagrees with the amount of coal operation reduction that could occur in a MISO-controlled dispatch construct. However, suggesting that there will be *no* impact to our coal operations from the addition of significant levels of renewable generation is not reasonable. Strategist is a sophisticated tool that calculates changes in annual coal generation output levels based on key plan and system dispatch assumptions, which we believe forms a more reasonable basis than hard-wiring a flat level of operations based on a three-year

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<sup>9</sup> CEO Comments at 19-28.

reference period.

*Market Emission Rates.* CEO also applied different emissions values to purchases and sales in the MISO market – using a higher market-wide rate for purchases and a lower NSP-specific system average rate for sales. This implies a carbon “arbitrage” between the market and a specific seller, which would most likely not materialize in a fully developed market that properly factors emission costs into prices and market design. We believe a more reasonable approach is to use the same emission values for MISO sales and purchases, since MISO purchases or sales need to reflect overall MISO system or MISO zonal emission levels. Employing this approach avoids any speculation of MISO purchase/sale emissions arbitrage. Additionally, our approach that used the artificially high emission factor of 1,624 lbs/MWh for both MISO purchases and sales will tend to conservatively overestimate our emissions, since (1) it does not reflect greening (decline in emission factor) from 2009 to present, and (2) our purchases from MISO have exceeded our sales in every year since 2005, as shown in our response to Information Request No. DOC-59.<sup>10</sup>

*Purchase and Sales Volumes.* For their “high” range of emissions projections for our Preferred Plan, CEO set purchase volumes to the highest level observed in the past five years, which was during the extended outage of Sherco Unit 3. It is not reasonable to expect that this abnormally high level of purchases will continue over time, and indeed recent purchase volumes since the return of Sherco Unit 3 have been well below these levels. Combined with the carbon arbitrage assumption, this makes the CEO projections of system carbon emissions much higher than would realistically be expected.

When combined, these “hard-wired” modifications to the Strategist modeling do not provide a reasonable basis to support the CEO conclusion that the Preferred Plan we proposed would not be compliant with the NGEA GHG goals.

We acknowledge that Strategist is limited to modeling a single utility system and cannot predict the interaction of proposed resources in the MISO market. Our

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<sup>10</sup> The 1,624 lbs/MWh we used was based on the emission factor for the MRO region from EPA’s Emissions & Generation Resource Integrated Database (eGRID). The latest eGRID emission factors available at the time of preparing our resource plan were for 2009 (EPA has since released data for 2010, where the MRO emission factor is 1,547 lbs/MWh). See eGRID 2012 Version 1.0, or the Eighth edition, for the MRO emission factor we used, and the Ninth edition for the later-released year 2010 data: <http://epa.gov/cleanenergy/energy-resources/egrid/index.html>. Because eGRID has a 3-4 year lag between the year reported and the year of release, the eGRID emission factors are always out-of-date and do not reflect recent declines in CO<sub>2</sub> intensity due to renewable energy additions, increased gas generation, reduced coal generation and coal retirements, etc.

decision to model our system with minimal MISO interaction has three primary advantages. First, by limiting the interaction with the MISO markets, our analysis provides the Commission valuable insight into the systems they regulate without complicating that analysis with hypothetical assumptions on how *other* utilities may modify or operate their systems over time. Second, it helps to determine what, if any, restrictions are necessary to ensure our fleet operates the governing framework. Third, it helps the Commission and other stakeholders understand the cost and profile of the NSP System without MISO interaction.

The incorporation of the NSP System into the MISO joint dispatch process should ultimately lower costs, yet still implement any operating or carbon restrictions that will be necessary to achieve the State's targets or compliance requirements. We, like other utilities and MISO, will have to figure out the process to incorporate the management of individual state carbon (or generation) targets into the dispatch process to ensure that all utilities can continue to achieve compliance with all of their individual states' Clean Power Plan (CPP) requirements. As a result, while the view we presented in our resource plan to-date does not simulate the exact operation of the system within the MISO construct, the Commission can use this view to establish cost and operating parameters to ensure the NSP System is positioned to achieve the State's carbon goals and CPP compliance obligations.

Development of the CPP State Plans remains in the early stages, with states just beginning to evaluate various compliance alternatives available under the rule. As the development progresses, we plan to evaluate the draft CPP State Plans, as well as any proposed MISO market changes, and use the most current information in developing our next Resource Plan.<sup>11</sup>

*Financial Calculation Period.* In addition to the concerns we have with the methodology CEO employed for CO<sub>2</sub> accounting, CEO's use of a 15-year calculation period for Present Value Revenue Requirements (PVRR)/ Present Value Societal Cost (PVSC) calculations do not account for the long-term impact planning decisions will have on customer costs.

Resource decisions, whether they are resource additions or retirements, are long-term decisions that have significant financial impacts well beyond the 15-year planning

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<sup>11</sup> State plans under the CPP are due in September 2016 or, if states request an extension, September 2018. It is likely at least some of our states will request this extension, so will not have final plans submitted to EPA before the filing of our next Resource Plan. However, we believe we will have significantly more information on our states' CPP implementation strategies over the next year. In addition, EPA will release in summer 2016 the final version of its proposed model federal plan, for states that elect not to submit a state plan.

period of resource plans. Significant changes are projected to occur on the NSP System in the 2030's, including the possible retirement of our nuclear fleet as well as our remaining coal-fired baseload units. By not allowing Strategist to include the benefits or costs of these long-term significant changes, CEO oversimplifies the impact that planning decisions will have on customer costs.

b. Minnesota Department of Commerce

The most significant area of concern we have with the Department's modeling is their "end-effects" methodology. We have long differed on the appropriateness of using the Strategist end-effects methodology versus longer simulation periods. We raise it again here because, in this instance, use of the end-effects methodology may be driving inaccurate results. The other area we address is clarifying the extent to which we employed an iterative modeling technique.

*End Effects.* In Strategist, the end-effects modeling process employed by the Department holds "flat" the last year simulated, such that the same cost and benefits are repeated for a given number of years. As outlined above, holding the 2032 results constant skews the impact of the resource planning decisions being contemplated in this proceeding in that it ignores the significant changes projected to occur in the NSP fleet beyond the planning period

*Iterative Modeling Technique.* In explaining the development of their plan, the Department noted that it allowed economic consideration of renewable technologies in their simulations while we "forced" expansion alternatives in the model. As part of our resource planning discussions with the Department, it has become clear that we largely followed the same optimization process utilized by the Department.

We, like the Department, performed numerous simulations with renewable resources treated as "superfluous" units. Although these initial runs resulted in significant truncation of plans due to the number of states considered, it became clear that significant amounts of renewables were being considered as cost-effective energy-only resources. Through iterative processing, we identified and evaluated how much and at what times renewables were being added by the optimization engine, and sequentially added those repeatedly-chosen resources as "locked" resources in future runs to improve run time and reduce truncation.

Finally, as identified by both the Department and CEO, the treatment of excess or "dump energy" is a challenging issue from both a cost and CO<sub>2</sub> perspective. Fundamentally, the issues raised go to the best way to predict how both costs and

carbon accounting for purchases and sales will be treated in the MISO system once the CPP is in effect. We propose to work with the Department and CEO to arrive at an agreed-upon methodology, and we believe this task will become clearer as states begin to develop their State Plans.

### **C. Demand Side Management**

We appreciate the Department and CEO comments regarding the appropriate DSM goal for the 2016-2030 planning period. We are committed to find new ways to elicit greater levels of energy efficiency and Demand Response (DR) that will benefit not only our customers, but the whole system. To this end, we accept the Department's recommendation and commit to a goal of 1.5 percent DSM through the planning period. This translates to 444 GWh of savings for the planning period, which we note does not impact any near-term resource decisions.

We make this commitment despite the challenges we face in our ability to continue to achieve significant levels of energy efficiency with our customers under the current regulatory construct. A step change in DSM and DR achievement will require technology advancements and regulatory recognition of types of savings that may not be contemplated today.

In the balance of this section, we discuss the challenges to achieving a 1.5 percent savings goal, respond to the CEO recommendation to increase the goal to 1.7 percent in years 2016 -2021, and respond to requests for explanation of certain aspects of our potential study by the Department and CEO.

#### *1. History is not Always an Accurate Predictor of the Future*

Through extraordinary efforts, we have cost-effectively met and exceeded our DSM goals. In 2014, we achieved over 481 GWh of electric savings, which equates to 1.66 percent of sales. We are proud of our success and are striving to continue this level of savings through 2015 and 2016, in which our goal is 435 GWh (1.5 percent of sales).

We have been providing our customers the opportunity to reduce their usage through a myriad of energy efficiency programs for more than 20 years. Our experience is that significant historical achievements reduce future potential, as fewer eligible participants remain with standard efficiency equipment. New technologies represent a small fraction of the energy savings potential lost to increasing codes and standards, especially with the implementation of aggressive lighting standards. The resulting decline in potential requires a greater pursuit of DSM to maintain historical levels.

More aggressive pursuit of DSM translates to more costly programs. In order to incent customers we must increase our outreach and rebate levels. This is further exacerbated by the fact that: (1) as creditable energy savings from each installed measure decreases due to increases in codes and standards, the number of installations must increase to maintain the same level of energy savings; and (2) the costs of new technologies, while declining, are still more expensive for customers to implement than historical technologies. We discuss these issues below.

## 2. *Increased Codes and Standards are Eroding Creditable Savings*

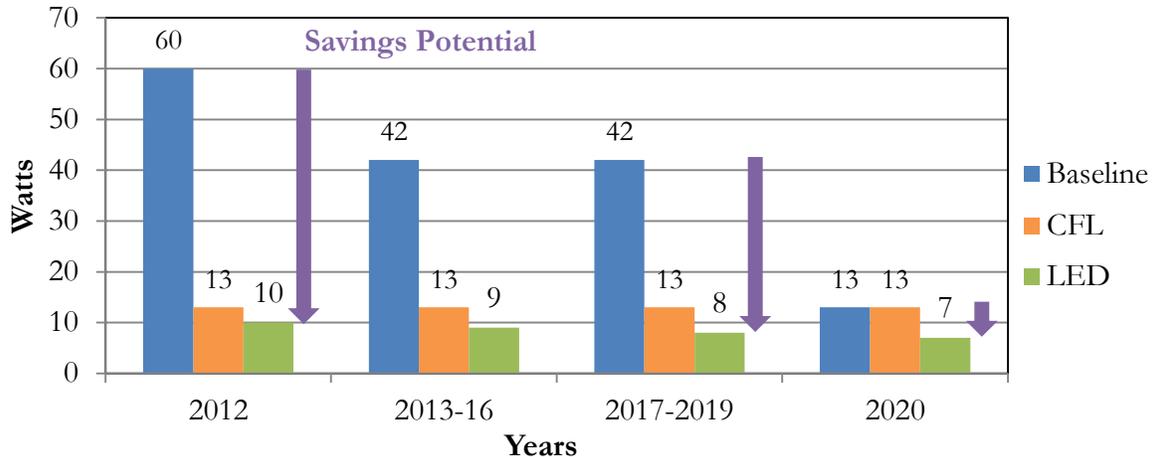
The greatest challenge to achieving future DSM program savings is the implementation of the codes and standards changes from the Energy Independence and Securities Act (EISA).<sup>12</sup> Since the EISA Standards were implemented in 2007, we have adjusted the baselines of more than a dozen savings measures and had to remove several lighting measures from our portfolio. These changes shrink the available pool of energy savings for which we can claim credit within our DSM programs, leaving the more expensive and complex savings opportunities for our customers. These savings opportunities require increased investment by our customers and higher incentives to motivate them to take action.

Residential lighting is the largest example of this phenomenon in practice. Light Emitting Diode (LED) technologies represent significant savings potential at the highest efficiency level. While the technology is becoming less expensive, allowing more customers to realize the benefits of the technology, *creditable* energy savings in utility DSM programs are measured as the difference between a baseline bulb as defined by the EISA Standards, and the efficient bulb. In the case of LEDs, the magnitude of the incremental efficiency creditable under utility DSM programs falls significantly short of the efficiency gains from codes and standards – eroding the energy savings potential we can claim.

We demonstrate the impact of the EISA Standards on baseline lighting technology for both Compact Fluorescents Lights (CFL) and LEDs in Figure 1 below.

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<sup>12</sup> Public Law 110-140 (2007).

**Figure 1: Residential Lighting Changes**

In this graphic, the blue bars represent the EISA Standard, or baseline from which we can claim credit under our DSM program. As shown, our creditable potential was between 47-50 watts per installed CFL or LED bulb in 2012, which shrinks to 29-34 watts through 2019. In 2020, the EISA Standard will become a 13 watt CFL, so we will claim zero credit for installation of CFLs and only 6 watts of credit for installation of LEDs. This reduces our creditable potential by 88 percent when compared to the current savings, which is exacerbated by the fact that lighting programs have by far provided the majority of savings within our DSM Portfolio.

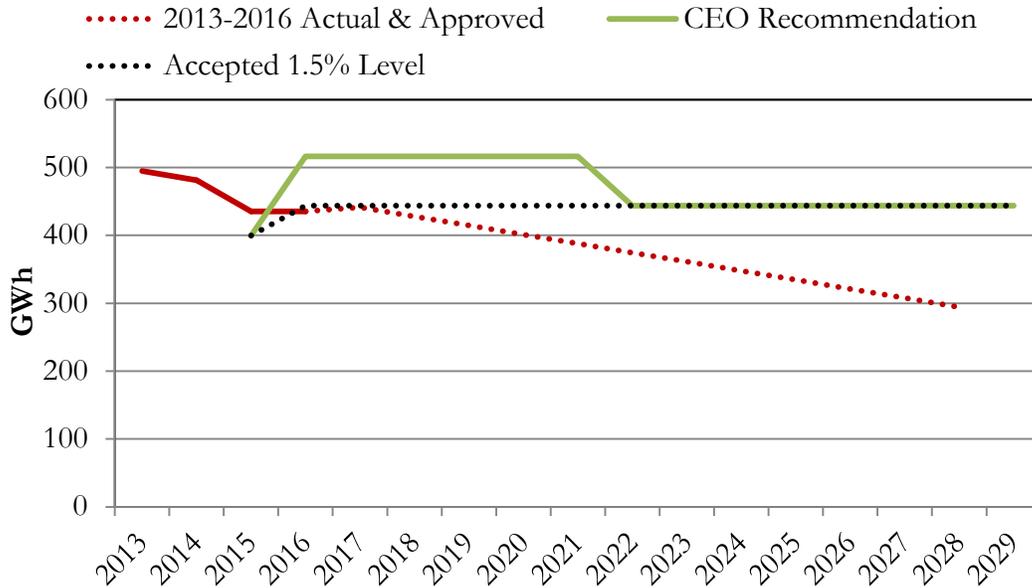
In Comments, CEO claims that despite the drop in savings attributable to utility DSM programs due to EISA lighting standards, we have still claimed an increase in energy savings. Figure 19 in the CEO Comments compares future DSM goals against historical DSM achievements from 2011-2014. However, it includes program years 2011-2012, which did not include the reduced savings from EISA standards, so the reference period is not representative of the impacts of EISA lighting standard changes.<sup>13</sup>

We provide as Figure 2 below, the impact of EISA lighting standards on our future potential by starting in 2013, which was the first year our creditable lighting potential ratcheted down due to the EISA Standards. We have included a comparison of the

<sup>13</sup> 2010/2011/2012 Triennial Plan (E,G002/CIP-09-198) p. 587 *Table 1 – Existing lighting wattage for residential lights* includes a 60 Watt baseline bulb for a 13-16 Watt CFL bulb. The same table in the 2013/2014/2015 Triennial Plan (E,G002/CIP-12-447) p. 454 includes a declining baseline wattage of 55.0 Watts (2013), 48.5 Watts (2014) and 43.0 Watts (2015) due to adoption of the EISA lighting standards.

forecasted impact based on our current 2013-2016 actual achievements and approved goals,<sup>14</sup> the CEO recommendation, and the 1.5 percent level we accept in this proceeding.

**Figure 2: Actual and Projected Lighting Achievement –  
Impact of Increasing EISA Lighting Standards**



This graphic demonstrates that:

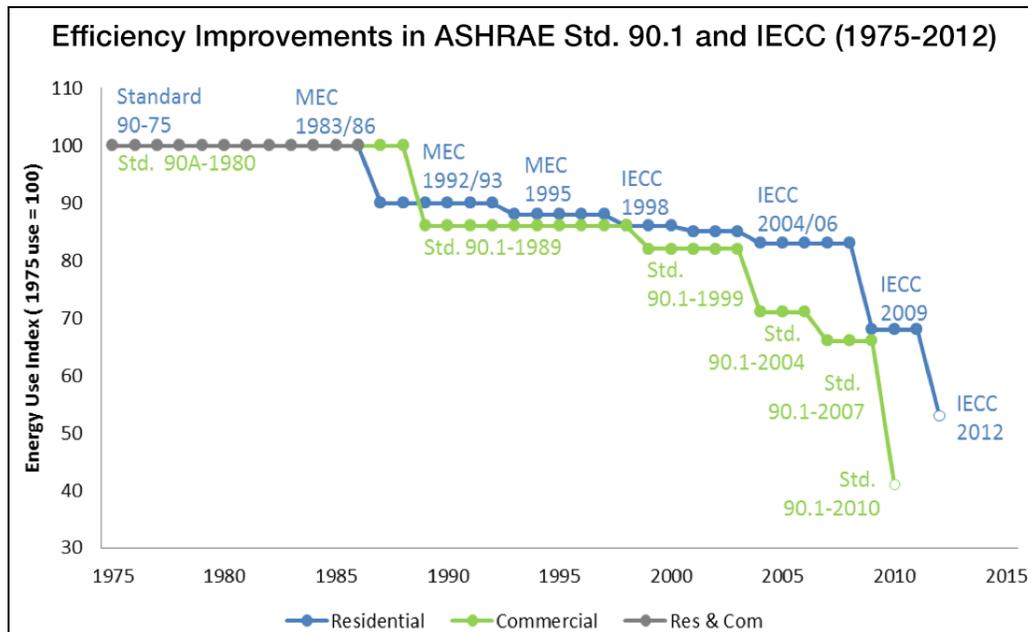
- CEO's proposed DSM 1.7 percent achievement in the early years of this resource plan significantly exceeds our historical performance, and
- The trajectory of our historical achievements, demonstrates that our commitment to 1.5 percent represents a significant increase in the pursuit of DSM.

We provide a graphic by the American Council for an Energy Efficient Economy (ACEEE) that illustrates the effect of declining potential from new technologies compared to the loss of creditable potential from increasing codes and standards in Figure 3 below. ACEEE's illustration of the efficiency improvements between the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Std. 90.1 over the last several decades in Figure 3 below shows how

<sup>14</sup> See 2015 and 2016 goals, which are identified in the Xcel Energy 2013-2015 Triennial Plan, the 2016 Extension, and actuals from Xcel Energy's 2013 and 2014 Status Reports (Docket No. E,G002/CIP-12-447).

various codes and standards have lowered the energy intensity of buildings (Energy Use Index) by increasing equipment codes and standards.

**Figure 3: ACEEE Illustration of Efficiency Standard Increases on Building Efficiency**



Source: <http://sefaira.com/resources/us-energy-codes-could-surpass-lead/>

As the baseline energy intensity against which energy efficiency achievements are measured decreases, creditable energy efficiency potential also decreases. Figure 3 shows a downward trend of the baseline energy intensity that could be considered representative for future energy savings potential across many technologies – and exemplifies the necessity to take trends like this into consideration, rather than relying only on past achievements.

### 3. *Our Potential Study Considered Other Technologies*

In Comments, CEO suggests that there are other savings opportunities that we did not address, such as Conservation Voltage Reduction (CVR). We note that this technology was not included in our most recent Potential Study; the Study defined only customer-side opportunity, and CVR is a utility infrastructure opportunity, which we note may be one of the grid modernization/technology-enabling types of efforts that will help us to unlock future savings opportunities for our customers.

With regard to CVR and CEO's assertion that we have potential for 5,200 GWh over a 20-year period, CEO fails to note that we developed these estimates as part of a preliminary analysis we conducted and are continuing to test through summer 2015 to approximate a more true potential for Minnesota.<sup>15</sup> While CVR may offer benefits such as reduced energy consumption to customers and the Company, the integration and implementation of these technologies are complex and capital-intense, and must consider impacts to utility sales.

While we are continuing to analyze impacts and costs, our preliminary analysis found that the addition of CVR will require capital investment over a five-year period for changes to the system such as:

- Voltage sensors added throughout the distribution system to maintain service voltages within required levels,
- Two-way controls installed on Regulators and Load Tap Changers (LTC) to control voltage levels,
- Capacitor Controls must be retrofitted with new two-way controls in order to maintain system power factor through capacitors,<sup>16</sup> and
- Substations must be updated with Feeder load monitoring and Supervisory Control and Data Acquisition (SCADA) to monitor load, power factor, voltage and control substation devices.

Additionally, implementation of CVR will require an ongoing O&M component to operate, maintain, and manage the CVR system.

Finally, while we believe CVR may provide a vehicle for energy efficiency savings in the future, its implementation involves upgrades to the utility distribution system rather than customer actions, like other DSM initiatives. These changes are also more consistent with modernization-type changes that utilities are making to their systems to ready them for greater customer choice and control in their energy preferences, such as distributed generation. For that reason, we believe initiatives such as this are better suited to proposal and cost recovery through other mechanisms such as base rates, or other regulatory mechanisms. For the reasons we have discussed, it is unlikely we will be ready to propose and implement a CVR program for Minnesota in the next year as indicated by CEO in their assumptions.

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<sup>15</sup> Xcel Energy response to CEO IR No. 39 notes that preliminary analysis estimates that Distribution Voltage Optimization at a one percent voltage reduction would result in a reduction in MWh sales of 2.6 million.

<sup>16</sup> To-date, capacity controls have mostly been replaced through the SmartVAR program.

We note additionally that we actively monitor new technologies through our product development efforts, review other utility products, and conduct product research.<sup>17</sup> Some new technologies replace the traditional technologies, such as LED lighting, energy feedback programs, and holistic programs.<sup>18</sup> However, as we have discussed, the energy savings associated with these newer technologies and programs often have much less incremental savings potential than their predecessors – and there is also the potential that new codes and standards not yet contemplated may reduce the potential. Conversely, emerging technologies may develop that offer new potential that we and others have not yet fully contemplated in the context of the existing regulatory construct. We believe the Potential Study efforts we undertake examines and balances these trade-offs in how it treats potential associated with emerging technologies.

#### 4. *The Potential Study Relies on Reasonable Inputs*

We rely on a Potential Study to help us identify future potential, which uses a cost analysis to determine the level of achievable savings. In Comments, CEO suggests that our Potential Study is not a reliable source for determining our future energy efficiency goals and future costs.<sup>19</sup> As we have discussed, we believe Potential Studies that consider the savings potential of currently available energy efficient equipment, the availability and cost of future energy efficient equipment, and the customer's likelihood of installing this equipment, provide a robust analysis and reasonable basis from which to identify sustainable, future potential.

##### a. Study Results are Comparable

CEO appears to base their assumption on a comparison of results from our 2011 and 2014 Potential Studies, which CEO claims show significant differences in results.<sup>20</sup> However, this comparison does not take into consideration how the Potential Study estimates the annual pattern of achievable potential. The comparison must also include the first years of the 2011 Potential Study to accurately portray how the total

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<sup>17</sup> We identify new products, technologies and measures through our Product Development group. We continue to participate and fund additional research through Conservation Applied Research and Development (CARD) grants. In the period of 2013 -2014, we made 48 program modifications, including adding additional programs and measures to existing programs.

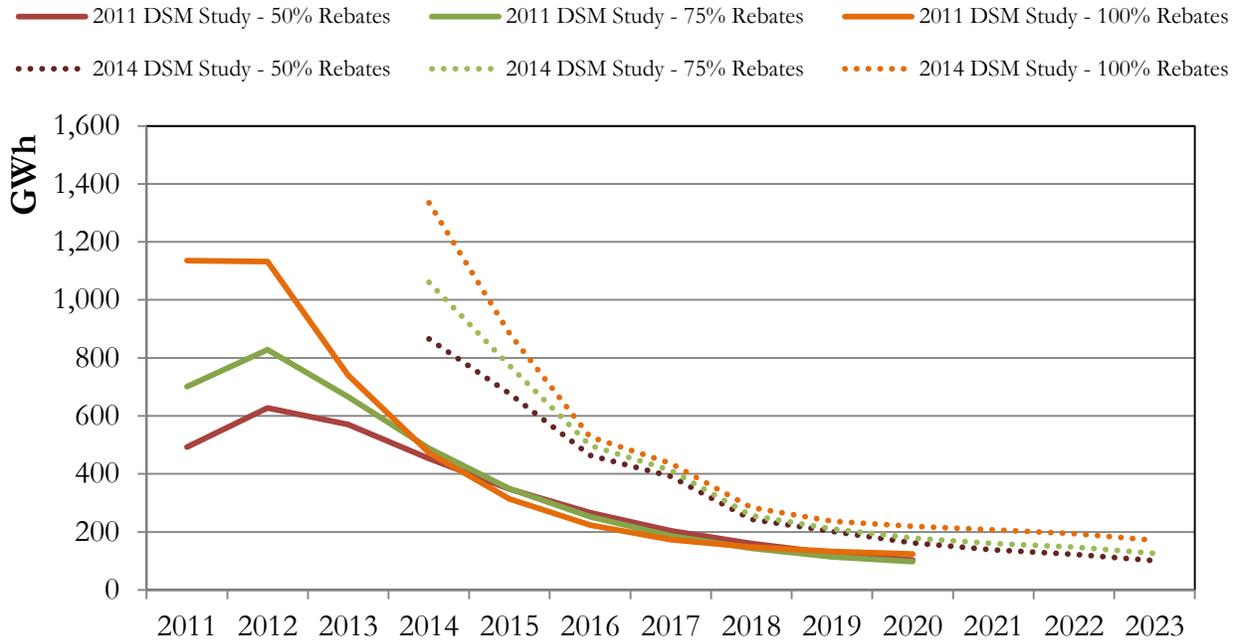
<sup>18</sup> Holistic programs provide additional study and analysis to customers in order to make long-term energy adjustments to their facilities. Programs such as Process Efficiency and Energy Design Assistance are included in this category.

<sup>19</sup>The 2011 DSM Potential Study and 2014 Potential Study Update by KEMA were used for the Upper Midwest Resource Plan 2016 -2030 analysis.

<sup>20</sup> See CEO Comments at 29-30.

achievable potential over the ten-year period of the Studies compares. As demonstrated in Figure 4 below, the potential from the 2011 and 2014 Studies is very comparable.

**Figure 4: 2011 and 2014 Study Results – Achievable Potential**



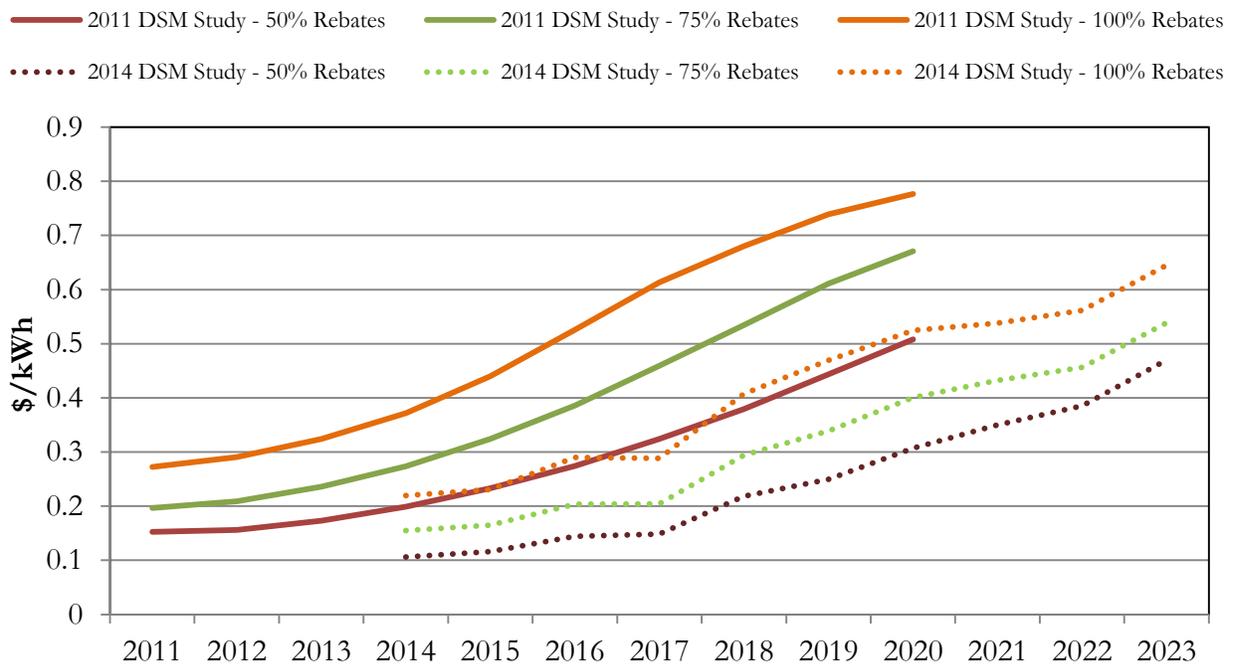
Another view of the comparability of the two most recent Potential Studies is to examine the average achievable potential over time, given the annual pattern of achievable potential. Again, the two Studies over their respective 10-year study periods are very similar as demonstrated in Table 1 below.

**Table 1: 2011 and 2014 Study Results – Average Achievable Potential**

	2011 Potential Study (Average kWh)	2014 Potential Study (Average kWh)
<b><i>Study Period</i></b>	<b><i>2011-2020</i></b>	<b><i>2014-2023</i></b>
<b>50% Rebates</b>	335,128,456	336,847,237
<b>75% Rebates</b>	382,514,195	382,330,087
<b>100% Rebates</b>	459,633,726	449,615,285

CEO also suggests that the 2014 Potential Study identified significant reductions in costs from the 2011 Study, relying on a view of annual achievable potential costs.<sup>21</sup> CEO Figure 16 shows costs increasing over the time period within each Study. However, a better measure of the difference in costs between the 2011 and 2014 Potential Studies is again a comparison of each Study’s entire 10-year study period, which we provide below in Figure 5:

**Figure 5: 2011 and 2014 Study Results – Costs Associated with Achievable Potential**



As shown above, the 2014 Study identified price declines, but the declines are smaller when including the costs in the initial years (2011 vs. 2014) of each Study rather than by solely comparing the costs for each year (i.e., 2014 vs. 2014) in which the Studies overlap.

To determine the relative difference in costs between the two Studies, we averaged the cost estimates over the entire 10-year Study period and provide the results in Table 2 below. This demonstrates that the cost estimates from the 2014 Study were approximately \$0.050/kWh lower than the 2011 Study, which is half the amount claimed by CEO in their Figure 16.

<sup>21</sup> See Figure 16, CEO Comments at 30.

**Table 2: 2011 and 2014 Study Results – Average Costs Associated with Achievable Potential**

	<b>2011 Potential Study</b> (Average \$/kWh)	<b>2014 Potential Study</b> (Average \$/kWh)
<i>Study Period</i>	<i>2011-2020</i>	<i>2014-2023</i>
<b>50% Rebates</b>	\$0.224/kWh	\$0.176/kWh
<b>75% Rebates</b>	\$0.290/kWh	\$0.235/kWh
<b>100% Rebates</b>	\$0.372/kWh	\$0.322/kWh

As these illustrations demonstrate, the costs used in the Potential Study are similar across the 2011 and 2014 Studies. We note however, the 2014 Potential Study includes a recent trend toward lower costs of various technologies, likely due to updated product costs in areas such as LED lighting. Our estimated achievable potential is based on these Potential Study scenarios and incorporates the trends in reduced product costs.

b. Rebate Levels Must Increase to Motivate Customer Action

The Department requested that we explain why the Potential Study calls for higher rebate levels to achieve lower levels of savings. In addition, CEO believes that we overestimated our costs to achieve various levels of potential. We explain below how we derived our estimates and why we believe they are reasonable.

*Department of Commerce.* In response to the Department, we note that the Study found that a rebate level of 50 percent results in only 1.3 percent of sales, in contrast to our achievements to-date, which have been *above* 1.5 percent of sales at rebate levels just above 30 percent. Figure 4 above (2011 and 2014 Study Results – Achievable Potential) shows that initially (2014-2016), the 50 percent rebate level results in achievement well-above 1.5 percent.<sup>22</sup>

So, as would be expected, higher rebate levels translate to higher potential. However, this potential greatly diminishes over time. Therefore, in order to determine a scenario that will provide a sustainable level of savings at a consistent level of percent-of-sales, we averaged the potential over a longer period (2014-2021) to estimate the rebate levels necessary to motivate customers to take creditable action. This resulted

<sup>22</sup> 2014 achievement in 2014 Potential Study equals 866 GWh of savings (nearly 3% of sales); 2015 of 677 GWh (approx. 2.3% of sales); 2016 of 464 GWh (approximately 1.6% of sales).

in our projection that it will require an average 50 percent rebate level to achieve 1.3 percent savings, and a 75 percent average rebate level to achieve 1.5 percent of sales, despite history.

The cause of this significant increase in necessary rebate levels is attributable to the reduction in potential in the future for the reasons we have discussed. We have been able to maintain our 1.5 percent of sales achievements at lower rebate levels due in part to greater pursuit of programs that do not require rebates, such as Energy Feedback programs for Business and Residential customers, and the Home Energy Squad program. The reduction in potential worsens over the years, illustrated by the decline in achievable potential in Figure 3 above (ACEEE Illustration of Efficiency Standard Increases on Building Efficiency), requiring a continuing greater level pursuit of new DSM programs in the future. We believe this greater level of pursuit cannot be met with new programs alone; rather, rebate levels will also have to increase. The Potential Study serves as the best available projection of the expected achievement at these higher levels of creditable achievement.

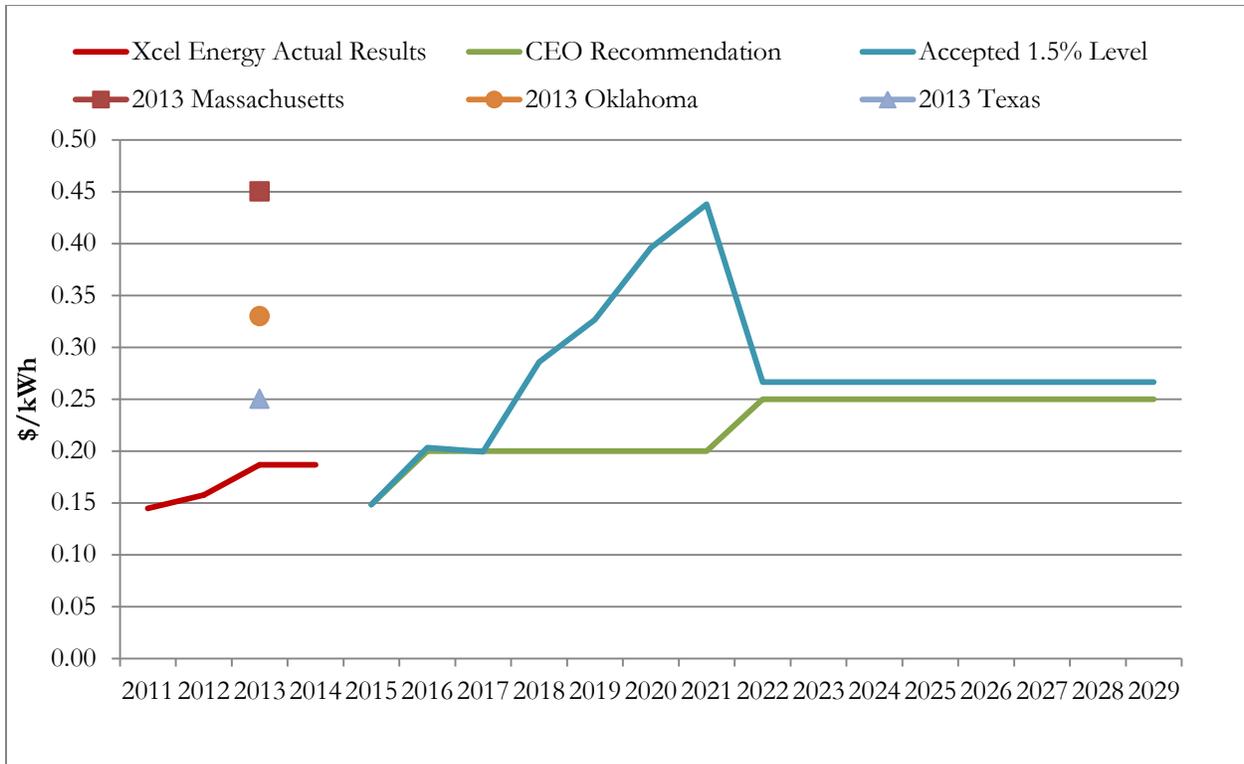
*Clean Energy Organizations.* CEO used an illustration of actual costs of our lighting program compared to the initial ratcheting up of EISA lighting standards between 2012 and 2014 to support a claim that higher rebate levels are not necessary in the face of increasing codes and standards.<sup>23</sup> However, similar to what we explained previously, CEO Figure 20 also includes program years 2011-2012, which were not affected by a change in the EISA lighting standards. Therefore, the comparison of actual costs in light of increasing standards needs to begin in 2013 – the first year the EISA standards were implemented in the savings calculations.

By beginning in 2013, the costs per kWh to achieve savings increases significantly, as shown in Figure 6 below. To further illustrate the scope of these cost increases, we have also included the cost per kWh of other DSM programs as outlined in a May 2015 ACEEE report, including cost per kWh by Investor Owned Utilities in particular states with DSM portfolios.

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<sup>23</sup> See Figure 20, CEO Comments at 34.

**Figure 6: Historical Achievement and Plan Projections – Impact of Increasing Codes and Standards**



Source: “Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency.” ACEEE, May 2015  
 Note: State references (shapes) indicate point in time markers of cost, not a trend.

Our Potential Study demonstrates that significant increases in rebate levels and utility spending may be necessary to maintain historical energy savings levels, which corresponds to recent trends we and others have observed. Further, these costs are in line with those identified in other states with DSM portfolios, specifically those with comparably high energy standards such as Massachusetts.

c. New Technologies are Contemplated

CEO notes in Comments that the Potential Study did not consider most LED lighting measures in the commercial sector as either economic or achievable, with the implication that we are underestimating potential for technologies that are likely to be achievable during the planning period.<sup>24</sup> While it is true that we did not count specific achievements for these specific technologies, we did not directly take the achievable potential from the Study and make it our proposed DSM goal. Rather, we escalated

<sup>24</sup> CEO Comments at 36.

the potential the Study identified to account for savings such as these and other evolving technologies that we assume will be achievable at a future date.

Specifically, the Study concluded that achievable potential for the out-years of the planning period was less than one-half of one percent. Instead, we proposed a goal of nearly three-times larger – 1.3 percent – to account for evolving technologies and other cost efficiencies that are likely. Further, with this Reply, we now accept an even higher goal of 1.5 percent through the entire planning period.

We have delivered strong DSM program performance for more than 20 years and remain strongly committed to helping our customers continue to achieve savings.

#### **D. Demand Response**

We appreciate the Departments' analysis and recommendation that the Commission accept our proposed Demand Response (DR) growth of 76 MW over the planning period. We acknowledge the Department's comments regarding the importance of DR in a carbon-constrained future and repeat our commitment to leveraging technology to unlock additional potential for our customers. We also acknowledge and accept the Department's recommendation that we include in our next resource plan, a cost-effectiveness analysis taking into account possibilities for expanded and more dispatchable DR on our system.

In the balance of this section, we respond to the Department's request for information in the following aspects of our DR portfolio:

- Saver's Switch program usage,
- Dispatch process, including triggers for economic dispatch of load modifying resources,
- Impact from our 2015 Electric Rate Savings Program Waiver,
- Cost-effectiveness calculations, and
- DR Resource Value.

##### *1. Saver's Switch Program Usage*

The Department asked that we explain Saver's Switch's usage since 2007. As we noted in our 2014 Saver's Switch Annual Compliance Filing, we have had little need to control the program over the last several years.<sup>25</sup> Our Saver's Switch Tariff states

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<sup>25</sup>See Saver's Switch Annual Compliance Filing, Docket Nos. E002/M-01-46 and E002/CI-01-1024 (Feb. 13, 2015).

that interruption will normally be based on meeting peak demands, system economic dispatch requirements and reliability concerns.<sup>26</sup> Our control history shows that these criteria have been met around ten times since 2007.

In terms of modeling our Saver's Switch program in this Resource Plan, the inputs are based on current program guidelines as defined by the Rider, and recent control history. Strategist is allowed to utilize the program up to the maximum amount of hours defined in the Rider. However, a minimum savings threshold was modeled based on the recent history of market conditions. Because the hourly savings of the program must exceed this threshold in order for the program to be dispatched in the Strategist simulation, this utilization only affects the energy savings value for the program, which is a very marginal component of the overall program economics. As with most DR programs, the vast majority of the economic benefit is realized in the avoided capacity value, i.e. avoidance of incremental resource additions in the expansion plan.<sup>27</sup>

## 2. *Dispatch Process*

As we explained in our response to Department Information Request No. 321 in our 2013 Electric Rate Case (Docket No. E002/GR-13-868), we have two DR procedures: (1) Peak Control Interrupt (PCI), and (2) Energy Control Interrupt (ECI). Saver's Switch customers can be controlled under both procedures. The two primary factors that contribute to the need to control are weather conditions and available generation resources. Over the last several years, customers and system operators have benefited from favorable weather conditions and the sufficient resources available on the NSP System to meet peak demand, resulting in fewer control events.

### a. Peak Controlled Interrupt

PCI is used when reliability is at risk, and the NSP System is at risk of not being able to meet the peak demand of our customers. Saver's Switch is one of the programs that would be dispatched under our PCI procedure for system peaking conditions and reliability purposes during a system emergency. The PCI procedure may be activated to reduce customer demand that is associated with interruptible service tariffs when MISO's Reliability Coordinator (RC) instructs the NSP System to implement load management measures. Instructions from MISO's RC are given pursuant to MISO's Market Capacity Emergency Procedure for the protection of the overall system. NSP

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<sup>26</sup> See NSP Electric Rate Book, Section 5, Tariff Sheet Nos. 97-99.1.

<sup>27</sup> For additional information, see DOC IR Nos. 19-24.

System Operations may also activate the PCI procedure if it in its opinion, the reliability of the NSP System is at risk.

These steps apply to all PCI customer classifications, including commercial and industrial, residential, retail, and wholesale under the Peak Controlled Tiers I and Tier II (1<sup>st</sup> Group, 2<sup>nd</sup> Group and 3<sup>rd</sup> Group), Peak Controlled Short Notice Rider, and Saver's Switch rates in the states of Minnesota, North Dakota, South Dakota, and Wisconsin.

NSP System Operations maintains the right to use the PCI procedure in the event of emergencies associated with the delivery system, as identified by NSP Transmission, NSP Distribution, or MISO. MISO will call on Load Modifying Resources (LMR) through their LMR automated process when system conditions warrant. An activation call identifies the total amount of LMR to be deployed; the call does not identify specific resources to be curtailed. NSP System Operations chooses which LMR to activate based on operational factors (i.e. constraints and locations).

b. Energy Control Interrupt (ECI)

The intent of the ECI procedure is to reduce the cost of service as compared to market/MISO energy prices. It is generally implemented when the cost to serve the energy needs of ECI customers exceeds certain thresholds as defined in the applicable rate schedule or as determined by the Company. These curtailments reduce the overall cost to supply total system load by requiring ECI customers to reduce load or by charging ECI customers a Control Period energy price if the ECI customer elects to buy through the interruption event.

For administration purposes, we have determined that we will call an ECI event only when the production cost is expected to exceed the applicable level for three consecutive, or five total hours in a day period. These conditions are likely any time that we are implementing PCI interrupts – and are expected at times to precede and/or follow a PCI event.

The steps above apply to all ECI customer classifications, including residential, retail, and wholesale. The majority of these customers are identified under the Tier 1 Energy Controlled Rider and the Energy Controlled Service (Non-Demand Metered) rate schedules. Saver's Switch for business and residential can also be controlled as an energy resource. As also explained in our 2014 Saver's Switch Compliance filing, we have not activated Saver's Switch for this purpose over the last several years, given favorable weather conditions and energy prices.

### 3. *Anticipated 2015 Electric Rate Savings Program Waiver Impacts*

In light of the increased expectation that MISO would begin calling emergency resources more frequently over the next several years as power supply resources become tighter, we believed it beneficial to have all customers participating in our rate savings programs verify their participation level and ability to comply with program requirements year-round. We requested a waiver from our Electric Rate Savings program tariff in order to work with customers throughout 2015 to help them determine their interest and ability to remain on the rate or to adjust their participation level to accurately reflect their current operations and capabilities.

Providing a one-time waiver allows customers the opportunity to adjust their participation without charge, essentially providing an incentive to make important adjustments prior to predicted change by MISO.

We have not yet conducted the necessary analysis to determine impacts from the waiver. In our Petition seeking the waiver, we noted that we believed this customer verification step would both help customers, and help the Company ‘right-size’ the current program and provide needed assurance that these resources will be available when called upon. In terms of reporting, we described in our Reply Comments that we complete an ongoing analysis of future control seasons through our load management forecast in the March/April timeframe, which is necessary to analyze the impacts of the waiver period. We accepted the Department’s recommended reporting criteria and suggested certain modifications, one of which was extending the compliance reporting date to March 30, 2016 to incorporate the results of our load management analysis efforts – which the Department supported in its Response to our Reply Comments.<sup>28</sup> The Commission adopted the reporting criteria and timing into its May 22, 2015 Order approving the waiver.

Therefore, on or before March 30, 2016, we will submit a compliance filing in Docket No. E002/M-15-189 containing, at a minimum, the following:

- How many customers took advantage of the waiver,
- For customers that took advantage of the waiver, their annual and average monthly billed KW firm demand covered under the applicable or successor tariffs for years 2014, 2015, and estimated 2016,
- For customers that took advantage of the waiver, their annual and average

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<sup>28</sup> See Response Comments of the Minnesota Department of Commerce, Division of Energy Resources, April 17, 2015, Docket No. E002/M-15-189.

monthly billed KW controllable demand covered under the applicable or successor tariffs for years 2014, 2015, and estimated 2016,

- The forecast MW of controllable demand for all customers covered under the applicable tariffs at the beginning of the waiver period (summer 2015),
- The forecast change in MW of controllable demand covered under the applicable tariffs following the waiver period (summer 2016) from customers that took advantage of the waiver,
- The final revenue impact of this tariff waiver, and
- A discussion on the overall results of this waiver and the Peak Controlled Services program reevaluation.

#### 4. *Cost Effectiveness Calculations*

Minn. Stat. § 216B.241 defines DR, or load management, as referring to an action taken to change the timing or volume of a customer's use of energy use allowing the utility to respond to fluctuations in peak demand for the purposes of energy or capacity. Using this definition, noted by the Department<sup>29</sup>, the Company refutes the premise that electric generation peaking resources change the timing or volume of a customer's use of energy.

There are many differences between the services and benefits of DR and those of electric generation peaking resources, which is why cost comparisons of the two sources is complex. We note that DR, unlike natural gas Combustion Turbine, can vary in predictability and reliability during peak load periods. Acknowledging this complexity, we compared DR to the economic carrying charge (ECC) of a generic CT for our cost-effectiveness calculations in the Resource Plan.

We performed cost-effective calculations in Strategist across the following four distinct scenarios: (1) low, (2) medium, (3) high, and (4) reference case. If the cost of the DR was higher than the comparative ECC of the generic CT, it was screened out and not modeled in Strategist. We created these portfolios from the programs, costs, and potentials from the Brattle Study (excluding Dynamic Pricing), provided as Appendix O to our initial Resource Plan filing. DR potential increases with incentive level; therefore, the high DR portfolio had the most programs, incentives, and potentials.

The cost-effectiveness calculations include the capacity obligation benefit of DR,

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<sup>29</sup> See Comments of the Minnesota Department of Commerce, Division of Energy Resources, July 2, 2015. Docket No. E002/RP-15-21 page 48-49.

which is that it lowers the capacity obligation by an amount greater than the demand reduction it provides. The amount of DR reducing the capacity obligation is equal to the demand reduction multiplied by one plus the reserve margin. All else constant, this makes one DR unit of capacity worth more than one electric generation unit of capacity by a premium of the reserve margin. Since this is the only adjustment to the cost of the ECC of the CT, our cost-effectiveness calculations are giving a high-end value to the capacity of DR.

Table 3 below illustrates the comparison of the average costs of the Generic CT and the four scenarios we used in our Strategist modeling. We further note that these costs were derived using actual DR forecasts (Reference Case) and portfolios identified through our Demand Response Potential Study.

**Table 3: Generic CT and the Low, Medium, and High DR Portfolio Costs used in the Strategist Modeling**  
(\$/kW per year)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Generic CT (\$/kW-yr)	57.72	59.04	60.36	61.68	63.12	64.44	66.00	67.44	68.88	70.44	72.00	73.68	75.36	77.04
Low Portfolio (\$/kW-yr)	50.06	47.67	47.94	48.27	48.67	49.22	49.81	49.91	50.66	51.47	52.29	53.12	53.97	54.87
Medium Portfolio (\$/kW-yr)	65.52	64.88	65.52	66.48	67.48	68.55	69.66	70.55	71.67	72.84	74.02	75.22	76.44	77.71
High Portfolio (\$/kW-yr)	114.80	116.78	118.78	120.81	123.00	125.04	127.18	129.84	132.47	135.11	137.79	140.50	142.76	145.13
Reference Case (\$/kW-yr)	105.01	107.03	109.04	111.08	113.11	115.11	117.14	119.20	121.27	123.16	124.91	126.68	128.48	130.33

The above table shows the \$/kW per year costs used within the Strategist model to formulate the cost-effectiveness analysis as part of our review process. This information, along with Strategist sensitivities and the changing DR landscape were used in combination as we defined the DR goals outlined in the Resource Plan.

#### 5. *DR Resource Value*

The Department requested we provide a comparison between the price assigned to DR resources in our modeling and the price of DR resources submitted to MISO. Interruptible loads can provide a lower cost way to meet reserve requirements compared to acquiring or building additional physical generation capacity, and are used to maintain an adequate reserve margin to fulfill our obligation to deliver adequate, reliable electric service to our customers – regardless of unforeseen factors impacting generation supply. As such, we register our DR resources under the MISO

Tariff<sup>30</sup> as emergency resources, which allows MISO to call a control event up to five times per Planning Year.<sup>31</sup> As an emergency resource, there is no price associated with the capacity provided. Within the Strategist model, we were consistent with how we register DR resources with MISO. Specifically, we placed no incremental cost hurdle in Strategist.

## **E. Potential Environmental Drivers Impacting Sherco Units 1 and 2**

In this section, we provide additional discussion of National Ambient Air Quality Standards (NAAQS) as requested by the Department, and we respond to CEO Comments regarding future regulatory requirements that may impact the timeline for requiring SCRs on Sherco Units 1 and 2.

In summary, none of the regulations discussed by CEO currently requires emission controls beyond those already installed on Sherco Units 1 and 2, and the likely timeframe when SCRs could be required for Sherco Units 1 and 2 is the mid-2020s. The regulatory drivers that may drive SCR installation requirements are outlined below:

### *1. National Ambient Air Quality Standards (NAAQS)*

The current status and expected revisions to each NAAQS are addressed in Appendix D, pages 12-18 of our January 2 filing. When Appendix D was prepared, only the then-pending Ozone (O<sub>3</sub>) NAAQS revision represented a possible driver for further reductions in oxides of nitrogen (NO<sub>x</sub>) from Sherco Units 1 and 2.<sup>32</sup>

EPA adopted the final ozone NAAQS of 70 parts per billion (ppb) on October 1, 2015. In Comments, CEO stated that a new standard of 65 ppb or lower could result in ozone non-attainment areas in several counties in Minnesota. While that was a possibility, with the standard at 70 ppb, Minnesota's air monitoring results currently comply with the new standard. Therefore, the MPCA will not need to require further

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<sup>30</sup> Registering Demand Response resources with MISO allows the Company to obtain credit against our capacity requirements.

<sup>31</sup> The MISO Planning Year includes the 12-months period beginning June 1.

<sup>32</sup> As noted in Appendix D, page 14 of our January 2, 2015 filing, in December 2014, EPA finalized its area designations for PM<sub>2.5</sub> and did not classify any nonattainment areas in any state in which NSP operates. Therefore we do not anticipate a State Implementation Plan (SIP) process in Minnesota leading to additional NO<sub>x</sub> and SO<sub>2</sub> control requirements for PM<sub>2.5</sub> purposes. EPA is not scheduled to review and potentially revise the PM<sub>2.5</sub> standard again for five years, until 2018-19. If needed, any future emission reduction requirements for such a standard issued in 2018-19 would be required in the 2025-2030 timeframe.

emission reductions to address the new standard. We note that EPA will next review the Ozone standard in 2020.

## 2. *Regional Haze and Visibility*

As described in Appendix D, pages 21-23 of our January 2 filing, SCR is not required for compliance with Minnesota's 2009 Regional Haze SIP. MPCA determined that the NO<sub>x</sub> combustion controls currently in place at Sherco Units 1 and 2 constitute the "Best Available Retrofit Technology" (BART) for regional haze. EPA approved the State Implementation Plan (SIP) accepting these source-specific emission limits, as well as implementation of the Cross-State Air Pollution Rule (CSAPR) in Minnesota, as meeting the applicable requirements. Future developments in the regional haze program could require installation of SCRs, as described below.

### a. Litigation of Minnesota's 2009 Regional Haze SIP

A lawsuit filed in August 2012 before the U.S. Court of Appeals for the Eighth Circuit (to which two members of the CEO are party) appealed EPA's approval of Minnesota's 2009 Regional Haze SIP. The parties to the proceeding disagree with MPCA's approval of the NO<sub>x</sub> combustion controls at Sherco Units 1 and 2 as BART, and reliance on CSAPR. They believe EPA should not have approved Minnesota's 2009 SIP and should have required additional controls. In Comments, CEO states that if EPA's decision is reversed, we would almost certainly be required to install SCR at Sherco 1 & 2 to comply with BART.

A decision is expected from the Eighth Circuit in 2016. If the court finds fault with EPA's approval of Minnesota's 2009 Regional Haze SIP, the matter would be remanded to EPA, and likely the state, for further evaluation. That evaluation would first re-evaluate whether or not the adoption of CSAPR as BART is appropriate for Minnesota. If not, it would then consider the current emissions from the Units, the progress that has occurred in emission reductions for the 2009-2018 planning period beyond what the MPCA anticipated, and whether or not SCRs should nevertheless be found to be BART.

Thus, whether the Regional Haze litigation ultimately leads to a requirement for SCR will not be known for some time.

### b. 2018 Regional Haze SIP

The CEOs also assert that Minnesota's 2018 Regional Haze SIP is likely to require

SCRs for Sherco 1 Units and 2, “because with current emissions the state will not achieve the rate of process necessary to achieve natural visibility by 2064.”<sup>33</sup> This proceeding has not yet started, thus any conclusions about the likely outcome of the SIP are speculative at this time.

c. Reasonably Attributable Visibility Impairment (RAVI)

Since our January 2 initial filing, we have reached agreement with EPA and six environmental advocacy organizations, including three of the CEOs, to resolve litigation related to RAVI claims by agreeing to additional emission limitations at Sherco. As part of the settlement agreement, SCRs for NO<sub>x</sub> will not be required under RAVI.

3. *The Externalities Docket*<sup>34</sup>

The CEOs state that we should have assigned higher externality values to CO<sub>2</sub> and three criteria pollutants (NO<sub>x</sub>, SO<sub>2</sub> and particulate matter) than the Commission’s currently approved values, in anticipation of these values being set higher in the current Externalities Docket (No. E999/CI-14-643), in which a Commission decision is expected in 2016.<sup>35</sup>

Our base assumptions for Strategist modeling include the following:

- The high end of the Commission’s current externality ranges for NO<sub>x</sub>, PM<sub>10</sub>, SO<sub>2</sub>, CO and lead;
- The \$21.50/ton midpoint of the Commission’s regulatory cost range for CO<sub>2</sub> starting in 2019, as specified by the Commission; and
- The high end of the Commission’s currently approved CO<sub>2</sub> externality range in any year where the CO<sub>2</sub> regulatory value is not applied.<sup>36</sup>

We are required by Minn. Stat. § 216B.2422, subd. 3 to use the values established by the Commission in resource planning proceedings. Accordingly, when the Commission establishes new values, we will apply those values in future resource proceedings.

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<sup>33</sup> CEO Comments at 48.

<sup>34</sup> Also referred to by the CEOs as the “true cost of pollution” docket.

<sup>35</sup> State of Minnesota Office of Administrative Hearings. Second Prehearing Order. *In the Matter of the Further Investigation into Environmental and Socioeconomic Costs under Minn. Stat. 216B.2422, subd. 3*. MPUC Docket No. E999/CI-14-643, OAH Docket No. 80-2500-31888.

<sup>36</sup> See Xcel Energy January 2, 2015 filing, Appendix J at 8; Appendix D at pages 40-41; and the March 16, 2015 Supplement – Appendix at 2-3.

## CERTIFICATE OF SERVICE

I, SaGonna Thompson, hereby certify that I have this day served copies or summaries of the foregoing document on the attached lists of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota; or

xx by electronic filing.

**Docket No. E002/RP-15-21**

**Resource Plan Interested Parties**

Dated this 2nd day of October 2015

/s/

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SaGonna Thompson

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Hank	Koegel	hank.koegel@edf-re.com	EDF Renewable Eenergy	10 2nd St NE Ste 400  Minneapolis, MN 55413-2652	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Thomas	Koehler	TGK@IBEW160.org	Local Union #160, IBEW	2909 Anthony Ln St Anthony Village, MN 55418-3238	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
Frank	Kohlasch	frank.kohlasch@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd N. St. Paul, MN 55155	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
Ganesh	Krishnan	ganesh.krishnan@state.mn.us	Public Utilities Commission	Suite 350121 7th Place East St. Paul, MN 55101	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
Karen	Kromar	karen.kromar@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
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Thomas	Landwehr	tom.landwehr@state.mn.us	Department of Natural Resources	Box 37, 500 Lafayette Rd St. Paul, Minnesota 55155	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
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Chuck	Legatt	N/A	Liberty Paper Inc	13500 Liberty Ln Becker, MN 55308-4623	Paper Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Daryl	Maxwell	dmaxwell@hydro.mb.ca	Manitoba Hydro	360 Portage Ave FL 16 PO Box 815, Station Main Winnipeg, Manitoba R3C 2P4  Canada	Electronic Service	No	GEN_SL_Xcel Energy RP Interested Parties
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SaGonna	Thompson	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	GEN_SL_Xcel Energy_Xcel Energy RP Interested Parties
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