414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

October 31, 2019

Daniel P. Wolf **—Via Electronic Filing—**
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, Minnesota 55101

Re: PROPOSED METRIC METHODOLOGY AND PROCESS SCHEDULE ON PERFORMANCE METRICS AND INCENTIVES
DOCKET NO. E002/CI-17-401

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits the enclosed Report pursuant to the Minnesota Public Utilities Commission's September 18, 2019 ORDER ESTABLISHING PERFORMANCE METRICS in the above-noted docket.

Xcel Energy was instructed to work directly and collaboratively with interested parties to develop specific methods to calculate, verify, and report each of the metrics outlined in the Order. Additionally, the Company is to file by October 31, 2019 a description of the corresponding methodology underlying each of the outlined metrics, and a proposed process schedule for reporting the metrics.

We have electronically filed this document with the Commission, and copies have been served on the parties on the attached service list. Please contact Bridget Dockter at (612) 337-2096 or Bridget.Dockter@xcelenergy.com or me at (612) 330-6270 or Allen.Krug@xcelenergy.com if there are any questions regarding this submission.

Sincerely,

/s/

ALLEN D. KRUG
ASSOCIATE VICE PRESIDENT, STATE REGULATORY POLICY

Enclosures
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Dan Lipschultz	Vice-Chair
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE COMMISSION INVESTIGATION TO IDENTIFY AND DEVELOP PERFORMANCE METRICS AND POTENTIALLY, INCENTIVES FOR XCEL ENERGY'S ELECTRIC UTILITY OPERATIONS	DOCKET NO. E002/CI-17-401 PROPOSED METRIC METHODOLOGY AND PROCESS SCHEDULE

INTRODUCTION

Northern States Power Company, doing business as Xcel Energy (the Company), submits to the Minnesota Public Utilities Commission (Commission) this description of the corresponding methodology underlying each of the metrics established and described by the Commission in its September 18, 2019 Order,[1] and a proposed process schedule for reporting those metrics.

The Commission held a hearing on August 16, 2019 to establish metrics for the Company to track and report, and instructed the Company to work directly with stakeholders to develop proposed calculations, verification, and reporting methods for those metrics. The Commission ordered the Company to file the proposed methodologies by October 31, 2019.

That Order instructed the Company to 1) work directly and collaboratively with interested parties to develop proposed specific responses to calculate (to the extent not already developed), verify, and report on Commission-established metrics; 2) work with stakeholders on development of a future metric to measure workforce and community development impact; and 3) no later than October 31, 2019, file a description of the Company's proposed methodology for each of the metrics and

[1] *In the Matter of the Commission Investigation to Identify and Develop Performance Metrics and Potentially, Incentives for Xcel Energy's Electric Utility Operations*, Docket No. E002/CI-17-401, ORDER ESTABLISHING PERFORMANCE METRICS at 12-13 (September 18, 2019).

a proposed schedule for reporting the metrics. For "future metrics," the Company and stakeholders were directed to provide an update on methodology development in the October 31, 2019 filing, including a proposed schedule for finalizing methodology and a timeline of when reporting is anticipated to begin.

The remainder of this Report is organized as follows:

- Section I discusses the stakeholder engagement process, including the October 1, 2019 meeting;
- Section II describes where and whether the parties were able to reach agreement on "current", "new" and "future" metrics by Outcome, including a proposed process schedule;
- Section III addresses metric reporting.

I. STAKEHOLDER ENGAGEMENT PROCESS

Following the latest Commission Order, dated September 18, 2019, Xcel Energy held a stakeholder meeting on October 1, 2019 to discuss the Commission's established metrics. Xcel Energy was required to propose calculations, verification, reporting and possible process schedules on the established metrics labeled both "current" and "new" as outlined in the Commission Order. Metrics labeled as "future metrics" were to be discussed as development items.

A. Stakeholder Meeting Preparation Process

Xcel Energy worked with Great Plains Institute (GPI) to facilitate the October 1, 2019 stakeholder meeting, which was held at the Walker Arts Center in Minneapolis from 9:00 a.m. to 4:00 p.m.

In preparation for the all-day stakeholder meeting, the Company developed a list of each established current, new and future metric and included proposed calculations, verifications, and reporting. For current metrics, we used our existing methodologies. For those current metrics included in our Quality Service Plan (QSP) filing, this consistency seemed especially important. For new and future metric methodologies, we began the discussion with methodologies proposed by parties during the earlier stakeholder process in order to allow the group to start with as much alignment as possible.

Parties were sent a survey prior to the meeting and asked to provide responses to the question(s) below.

Example Question:

> OUTCOME – Metric Name – CURRENT/NEW/FUTURE METRIC
>
> Do you believe this metric meets the PIM (Performance Incentive Mechanism) goals and design principles process approved by Commission for:
>
> Calculation Y/N – If no, please explain what you would like to change.
> ……..
> Verification Y/N – If no, please explain what you would like to change.
> ……..
> Reporting Y/N – If no, please explain what you would like to change.
> ……..

We requested a response to each question for each Commission-established metric. Additionally, we asked parties to rank the three metrics they would most like to discuss at the October 1 stakeholder meeting. We reminded parties that, while responding to the survey, they should consider the PIM process established by the Commission on January 8, 2019 that approved goals, outcomes and design principles.[2]

Although the survey took time for parties to complete under a tight timeframe, many completed it. This provided us with the ability to better understand stakeholder thoughts and priorities to optimize our time together on October 1.

II. CURRENT AND NEW METRIC METHODOLOGY DISCUSSION BY OUTCOME

A. Stakeholder Meeting

Parties who commented on the docket were invited to participate in the October 1 meeting. Stakeholders that attended the meeting included:

- Vote Solar
- Office of Attorney General
- R Street Institute
- Public Utilities Commission (Staff)
- Department of Commerce (Staff)
- City of Minneapolis
- Xcel Energy Large Industrials
- Fresh Energy
- Citizens Utility Board
- Midwest Center for Environmental Advocacy
- Suburban Rate Authority
- Xcel Energy

***** Parties who commented but were not able to attend: ACEEE, CEE, and Midwest Co-Gen.

[2] Docket No. E-002/CI-17-401, ORDER ESTABLISHING PERFORMANCE INCENTIVE MECHANISM PROCESS, January 8, 2019.

GPI engaged a performance metric expert, Michael O'Boyle, Director of Electricity Power at Energy Innovation, to speak to the group about scorecard development best practices, challenges and metric reporting. During the meeting, we further discussed Xcel Energy's proposed calculations, verifications, and reporting and/or process schedules for the Commission established metrics. Notes were taken on-screen throughout the meeting by GPI to document comments and parties level of consensus. These are included as Attachment A to this filing. Following this meeting, we reviewed stakeholders' suggestions, as well as our and GPI's notes. Based on that review and our own internal processes, we now propose the following calculations, verifications, and reporting and/or process schedules for Commission consideration.

B. Metric Discussion by Outcome

This section is organized by each outcome, and then by the established metrics underlying each outcome. For each metric, we propose calculation and verification methodologies and note whether consensus on the methodologies was reached during the stakeholder meeting. If consensus was not reached, we include a discussion on why we believe our proposed methodologies are appropriate.

AFFORDABILITY

1. Rates per kWh based on total revenue, reported (1) by customer class and (2) with all classes aggregated – NEW METRIC

Calculation Proposed: We propose to report annually (1) total revenues from each customer class (residential, commercial, and industrial)) divided by sales for each class and (2) total revenues from all classes divided by total sales from all classes.[3]

Verification Proposed: This information is system-generated, and we do not recommend third-party verification at this time.

Consensus Reached: No. The group wanted more information about reporting capabilities. The Company sent the group follow-up information related to these capabilities on October 6.

[3] There was extensive discussion during the October 1, 2019 meeting regarding comparing the Company's rates to certain benchmark information such as using the EIA. We believe this is premature at this time and beyond the scope of the current step in the PIMS process.

2. Average monthly bills for residential customers – NEW METRIC

Calculation Proposed: The Company's proposed calculation for average monthly bills for residential customers is:

$$\frac{\text{Total Annual Residential Class Revenue / 12}}{\text{Total Number of Residential Customers Served}}$$

This is consistent with information we provide to the Energy Information Association (EIA).

Verification Proposed: This information is system-generated, and we do not recommend third party verification at this time.

Consensus Reached: No. This was not acceptable to all parties without a comparison Consumer Price Index or other economic indicator. There were also concerns over using this metric with beneficial electrification (BE) or electric vehicle (EV)loads as there is an incentive to keep bills low – it may not be a productive measure.

3. Total disconnections for nonpayment for residential customers – EXISTING METRIC

Calculation Proposed: We support continuing the same system-generated process to determine total disconnections for nonpayment used in our reporting today in Quality Service Plan (QSP) reports, Cold Weather Rule, and Annual Electric Low Income Discount reporting. This process includes internal system-generated reporting of monthly disconnections on a Commission-approved template to comply with Minn. Stat. § 216B.091.[4]

Verification Proposed: This information is system-generated, and we do not recommend third party verification at this time.

Consensus Reached: Yes.

4. Total arrearages for residential customers – EXISTING METRIC

Calculation Proposed: We support continuing the same calculation process to determine total arrearages for our reporting today in Quality Service Plan (QSP) reports, Cold Weather Rule, and Annual Electric Low Income Discount reporting. This process

[4] https://www.revisor.mn.gov/statutes/cite/216B.091, Monthly Reports.

includes internal system-generated reporting of monthly bad debt where the arrears are calculated by company, customer type, active/inactive, and number days overdue.

Verification Proposed: Internal peer review of data prior to filing annual reports and Commission review of annual reports.

Consensus Reached: Yes.

RELIABILITY

1. **Initial metrics**

    a. **System Average Interruption Duration Index (SAIDI) – EXISTING METRIC**

Calculation Proposed: System average interruption duration index (SAIDI) indicates the average interruption duration per customer during a defined period of time. The Company's proposed formula for this calculation is:

$$\frac{\text{Sum of Total Sustained Customer Interruption Durations}}{\text{Total Number of Customers Served}}$$

For purposes of this calculation, a sustained event is defined as having a duration of more than five minutes.

Verification Proposed: We propose to continue the Company's current multiple layers of data review, including an internal peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

    b. **System Average Interruption Frequency Index (SAIFI) – EXISTING METRIC**

Calculation Proposed: System Average Interruption Frequency Index (SAIFI) indicates the average number of sustained interruptions per customer over a defined period of time. To align with our proposed reporting, we recommend using January – December of each year. The Company's proposed formula for this calculation is:

$$\frac{\text{Sum of Total Sustained Customers Interrupted}}{\text{Total Number of Customers Served}}$$

Verification Proposed: We propose to continue the Company's current multiple layers of data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

c. Customer Average Interruption Duration Index (CAIDI)

Calculation Proposed: Customer average interruption duration index (CAIDI) indicated the average time to restore service to customers that have been interrupted from a sustained event. The Company's proposed formula for this calculation is:

$$\frac{\text{Sum of Total Sustained Customer Interruption Durations}}{\text{Sum of Total Sustained Customers Interrupted}}$$

Verification Proposed: We propose to continue the Company's current multiple layers of data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

d. Customers Experiencing Long Interruption Duration (CELID) – EXISTING METRIC

Calculation Proposed: Customers Experiencing Long Interruption Duration Index (CELID) indicates the ratio of customers experiencing interruptions with a duration equal to or greater than "d" during a defined period of time. The Company's proposed formula for this calculation is:

$$\frac{\text{Total Number of Customers that experienced interruptions of "d" or more hours duration}}{\text{Total Number of Customers Served}}$$

For purposes of this calculation, we propose "d" be 24 hours. This is consistent with our annual Service Quality Plan, where customers who experienced an outage of 24

hours or more receive a $50 bill credit for each occurrence of an outage lasting longer than 24 hours.

Verification Proposed: We propose to continue our current multiple-layer data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

e. Customers Experiencing Multiple Interruptions (CEMI) – EXISTING METRIC

Calculation Proposed: The Customers Experiencing Multiple Interruptions Index indicates the ratio of individual customers experiencing more than n sustained interruptions to the total number of customers served. The Company's proposed formula for the calculation of CEMI is:

$$\frac{\text{Total Number of Customers that experience more than "n" sustained interruptions}}{\text{Total Number of Customers Served}}$$

For purposes of this calculation, we propose "n" to be five sustained interruptions. This is consistent with our annual Service Quality Report, where customers who experienced more than five sustained interruptions in a year a $50 bill credit.

Verification Proposed: We propose to continue the Company's current multiple layers of data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

f. Average Service Availability Index (ASAI) – EXISTING METRIC

Calculation Proposed: ASAI is a similar metric to SAIDI; ASAI is the percentage of time service is available, whereas SAIDI is the average total amount of time service is unavailable. The Company's proposed formula for the calculation of ASAI is:

$$\frac{\text{Customer Hours Service Availability}}{\text{Customer Hours Service Demanded}}$$ [5]

Verification Proposed: We propose to continue our current multiple-layer data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission

Consensus Reached: Yes.

g. Items listed above must be reported with and without major event days

All of the above reliability metrics will be reported with and without Major Event Days. We have historically used a number of different methods for normalizing reliability results for Major Event Days. For the Service Quality tariff,[6] reporting results are normalized by applying the IEEE 1366 Beta method to determine Major Event Days to the data after first removing any Transmission Line level outages.

In the Annual Service Quality Report filing, results are normalized by determining Major Event Days where the daily number of system-wide (all levels) sustained outages exceeds a predetermined threshold level. In addition, starting in the 2018 annual Service Quality filing, we began providing IEEE 1366 Beta results based on system Customer Minutes Out (slightly different than Tariff which removes transmission line events). All Major Event Days determined in all three normalization methods are applied as a calendar day. Any outage events that begin on a Major Event Day, regardless of restoration date are removed from final indices calculations. The normalization method is applied individually to each of the four Minnesota geographic work regions (Metro East/Metro West/Outstate Northwest/Outstate Southeast), and results from each work region are rolled up to overall Minnesota numbers.

The Company recommends adjusting for Major Event Days using the Tariff method. The Tariff has many years of history, and uses the industry standard IEEE 1366 Beta methodology for the SAIDI, SAIFI, and CAIDI metrics.

[5] Customer Hours Service Demanded is total hours of service customers want in a given time period.
[6] Northern States Power Company, Minnesota Electric Rate Book – MPUC No. 2, General Rules and Regulations (continued) Section 6, 4th Revised Sheet No. 7.10.

2. Future Metrics

a. Momentary Average Interruption Frequency Index (MAIFI) – FUTURE METRIC

Calculation Proposed: The Company's proposed formula for the calculation of MAIFI is: momentary average interruption frequency index (MAIFI) where momentary events are defined as having a duration of less than or equal to five minutes.

$$\frac{\text{Sum of Total Momentary Customer Interruptions}}{\text{Total Number of Customers Served}}$$

The same normalization methods described above are applied to MAIFI. We have reported MAIFI results in the last several Service Quality Plan filings. However, in those filings we have noted that our current field equipment is not capable of capturing all momentary events and therefore the provided MAIFI index represents incomplete results. In the coming years after the Company deploys advanced metering infrastructure (AMI) throughout all of our Minnesota territory, we will then be able to provide a complete representation of the MAIFI index.

Verification Proposed: We propose to continue the Company's current multiple layers of data review, including a peer review, an annual review of reporting results by our internal audit team, and a periodic review of the outage management system process and data flow. Additionally, these metrics are filed in Annual Service Quality reports, receiving Commission review.

Consensus Reached: Yes.

b. Locational Reliability – FUTURE METRIC

Commission Staff has indicated discussion related to this metric will be moved to our annual Electric Service Quality Docket No. E002/M-19-261, so we did not discuss the metric during the stakeholder meeting, and we are not proposing any calculation here.

c. Power Quality – FUTURE METRIC

Calculation Proposed: None presently. In the future, this could be tracked and a percent of customer exceptions can be reported with AMI data. Specific capabilities are still being developed and will be determined over the coming years.

Verification Proposed: None at this time; we will know more once AMI is installed.

Consensus Reached: Yes, parties agreed that some of the issues around changes in voltage, number of power quality or voltage complaints, and transient change, sag, surge, under-voltage, harmonic distortion, noise, stability, and flicker could be included in this metric. During the meeting, we were asked if we could monitor and report at the feeder level. We do have some capability to do this, but mostly on the number of investigations or crews sent based on specific calls. We do not report voltage investigations. Our information is incomplete in our current tracking due to system capabilities and we recommend no reporting until AMI is installed.

d. Equity – Reliability by geography, income, or other relevant benchmarks – FUTURE METRIC

Calculation Proposed: We propose mapping SAIFI by zip code, and overlaying it with census income, as it provides a balanced view of overhead and underground reliability. We also recommend a five-year average view versus a single-year view.

With over 500 Minnesota zip codes in our service territory, we believe this approach will provide an appropriate level of granularity sufficient to reveal any geographic disparities in reliability. We also believe a five-year historical average look will help minimize isolated events in a single year that could skew the data.

We note that this proposed methodologies will be affected by whether particular geographic areas are served by overhead or underground feeders. Typically (although not always) year-over-year reliability performance is better for underground customers. SAIFI, therefore, will most likely show a difference in results between areas served by overhead and underground lines. We also suggest including Major Event Days, to illustrate the true customer experience.

Notwithstanding the differences in underground and overhead reliability, we believe SAIFI is the best reliability metric for conducting this assessment (although SAIDI would also work). ASAI is essentially the inverse of SAIDI, and we would expect that the vast majority of customers would have results of at least 99.9 percent, diminishing its utility for this assessment. CAIDI will likely amplify the difference between customers served by overhead and underground feeders because overhead feeders are more likely to experience outages during storms. MAIFI, similarly, is likely to amplify the difference between overhead and underground service because overhead lines are more likely to experience a problem on the system that is not permanent, such as a momentary outage caused by a lightning strike. CEMI will be very similar to SAIFI while CELID could be very similar to SAIDI and therefore not recommended.

Verification Proposed: None. This metric includes GIS mapping of the reliability metrics listed above. No other verification is proposed.

Consensus Reached: No. This proposed calculation raised many questions during the stakeholder meeting. Following that stakeholder meeting, we met with representatives from Fresh Energy on October 9, for additional feedback on what possible equity measures could overlay the reliability metrics in a heat map. Fresh Energy provided valuable insight to the process and we are appreciative. Ultimately, we determined the most consistent information is collected by the federal government in the form of census data.

We are happy to continue engaging in additional stakeholder discussions regarding future metric design, following the Commission's anticipated Order in the first quarter of 2020. We could begin reporting April 30 following the first full year compiling data.

CUSTOMER SERVICE QUALITY

1. Initial customer satisfaction metrics:

a. Existing multi-sector metrics, including ACSI and J.D. Power – NEW METRIC

Calculation Proposed: We recommend reporting from the Company's subscription to J.D. Power and public information published by ACSI.

We recommend providing deeper information from J.D. Power than ACSI due to the breadth of the respective surveys and because Xcel Energy currently uses J.D. Power to set action plans and goals to improve satisfaction in a broad set of categories. We believe that subscribing to another third party study—such as ACSI—would be duplicative of J.D. Power's current capabilities, would not provide additional insight, and would include an unnecessary additional subscription cost of $50,000 per year.[7] We have included an illustrative example of the public facing ACSI webpage survey results as Attachment B. This can be acquired without a subscription. More information on ACSI capabilities are discussed below.

The J.D. Power calculation of overall satisfaction score is a weighted index based on customer scores across 36 different attributes - which fall under six top-level categories - power quality & reliability, billing and payment, corporate citizenship, communications, price, and customer service. The weighting for each category ranges between 5 percent and 28 percent and totals 100 percent. The 36 attributes provide more specific detail for understanding in order to take action to improve satisfaction

[7] https://www.theacsi.org/index.php?option=com_content&view=article&id=149&catid=&Itemid=214&i=Investor-Owned+Energy+Utilities.

than the six top-level categories. Examples of additional topics within the attributes include customer communications during an outage, ease of understanding and fairness of pricing, ease and variety of options to pay bills, taking action to take care of the environment, helping customers understand how to reduce energy use, communicating safety around electricity and ease of using call center and website for customer service. J.D. Power data scientists use proprietary regression modeling to refine this weighting annually to maintain a present picture of what drives customer satisfaction with utilities.

J.D. Power publicly publishes annual utility scores for residential customers in December (starting 2020) at the end of its annual study. J.D. Power publishes utility satisfaction scores by region; for Xcel Energy that would be *Xcel Energy Midwest*, which J.D. Power combines customer scores for Xcel Energy customers in MN/ND/SD/ WI/MI; J.D. Power does not report scores publicly at a more granular level. Xcel Energy did confirm with J.D. Power that Xcel Energy-State of Minnesota scores could be shared annually with the Commission and used in a public facing online dashboard. This approval is necessary since this is a syndicated (non-public) study

Verification Proposed: J.D. Power is a third-party survey company. We do not believe additional verification is necessary.

Consensus Reached: No. Xcel Energy provided an in-depth look at J.D. Power capabilities at the October 1 meeting. Details of the study, including content presented on October 1 cannot be attached to this filing for proprietary reasons because J.D. Power is a syndicated study that only utilities can subscribe to.

Parties had varied opinions of the use of JD Power. Some did not believe customer satisfaction should be an established metric at all, and others did not think J.D. Power should be used because they did not have faith that it is a good reflection of how satisfied customers may be with service.

Parties asked who J.D. Power interviews and what customer data they capture. J.D. Power captures age, generation, gender, ethnicity, languages spoken in household, income within brackets, home ownership status, as well as state, county and zip code the respondents reside in. This data is self-reported by customers and not verified by J.D. Power through other sources. Due to small sample sizes in survey responses per quarter, it is better to look at this data over multiple years compared to a small time frame. J.D. Power can provide survey information on both residential and small business customers.

2. Possible future customer satisfaction metrics

a. Commission-approved utility-specific survey – POSSIBLE FUTURE METRIC

Calculation Proposed: In our May 6 Comments,[8] we proposed a new comprehensive customer satisfaction metric based on a customer's experience with the Company. We regularly survey our customers to learn about what they value with regard to our products, services, and performance. We use these learnings to make decisions about our own business, and believe the Commission and our stakeholders should likewise take them into account when making decisions in this docket. Our December 21, 2017 Comments in this docket discussed the indicators that drive customer satisfaction.

We currently have a customer experience measurement program that captures customer feedback on how well we are doing in our interactions with our customers. Xcel Energy contracts with a third-party research firm that gathers all survey responses and provides access to Xcel Energy via an online portal for analysis and reporting. The goal of the program is to collect and synthesize the voice of our customers, so teams can develop action plans to improve customer satisfaction and deliver more seamless and easy interactions.

Our proposed measurement is a single metric that provides a weighted average of customer satisfaction for Minnesota residential and business customers that interact with us through all primary channels including: contact center (phone agent and interactive voice response or IVR), website, mobile application, email correspondence, and by mid-2020, customer program participation (such as energy efficiency programs). This comprehensive approach weights individual channel scores based on a percent of actual interactions or visits per channel (e.g. 49 percent of visits were to our website, 27 percent through our IVR, etc.) in one year for Xcel Energy (all states) is measured by a third-party implementer. In 2018, Xcel Energy captured feedback from over 50,000 customers regarding their satisfaction and what we can do to improve.

Our partner collects and stores all of the customer feedback within their systems that we have access to for analysis, etc. Since timing is a key factor in capturing a customer's feelings on their experience, surveys are conducted either immediately after the interaction or within 1 to 2 days, depending on channel, as compared to J.D. Power or ACSI that usually capture feedback within 3 months of a customer interaction.

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[8] *In the Matter of the Commission Investigation to Identify and Develop Performance Metrics and Potentially, Incentives for Xcel Energy's Electric Utility Operations;* Comments dated May 5, 2019.

A core tenet of our strategy, and what customers expect from the companies they do business with, is to deliver easy and smooth interactions for completing their task or purpose of contacting a company – be it with a live person or through a growing list of digital channels such as website or mobile application. This proposed metric would reflect the satisfaction ratings from our primary communication channels that we receive from customers on a daily basis, and that we can readily use to take actions, improve the tools we provide to customers, and find solutions to improve satisfaction. This robust customer feedback platform provides feedback from customers consistently, represents the views of more customers than any other existing customer survey/feedback offering we currently have access to, and is valuable to aid in action planning.

Verification Proposed: Xcel Energy partners with a third-party customer experience company to implement the customer surveys and analyze and report on our performance. We do not believe there is a reason to provide an additional third-party verification to this proposed methodology as the surveys are already conducted and managed by a third party implementer.

Consensus Reached: No, we had little discussion about this customer satisfaction survey proposal.

b. Subscription to third-party customer satisfaction metrics, e.g. ACSI – POSSIBLE FUTURE METRIC

Calculation Proposed: As stated above, we recommend using J.D. Power as a third-party customer satisfaction indication over ACSI. Xcel Energy currently subscribes to J.D. Power, and we find ACSI to be effectively duplicative to J.D. Power. Additionally, in our opinion, ACSI is not as robust as J.D. Power. For example, J.D. Power surveys approximately 3,000 Xcel Energy customers per year (approximately 1,100 Minnesota customers). We learned from ACSI in September 2019 that they survey approximately 600 Xcel Energy customers per year (or about 250 Minnesota customers). From a statistical perspective, there is lower confidence with the much smaller ACSI sample versus J.D. Power's larger sample. Additionally, J.D. Power has 142 peer utilities in its benchmark while ACSI has 26.

Following our presentation on J.D. Power, the group acknowledged the capabilities of ACSI and additional cost may not make it a better alternative to J.D. Power.

Verification Proposed: None. Similar to J.D. Power, this is a third-party subscription service.

Consensus Reached: No, parties continue to question if customer satisfaction should be a reportable metric.

3. Utility performance metrics

a. Call center response time – EXISTING METRIC

Calculation Proposed: The Company's proposed calculation for the telephone response time metric is:

$$\frac{\text{Calls answered by a call center representative within 20 seconds + all calls handled via self-service in the Interactive Voice Response (IVR) system}}{\text{Total calls into our call centers or business office}}$$

Verification Proposed: Verification is currently completed by system outputs, internal peer review and regulatory review.

Consensus Reached: Yes.

b. Billing invoice accuracy – EXISTING METRIC

Calculation Proposed: The billing invoice accuracy metric measures the percent of accurate invoices the Company issues to its customers. The Company's proposed calculation for this is:

$$\frac{\text{Number of invoices canceled for controllable reasons}}{\text{Total number of invoices issued}}$$

The Company defines controllable reasons as human errors made by field or office personnel, billing system and metering system communications errors, and malfunctioning meter equipment.

Verification Proposed: Verification is currently completed by system outputs, peer review and regulatory review.

Consensus Reached: Yes.

c. Number of customer complaints – EXISTING METRIC

Calculation Proposed: In our 2015 multi-year rate case,[9] we proposed that the number of Customer Complaints be based on the number of complaints per 1,000 customers to

[9] *In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in the State of Minnesota*, Docket No. E002/GR-15-826, NOTICE OF CHANGE IN RATES (November 2, 2015).

regulatory agencies to ensure that performance is measured in relation to its total customer base. We propose a similar calculation here:

$$\frac{\text{Number of customer complaints}}{1000 \times 0.2059}$$[10]

Verification Proposed: Verification is currently completed by system tracking, peer review and Consumer Affairs Office tracking.

Consensus Reached: No, some parties did not agree that complaints made to agencies was a comprehensive enough view.

4. **Equity metric – customer service quality by geography, income or other relevant benchmarks – NEW METRIC**

Calculation Proposed: The Company proposes to measure this metric by overlaying census income data with geographic data for number of customer complaints only, as we have the ability to track quantity and by customer address under our current systems. Similar to the reliability metric on equity, this was also discussed with Fresh Energy on October 9, to explore additional feedback on possible equity measures that could overlay the customer service quality in a heat map. We determined the most consistent information for this metric would also be in the form of census data.

Verification Proposed: Following discussions with parties at the October 1 stakeholder meeting as well as the follow-up October 9 meeting with Fresh Energy, the Company proposes GIS mapping of the customer service quality metric "customer complaints" that undergo both a peer and regulatory review.

Consensus Reached: No, more discussion is needed. We are happy to engage in an additional stakeholder discussion regarding future metric design, following the Commissions anticipated Order in the first quarter of 2020.

We do not recommend overlaying GIS mapping with "call center response time" or "billing invoice accuracy," because we do not believe the results would be meaningful. Call center operations are managed at the statewide level, and customers' addresses are not tracked. An Xcel Energy customer calling from a Minnesota area code at the

[10] This threshold is based on 1.5 standard deviations from the seven year average number of complaints. The Company determined the average number of annual customer complaints between 2005 and 2011 to be 0.1342 with a standard deviation of 0.0478. To determine the threshold for Customer Complaints per 1,000 customers, 1.5 standard deviations were then added to the average, and the Company proposed 0.2059 complaints per 1000 customers.

same time for the same reason should experience the same service level, regardless of their service address.

Similarly, "billing invoice accuracy" is a factor of human error, system communication error and meter equipment malfunction. Overlaying GIS mapping is highly unlikely to illustrate any inequity to Minnesota customers in any particular region of the state, and could easily create false results.

Additionally, we do not have the system capabilities to identify or link service level for individual inbound phone calls to a service address or zip code that would be needed to complete GIS mapping. The Company handles more than three million calls per year from Minnesota customers; attempting to create reporting to accomplish an equity benchmark around "call center response time" would require significant effort for no gain.

ENVIRONMENTAL PERFORMANCE

For illustration during the October 1 stakeholder meeting, we provided a background on the environmental performance metrics. That PowerPoint presentation is included as Attachment C.

1. Total carbon emissions by (1) utility-owned facilities and PPA's and (2) all sources – EXISTING METRIC

Calculation Proposed: The Company proposes leveraging our reporting to The Climate Registry (TCR)[11] for calculating both of these metrics. For our reporting to TCR, we track CO2 emissions by data "pools." Pool 1 is owned zero-emission facilities; Pool 2 is owned fossil electric generating units (EGUs) equipped with continuous emission monitoring systems (CEMS); Pool 3 is owned fossil EGUs not equipped with CEMS; Pool 4 is purchased power agreements (PPAs); Pool 5 is short-term and spot-purchased power from known sources (to which we can ascribe a specific emissions rate); Pool 6 is short-term and spot-purchased power from unknown sources in the MISO market (to which we cannot ascribe a specific emissions rate so apply regional grid average CO2 rates from EPA).

In calculating total carbon emissions from utility-owned facilities and PPAs only, we would include Pools 1-4 only.

In calculating emissions from all sources, we would include Pools 1 through 6. In Pool 6, we include CO2 from MISO market purchases, but deduct CO2 from trade

[11] See https://www.theclimateregistry.org/.

margin sales (short-term sales of excess energy into the MISO market), since this energy does not serve Xcel Energy's customers, and if the energy purchasers report this CO2, including it in our reporting would result in double-counting.

Verification Proposed: Emissions reported to TCR are third-party verified by verification bodies approved by TCR and accredited by the American National Standards Institute. The information is publically available TCR's online Climate Registry Information System (CRIS).[12]

Consensus Reached: Yes. General consensus was reached. One party objected to the Commission established metric itself but proposed no alternate calculation, verification or reporting methods.

2. Carbon intensity (emissions per MWh) by (1) utility-owned facilities and PPA's and (2) all sources – EXISTING METRIC

Calculation Proposed: The Company proposes leveraging our reporting to TCR for calculating carbon intensity, as well. For carbon intensity from utility-owned facilities and PPAs only, we would divide total CO_2 from Pools 1-4 by total generation (MWh) for the resources in those pools to derive CO_2 intensity in pounds per MWh.

For carbon intensity from all sources, we would divide total CO_2 from Pools 1-6 by total generation (MWh) for the resources in those pools to derive CO_2 intensity in pounds per MWh. We would include CO_2 from MISO market purchases, but deduct CO2 from trade margin sales (short-term sales of excess energy into the MISO market) since this energy does not serve Xcel Energy's customers, and if the energy purchasers report this CO_2, including it in our reporting would result in double-counting.

Verification Proposed: Emissions reported to TCR are third-party verified by verification bodies approved by TCR and accredited by the American National Standards Institute. The information is publically available TCR's online Climate Registry Information System (CRIS).

Consensus Reached: Yes. General consensus was reached. One party objected to the Commission-established metric itself but proposed no alternate calculation, verification or reporting methods.

[12] See CRIS icon at https://www.theclimateregistry.org/.

3. Total criteria pollutant emissions – EXISTING METRIC

Calculation Proposed: Emissions of nitrous oxide (NOx) and sulfur dioxide (SO_2) are tracked based upon state and federal monitoring requirements. Various emissions monitoring methods are used, depending upon the facility and pollutant, including CEMS, fuel flow and fuel analysis. For particulate matter (PM), emissions are tracked based on allowed state reporting methodologies including stack test data and use of EPA AP-42 emission estimates.[13]

We propose reporting criteria pollutant information for utility-owned facilities only. One party suggested that it would be useful to collect and report data for PPAs. Our reporting only includes emissions from utility-owned facilities, not PPAs. Approximately 85 percent of emissions associated with the electricity we provide to our customers are from units that Xcel Energy owns, meaning we have high confidence in the quality of the data because we have CEMS data, stack test data, and fuel consumption data for these sources. The remaining 15 percent of emissions are from sources we do not own, associated with energy purchased either through PPAs or in the wholesale market. The quality of the emissions data for these sources is less certain; we may have some directly measured data from certain sources, but for the others we may have little insight into the generating source and the accompanying emissions.

Verification Proposed: Criteria pollutant emissions reporting is done in accordance with federal and state requirements; therefore, we consider the data to be robust, and we do not believe further verification is necessary.

Consensus Reached: No.

4. Criteria pollutant emission intensity (criteria pollutant emissions per MWh) – EXISTING METRIC

Calculation Proposed: We propose to track and report emissions of NOx, SO_2 and PM would be as proposed above, and then divide those figures by total MWh of generation to derive criteria pollutant emission intensity.

Verification Proposed: Criteria pollutant emissions reporting is done in accordance with federal and state requirements, therefore we consider the data to be robust, and we do not believe further verification is necessary.

Consensus Reached: No.

[13] See https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors.

5. CO_2 emissions avoided by electrification of transportation – NEW METRIC

For this metric, the Company discussed in the October 1 workshop the method proposed in its earlier comments in this docket, but also proposed for stakeholder consideration an alternate approach generally supported by stakeholders. In this approach, rather than quantifying avoided CO_2 emissions directly, two methodologies would focus on more readily measurable and settled indicators: percent of EVs participating in managed charging or TOU rates, and percent of EV charging occurring in off-peak hours.

The rationale is that electrification of the transportation sector is still at an early stage in Minnesota, so near-term efforts to promote EV adoption will deliver small CO_2 reductions and have only a small impact on Xcel Energy's load and emissions. Moreover, there are unsettled issues related to accounting of CO_2 avoidance that may become more settled in the coming years. Therefore rather than quantifying CO_2 avoidance directly, this approach focuses on two readily measured metrics that would establish the right price signals to charge EVs in ways that minimize the need for grid upgrades, enable cost-effective integration of renewables, and in the long term promote the greatest CO_2 avoidance. Over time, as EV adoption becomes more significant and CO_2 accounting becomes more settled, the metric could shift toward an approach that quantifies CO_2 avoidance directly.

Calculation Proposed: The first methodology would measure the percent of EVs in Xcel Energy's Minnesota service territory participating in managed charging programs or on whole-house TOU rates. The specific calculation we are proposing is:

$$\frac{\text{Customers on EV-specific managed charging rates or whole-house TOU rates who have self-identified as EV owners}}{\text{Number of EVs registered in Xcel Energy's service territory}}$$

The data used to derive the numerator would come from Xcel Energy's Customer Resource System (CRS) and the results of customer surveys for customers who opt into whole-house TOU rates. The data used to derive the denominator would be based on the most reliable source of vehicle registration data from the Commission, the Minnesota Pollution Control Agency (MPCA), or the Minnesota Department of Transportation (MN DOT).

The second methodology would measure the percent of managed charging customers' residential EV charging load occurring during off-peak hours.

$$\frac{\text{Total annual energy consumed (MWh) by EVs charging during off-peak hours at the residences of customers enrolled in Xcel Energy's EV TOU rates or other managed charging programs}}{\text{Total annual energy consumed (MWh) by EVs charging at the residences of customers enrolled in Xcel Energy's EV TOU rates or other managed charging programs}}$$

Both numerator and denominator would be measured as cumulative annual MWh. The data source for both numerator and denominator would be hourly customer billing data extracted from Xcel Energy's billing system. If usage data that allows for tracking off-peak EV charging by whole-house TOU customers and customers enrolled in EV demand response programs becomes available in the future, their load would be included in the calculation as well.

Verification Proposed: All data needed for the calculation is based on directly-metered MWh and/or data from public agencies (in the case of number of EVs registered in Xcel Energy's service territory). If the Commission wishes to have a third-party verify the metering information, we propose a review no more than once every three years.

Consensus Reached: There was generally strong support for the approach described above at the October 1 workshop. For that reason, we recommend the alternative approach versus our original approach filed earlier in this docket.

6. CO2 emissions avoided by electrification of buildings, agriculture, and other sectors – NEW METRIC

Calculation Proposed: As suggested in the Company's May 6, 2019 Comments in this docket, CO_2 avoidance through beneficial electrification would be calculated based on a comparison of CO_2 emitted to provide the same service (water heating, space heating, etc.) with electricity vs. with a fossil fuel. The specific calculation we are proposing is:

> (Annual average CO_2 emissions from the fossil electric appliances) – ((energy (in kWh) consumed by the electric appliance) * (the Company's annual system average CO_2 rate per kWh))

Electrified appliances powered on an all-renewable electricity product, with renewable energy certificates (RECs) retired on the subscriber's behalf, would be considered to be powered by carbon-free electricity, so the CO_2 avoided would be the full annual average CO2 emissions from the fossil fuel-powered appliance.
We would not use MISO CO_2 intensity in this calculation due to the Commission's

design principle that performance metrics "should seek to measure behaviors that are within a utility's control and free from exogenous influences, such as… market forces." Although we have control over the CO2 intensity of our own system through resource planning and acquisition, the Company has little ability to influence the market forces that determine generation mix and CO2 intensity throughout MISO, so it would not be appropriate to use MISO CO2 rates in a docket focusing on matters within the utility's control.

Verification Proposed: CO2 intensity rate used in this calculation is third-party verified and reported to The Climate Registry, but no other parts of the calculation would be third-party verified.

Consensus Reached: No, there was general agreement among stakeholders, but no consensus.

COST EFFECTIVE ALIGNMENT OF GENERATION AND LOAD

The Company primarily has one type of demand response available to customers today – specifically, demand response that sheds customer load. While Time of Use Rates can help encourage residential and commercial customers to shape their load, we have just begun exploring the impacts of changes in customer~~'s~~ behavior driven by new and yet-to-be-launched time varying rates. Our proposed calculations are, relatedly, based on currently available programs and potential programs in our five-year planning process. These will need to be updated based on actual programs over time.

During the October 1 stakeholder meeting, parties requested we clarify definitions prior to delving into the specific requirements of the Commission's established metrics. Shape, shift and shed for demand response are terms identified in Lawrence Berkeley National Laboratory's (LBNL) work for the California Public Utilities Commission identifying the demand response potential for California. LBNL's work entitled "2025 Demand Response Potential Study—Charting California's Demand Response Future: Final Report on Phase 2 Results," set a stage for future work and understanding of load reductions specifically for CA; however, the nation has taken notice as the state of the grid adjusts with the increase of renewable generation. LBNL describes demand response by type for shape, shift and shed as follows:

- **Shape** resources represent the effect of "load-modifying" resources like TOU and CPP rates, and behavioral demand response programs that do not have direct automation tie-ins to load control equipment;
- **Shift** represents DR that encourages increased energy consumption during times of day when there is a surplus of renewable generation and smooths

net load ramps associated with daily solar generation patterns. Energy consumption is then reduced during evening hours when renewable generation ramps down and net load increases, thereby "shifting" energy consumption;

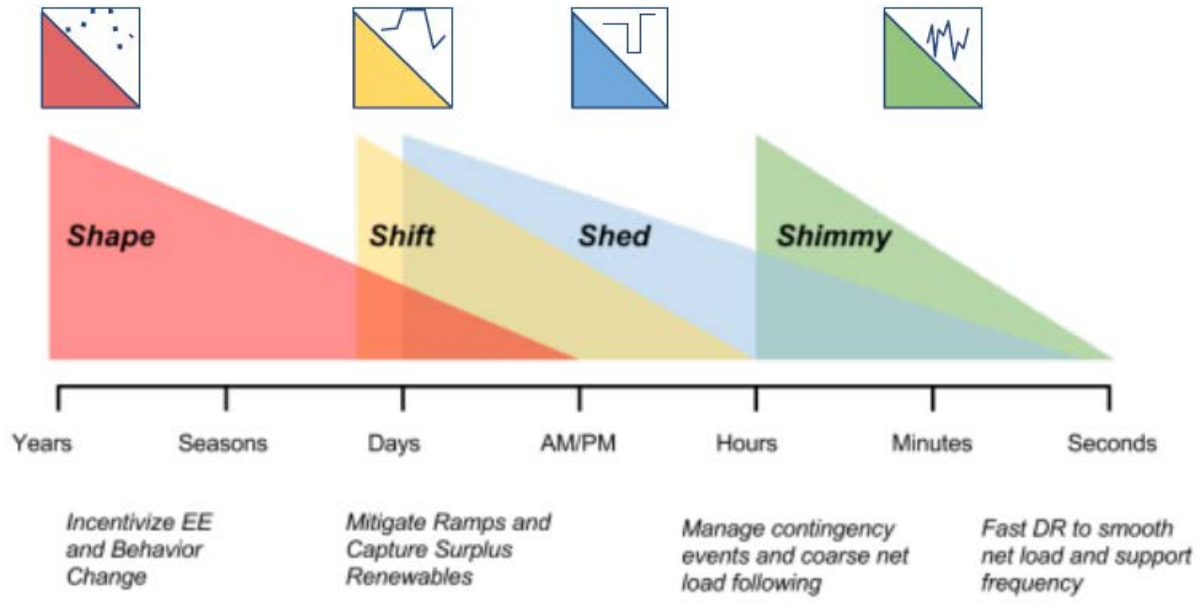
- **Shed** describes loads that can occasionally be curtailed to avoid system upgrades and generation facilities related to peak capacity – at the statewide level, in local pockets and on the distribution system with a range in dispatch advanced notice times.[14]

In our Integrated Resource Plan,[15] we shared our demand response strategy to grow our resources by 400 MW's by 2023. We describe these resources as traditional demand response and non-traditional demand response. In comparison to the LNBL definitions, traditional demand response – include shedding resources – those programs and opportunities customers have to reduce load during system peak. How to temporarily reduce load is up to the individual customer in commercial instances and is often directly controlled by the utility in residential buildings. Non-traditional resources – those that do not shed load – include those opportunities customers have to participate in that shape or shift load.

Stakeholders noted concern regarding tracking only "demand response" as described by these metrics—as opposed to tracking other mechanisms that adjust load, such as energy efficiency or the addition of distributed generation resources. Although many of our proposed calculations for the metrics below relate specifically to demand response, we will incorporate the effects of all load resources in our proposed calculation for the final metric measuring the impact of demand response measures to describe the full picture of cost alignment as described below. This will also help the Company review the impact of demand response given the overlap of these differing types of activities and portrayed by LBNL in Figure 1.

[14] "2025 Demand Response Potential Study—Charting California's Demand Response Future: Final Report on Phase 2 Results", Lawrence Berkeley National Laboratory, pg. 3-18 thru 3-20.
[15] 400 MW is a capacity equivalent number utilized for resource planning purposes.

Figure 1: DR Service Across Timescales to Meet Future Grid Needs[16]



1. **Demand response, including (1) capacity available (MWh) and (2) amount called (MW, MWh per year) – EXISTING METRIC**

The Commission established demand response metric includes (1) capacity available (MWh) and (2) amount called (MW, MWh per year). Our understanding of this metric is to summarize the amount of demand response available as defined by type in the integration of customer loads with utility supply defined in more detail in additional metrics. We currently evaluate available capacity and amount called by demand response product (such as AC*Rewards, Saver's Switch and Electric Rate Savings (ERS)). Available capacity is an existing metric and reporting requirement in integrated resource and distribution plans. We have agreed to also further break out "amount called" into finer categories, as presented by Stakeholders, to include emergency events and contingency events (those used for economic purposes or shifting of load). These details are tracked based on type of control event. As other programs and rates are developed, we will include these details and calculation methodology as part of future filings.

Calculation Proposed: Summary of details specified by demand response product and type of control event called as well as categories are defined below.

Verification Proposed: None, this is a summary metric. Demand response as defined by type has individual verifications.

[16] "2025 Demand Response Potential Study—Charting California's Demand Response Future: Final Report on Phase 2 Results", Lawrence Berkeley National Laboratory, pg. 3-14.

Consensus Reached: Yes, with changes made to include emergency and contingency events for amount called.

1. **Integration of customer loads with utility supply, including:**

    a. **Amount of demand response that SHAPES customer load profiles through price response, time varying rates, or behavior campaigns; -NEW METRIC**

Demand response activities for shaping customer load include specific customer rates such as time-of-use and behavioral demand response. The Company currently has some Time of Use (TOU) programs that fit load SHAPE profiles. As pilots are reviewed, we will monitor and verify activities that will allow for future calculations that measure these load profiles. We provide detail below that we believe would measure this type of demand response; however, they will be subject to actual programs as a future metric. Feedback provided by stakeholders included what should be measured and whether demand response was the appropriate measurement.

Calculation Proposed: We propose to calculate actual MW at system peak hour before and after rate initiation or the start of a behavioral program. As these programs mature it, will be necessary to determine how participants load would have grown over time without the program. We propose to forecast load avoided based on actual trends over time.

Verification Proposed: Commercial verification based on actual interval metering over a specific time period. Residential verification based on a sampling of population of program sans interval data. Once interval data is available we can measure both of these segments similarly.

Consensus Reached: Yes.

    b. **Amount of demand response that SHIFTS energy consumptions from times of high demand to times when there is a surplus of renewable generation;**

Demand response activities for shifting customer load include critical peak pricing, electric water heaters and auto-demand response (technologies that adjust load for later in the day). The Company currently has no programs that fit this category. We provide detail below that we believe would measure this type of demand response; however, they will be subject to actual programs as a future metric.

Calculation Proposed: Available MWh during times contingency events and/or shifts to particular times of the day over time. Calculations would likely be based on assumptions until a larger population of customers can be analyzed through a measurement and verification process to verify reduction in load. This calculation is the only demand respond type that will not forecast specific load – only actual shifting will be measured.

Verification Proposed: Commercial verification based on actual interval metering over a specific time period. Residential verification based on a sampling of population of program sans interval data. Once interval data is available we can measure both of these segments similarly.

Consensus Reached: Yes, with changes made to include emergency and contingency events for amount called.

c. Amount of demand response that SHEDS loads that can be curtailed to provide peak capacity and supports the system in contingency events; and – EXISTINGMETRIC

The Company currently has three programs for shedding load: AC*Rewards, Saver's Switch® and Electric Rate Savings (ERS). These programs are forecasted based on the methodologies described below. We further provide specifics regarding measurement of control events.

1) Available Load

Calculation Proposed: Today for those customers with interval data (such as those in the ERS program), to determine the actual potential demand reduction during an event the Company completes an analysis of actual event data collected from interval data. This analysis includes the following and may differ slightly by program:

- Collection of interval data (typically five years of data is analyzed at one time);
- Assign day of week and holidays to hourly data;
- Update hourly load relief by customer (by contract);
- Subtract firm kW to estimate potential load relief by hour;
- Calculate an average 24-hour profile by month for each customer which excludes weekends, holidays and event days;
- Gather 10 years of system peak system data to determine the most common peak hour by month based on frequency; and

- Average the controllable load kW for each customer using the most common peak hours by month using weekdays (excluding holidays and weekends) in a given year.

For customers without interval data (such as those for residential), every control season data is gathered from installed sample sites to determine load reduction capability for all Savers Switch participants. At the end of the control season we gather data for each sample point along with the corresponding weather for the control season year to use in our load management analysis.

The steps to produce the forecast of potential load relief are below:

- We forecast potential load relief for each sample customer by simulating interruptions for each hour given the two types of cycling strategies. The estimated potential load relief kW per customer is the difference between the observed load and the assumed cycling strategy of smart and standard switches. We estimate the potential load relief for all hours during the collection period (using the most current year data) by estimating the allowed hourly duty cycle that would be achieved by control and subtracting it from the observed kW load. The allowed duty cycle represents a simulation of the load level the AC would be controlled down to.
- We then average these individual load relief estimates per hour per customer class - residential or commercial. Next, using the average sample customer load relief estimates for the group from non-interrupt days across the summer, we build linear regression models with regressing sample load relief estimates against Temperature Humidity Index (using a rolling 5 year timeframe).
- From those regressions, a final model is selected based on statistical merit, to which we then apply corresponding system peaking weather conditions to derive a kW per customer load relief value.

Following the determination of a kW load relief value assuming a 100 percent control rate, we then multiply a "real world" Control Execution Rate (CER) percentage value to the 100 percent potential kW estimate. The CER is an estimate of percentage of the Saver's Switch population which successfully executes controls which serves as a "real world" achievable value for the forecast. We further note that we verify impacts of our AC Rewards product similarly. However, AC Rewards has a few distinguishing factors such as thermostat units online percentage, opt out percentage, participation percentage. Factors that are specific to this product are also qualified. As the product is early in development within the market, the measurement and verification approach is still evolving.

Verification Proposed: The analysis of forecasted load includes actual data and historical control events. A third-party is hired to produce an analysis of our residential requirements providing the details and estimations of load reduction.

Consensus Reached: Yes.

2) Actual Load Reduction Achieved

Calculation Proposed: Actual load relief is determined by measurements of load during an event. We measure actual load by hour compared to the delta between the actual load and the estimated load that would have occurred without the interruption. This metric will be broken up by event for emergency and contingency events.

Verification Proposed: At this time actual data serves as the verification mechanism. We do not believe that new verification protocols are necessary as these are existing metrics.

Consensus Reached: Yes. Stakeholders agreed that both forecasted and actual - which will be event based - would be important to include moving forward and defined between emergency and contingency events.

d. Metrics that measure the effectiveness and success of items a-c, individually and in aggregate.

This metric is intended to measure the effectiveness and success of the demand response metrics by type defined above. However, we believe the calculation of effectiveness and success should not only include the impacts of demand response as described above, but other load adjustments actively impacting the cost-effective alignment of generation to load. In broadening this metric to include all loads, we are eliminating the specific effects by demand response; yet, these details are thoroughly detailed in the summarized detail for demand response in the capacity and control metric.

Calculation Proposed: Load factor or load net of variable renewable generation. This measurement will help determine how well the Company is shaping load to integrate with the most cost-effective supply including demand response, energy efficiency and DERs. The closer to one the measurement is, the more load is being shaped.

Verification Proposed: At this time the Company does not believe that new verification protocols are necessary. Values that are already used externally, e.g. annual peak load, renewable energy production at each hour, and total annual sales, are reported to the

Department of Commerce, MISO, the U.S. Department of Energy, and other parties and can be leveraged in the proposed calculation.

Consensus Reached: N/A

WORKFORCE AND COMMUNITY DEVELOPMENT IMPACT – FUTURE METRIC

Calculation Proposed: At this time, we are unable to propose a calculation for this metric. However, the stakeholder group discussed the following two proposed concepts and generally agreed these may provide some value: (1) Utilize one or more workforce diversity reporting methodologies to be recommended by the current Commission stakeholder group in docket E,G999/CI-19-336. (2) We can develop a workforce plan with data relative to plant closures to analyze attrition, skill gaps, workforce impacts, etc., and how we plan to address the impacts as a result of plan closures. Within this plan, we could report on things such as number of employees who would leave through natural attrition (*i.e.*: retiring, number severing, and number of employees retrained or reassigned). This has not been formally reported previously; we are happy to receive feedback on this idea and want to establish what the full benefit of a plan such as this this is for the public and how it can be utilized to help in community-wide planning.

Verification Proposed: To be developed once a calculation structure has been determined.

Consensus Reached: No. We are happy to continue engaging in an additional stakeholder discussion regarding future metric design, following the Commissions anticipated Q1 Order. Additionally, parties recommended we meet with CEE regarding their report on plant communities. We commit to completing that meeting prior to the end of the first quesrter, 2020.

III. METRIC REPORTING

Although many of the established metrics discussed above are currently reported in other dockets, we understand that stakeholders and the Commission would like to see the metrics in this docket reported in one location. Parties discussed this at the October 1 stakeholder meeting and largely agreed.

We recommend a report be filed April 30 for metrics from the previous calendar year. We propose April 30 as the annual report date because some metrics are not available until the end of the first quarter of each year due to reporting timelines, such as emission data for the Environmental Protection Agency and Minnesota Pollution Control Agency or demand response information that is verified and filed annually as

part of our Conservation Improvement Programs. Under this proposal, we would begin tracking 2020 metrics starting January 1, 2020, and the 2020 reporting information would be filed April 30, 2021.

There are two caveats to this timeline. First, some purchased power data affecting our proposed carbon emissions metrics becomes available only later in the year, since it relies on emissions data published by federal agencies. We would propose including these metrics in our April 30 report, but note that our proposed calculation would be an estimate at that time. Second, the data would not yet be third-party verified on April 30; verification takes approximately a year after the end of a reported year, due to the extensive process and limited availability of the verifiers. Emissions data can change through the third-party verification process, but historically changes have been very small. For any changes, due to either purchased power data or verification, the reported data could be trued up the following year.

Finally, we note that there has been some discussion in this docket regarding a public-facing online dashboard for reporting these metrics. If at some point in the future, the Commission decides they want to investigate a public facing dashboard, we are open to having those discussions. Perhaps at a later date, other utilities will have more experience in managing both cost and customer data privacy which we can draw from. The Commission may find the Company's responses to the Department's Information Request(s) Nos. 6 and 7 in this docket helpful when considering estimated dashboard costs. It should be noted, these were very general cost estimates without knowing the dashboard expectations and third party security capabilities.

For the metrics listed below, we believe we can begin reporting April 30, 2021 for the period of January 1-December 31, 2020.

OUTCOME: AFFORDABILITY

- Rates per kWh based on total revenue, reported (1) by customer class and (2) with all classes aggregated
- Average monthly bills for residential customers
- Total disconnections for nonpayment for residential customers
- Total arrearages for residential customers

OUTCOME: RELIABILITY

- System Average Interruption Duration Index (SAIDI)
- System Average Interruption Frequency Index (SAIFI)
- Customer Average Interruption Duration Index (CAIDI)
- Customers Experiencing Long Interruption Duration (CELID)
- Customers Experiencing Multiple Interruptions (CEMI)
- Average Service Availability Index (ASAI)
- Equity – Reliability by geography, income, or other relevant benchmarks

OUTCOME: CUSTOMER SERVICE QUALITY

- Existing multi-sector metrics, including ACSI and J.D. Power
- Subscription to third-party customer satisfaction metrics, e.g ACSI, Xcel Energy alternative proposal
- Call center response time
- Billing invoice accuracy
- Number of customer complaints
- Equity metric – customer service quality by geography, income or other relevant benchmarks
- Equity metric – customer service quality by geography, income or other relevant benchmarks

OUTCOME: ENVIRONMENTAL PERFORMANCE

- Total carbon emissions by (1) utility-owned facilities and PPA's and (2) all sources
- Carbon intensity (emissions per MWh) by (1) utility-owned facilities and PPA's and (2) all sources
- Total criteria pollutant emissions
- Criteria pollutant emission intensity (criteria pollutant emissions per MWh)
- CO2 emissions avoided by electrification of transportation – Alternative & Original approach; CO2 rate would not be verified as of April 30
- CO2 emissions avoided by electrification of buildings, agriculture, and other sectors; CO2 rate would not be verified as of April 30

OUTCOME: COST EFFECTIVE ALIGNMENT OF GENERATION AND LOAD

- Demand response, including (1) capacity available (MWh) and (2) amount called (MW, MWh per year)
- Amount of demand response that SHEDS loads that can be curtailed to provide peak capacity and supports the system in contingency events

We offer three "new" and "future" metrics below, that at this time we do not have the capability to fully report on as established metrics. We will provide an update on progress in each annual report until they are fully established, then report actual data as determined by the Commission.

OUTCOME: RELIABILITY

The current AMI installation schedule shows Minnesota deployment completing in 2024. Assuming this timeline does not change, the first full year of available data would begin with 2025 and reporting in an April 30, 2026 annual report in this docket.

- Momentary Average Interruption Frequency Index (MAIFI)
- Power Quality

OUTCOME: COST EFFECTIVE ALIGNMENT OF GENERATION & LOAD
We believe SHIFTING to be a future metric. To be successful, the Company must establish a spectrum of programs that will influence costumer loads based on generation at different times of day and various parts of the year. As these programs develop, we can refine the best methodology to incorporate demand response. The Company is actively exploring programs to fill the gap between our current demand response portfolio (of shedding resources) and other demand response programs considered for shape and shifting future resources. Once these programs are proven to be effective, this metric can be developed in a way to ensure alignment of the Company's initiatives with customer benefit.

- Amount of demand response that SHAPES customer load profiles through price response, time varying rates, or behavior campaigns;
- Amount of demand response that SHIFTS energy consumptions from times of high demand to times when there is a surplus of renewable generation

Metrics that measure the effectiveness and success of DR items individually and in aggregate–we believe this to be a future metric as well. As these programs develop, we can refine the best methodology to incorporate not only demand response metrics for load shape but other values as well. Today, funding for customer programs is limited by the energy savings achieved when benefits to all customers go beyond the event through avoided infrastructure costs. The Company is actively exploring programs to fill in this gap between traditional demand response and traditional energy efficiency and once proven to be effective, this metric can be developed in a way that ensures alignment of the Company's initiatives with consumer benefit.

CONCLUSION

Thank you for the continued opportunity to participate in this proceeding through the stakeholder workshops and comment process. Minnesota's current regulatory model is strong with some successful performance based ratemaking currently in place. However, we recognize the need to update current metrics and engage new metrics that align with current policy objectives. We look forward to further discussions in this metric establishment process.

Dated: October 31, 2019

Northern States Power Company

GREAT PLAINS INSTITUTE | Better Energy. Better World.

Xcel Energy Performance Metrics
October 1, 2019 Meeting Notes

October 30, 2019

Background

Following multiple stakeholder meetings and comment periods as part of Docket 17-401, the Minnesota Public Utilities Commission held a hearing on August 16th, 2019 where it refined a list of performance metrics that stakeholders had proposed to be considered for Xcel Energy's next multi-year rate plan. The Commission asked Xcel Energy to work with stakeholders to come back with a proposal for calculating, verifying, and reporting the refined listed of metrics by October 31, 2019. Those metrics would then be considered by the commission (along with an anticipated comment/reply period), with a final decision expected in the first quarter of 2020, and with the expectation that the metric calculation period will begin retroactively on January 1, 2020.

October 1, 2019 Meeting

The Great Plains Institute (GPI) partnered with Xcel Energy to coordinate a stakeholder meeting -- for commenting parties only -- on October 1, 2019 from 9am-4pm in Minneapolis. This meeting was intended to provide an opportunity to discuss an initial draft of Xcel Energy's proposal for metric calculation, verification, and reporting. The meeting was open to parties who had participated in the stakeholder process to date and who planned to submit comments to the PUC in the next comment period.

In advance of the October 1, 2019 meeting, stakeholders were sent a draft proposal from Xcel Energy for metric calculation, verification, and reporting, along with a survey to provide initial feedback on that proposal. Feedback provided in the survey was referenced throughout the October 1 stakeholder meeting to ensure that parties were given an opportunity to speak to their questions and concerns.

Several Xcel Energy staff members were present at the October 1 meeting to be able to answer stakeholder questions. For some metrics, Xcel Energy staff gave short presentations to raise the shared level of understanding on that metric. During the meeting, GPI staff went through each of the metrics individually, allowing questions and discussion and ultimately placing each proposal for metric calculation, verification, and reporting into one of the four buckets below:

- Consensus as-is (all parties found Xcel Energy's proposal acceptable)
- Consensus with changes (all parties could accept the proposal, given an agreed-upon change)
- No consensus (all parties could not find agreement on the proposal)
- Need more information (parties could not make a decision without first having additional information that was not yet available)

Notably, some stakeholders were concerned at the beginning of the meeting that their participation in the meeting would signify consent to the Commission's overall multi-step process of establishing performance metrics for the purpose of evaluating the need for performance incentives down the road. Facilitators made clear that the purpose of this meeting was only to provide input on Xcel Energy's proposed procedures for metric calculation, verification, and reporting, and that active participation in this meeting should not limit any party from submitting written comments that would question or argue against the overall multi-step process that the Commission is following as part of Docket 17-401.

Organizations that attended this meeting are listed below, followed by a table listing out each of the metrics in Xcel Energy's proposal, along with the number for that metric corresponding to the pre-meeting survey, whether the metric is existing or new, the status of consensus reached during the meeting, notes on that status, and additional meeting notes that were taken on-screen during the meeting.

Importantly, the stages of consensus indicated in these notes represent stakeholder perspectives at the time of this meeting and given the information available at that time. New information that becomes available between the meeting date and Xcel Energy's final filed proposal may affect the stages of consensus listed in these notes.

Organizations that attended the October 1, 2020 meeting:

- Citizens Utility Board of Minnesota
- City of Minneapolis
- Fresh Energy
- Kennedy & Graven, Chartered
- Minnesota Center for Environmental Advocacy
- Minnesota Department of Commerce
- Minnesota Public Utilities Commission (as observer only)
- Minnesota Office of the Attorney General
- R Street Institute
- Stoel Rives (on behalf of Xcel Large Industrials)
- Vote Solar
- Xcel Energy

The Great Plains Institute would like to thank all stakeholders for their active participation in this meeting.

Questions about these meeting notes should be directed to Trevor Drake, Program Manager, at tdrake@gpisd.net.

AFFORDABILITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
Rates - per kWh based on total revenue -- all customers aggregated	1	New	Need more info	Xcel Energy to provide more information about how EIA calculates this.	• Some stakeholders felt that this metric was too blunt to be useful, though others noted that this metric is useful as a comparison to rates by customer class. • There was some confusion among stakeholders about how this is measured exactly. Xcel Energy offered to follow up with more details. • It was noted that the value of this is in drawing a comparison year-over-year for an individual utility, but that it's not useful to compare across different utilities.
Rates - per kWh based on total revenue -- by customer class	2	New	Need more info	Xcel Energy to provide more information about how EIA calculates this.	• See "Rates - per kWh based on total revenue -- all customers aggregated"

AFFORDABILITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

Average monthly bill for residential	3	New	No Consensus	Not acceptable to all parties without comparison to CPI or other economic indicator.
				
				Would be acceptable to some parties if there was a way to break out electric heating and EV loads (but noted that it's not possible to do that right now through EIA data).
					• What about beneficial electrification? This may be best for just for reporting, or could be incentivizing lowest possible bill (which doesn't coincide with beneficial electrification)
					• How much of the bill is influenced by fixed charges vs volumetric?
					• Wouldn't it be more useful to compare average bills against an indicator of the economy, such as CPI? (rather than against other utilities)
					• If it's compared against other utilities, which utilities is it compared against?
					  ○ Xcel pulls for NSP territory, so would compare to other utilities in those states
					  ○ BUT is what's reported by the other utilities comparable to what XE reports?
					  ○ Utilities provide revenue, sales, and customer count to EIA, but don't always do so on the same frequency, so there's work that needs to be done to make these comparisons.
					  ○ Question about how best to draw comparisons across utilities, given differences in customer base.
					  ○ Will it include a comparison to other utilities? YES

Total disconnections for nonpayment for residential customers	4a	Existing	Consensus As-Is		• Do you measure time to reconnect? * XE to follow up with experts on this, and think about it. * Suggest to measure this.
Total arrearages for residential customers	4b	Existing	Consensus As-Is		

RELIABILITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

SAIDI - System Average Interruption Duration Index indicates the average accumulated interruption duration per customer during a defined period of time.	5	Existing	Consensus As-Is		• Are major event days extracted? Yes, but request to have that explicitly stated. XE can do this (same for CELID)
					• Will reporting take place in separate dockets?
					  ○ Initially, yes, untill we figure out a dashboard for consolidated reporting.
					• Can reliability metrics be compared to other utilities in the region?
					  ○ Yes, XE does include a comparison in its filings for SAIDI and SAIFI.
					• What about the need to remove transmission outages?
					  ○ Was decided in negotiations in 2011
					• Who bears the cost of improving (reliability of) the system, if in the future, we incentivized performance?
					  ○ XE to follow up on this
					  ○ Request to clarify that it's based on company-funded capital.

SAIFI - System Average Interruption Frequency Index indicates the average number of sustained interruptions per customer over a defined period of time.	6	Existing	Consensus As-Is		
CAIDI - Customer Average Interruption Duration Index indicates the average time to resotre service to customers that have been interrupted from a sustained event.	7	Existing	Consensus As-Is		

RELIABILITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
CELID-Customers Experiencing Long Interruption Duration Index indicates the ratio of customers experiencing interruptions with a duration equal to or greater than "d" during a defined period of time.	8	Existing	Consensus As-Is		
CEMI - Customers Experiencing Multiple Interruptions indicates the ratio of individual customers experiencing more than "n" sustained interruptions to the total number of customers served during a defined period of time.	9	Existing	Consensus As-Is		• Of interest to have a metric that displays transmission line events. ○ Going forward, will include count of days and IEEE method at all levels, which would include transmission outages.
ASAI- Average Service Availability Index indicates the fraction of time that a customer has received power during a defined period of time.	10	Existing	Consensus As-Is		

RELIABILITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
MAIFI -Momentary Average Interruption Frequency Index indicates the average frequency of momentary interruption events per customer. This index does not include the events immediately preceding a sustained interruption. A momentary event is defined as having a duration of less than or equal to 5 minutes.	11	New	Consensus As-Is		• 90% of customers covered on feeder level events, but can't do anything below the mainline without AMI. • Objective formula, just need the inputs.
Locational Reliability (SEPARATE DOCKET)	12	N/A	N/A	This metric was not discussed as it is being moved into a separate docket by the PUC.	• Being moved into Docket 19-261. • Will this delay things? ○ Identified as a future metric, so there wasn't a deadline for it, though it may be slower.

Power Quality	13	New	Consensus As-Is		• Are you able to monitor and report at the feeder level?\
					  ○ A little, but mostly the number of investigations or crews sent based on specific calls.
					  ○ Do report voltage investigations

Equity-Reliability	14	New	Need more info	Xcel Energy to look into possibility of using existing census tract data and geographic data on outages to develop an equity-reliability metric.	• Can you use proxies to estimate demographic data?
					  ○ Suggestion to use census tract data and match it up with geographic data on outages.
					  ○ XE willing to look into this and overlay data sets, but NOT wanting to collect demographic data on customers. Perhaps could have a CEMI metric on this.
					  ○ Note that AMI can help with granularity of data, to be able to overlay with census tract data.
					  ○ XE did provide metro and whole state maps, which provide a start for geographic overlays.
					• Would equity-reliability be reported for EACH of the reliability metrics? And how would it apply to power quality issues that are not discernible without AMI, but that could be tracked at the feeder level? How many customers would trigger a count?
					  ○ Any outage on a feeder gets aggregated to that feeder.
					  ○ How do you flag that a particular feeder in a specific neighborhood has an issue?
					  ▪ Xcel has a process to identify worst performing feeders. Top 5 are summarized in an annual report. Is XE proposing to report that?
					• How is locational reliability different than equity reliability?
					  ○ Equity is looking at impacts on the most vulnerable customers/communities.
					  ○ Seems that we need locational reliability to assess equity reliability.
					• Infrastructure age (noted just beginning to track) could show areas of under-investment.
					  ○ Xcel is looking at feasibility of undergrounding in some areas with old equipment.
					• Would be helpful to define "equity"
					• Figuring this out seems to create a need for a faster process to develop locational reliability metrics.
					• Not looking for perfection at this stage, but want to see an attempt to overlay data that's available today to get at an equity proxy.
					• Fresh Energy willing to be a resource.

CUSTOMER SERVICE QUALITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

Customer Satisfaction -- Interim basis: Existing multi-sector metrics - ACSI & JD Power (We have JD Power)	15	New	Need more info	Xcel Energy to look into ability to report sub-scores of the overall JD Power score.
				
				Xcel Energy to also look into small business reporting.
					• Don't think customer satisfaction should be a metric because it's too squishy. Don't think JD Power should be used -- don't have faith that it's a good reflection of how satisfied customers may be with service.
					• Are there other providers of satisfaction scores?
					  ○ Yes, but not substantially different from what JD Power provides.
					• WHO does JD Power interview?
					  ○ They provide age, gender, and income within brackets. Small sample quarterly, better picture over multiple years.
					  ○ Residential ONLY, but have a separate survey for small business (which XE also subscribes to).
					• Could XE also report small business?
					  ○ Yes, though smaller sample size.
					• Can't imagine a scenario with performance incentives around customer satisfaction. See this as an information-only metric.
					• Could support if the reporting included several tiers of data (e.g., drill down into sub-scores of the overall score).
					• Can this be broken out just to XE service in Minnesota?
					  ○ Yes.

Customer Satisfaction -- Possible future: need to report on ability and timeline on 10/31	16	N/A	No Consensus	More work is needed to refine this metric before stakeholders can consider it.	
Customer Satisfaction -- commission approved utility specific survey or	17	New	No Consensus	More work is needed to refine this metric before stakeholders can consider it.	• Xcel has discussed internally an immediate customer feedback process (e.g., survey immediately every time a customer interacts with Xcel). • Concerned about the manipulation risk of self-reporting (per California example).

CUSTOMER SERVICE QUALITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
Customer Satisfaction -- subscription to 3rd party customer sat metric, e.g. ACSI	18	New	No Consensus	More work is needed to refine this metric before stakeholders can consider it.	
Utility Performance -- call center response time	19	Existing	Consensus As-Is		
Utility Performance -- billing invoice accuracy	20	Existing	Consensus As-Is		• In the future, AMI should be used to verify this.

Utility Performance -- #of customer complaints	21	Existing	No Consensus	Stakeholders raised concern that this metric does not include complaints that go directly to Xcel (see notes at right) and asked Xcel Energy to address that before agreeing to it.	• Useful to know what the complaints are -- what's the degree of issue?
					  ○ Complaints are categorized in the QSP filing. Good with this.
					• What does # of complaints mean? It should be more about the QUALITY of complaints (e.g., escalated complaints) rather than just the number.
					  ○ THIS metric captures complaints that come from OAG, PUC, or BBB, so those tend to be more escalated complaints.
					  ○ Phone calls from customer to Xcel are NOT captured as part of this metric. BUT XE does put together a complaints report, along with assigned dispositions. Submitted every May 1st.
					• Does Xcel track the time to mitigate complaints?
					  ○ Yes, XE tracks # resolved within 10-day timeframe, and those that take longer.
					  ○ This COULD be added to a comprehensive customer satisfaction score.
					  ○ XE also gets a report from the consumer affairs office.
					• Missing a segment of serious complaints that go directly to Xcel -- request to address that.

CUSTOMER SERVICE QUALITY					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
Equity - Performance/satisfaction (by geography for the utility performance list above)	22	New	Consensus, W/ Changes	See “Equity Reliability.” Stakeholders would like Xcel Energy to use census tract data to estimate this.	• Same comments as equity reliability - try to find a way to get at this using census tract and utility data.

ENVIRONMENTAL PERFORMANCE					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
Carbon Intensity (emissions per MWh) -- utility-owned facilities and PPAs	N/A*	Existing	No Consensus	This metric was not acceptable to all parties.	

Carbon Intensity (emissions per MWh) -- all sources	N/A*	Existing	No Consensus	This metric was not acceptable to all parties.	• How far back are you going?
					  ○ Have that data back to 2005 (which would capture MERP). But PUC asked to be able to start recording as of January 1, 2020.
					  ○ Would be helpful to look backward to know what we've spent to reduce to the level we're at today. It's a baseline issue.

CO2 emissions avoided by electrification of transportation	N/A*	New	No Consensus	This metric was not acceptable to all parties.	• How do we know that the EV purchase/charging is due to Xcel's efforts?
					  ○ Never will be fully Xcel's action that will lead to an EV purchase. XE can do some things to influence this though.
					  ○ This focuses on a metered # of kWh that go into the EV
					• What to use in terms of the emissions source?
					  ○ Preference for shorter term actuals, as opposed to what's forecasted in the IRP
					  ○ This has been debated in other EV dockets - discussion between MISO and Xcel rates. XE prefers their rates, but still some discussion about which XE rates to use.
					• Additional XE proposal to measure program participation, rather than avoided carbon emissions, in the short term since initial emissions impacts will be very low.
					  ○ Like the alternative proposal -- some like as supplementary to measuring emissions.
					  ○ Proposal to start with this "alternative" option and then move towards measuring avoided carbon emissions, as requested.

ENVIRONMENTAL PERFORMANCE					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
CO2 emissions avoided by electrification of buildings, agriculture, and other sectors	N/A*	New	No Consensus	This metric was not acceptable to all parties.	• If a home-delivered fossil heating source - suggest to use an emissions leakage factor or actual leakage amounts (e.g., include both on-site and upstream methane leakage).
Total carbon emissions -- utility-owned facilities and PPAs	23	Existing	No Consensus	This metric was not acceptable to all parties.	
Total carbon emissions - all sources	24	Existing	No Consensus	This metric was not acceptable to all parties.	

Total criteria pollutant emissions	25	Existing	Need more info	Xcel Energy will look into the possibility of collecting and reporting data for PPA's.	• Would be useful to collect and report data for PPA's
					  ○ XE will look into it.
					• Could there be NOx (or other criteria pollutant) emissions from gas plants?
					  ○ Yes, but much less than coal.

Criteria pollutant emissions intensity, i.e. emissions Per MWh	26	Existing	Need more info	Xcel Energy will look into the possibility of collecting and reporting data for PPA's.	• Same comments as "Total criteria pollutant emissions."

ENVIRONMENTAL PERFORMANCE					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

DR capacity available (MW)	27	Existing	Consensus, W/ Changes	Stakeholders are comfortable with this as long as Xcel Energy breaks out DR capacity for emergency and non-emergency uses.	• Limited only to programs?
					  ○ "Programs" encompass all DR offerings
					• Does this include both emergency and economic/load alignment DR?
					  ○ Yes, and that can be split out (though currently just have DR for emergency)
					  ○ New DR in IRP?
					  ▪ Will have both emergency and non-emergency
					  ○ Are you including transmission and transmission transformed customers?
					  ▪ Yes, and they can be separated out today.
					• Do you use DR for both emergency and contingency, and can it be broken out that way?
					  ○ Yes XE can break this out.
					• Is it possible to break out distribution system and generation?
					  ○ Doesn't affect the numbers today, but geo-targeted programs in the future may be able to do this.

DR amount called (MW, MWh per year)	28	Existing	Consensus, W/ Changes	Stakeholders are comfortable with this as long as Xcel Energy breaks out DR capacity for emergency and non-emergency uses.	

COST-EFFECTIVE ALIGNMENT OF GENERATION AND LOAD					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

Integration of customer load with utility supply -- Amount of DR that SHAPES customer load profiles through prices response, time varying rates, or behavior programs	29	New	Consensus, W/ Changes	Stakeholders were comfortable with this, as long as Xcel Energy clearly states how they are defining “shape” for the purposes of this metric.	• What’s the granularity level?
					  ○ System level today, but AMI would change this
					• Need to define shed, shape, shift -- some parties OK with Xcel defining as long as it's clear how they're doing that.
					• XE proposes to use LBNL report to define shape, shift, shed.
					• Are we just looking at "available" DR, or also how much is actually being used?
					  ○ XE willing to do this where tracking allows it.
					• How can we measure behavioral DR?
					  ○ Currently only through deemed savings, but in the future AMI will help with this.
					• Can we measure outside of just the peak hour?
					• Can we measure DR broadly --demand flexibility?
					  ○ XE can report on what they have available to them. Can go outside of CIP.
					• Where do cost savings show up in these metrics (or why don't they)? Can XE estimate cost savings?
					  ○ XE willing to explore it. Something to aspire to.
					  ○ Intended as system-wide savings, as opposed to individual customers.
					  ○ This may be difficult to accurately measure. Counterfactual issue.

Integration of customer load with utility supply -- Amount of DR that SHIFTS energy consumption from times of high demand to times when there is a surplus of renewable generation	30	New	Consensus, W/ Changes	Stakeholders were comfortable with this, as long as Xcel Energy clearly states how they are defining “shift” for the purposes of this metric.	• See notes for metric #29 (load shaping DR)

COST-EFFECTIVE ALIGNMENT OF GENERATION AND LOAD					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**
Integration of customer load with utility supply -- Amount of DR that SHED's loads that can be curtailed to provide peak capacity and supports the system in a contingency event	31	Existing	Consensus, W/ Changes	Stakeholders were comfortable with this, as long as Xcel Energy clearly states how they are defining “shed” for the purposes of this metric.	• See notes for metric #29 (load shaping DR)
Integration of customer load with utility supply -- Metrics that measure the effectiveness and success of a-c individually and in aggregate	32	N/A	Need more info	Xcel Energy to look into whether they can measure load factor of net load.	• Suggestion to measure load factor of net load. XE can probably do this, but will follow up to double check.

COST-EFFECTIVE ALIGNMENT OF GENERATION AND LOAD					
Metric	**Survey #**	**New/ Existing**	**Status**	**Status Notes**	**Stakeholder Comments**

Workforce and community development impact	33	New	To Discuss	This metric needs further discussion before stakeholders can assess it.	• Report due to legislature by January 15th, focused on workforce and supplier diversity.
					• XE may also be able to report on how they're working with plant communities on plant closures.
					• Suggest Xcel to work with CEE to review their report on plant communities.
					• Questions/feedback:
					  ○ What will be included in the January 15th report?
					  ○ What are we talking about in terms of number for plant closure impacts? (e.g., # employees retiring, # severing, and # retraining)
					  ▪ Anticipated net impact by year
					  ○ Tax revenue and local employment losses expected as a result of closures?
					  ▪ XE could address trying to bring in other business to offset tax revenue and employment losses for affected communities.
					  ○ Are impacts both positive and negative?
					  ▪ Include both losses due to plant closures and gains due to development of new RE generation.

** These four metrics were accidentally omitted from the survey form by GPI staff, which is why they do not have a survey #. However, these metrics were still provided as part of the draft proposal for review in advance of the meeting and discussed during the meeting.*

X close

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Benchmarks By Company

Investor-Owned Energy Utilities

	Base-line	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	Previous Year % Change
CenterPoint Energy	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	73	72	74	75	78	78	80	82	84	81	81	76	79	82	80	-2.4
Consolidated Edison	77	76	74	71	69	73	71	66	74	72	68	68	68	69	66	66	66	72	71	70	69	68	71	79	78	78	0.0
Atmos Energy	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	75	78	78	81	83	85	83	82	77	80	80	78	-2.5
NextEra Energy	77	77	74	69	75	74	76	73	71	73	76	74	68	73	76	76	75	78	80	80	76	77	76	75	76	77	1.3
Southern Company	78	78	76	77	79	78	80	80	81	82	81	79	80	82	81	78	78	77	81	83	80	77	76	77	79	77	-2.5
NiSource	NM	NM	NM	NM	NM	NM	NM	67	68	66	68	68	66	72	70	71	76	76	81	81	78	78	73	78	78	76	-2.6
Dominion Energy	74	75	72	74	75	74	75	65	70	72	67	71	70	73	75	72	75	77	80	82	80	78	74	77	78	76	-2.6
WEC Energy	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	75	75	75	76	1.3
Ameren	NM	NM	NM	NM	NM	NM	NM	78	76	77	74	75	74	57	64	68	71	71	78	74	76	76	72	74	76	75	-1.3
Sempra Energy	NM	NM	NM	NM	NM	NM	NM	67	74	77	77	79	75	80	80	80	83	81	83	80	82	79	75	78	77	75	-2.6
Entergy	75	76	75	70	70	69	74	69	74	71	73	75	70	73	74	74	73	76	78	81	76	77	70	74	75	75	0.0
Edison International	76	74	77	78	75	73	78	60	66	69	71	75	78	74	75	77	75	75	76	77	77	76	74	76	76	75	-1.3
Berkshire Hathaway Energy	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	78	79	79	79	79	82	77	75	72	76	76	74	-2.6
Xcel Energy	NM	NM	NM	NM	NM	NM	NM	65	74	73	70	68	70	71	73	76	72	74	74	76	75	76	71	73	73	74	1.4
Exelon								66	69	71	71	71	70	68	69	70	72	73	70	74	75	69	70	71	72	73	1.4
Investor-Owned Energy Utilities																		**74**	**76**	**77**	**75**	**74**	**72**	**75**	**75**	**73**	**-2.7**
CMS Energy	79	76	77	75	73	76	76	75	76	78	71	74	72	73	74	70	75	77	75	79	78	76	71	74	75	73	-2.7
PPL	NM	NM	NM	NM	NM	NM	NM	80	80	80	79	80	81	81	78	79	74	79	80	80	79	78	75	77	78	73	-6.4
DTE Energy	78	78	78	75	74	74	75	74	68	72	71	68	65	70	72	71	72	73	72	78	80	74	72	73	73	72	-1.4
Public Service Enterprise Group	79	80	77	75	74	73	78	75	76	76	73	74	75	73	75	76	78	78	77	74	70	72	68	72	72	72	0.0
All Others	75	73	75	74	75	74	76	68	74	72	74	74	70	72	72	72	74	72	75	77	74	73	70	75	75	72	-4.0
FirstEnergy	NM	NM	NM	NM	NM	NM	NM	72	77	76	69	71	75	76	77	74	75	78	76	75	73	79	69	73	73	72	-1.4
National Grid									73	75	69	72	65	71	71	71	70	NM	NM	NM	NM	NM	71	71	73	71	-2.7
Duke Energy	82	80	83	79	78	80	79	79	79	77	78	78	80	79	76	77	76	77	79	75	77	72	70	73	73	70	-4.1
PG&E	73	71	72	71	68	71	73	49	58	66	66	67	68	72	70	73	70	67	69	74	70	71	72	74	70	70	0.0
Eversource Energy	70	70	72	67	65	68	72	76	72	73	68	74	72	69	68	72	74	75	59	73	71	66	65	71	70	68	-2.9
American Electric Power	78	80	82	77	78	77	79	76	75	74	75	74	75	73	76	74	73	72	79	75	77	74	70	72	73	68	-6.8
Iberdrola	NM	NM	NM	NM	NM	NM	NM	73	73	71	70	73	74	70	75	73	72	NM	NM	NM	NM	NM	NM	NM	NM	NM	N/A
Reliant Energy	NM	NM	NM	68	73	73	75	67	74	70	68	69	69	65	72	69	72	NM	NM	NM	NM	NM	NM	NM	NM	NM	N/A
Unicom	71	68	68	62	66	62	59	#																			N/A

PECO Energy	NM	72	70	65	66	71	72	#																		N/A
Niagara Mohawk Power	69	73	64	65	68	68	69	69	#																	N/A
KeySpan	NM	NM	NM	NM	NM	NM	NM	68	72	71	74	70	71	74	#											N/A
Progress Energy	NM	NM	NM	NM	NM	NM	NM	76	77	75	78	75	77	77	77	75	73	78	76	#						N/A
Cinergy	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	74	75	71	#												N/A
Central and South West	77	82	78	78	NM	76	79	#																		N/A
PacifiCorp	NM	NM	NM	NM	NM	NM	NM	72	71	76	NM	NM	#													N/A
Allegheny Energy	NM	NM	NM	NM	NM	NM	NM	79	80	76	75	74	80	79	NM	NM	NM	#								N/A
Energy Future Holdings	73	74	77	70	76	74	76	71	75	74	74	72	65	63	68	72	73	NM	NM	NM	NM	NM	NM	NM	#	N/A
Pepco Holdings	NM	NM	NM	NM	NM	NM	NM	NM	NM	77	72	73	71	70	69	68	70	54	69	71	73	72	69	#		N/A
GPU	77	79	79	69	75	75	78	#																		N/A

Score tables print best in landscape.

Legend

NA	Not available
#	Company merger
†	Company defunct
NM	Not measured
^	Industry aggregated

Notes

ACSI releases industry results throughout the year and updates the national index quarterly. Baseline measurements are from the summer of 1994.

**The limited-service restaurant industry was not measured in 2004 due to a change in the quarterly measurement system that was in place at that time.
***Measurement for the Internet travel industry was moved from the fourth quarter of 2013 to the first quarter of 2014.

The "All Others" score for an industry represents the remainder of the total industry market share, less the market shares of the ACSI-measured companies. It is an aggregate of a representative number of customer interviews from each of potentially hundreds of smaller companies within the industry. Individual company scores within the "All Others" category cannot be derived without additional data collection (see "ACSI Products and Services," or to generate your own ACSI score using the ACSI methodology, see "ACSI Monitor^{SM}").

Background for Environmental Performance Metrics

Nick Martin, Manager, Energy & Environmental Policy

Commission-approved metrics (existing)

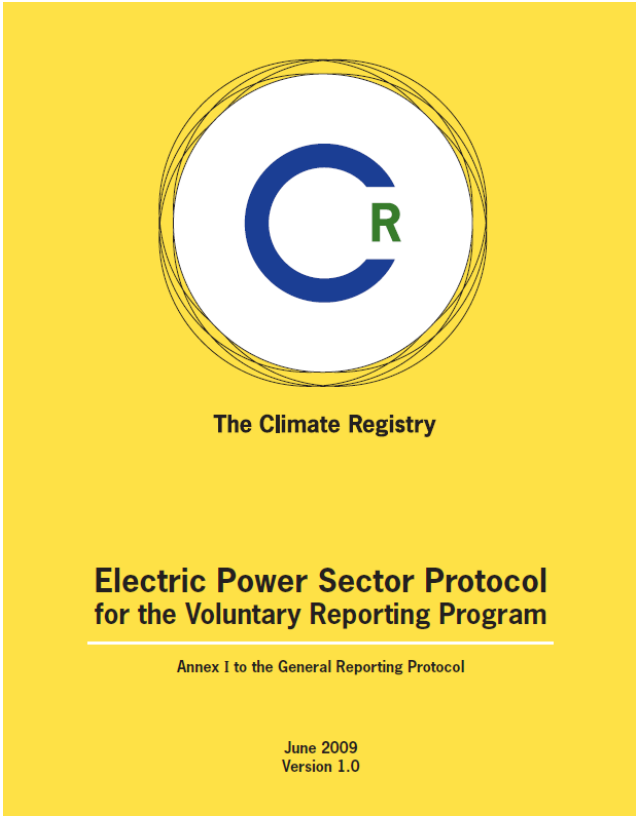
1. Total carbon emissions (tons)
    a. Utility-owned facilities and PPAs
    b. All sources
2. Carbon intensity (lbs/MWh)
    a. Utility-owned facilities and PPAs
    b. All sources
3. Criteria pollutant emissions
    a. Total
    b. Intensity

Commission-approved metrics (new)

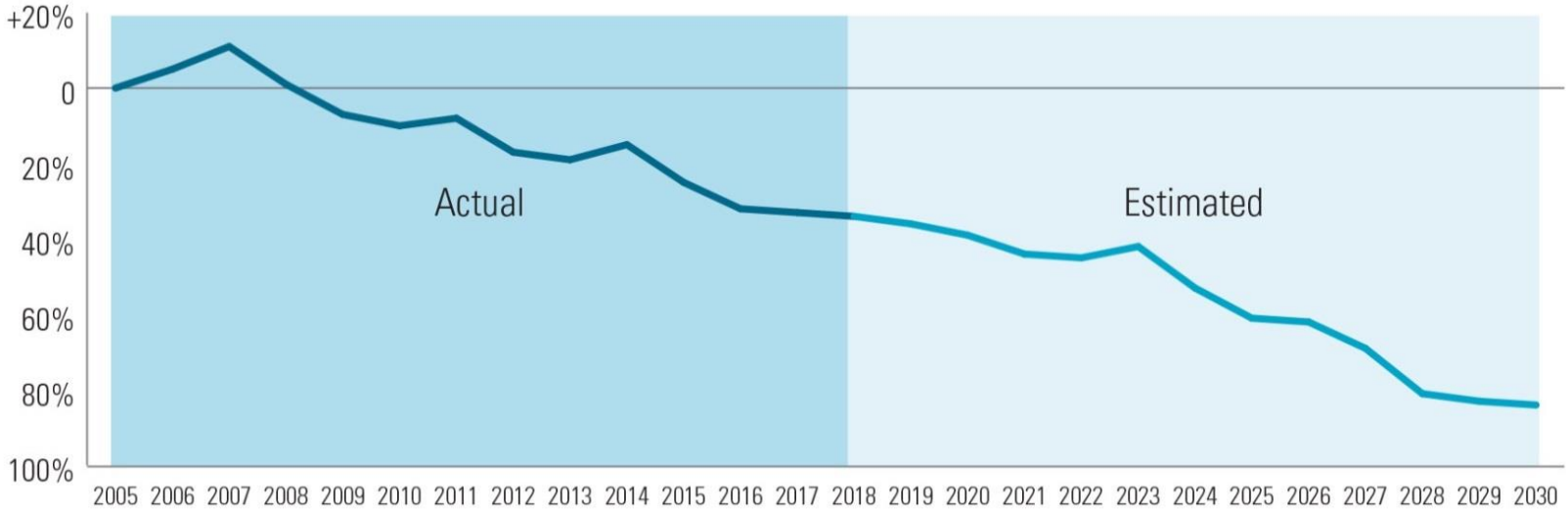
4. CO_2 emissions avoided by electrification of transportation
5. CO_2 emissions avoided by electrification of buildings, agriculture and other sectors

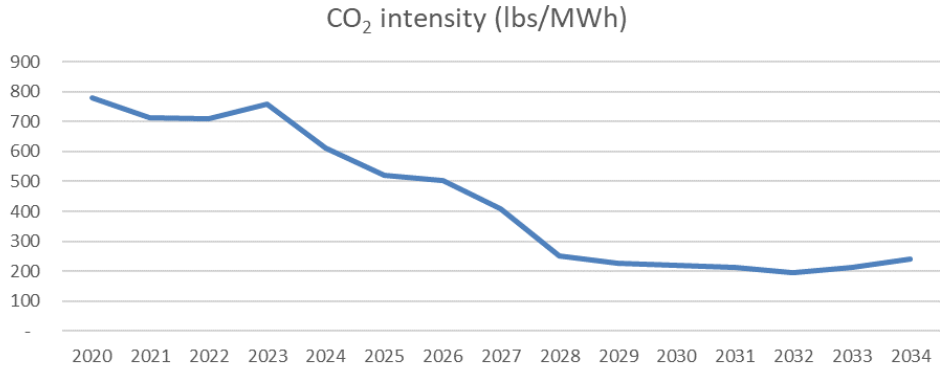
CO_2 and CO_2 intensity (existing)

- Xcel Energy has publicly reported and third-party verified CO_2 emissions for 2005-2017
- *Electric Power Sector Protocol* is recognized industry best practice for comprehensive GHG accounting
- Focuses on actual CO_2, not CO_2 avoided



CO_2 and CO_2 intensity (historic and under IRP)



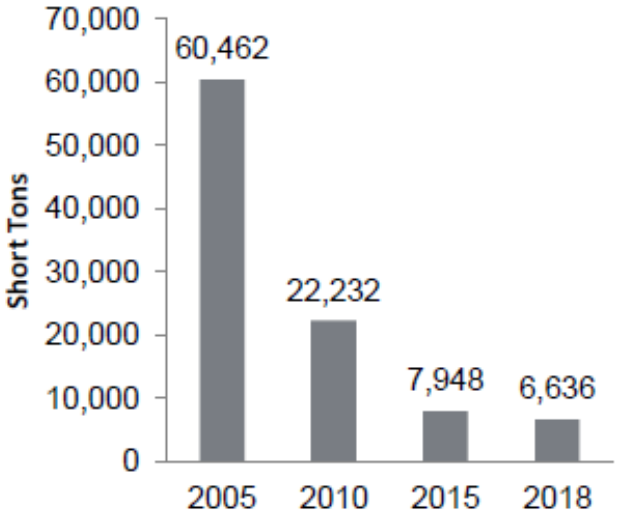


Track CO_2 and CO_2 intensity in "pools"

Pool	Description	% of 2018 MWh	% of 2018 CO_2
1	Owned plants with zero emissions	17%	0%
2	Owned/partially owned fossil units equipped with CEMS	50%	85%
3	Owned/partially owned fossil units not equipped with CEMS	0.5%	1%
4	Purchased power agreements	27%	7%
5	Short-term and spot purchased power, known sources	3%	4%
6	Short-term and spot purchased power, unknown sources	2%	3%

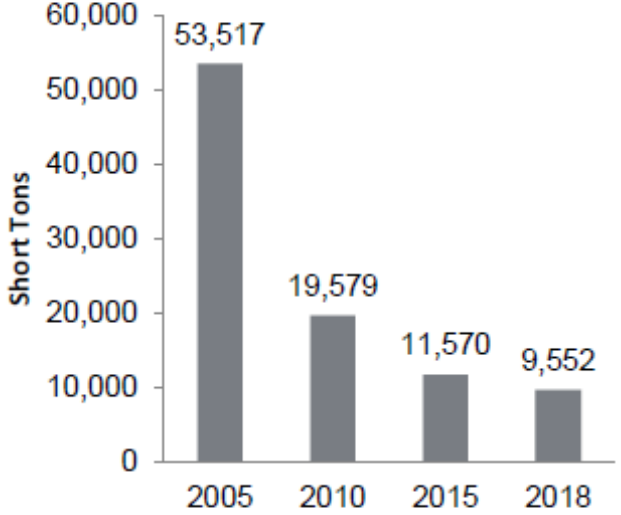
Criteria pollutants (existing)

Upper Midwest Sulfur Dioxide
89% Reduction Since 2005



Upper Midwest	2005	2010	2015	2018
Sulfur Dioxide lbs/MWh	3.7	1.4	0.5	0.4

Upper Midwest Nitrogen Oxide
82% Reduction Since 2005



Upper Midwest	2005	2010	2015	2018
Nitrogen Oxide lbs/MWh	3.2	1.2	0.7	0.6

CO_2 removed from transportation (new)

- Compare CO_2 emitted to provide same amount of miles traveled on electricity vs. gasoline
- Proposed calculation:

Gasoline CO_2 based on metered kWh @ typical kWh/mile and mpg = CO_2 emitted if these same miles traveled on gasoline

Less emissions from EV, calculated as:

*Metered kWh * Xcel Energy system average CO_2/kWh, or*

Zero, if EV charged on 100% renewable with RECs retired

CO_2 removed from buildings, agriculture, and other sectors (new)

- Compare CO_2 emitted to provide same useful service on electricity vs. fossil fuel
- Proposed calculation:

Annual average CO_2 from fossil-fuel powered appliance, based on metered kWh and fossil MMBtu displaced

Less emissions from electric appliance, calculated as:

*Metered kWh * Xcel Energy system average CO_2/kWh, or*

Zero, if appliance powered on 100% renewable with RECs retired


Xcel Energy®

CERTIFICATE OF SERVICE

I, Jim Erickson, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

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

xx electronic filing

Docket No. E002/CI-17-401

Dated this 31st day of October 2019

/s/

_____

Jim Erickson
Regulatory Administrator

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Michael J.	Bull	mbull@mncee.org	Center for Energy and Environment	212 Third Ave N Ste 560 Minneapolis, MN 55401	Electronic Service	No	OFF_SL_17-401_Official
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_17-401_Official
David	Dahlberg	davedahlberg@nweco.com	Northwestern Wisconsin Electric Company	P.O. Box 9 104 South Pine Street Grantsburg, WI 548400009	Electronic Service	No	OFF_SL_17-401_Official
John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance	1313 5th St SE #303 Minneapolis, MN 55414	Electronic Service	No	OFF_SL_17-401_Official
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_17-401_Official
Katherine	Hamilton	katherine@aem-alliance.org	Advanced Energy Management Alliance	1701 Rhode Island Ave, NW Washington, DC 20036	Electronic Service	No	OFF_SL_17-401_Official
Jennifer	Kefer	jennifer@dgardiner.com	Alliance for Industrial Efficiency	David Gardiner & Associates, LLC 2609 11th St N Arlington, VA 22201-2825	Electronic Service	No	OFF_SL_17-401_Official
Annie	Levenson Falk	annielf@cubminnesota.org	Citizens Utility Board of Minnesota	332 Minnesota Street, Suite W1360 St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-401_Official
Gregory C.	Miller	gmiller@dakotaelectric.com	Dakota Electric Association	4300 220th Street West Farmington, MN 55024	Electronic Service	No	OFF_SL_17-401_Official
Herbert	Minke	hminke@allete.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	OFF_SL_17-401_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Kristin	Munsch	kmunsch@citizensutilityboard.org	Citizens Utility Board of Minnesota	309 W. Washington St. Ste. 800 Chicago, IL 60606	Electronic Service	No	OFF_SL_17-401_Official
Rolf	Nordstrom	rnordstrom@gpisd.net	Great Plains Institute	2801 21ST AVE S STE 220 Minneapolis, MN 55407-1229	Electronic Service	No	OFF_SL_17-401_Official
Regulatory	OTP	OTPRegulatory@otpco.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 56538	Electronic Service	No	OFF_SL_17-401_Official
Audrey	Partridge	apartridge@mncee.org	Center for Energy and Environment	212 3rd Ave. N. Suite 560 Minneapolis, Minnesota 55401	Electronic Service	No	OFF_SL_17-401_Official
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_17-401_Official
Doug	Scott	dscott@gpisd.net	Great Plains Institute	2801 21st Ave Ste 220 Minneapolis, MN 55407	Electronic Service	No	OFF_SL_17-401_Official
Patricia	Sharkey	psharkey@environmentallawcounsel.com	Midwest Cogeneration Association.	180 N. LaSalle Street Suite 3700 Chicago, Illinois 60601	Electronic Service	No	OFF_SL_17-401_Official
James M	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	200 S 6th St Ste 470 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-401_Official
Lynnette	Sweet	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_17-401_Official
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_17-401_Official

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Jeff	Zethmayr	jzethmayr@citizensutilityboard.org	Citizens Utility Board	309 W. Washington, Ste 800 Chicago, IL 60606	Electronic Service	No	OFF_SL_17-401_Official