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Deputy Commissioner Aditya Ranade
Minnesota Department of Commerce
Division of Energy Resources
85 7th Place East, Suite 280
Saint Paul, MN 55101

RE: In the Matter of the Department Stakeholder Process Informing the Report on the Metrics, Performance Evaluation Methods, and Consumer Protection Conditions to be applied to Xcel Energy's Advanced Metering Infrastructure and Field Area Network Projects Certified in Docket No. E002/M-19-666

Docket No. E999/CI-20-627

Dear Deputy Commissioner Ranade:

Fresh Energy submits these comments in response to the Department of Commerce's ("the Department") August 20, 2020 Notice of Comment Period regarding metrics, evaluation criteria, and consumer protection conditions for Xcel Energy's ("Xcel") Advanced Metering Infrastructure ("AMI") and Field Area Network ("FAN") Projects.

A. COST RECOVERY PETITION CONTENT

1. Should Xcel provide any additional information to ensure clarity and transparency of costs when seeking cost recovery for the AGIS investments?

In addition to the requirements described in the Commission's September 27, 2019 *Order* in Docket E002/M-17-797, Order Point 9, Fresh Energy recommends that each AGIS cost recovery filing include:

- An explanation of cost contingencies included in the cost/benefit analysis (i.e., amounts added to base costs to account for risks and uncertainty) and the corresponding range of potential cost/benefit analysis (CBA) results;

- An explanation of key CBA assumptions and a sensitivity analysis¹ of those assumptions;
- A description of how the investment(s) will support Minnesota's goals for transportation and building electrification.

B. METRICS

1. Are the metrics proposed by Xcel's witnesses Gersack, Bloch, Harkness, Cardenas, Duggirala sufficient to determine performance of the AMI and FAN projects?

Fresh Energy believes the metrics proposed by Xcel's witnesses Gersack, Bloch, Harkness, Cardenas, and Duggirala are a good start but are not sufficient. As we noted in our comments on Xcel's 2019 IDP, several of the proposed metrics lacked baselines, and some metrics lacked a specific target for improvement and/or timeline for achieving that targeted improvement. See reproduced below Figure 2 – Metrics for Key CBA Assumptions from Fresh Energy's Initial Comments in Docket E002/M-19-666.

Figure 2: Metrics for Key CBA Assumptions

AGIS Component	Metric	Baseline	Target	Source
AMI (capital)	Capex for Asset Health/Reliability, Capacity projects	TBD	1% reduction	Bloch, p. 164
	Storm related capital restoration costs	TBD	10% reduction	Bloch, p. 165
	AMI meter failure rate (avoided meter purchases)	N/A	0.5%	Bloch, p. 165
AMI (O&M)	Annual trips for damaged customer equipment	1,796 trips	50% reduction	Bloch, p. 170
	Annual trips for residential manual disconnection	TBD	70% reduction	Bloch, p. 171
	Annual trips for residential manual reconnection	TBD	95% reduction	Bloch, p. 171
	Annual "OK on Arrival" field visits	7,464 trips	50% reduction	Bloch, p. 172
	Annual voltage investigation field visits	2,858 trips	50% reduction	Bloch, p. 173
	O&M for Asset Health/Reliability, Capacity projects	TBD	0.1% reduction	Bloch, p. 173
	O&M for storm related activity	\$2.1 million	10% reduction	Bloch, p. 174
AMI (other)	Customer-minutes of outage (CMO) - major events	115 million	0.5% reduction	Bloch, p. 177
	CMO - single customer events	1.05 million	20% reduction	Bloch, p. 178
	CMO - tap level events	TBD	TBD	Bloch, p. 179
	Cost of consumption on inactive meters	TBD	20% reduction	Cardenas, p. 62
	Commodity bad-debt expense	TBD	8% reduction	Cardenas, p. 64
	Residential demand shift from TOU rates	TBD	161 MW	Duggirala, p. 28
	Medium C&I demand shift from TOU rates	TBD	52 MW	Duggirala, p. 28
	Residential peak demand reduction from CPP	TBD	164 MW	Duggirala, p. 28
	Medium C&I peak demand reduction from CPP	TBD	90 MW	Duggirala, p. 28
IVVO	Customer energy consumption	TBD	1.5% reduction	Bloch, p. 272
	Electrical loss savings	TBD	225-900 MWh	Bloch, p. 274
	System peak demand	TBD	0.7% reduction	Bloch, p. 275

¹ A typical grid modernization CBA includes multiple assumptions such as future reliability improvements, equipment failure rates, customer participation in future DSM programs, EV adoption rates, etc. Most, if not all, of these assumptions are uncertain. A sensitivity analysis determines how much the overall costs or benefits change from a change in one or more key assumptions. A sensitivity analysis also identifies the assumptions that have the most impact on the overall costs and benefits of the proposed investment, thus highlighting the key assumptions that Xcel should further validate, monitor, and report on throughout implementation.

2. What are specific, accountable metrics that should be established?

In addition to the metrics listed above, Fresh Energy believes it is important to establish metrics for financial performance, AMI/FAN project execution/delivery (e.g., meter and network deployment, meter accuracy, billing accuracy, meter reading effectiveness, etc.) as well as customer communications/education (e.g., awareness and understanding, community outreach, customer satisfaction, etc.). See Attachment A for Fresh Energy's complete set of recommended metrics for Xcel's AMI and FAN deployments. This is a preliminary list, which we look forward to completing in collaboration with Xcel and stakeholders.

3. Are there existing metrics in use by any utility or imposed by a commission that would be useful to evaluate Xcel's AMI and FAN projects?

As Fresh Energy discussed in the 2019 Xcel IDP proceeding, demand management programs like time varying rates and new energy efficiency/demand response programs² are foundational to actually achieving the benefits AMI has the potential to provide. Other state Commissions have made development of rate design plans and/or the availability of comprehensive time of use ("TOU") rates a condition of AMI approval.³ Fresh Energy recommended the Commission ask Xcel to develop a Draft Rate Design Roadmap to describe in more detail how Xcel will leverage AMI capabilities to support an expanded portfolio of demand management and advanced rate design programs. The Commission included this requirement in Order Point 12 in its July 23, 2020 Order Accepting Integrated Distribution Plan, Modifying Reporting Requirements, and Certifying Certain Grid Modernization Projects.⁴

Xcel has begun the Rate Design Roadmap stakeholder engagement process and hosted a meeting on September 9 to collect feedback from stakeholders. Fresh Energy considers the meeting to be a good first step in the ongoing dialogue between Xcel and stakeholders about demand management programs and how AMI data can be leveraged to maximize value for Minnesota customers. To date, it appears Xcel's Draft Roadmap will focus on TOU and electric vehicle charging tariffs and plans for flexible pricing pilots and expanded demand response.

² Such programs may include near-real-time energy use feedback to customers; behavior-based programs with customer feedback and insights; programs using data disaggregation; grid-interactive efficient buildings; pay for performance; targeting for program design, marketing, and technical assistance; and conservation voltage reduction. See Gold, Rachel, C. Waters, and D. York, *Leveraging Advanced Metering Infrastructure to Save Energy*, American Council for an Energy-Efficient Economy, Report U2001, January 27, 2020 ([link](#)).

³ See for example, decisions by Hawaii PUC on HECO ([link](#)) and Virginia State Corporation Commission on Dominion ([link](#)) proposals for AMI implementation.

⁴ MN Public Utilities Commission, *Order Accepting Integrated Distribution Plan, Modifying Reporting Requirements, and Certifying Certain Grid Modernization Projects*, July 23, 2020, at Point 12 ([link](#)).

Xcel has previously discussed potential behavior-based programs, targeted customer education and marketing, and related programs that will be enabled by AMI data.⁵ Xcel should integrate these plans into the Roadmap as well to ensure a more complete record on potential conservation and demand management offerings that AMI can enable.

Baltimore Gas and Electric (“BGE”) is an example of a utility that has taken advantage of its AMI deployment to develop a portfolio of very successful energy efficiency programs.⁶ Prior to deployment, the Public Service Commission of Maryland required BGE to work with stakeholders to develop a comprehensive set of metrics for tracking costs/benefits, project execution and delivery, operational impacts, and customer communications and education. BGE and its stakeholders developed metrics for Phase I (Deployment Phase) and Phase II (Realization of Post Deployment AMI Benefits). Categories of Phase I metrics include:

- Financial Costs/Benefits
 - Capital and O&M costs including AMI meter install/provision, meter data management, network deployment, field installations, AMI register billing, web portal development, Smart Energy Pricing program development, event processing, large C&I meter deployment, communications, and project support costs
 - Capital and O&M savings
 - Monetization of dynamic pricing resources
 - Other economic benefits
- Project Execution and Delivery
 - Meter deployment
 - Network deployment
 - Hard to access meters
 - Meter billing
- Operational
 - Billing accuracy
 - Meter accuracy
 - Field visits
 - Meter reading effectiveness
- Communications and Education
 - Awareness and understanding
 - Community outreach
 - Customer satisfaction

Details of Maryland’s Phase I metrics, calculations, and reporting frequency are available [here](#).

⁵ See Xcel presentation at the March 5, 2020 Commission Agenda Meeting ([link](#))

⁶ <https://www.bge.com/News/Pages/Press%20Releases/200413-bge-wins-10th-energy-star-partner-of-the-year-award.aspx>

4. When should any given metric be established: prior to submittal of the cost recovery petition, at the time of any petition for cost recovery, at the time of a petition for a new service program, modified tariff, or other change to existing service or offerings enabled by AMI and/or FAN?

Fresh Energy believes it is important to establish overall goals for a grid modernization program and to track progress toward these in the utility's IDP. Similarly, it is important to establish overall goals for how much a specific investment and/or program will contribute to grid modernization goals, and to track those in the related proceedings. For investment packages like AGIS, we recommend that the utility propose goals, metrics, and evaluation methods when initially requesting approval of an investment. The Commission should refine and approve final metrics and evaluation methods when approving cost recovery.

5. For any given metric, what baseline data and targets are necessary in order to evaluate performance?

For each metric proposed, it is necessary to have a baseline measurement, a target for improvement, a date for that improvement to be achieved, and the frequency of reporting the metric in order to track progress and evaluate eventual performance. In some cases, interim targets (with dates) are also warranted.

In Xcel's 2019 IDP, the following metrics for AMI did not have corresponding baselines:

- Capex for Asset Health/Reliability, Capacity Projects
- Storm related capital restoration costs
- Annual trips for residential manual disconnection
- Annual trips for residential manual reconnection
- O&M for Asset Health/Reliability, Capacity Projects
- Customer Minutes Out – tap level events (also missing a target for improvement)
- Cost of consumption on inactive meters
- Commodity- bad debt expense
- Residential demand shift from TOU rates
- Medium C&I demand shift from TOU rates
- Residential peak demand reduction from CPP
- Medium C&I demand shift from TOU rates

The Commission should require Xcel to establish these baselines, and expected timeline for achieving the targeted improvement, before cost recovery is granted. Additionally, the Commission should require Xcel to establish baselines (where relevant), targets, and expected timelines for all of the metrics shown in Attachment A.

- 6. Do stakeholders recommend use of the proposed Fresh Energy metrics filed in the E002/M-19-666 on April 22, 2020? If Xcel were to provide information on the associated baseline or targets, are the proposed metrics reasonable and sufficient to measure and track performance of AMI and FAN?**

See Fresh Energy's response to question B.2 and Attachment A.

- 7. Should, or how should the metrics align with, inform, or be informed by, the Performance Based Mechanism (PBM) docket (E999/CI-17-401) or the annual Safety, Reliability and Service Quality docket (or other relevant dockets)? Should any metric that is established for AMI and FAN be incorporated into the PBM docket or Service Quality docket, another proceeding, or considered only with respect to the cost recovery dockets pertaining to the certified AMI and FAN projects?**

A recent white paper from the Regulatory Assistance Project ("RAP") explains how a performance-based regulation (PBR) framework can increase the likelihood of on-time, on-budget delivery and customer benefit realization from complex IT projects such as AGIS.⁷ RAP recommends establishing metrics, and associated rate-of-return adders or penalties, tied to specific project goals and desired outcomes. RAP's illustrative performance framework for AMI deployments is shown below.

⁷ Littell, D., J. Shipley, and M. O'Reilly. 2019. *Protecting Customers from Utility Information System and Technology (IS/IT) Failures: How Performance-Based Regulation Can Mimic the Competitive Market*. Montpelier, VT: RAP ([link](#)).

Figure 3: RAP Illustrative PBR Framework for AMI⁸

Goal	Outcome	Performance criteria/Functionality	Metrics to track
Personnel savings	More efficient and less costly metering	AMI system provides reliable and regular metering information to utility billing system	Accuracy of customer bills and customer complaints on billing
Accurate and timely customer billing	Timely and accurate customer bills	AMI, database and billing system provides timely and accurate bill to customers	Timely information to the utility- the meters are tested to 98% or higher accuracy; or reductions in estimated bills
Improved storm response	Timelier storm response	Utility Outage manage system receives outage information	# of meters successfully providing accurate outage information for real time storm restoration
Customer understanding of energy usage	Higher customer satisfaction or understanding of energy usage	Operation of customer energy usage portal	Customer usage of energy portal, one time or regular access
Vibrant real time or TOU energy market for residential users	Customer costs more reflective of system costs: efficient pricing	Customers on a real-time or Time-of-Use (TOU) rate plan	# and % of customers opting out of or taking real time or TOU price offering
Third-party energy provider authorized access to customer data	Utility system supports works system for customers to share data with third-parties	Third party energy service company ability to access Green Button Connect data	Number of third parties successfully accessing customer data through Green Button Connect or other utility data sharing method; customers are able to authorize of third-party service company requests on first attempt (target 95%); third-party service provider receive access when authorized by customers (target 95% of the time)
Customers use of automated storm outage information	Higher customer knowledge of outage situation and storm response	# or percent of customers using storm outage system each day during storm events	# such as 10,000 customers using storm outage information for their accounts

Fresh Energy recommends that the Commission establish performance incentives for a set of high-priority metrics. High priority metrics may be those that track a major source of potential customer benefits, or those that track a harder-to-achieve benefit where an incentive may significantly improve the likelihood benefits will arise. This topic warrants additional discussion between stakeholders and Xcel, which could happen through stakeholder workshops or in the cost recovery proceeding.

As a preliminary matter, Fresh Energy offers that the following metrics could be a good starting point for considering which goals rate-of-return adders or penalties would be appropriate for.

- Meter accuracy test percentage

⁸ *Id.*, pp. 13-14

- Percentage of interval reads received⁹
- Avoided field visits
- Number of customers enrolled in time-varying rates or other AMI-enabled demand management programs

Customer satisfaction with key elements like billing accuracy, communications, and customer service is also highly important and should be considered in cost recovery and performance evaluation. Fresh Energy believes that general customer satisfaction issues are addressed in annual service quality reports and should continue to be reported and incentivized/penalized there. However, AMI-specific customer satisfaction metrics like customer usage of My Account and outage information, may be appropriate to establish performance incentives for in the AGIS proceeding.

Fresh Energy recommends that AGIS performance incentives be established in the respective cost recovery proceedings, rather than in the existing Performance Based Mechanism (PBM) docket. The expertise of parties in the AGIS proceedings is relevant for robust consideration of metrics and incentives. We also believe developing metrics and incentives in the related cost recovery dockets will result in more appropriate timelines and more robust record development.

C. METHODS FOR EVALUATION OF PERFORMANCE

1. What are specific, accountable methods for evaluating the performance of the AMI and FAN projects?

Fresh Energy recommends that performance is tracked through quarterly reports and evaluated annually in the cost recovery proceeding. We do not believe a quarterly review procedure at the Commission is necessary, but there should be an opportunity for stakeholders to comment on quarterly reports if issues are revealed between annual reviews.

As discussed in Part B, Fresh Energy believes that regular quarterly and annual reports should cover a comprehensive set of metrics on financial performance, customer education and communication, project execution during and after deployment, and key cost-benefit assumptions for the project (see Attachment A for Fresh Energy's initial set of recommended metrics). For each metric, Xcel should report the baseline measurement, the overall target, the expected achievement for the reporting period, and the actual achievement during the reporting period.

⁹ A measure of AMI/FAN meter reading effectiveness, calculated as number of intervals reported / total number of possible intervals to be reported * 100

2. What are the attributes or FAN functions or uses that should be explored or enabled by Xcel?

Fresh Energy understands that Xcel's FAN will provide wireless communications for both the AMI infrastructure and between Xcel's ADMS and intelligent field devices (i.e., AMI meters, switches, sensors, fault indicators, capacitors, voltage regulators). The FAN will therefore enable enhanced meter reading, enhanced energy efficiency/demand response programs, time-varying rates, IVVO, enhanced outage restoration, enhanced load/voltage monitoring and forecasting, and the enhanced ability to accommodate DER.

3. Should performance evaluations be tied to AMI and FAN implementation dates (as listed on Table 56 in Xcel Energy's 2019 IDP) or some other factor or consideration?

Fresh Energy recommends that the Commission evaluate performance regularly through quarterly and annual progress reports in the relevant cost recovery proceeding (see Attachment A for Fresh Energy's recommendations on frequency of reporting for each metric). While Xcel should achieve overall performance on each metric by the AMI and FAN implementation dates it provided in Table 56, regular benchmarking of incremental progress will help to ensure investment performance is on track and continued recovery is appropriate. We recommend that Xcel, in a petition for cost recovery, propose expected quarterly and annual milestone targets for each metric unless interim milestones are not appropriate for that metric.

4. What considerations should be given to short-term performance (installation rates of AMI, applications for new programs or offerings, etc.) versus long-term system performance (relating to overall system efficiencies and improvements) capabilities outlined in Xcel Energy's 2019 IDP?

In the near-term, Xcel's (and the Commission's) focus should be on successful and timely project execution. In the long-term, the focus should be on realizing benefits and achieving desired outcomes from the investments. Metrics tracking project delivery in the short-term are essential for tracking performance relative to plans and budgets, and will be helpful to the Commission in making determinations about subsequent cost recovery should a utility request recovery over multiple years and proceedings. As deployment proceeds, it will be essential to ensure that Xcel is achieving progress toward long-term customer benefits, such as reduced electricity consumption, reduced system peak, reduced billing inaccuracies, etc., on a reasonable timeframe.

5. How should evaluation of AMI and FAN performance be considered at the time of cost recovery (petitions that are likely to be filed in multiple filings, over several years)?

As stated above and described in more detail under C.15, Fresh Energy recommends that performance is tracked through quarterly reports and evaluated annually in the cost recovery proceeding. It is appropriate for the Commission to consider prior performance when evaluating a subsequent request for cost recovery, and if needed, establish additional customer protections, more frequent reporting, or more stringent metrics. For example, if Xcel is granted cost recovery in 2021 for 25% of the current budget for AMI installation, and after one year has installed significantly less than 25% of the AMI project, the Commission may need to re-evaluate the cost-benefit analysis previously provided and whether sufficient consumer protections and/or performance incentives are in place.

6. Are there considerations in recommending methods to evaluate performance that would align with, inform, or be informed by on-going dockets or previous Commission decisions or records?

As discussed under B.7, performance incentives and penalties can be effective in increasing the likelihood that customer benefits materialize. Xcel's Quality of Service Plan ("QSP") and associated reporting, underperformance thresholds, financial penalties, and evaluation procedures provide a construct that can inform AGIS evaluation procedures. The QSP is intended to provide the Commission (and customers) assurance that Xcel will continue to provide safe, adequate, and efficient service, and is therefore setting a floor on performance. For the AGIS initiative, some metrics may warrant penalties to protect against under performance, while incentives to encourage higher performance may be appropriate on other metrics. Fresh Energy recommends that AGIS performance incentives be established and evaluated in the respective cost recovery proceedings, rather than in the existing Performance Based Mechanism or QSP dockets.

7. Are there any other issues that should be considered when evaluating the performance of AMI and FAN projects?

None at this time.

8. What AMI- and FAN-enabled programs or services (e.g., service/rate tier plans, remote connect and disconnect procedures, third-party service and data sharing, etc.) do stakeholders want Xcel Energy to propose? Provide as much detail as possible.

Remote connect/disconnect:

In its 2019 IDP and request for AGIS certification, Xcel estimated that remote connect and disconnect procedures enabled by AMI would be responsible for 37% of the total customer benefits of the AGIS package. These are undoubtedly essential services for leveraging AMI functionality.

Conservation and demand management:

Continued development and refinement of advanced rate design and demand management programs should be a high priority. In the 2019 IDP, Xcel estimated that critical peak pricing programs would be responsible for 23% of the AGIS package's customer benefits. Itron meters with distributed intelligence functions, like those Xcel plans to deploy for Minnesota customers, will enable new energy efficiency and demand management programs via disaggregating electricity usage. In addition to the Company's ongoing work on TOU rates, demand response, and interruptible rates, we recommend Xcel develop and propose customer education and behavior-based programs that leverage AMI for energy conservation and demand management.

For example, Xcel should explore:

- Near-real-time energy use feedback to customers
- Grid-interactive efficient buildings
- Pay for performance programs
- Targeting program design, marketing, and technical assistance using AMI data
- Enhanced measurement and verification of energy efficiency and demand management programs (e.g. M&V 2.0) to improve program design over time

Third party service and data sharing:

Enabling customers to share data with third-party service providers and enabling third party providers to use AMI data to provide real-time energy management programs will help spur innovation, expand the market for conservation and demand management programs, and may reduce program costs. The installation of AMI with distributed intelligence and the potential for an "App Store-like" platform for customer engagement raises some novel oversight questions that will be important for the Company, Commission, and stakeholders to consider. For example, will third party energy management companies have access to real-time AMI data through an API? Will third-party programs/apps be available via Xcel/Itron's centralized platform? How is the quality and safety of third-party programs vetted? What fees will Xcel/Itron charge third parties? How will that revenue be allocated? Fresh Energy recommends that Xcel address these questions in their request for cost recovery and invite questions and feedback from stakeholders on these issues.

Other use cases:

Xcel should take full advantage of AMI data and load data from intelligent field devices, integrated with the Advanced Planning Tool ("APT"), to significantly improve its load and DER forecasting capabilities. The APT, which was recently certified by the Commission, will greatly enhance Xcel's forecasting sophistication and granularity. High-frequency data from AMI and other intelligent field devices should be leveraged to maximize forecast accuracy and improve forecasting methods over time.

Additionally, Fresh Energy recommends that Xcel use AMI data to improve geo-targeting of energy efficiency and demand response projects for distribution capacity deferrals (e.g., non-wires alternative projects).

9. Is the Xcel proposed Customer Experience Timeline (see Attachment 3) comprehensive or are there other customer experiences or benefits that should be considered or established?

The Customer Experience Timeline Xcel has proposed is a good start. Fresh Energy recommends Xcel update this timeline when submitting a request for cost recovery and at least annually throughout the project, refining it as Xcel establishes more certain timelines and develops additional programs and services.

10. How would stakeholders prioritize those AMI- and FAN-enabled programs or services (e.g., based on the expected customer benefits and associated risks of each offering, the extent to which the program/offering would offset costs or reduce rates, or other)?

Fresh Energy would prioritize AMI and FAN-enabled programs based on the net present value (“NPV”) of expected customer benefits. This measure reflects the current value of future costs and benefits of an investment, and is commonly used in capital budgeting and investment planning.

11. Under what expected timeframe should the programs be designed, be filed for approval, and implemented?

Several of the programs and services that will leverage AMI data are already in development, and others are nascent. In general, Fresh Energy believes Xcel should describe its plans in full, to the extent possible, concurrently with the request for cost recovery for the related technology, although timing will need to vary depending on the maturity of the program offering. The following table offers a preliminary recommendation on timing for design, proposal, and implementation of the list of programs and services Fresh Energy identified in response to question C.8.

Table 1: Preliminary Recommendations on Timing of Design, Proposal, and Implementation of AMI-enabled programs and services

Program/Service	Design	File for Approval	Implement
Remote connect/disconnect	Ongoing	With initial AMI cost recovery petition	Concurrently with AMI installation
Advanced TOU rates and flexible pricing pilots	Ongoing	Ongoing	Suite of new C&I and residential rates in place by/before completion of AMI installation
Other AMI-enabled conservation programs: - Real time feedback - Targeted marketing and technical assistance - M&V 2.0	2020	2021-23	By completion of AMI installation
Advanced demand management: - Grid-interactive efficient buildings - Pay for performance	2021-23	2021-23	TBD
Third party service and data sharing	Initial plans in request for cost recovery, refined with stakeholder feedback	One year before launch of app-store and/or behavior-based programs	Concurrently with launch of app-store and/or behavior-based programs
Improved forecasting	Ongoing	Not necessary	Concurrently with AMI installation
Improved geo-targeting for distribution capacity deferrals	2021-23	With any future NWA proposals	With any future NWA proposals

12. At what point should design elements (notice plans for AMI installation, AMI customer data rights and protection, Home Area Network activation plan requirements, cybersecurity impacts, etc.) be considered by the Commission or stakeholders, if at all? Are there any design elements that should be explicitly considered or approved by the Commission?

The Commission and stakeholders should have an opportunity to provide input on Xcel's plans and metrics for customer communications and education prior to approval and implementation. Fresh Energy includes several customer communications/education metrics in Attachment A for consideration. Fresh Energy expects Xcel to detail proposals for customer communications like notices, activation plan requirements, etc. in their initial petition for cost

recovery. As discussed above, Fresh Energy recommends the Commission review and approve plans related to data privacy, customer and third-party data usage capabilities, and platform management – in addition to other notices or communications plans the Commission typically reviews.

13. Should the evaluation of performance for AMI or FAN be tied to a metric, successful establishment of a program or service, or other consideration or factor?

Fresh Energy recommends AMI and FAN performance be evaluated using several important metrics on a quarterly and annual basis. Actual performance compared to expected performance for the relevant reporting period should be considered in future cost recovery proceedings and inform the allocation of potential performance incentives.

14. How can the Commission ensure customer benefits materialize from AMI and FAN implementation should Xcel Energy delay or fail to propose desired programs and services?

Fresh Energy's recommended approach for developing a PBR framework will increase the likelihood that customer benefits will materialize.

15. Would a requirement for Xcel Energy to provide a compliance report outlining anticipated new programs and services, expected design periods (and methods for stakeholder input), projected Commission filing dates, projected system impacts, and its progress on any on-going new service programs or services offerings be sufficient?

For clarity, Fresh Energy differentiates between reporting to track performance of AMI/FAN implementation and outcomes, reporting on the progress of programs and services made possible by AMI/FAN (like those addressed under C.11), and plans describing future program and service offerings.

Xcel should report on AMI/FAN deployment and performance through quarterly reports tracking specific metrics, like those we propose in Attachment A, and an annual Progress Report. This Progress Report should also cover actual versus expected performance on progress of programs and services that leverage AMI/FAN, and describe plans for program/service modifications or additions. Fresh Energy expects that Xcel will provide a detailed plan for AMI-enabled programs and services as part of their request(s) for cost recovery.

Some of these programs may be addressed in the Company's Draft Rate Design Roadmap, new Demand Response Annual Report and/or will need to be proposed and evaluated in separate dockets. To streamline planning documents related to demand management programs, Fresh

Energy believes it may be most efficient to combine the Rate Design Roadmap and Demand Response Annual Report into one filing at a later date. However, it will still be important to include information about program performance and future plans in AMI/FAN Progress Reports to ensure a complete record for the Commission in cost recovery proceedings.

- a. If so, how often should Xcel Energy file an AMI and FAN program and service offering compliance report (Progress Report)? What time period should the report cover (i.e. 2, 5, 10-years)?**

Fresh Energy recommends that Xcel file an inaugural Progress Report on November 1, 2021 and annually thereafter. This report should cover the project's progress to-date, focusing on performance over the previous year. The Progress Report should also address planned modifications or new programs and services over a future three-year timeframe.

- b. Is a May 1, 2022 inaugural filing date reasonable for an initial Progress Report (if using Xcel's annual compliance report filing timing proposal from its 2019 IDP) or should the Progress Report be filed in conjunction with the requests for cost recovery? Or is some other timeframe reasonable?**

Fresh Energy recommends that Xcel file its inaugural Progress Report on November 1, 2021 and annually thereafter until the Commission determines the reporting is no longer necessary. A November 1 reporting date will coincide with requests for cost recovery, which will provide a more complete record for the Commission to consider. Fresh Energy recognizes that several other large records are filed on November 1. We are open to alternate reporting schedules that will facilitate a robust record for cost recovery decisions, i.e. that ensure sufficient reporting on the prior period is submitted in conjunction with, or before, a subsequent request for recovery.

The table below shows Fresh Energy's recommended reporting schedule for the first year of project tracking, should Xcel receive approval for cost recovery in mid-2021, following a November 2020 petition.

Table 2: Recommended Reporting Timeline November 2021-November 2022

Date	Reporting Due	Related Filings
November 1, 2021	Inaugural Progress Report <ul style="list-style-type: none">- All metrics- Performance of AMI-enabled programs and services- 3-year plan for AMI-enabled programs and services	2021 Integrated Distribution Plan Second petition for cost recovery (at Xcel's option)
February 1, 2022	Quarterly Report <ul style="list-style-type: none">- Quarterly metrics	Jan 25: ADMS Annual Report Feb 1: DR Annual Report
May 1, 2022	Quarterly Report <ul style="list-style-type: none">- Quarterly metrics	
August 1, 2022	Quarterly Report <ul style="list-style-type: none">- Quarterly metrics	
November 1, 2022	Annual Progress Report <ul style="list-style-type: none">- All metrics- Performance of AMI-enabled programs and services- 3-year plan for AMI-enabled programs and services	Third petition for cost recovery (at Xcel's option)

c. Should stakeholders be provided an opportunity to review and comment on Progress Reports?

Yes. Progress Reports should be followed by a comment and reply comment period.

d. How should the Commission consider program and service offering compliance reports in relation to any Xcel Energy request for AMI and FAN cost recovery?

Progress and performance of AMI-enabled programs and services is a key component of overall AMI and FAN evaluation, and should be included in regular Progress Reports, but other factors, like project deployment eff should also be considered when evaluating overall performance of the investment in AMI and FAN.

e. Should Xcel Energy be required to file information on programs or offerings not pursued, including the reasons for not pursuing them?

Xcel should report on programs or offerings not pursued when these programs have been raised in prior Progress Reports, petitions for cost recovery, or plans like the Rate Design Roadmap that are associated with achieving AMI benefits.

D. CONSUMER PROTECTIONS

At this time, Fresh Energy does not have specific recommendations on the types or timing of customer protections for the AMI and FAN projects, aside from the performance incentive/penalty framework discussed above.

SUMMARY OF RECOMMENDATIONS

In summary, Fresh Energy requests the Department consider the following recommendations when developing its report to the Commission:

1. In addition to the requirements described in the Commission's September 27, 2019 *Order* in Docket E002/M-17-797, Order Point 9, each AGIS cost recovery filing should include:
 - An explanation of cost contingencies included in the cost/benefit analysis (i.e., amounts added to base costs to account for risks and uncertainty) and the corresponding range of potential cost/benefit analysis (CBA) results;
 - An explanation of key CBA assumptions and a sensitivity analysis¹⁰ of those assumptions;
 - A description of how the investment(s) will support Minnesota's goals for transportation and building electrification.
2. AMI/FAN performance should be evaluated using actual versus expected performance on a comprehensive list of metrics such as those in Attachment A.
 - a. In a request for cost recovery, Xcel should establish baselines, targets, and expected timelines for each metric. Xcel should also propose expected quarterly and annual milestone targets for each metric except where interim milestones are not appropriate.
3. Xcel should report on performance quarterly in the relevant cost recovery proceeding, and file inaugural Progress Report on November 1, 2021 and annually thereafter. Annual Progress Reports should cover performance metrics, performance of AMI-enabled programs and services, and a three-year plan for programs and services.
 - a. For each metric, Xcel should report the baseline measurement, the overall target, the expected achievement for the reporting period, and the actual achievement during the reporting period.
 - b. Annual Progress Reports should be followed by a comment period. Stakeholders

¹⁰ A typical grid modernization CBA includes multiple assumptions such as future reliability improvements, equipment failure rates, customer participation in future DSM programs, EV adoption rates, etc. Most, if not all, of these assumptions are uncertain. A sensitivity analysis determines how much the overall costs or benefits change from a change in one or more key assumptions. A sensitivity analysis also identifies the assumptions that have the most impact on the overall costs and benefits of the proposed investment, thus highlighting the key assumptions that Xcel should further validate, monitor, and report on throughout implementation.

should have the option to raise issues after quarterly reports are filed, as necessary.

4. The Commission should establish performance incentives for a set of high-priority metrics through a stakeholder process in the AMI/FAN cost recovery proceeding.
5. Xcel should develop and propose a range of AMI-enabled programs and services including at minimum:
 - a. New energy conservation and demand management programs including:
 - i. Near-real-time energy use feedback to customers
 - ii. Grid-interactive efficient buildings
 - iii. Pay for performance programs
 - iv. Targeted program design, marketing, and technical assistance
 - v. Enhanced program measurement and verification
 - b. Third party services and data sharing capabilities
 - c. Improved load and DER forecasting
 - d. Improved geo-targeting of energy efficiency and demand response projects for distribution capacity deferrals
6. Xcel should update the Customer Experience Timeline when submitting a request for cost recovery and at least annually throughout the project, refining it as Xcel establishes more certain timelines and develops additional programs and services.
7. Stakeholders should have an opportunity to provide input on Xcel's plans and metrics for customer communications and education prior to approval and implementation.

Fresh Energy appreciates the Department's work to ensure the AGIS initiative is implemented efficiently, effectively, and maximizes customer benefits. Thank you for your consideration of our comments. We look forward to ongoing discussion with the Department, Xcel, and other stakeholders about this important matter.

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Attachment A – Fresh Energy’s Recommended AMI/FAN Metrics (Preliminary, 9/18/20)

Category	Metric	Baseline	Target	Reporting Frequency
Key CBA Assumptions	Capex for Asset Health/Reliability, Capacity projects	TBD	1% reduction	Annually
	Storm related capital restoration costs	TBD	10% reduction	Annually
	AMI meter failure rate (avoided meter purchases)	N/A	0.5%	Annually
	Annual trips for damaged customer equipment	1,796 trips	50% reduction	Annually
	Annual trips for residential manual disconnection	TBD	70% reduction	Annually
	Annual trips for residential manual reconnection	TBD	95% reduction	Annually
	Annual “OK on Arrival” field visits	7,464 trips	50% reduction	Annually
	Annual voltage investigation field visits	2,858 trips	50% reduction	Annually
	O&M for Asset Health/Reliability, Capacity projects	TBD	0.1% reduction	Annually
	O&M for storm related activity	\$2.1 million	10% reduction	Annually
	CMO – major events	115 million	0.5% reduction	Annually
	CMO – single customer events	1.05 million	20% reduction	Annually
	CMO – tap level events	TBD	TBD	Annually
	Cost of consumption on inactive meters	TBD	20% reduction	Annually
	Commodity bad-debt expense	TBD	8% reduction	Annually
	Residential demand shift from TOU rates	N/A	161 MW	Annually
	Medium C&I demand shift from TOU rates	N/A	52 MW	Annually
	Residential peak demand reduction from CPP	N/A	164 MW	Annually
	Medium C&I peak demand reduction from CPP	N/A	90 MW	Annually
Financial	Total AMI project capital spend to-date vs. total AMI project capital budget	N/A	100% or less	Quarterly
	Total FAN project capital spend to-date vs. total FAN project capital budget	N/A	100% or less	Quarterly
	Total AMI project O&M spend to-date vs. total AMI project	N/A	100% or less	Quarterly

Category	Metric	Baseline	Target	Reporting Frequency
	O&M budget			
	Total FAN project O&M spend to-date vs. total FAN project O&M budget	N/A	100% or less	Quarterly
	O&M cost savings from avoided field visits	N/A	TBD	Annually
	Avoided distribution capital costs due to reduced peak load from time-varying rate program(s)	N/A	TBD	Annually
Customer Communications/ Education	Awareness of AMI technology and benefits (survey)	N/A	TBD	Quarterly
	Understanding of AMI technology and benefits (survey)	N/A	TBD	Quarterly
	Adequacy and clarity of communications prior to AMI installation (survey)*	N/A	TBD	Quarterly
	Number of customer/account inquiries regarding AMI	N/A	TBD	Quarterly
Project Execution/ Delivery – Deployment Phase	Number of AMI meters installed*	N/A	TBD	Quarterly
	Number of AMI meters installed vs. plan	N/A	100%	Quarterly
	Total AMI meters used for billing (activated)	N/A	TBD	Quarterly
	Percentage of FAN deployed*	N/A	100%	Quarterly
	Percentage of FAN deployed vs. plan	N/A	100%	Quarterly
	Number of intelligent field devices enabled by the FAN	N/A	TBD	Quarterly
	Number of customers electing to opt-out of AMI installation*	N/A	TBD	Quarterly
	Percentage of AMI customers receiving estimated bills*	N/A	TBD	Quarterly
	Number of missed installation appointments	N/A	TBD	Quarterly
	Number of calls to Customer Contact Center and meter installation vendor regarding meter installation*	N/A	TBD	Quarterly
	Number of complaints regarding AMI installation*	N/A	TBD	Quarterly
	Percentage of AMI customers that have complained of inaccurate meter readings/bills*	N/A	TBD	Quarterly

Category	Metric	Baseline	Target	Reporting Frequency
	Number of avoided truck rolls/field visits	N/A	TBD	Quarterly
	Meter accuracy test percentage	N/A	TBD	Quarterly
	Percentage of interval reads received	N/A	TBD	Quarterly
Project Execution/ Delivery – Post Deployment	Percentage of AMI customers that receive estimated bills*	TBD	TBD	Annually
	Percentage of AMI customers that have complained of inaccurate meter readings/bills*	TBD	TBD	Annually
	Number of customers electing to opt-out of AMI installation*	TBD	TBD	Annually
	Number of intelligent field devices enabled by the FAN	TBD	TBD	Annually
	Number of avoided truck rolls/field visits	TBD	TBD	Annually
	Number of remote meter disconnect operations	TBD	TBD	Annually
	Number of remote meter connect operations	TBD	TBD	Annually
	Percentage of interval reads received	TBD	TBD	Annually
Customer Engagement – Post Deployment	Customer satisfaction with outage related communications (survey)*	N/A	TBD	Annually
	Number of AMI customers with an active web portal account*	N/A	TBD	Annually
	Number of monthly, unique visits to the web portal*	N/A	TBD	Annually
	Number of customer/account inquiries regarding AMI or time-varying rates	N/A	TBD	Annually
	Number of customers enrolled in time-varying rate programs	N/A	TBD	Annually
	Number of customers enrolled in other AMI-enabled demand management programs	N/A	TBD	Annually

* - Included in Xcel's proposed AGIS progress metrics filed Nov. 1, 2019 in Docket E002/M-19-666