

Review and Recommendations for the Xcel Energy Integrated Distribution Plan

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Executive Summary

This memorandum is prepared for the Citizens Utility Board of Minnesota (CUB) to summarize the Strategen review of the Xcel Energy (Xcel or the Company) Integrated Distribution Plan (IDP). The memorandum provides commentary and analysis that supports Strategen making the following conclusions and recommendations to the Minnesota Public Utilities Commission (Commission).

In Strategen's view, a modernized grid is the "backbone" necessary to advance Minnesota's energy goals, support integration of additional levels of renewables, empower consumers to make their own choices about the level and type of electric service they desire, and leverage customer-sited resources to assist in grid operation. Likewise, implementation of a grid modernization program should assist in both improving system reliability and flexibility. In that spirit, many of the investments proposed in Xcel's Integrated Distribution Plan, namely Advanced Metering Infrastructure (AMI) and the interrelated Field Area Network (FAN), can lay an important foundation for a dynamic, customer-centric utility approach in the future.

Notwithstanding the potential benefits from AMI and grid modernization, experience has shown that these investments are inherently complex and can be subject to cost overruns. In addition, the customer-facing value proposition identified at the outset of a project is not often realized upon implementation. These elements are further underscored by the Company's own determination that quantifiable benefits do not exceed quantifiable costs. Accordingly, the realization of qualitative, customer-facing benefits is critical to justifying an investment of this magnitude.

Given the significant risks associated with these investments, we recommend that the Commission direct the Company to move forward with the Advanced Grid Intelligence and Security (AGIS) Initiative, but with specific conditions to prevent customer exposure to cost overruns or double recovery as well as to ensure that customers are able to fully benefit from these foundational investments.

To that end, we recommend that the Commission direct Xcel to move forward with its AMI and FAN investments, subject to the following conditions:

Cost Recovery

- Deny certification, as rider recovery is inappropriate; AGIS investments should be recovered through rate cases.
- In the alternative, grant certification as modified, with rider recovery subject to certain consumer protections, including cost caps and a methodology for passing benefits to customers as they are realized.

Critical Consumer Protections

- Require the Company to submit an Advanced Rate Design Roadmap that offers a specific timeline and implementation strategy for the delivery of innovative and advanced rate offerings to customers, including a minimum of 400 MW of demand response.
- Require the Company to enable critical customer-facing data access elements, including:
 - Enablement of Green Button Connect My Data by a date certain, no later than one year after smart meter deployment.
 - Enablement of Home Area Network (HAN) functionality from Day 1 of smart meter deployment.
 - Require customer usage data and rate schedules be provided electronically in machine readable format.
 - Provide a set of open data access standards that would create the ability for third parties to access sets of customer energy use data, either aggregated or anonymized.¹

By directing Xcel to move forward with AGIS investments, subject to the conditions and requirements outlined above and explained in greater detail below, the Commission can proceed in a manner that continues to make important investments in modern grid for Minnesota, and that protects customers from undue risk and ensures that these investments provide greater customer empowerment rather than be confined simply to operational efficiencies.

Introduction

On November 1, 2019, Northern States Power Company, doing business as Xcel Energy (Xcel or Company), simultaneously submitted three interrelated filings.

First, the Company submitted its Integrated Distribution Plan (IDP) per the Commission's July 16, 2019 Order in Docket No. E002/CI-18-251. The major focus of Xcel's IDP is its request for certification – pursuant to Minn. Stat. § 216B.2425 – of an array of investments intended to modernize the Company's distribution system. Specifically, Xcel is seeking certification of an Advanced Distribution Planning Tool as well as certification of a number of investments that are part of what is collectively referred to as the Advanced Grid Intelligence and Security (AGIS) Initiative:

- Advanced Metering Infrastructure (AMI);
- Field Area Network (FAN);
- Fault Location, Isolation, and Service Restoration (FLISR); and
- Integrated Volt Var Optimization (IVVO).

Second, the Company filed a Notice of Change in Rates and an Interim Rates Petition for a multiyear general rate case (the Rate Case and Interim Rates Petition). Xcel's petition proposed rate increases of \$201.4 million, or 6.5%, in 2020 (the test-year), an incremental increase of \$146.4 million, or 4.8%, in 2021, and another incremental increase of \$118.3 million, or 3.9%,

¹ See Docket No. M-19-5050, CUB's Notice of Petition and Petition to Adopt Open Data Standards, filed August 6, 2019.

in 2022, and a proposed interim-rate schedule.² The Rate Case and Interim Rates Petition included a three-year plan through which Xcel sought recovery for much of the AGIS Initiative investments identified in the IDP.

Third, Xcel filed a petition (the True-Up Petition) seeking approval to maintain its existing base rates with three “true-ups” that it proposed would ensure that rates remain just and reasonable. The Company stated that if the Commission approved the True-Up Petition, it would withdraw its general rate case filing and not file another prior to November 2, 2020. Per Xcel, should the Commission grant the True-Up Petition and result in the withdrawal of the Company’s general rate case, Xcel would no longer request AGIS cost recovery through base rates. Rather, Xcel asks the Commission to certify the AGIS investments and Advanced Distribution Planning Tool in the IDP, presumably to take advantage of TCR rider recovery rather than recovering costs through a general rate case.

In an order dated March 13, 2020, the Commission approved Xcel’s True-Up Petition on the condition that Xcel withdraw its Rate Case and Interim Rates Petition and not implement the rates set forth in that petition. Accordingly, the Company withdrew its multiyear rate case application and therefore requests, through its IDP, certification for its proposed AGIS investments in order to recover said costs through a rider as opposed to through base rates.

Certification Request

At the heart of Xcel’s Integrated Distribution Plan is the request for certification of a number of investments that are part of what is collectively referred to as the Advanced Grid Intelligence and Security (AGIS) Initiative. The authority to certify qualifying grid modernization investments stems from Minn. Stat. § 216B.2425, Subd. 2e, which states:

In addition to providing the information required under this subdivision, a utility operating under a multiyear rate plan approved by the commission under 216B.16, subdivision 19, shall identify in its report investments that it considers necessary to modernize the transmission and distribution system by enhancing reliability, improving security against cyber and physical threats, and by increasing energy conservation opportunities by facilitating communication between the utility and its customers through the use of two-way meters, control technologies, energy storage and microgrids, technologies to enable demand response, and other innovative technologies.

Although certification does not guarantee cost recovery, it provides the Company with an opportunity to request recovery of costs in a subsequent rider filing. Indeed, as the Company has outlined, certification of AGIS projects “will provide a cost recovery option in the event the

² See *In re Application Northern States Power Company d/b/a Xcel Energy for Authority to Increase Rates for Electric Service in the State of Minnesota*, Docket No. E-002/GR-19-564 (the Rate Case Docket).

Company would not otherwise file a general rate case following the conclusion of [a] MYRP period.³

Notwithstanding Xcel's purported "dual filing approach" wherein the Company filed both an MYRP application concurrent with its Integrated Distribution Plan and concomitant certification request, Xcel has since withdrawn its MYRP application. In light of the Company's withdrawal of its MYRP application, it would appear that Xcel views the TCR Rider as the primary, and perhaps sole, mechanism by which to recover its AGIS Initiative costs.

The Transmission Cost Recovery (TCR) Rider is governed by Minn. Stat. § 216B.16, sub 7b, which authorizes the Commission to approve the automatic adjustment of charges for the Minnesota jurisdictional costs associated with a utility's new transmission facilities, including facilities certified by the Commission under Minn. Stat. § 216B.2425, which, in turn, requires utilities operating under a MYRP to identify "investments that it considers necessary to modernize the transmission and distribution system by enhancing reliability."⁴

Commission decision to certify investments under § 216B.2425 is discretionary and not required by statute.

Consistent with the applicable statutory requirements, the Commission need not feel compelled to grant certification of the Company's identified investments. Per Minn. Stat. § 216B.2425, Subd. 2e, a utility operating under a Commission-approved MYRP "shall identify in its [distribution plan] investments that it considers necessary to modernize the transmission and distribution system...." Having been presented with a list of identified investments, the Commission shall "certify, certify as modified, or deny certification of the transmission and distribution investments identified under subdivision 2."⁵

While §216B.2425, Subd. 3 requires the Commission to make an explicit determination, the Commission retains full discretion as to what that determination should be. Three options are outlined: certify, certify as modified, or deny certification. Such a determination will necessarily be made on a case-by-case basis, informed by a totality of the circumstances. Yet any Commission analysis would be incomplete if it did not also account for the impact the certification decision will have upon the efficacy of the utility's MYRP. Indeed, the Commission is tasked with finding that the MYRP "establishes just and reasonable rates for the utility,"⁶ which includes "the public need for adequate, efficient, and reasonable service."⁷

Strategen offers that there will be many occasions when the Commission's obligation to administer an MYRP that establishes just and reasonable rates and addresses the public need for exemplary utility performance conflicts with a Commission decision to certify certain transmission or distribution investments. Indeed, we submit that Xcel's AGIS Initiative certification request

³ Docket No. E002/GR-19-564, Gersack Direct, at 19.

⁴ Minn. Stat. § 216B.2425, subd. 2 (e).

⁵ Minn. Stat. § 216B.2425, Subd. 3.

⁶ Minn. Stat. § 216B.16, Subd. 19.

⁷ Minn Stat. § 216B.16, Subd. 6.

presents just such a case. For the reasons set forth below, certification of the AGIS initiative (and subsequent TCR Rider treatment thereof) will likely undercut the Commission's ability to effectively administer the Company's next MYRP.

Use of Riders Under a Multi-Year Rate Plan Framework

As noted, the primary purpose of seeking certification pursuant to § 216B.16 is to serve as a first hurdle toward qualification for TCR Rider recovery. Accordingly, the use of TCR Rider recovery for the AGIS Initiative must be carefully evaluated and viewed within a broader context. The use of riders to recover significant capital investments such as those represented by the Company's AGIS Initiative intimately relate to the broader, comprehensive regulatory framework that governs the setting, adjustment, and collection of Xcel's revenue requirement. Furthermore, the use (and potential overuse) of riders for cost recovery firmly relates to the amount of risk that is born by the overall customer base compared to risk born by the Company.

An MYRP's intended function and purpose is to provide a cost control incentive to the Company over the life of the plan.

America's investor-owned electric utility industry was largely built under cost-of-service regulation (COSR). This regulatory system traditionally adjusted rates that compensate utilities for costs of capital, labor and materials only in general rate cases. The scope of costs eligible for tracker treatment, which expedites cost recovery, has gradually enlarged and sometimes includes capital costs as well as energy expenditures. Expanded use of cost trackers and a reduced scope for prudence reviews weaken utility incentives to cut costs.

Multi-Year Rate Plans (MYRPs) are a different approach to electric utility regulation that is especially appealing when the alternative is frequent rate cases or expansive use of cost trackers. The regulatory process is streamlined and better utility performance can be encouraged due to stronger performance incentives and increased operating flexibility. Benefits of better performance can be shared with customers.⁸

This intended purpose of the MYRP should not be subverted by an overzealous use of riders for cost recovery. As Xcel has recently explained in a different docket, the purpose of the MYRP is to "encourage cost containment during the course of the plan."⁹ It is difficult to see how an MYRP could properly serve its function with respect to cost containment if Xcel is anticipating that it will be allowed to recover anything outside of the MYRP through one of the numerous riders that it operates, which cover, among other items, costs related to fuel, transmission, grid modernization, and renewable energy generation. The fact that Xcel may operate under a MYRP does not mean that all of the potential costs not included in the test years should be recovered through a rider.

Indeed, the statute governing MYRP, Minn. Stat. § 216B.16, sub. 19, states, in relevant part, that the utility's forecasted rate base "must include the utility's planned capital investments and

⁸ See MN Lowry, M Makos, J Deason, and L Schwartz, State Performance-Based Regulation Using Multiyear Rate Plans for U.S. Electric Utilities, Grid Modernization Laboratory Consortium, U.S. Department of Energy, July 2017.

⁹ Xcel Comments, Docket No. E-002/CI-17-401, at 6 (Dec. 21, 2017)

investment-related costs, including income tax impacts, depreciation, and property taxes, as well as forecasted capacity-related costs from purchased power agreements that are not recovered through [the energy and emission control products cost adjustment].”¹⁰ The clear spirit underlying this statutory requirement relates to the core function and intended purpose of MYRP design. That is, a core advantage of MYRPs is their potential to strengthen cost containment incentives. MYRPs can also encourage more operating flexibility in areas where the need for flexibility is recognized. Reduced rate case frequency means that the prudence of management strategies must be considered less frequently. Utilities are more at risk from bad outcomes (e.g., needlessly high capital expenditures) and can gain more from good outcomes (e.g., low capital expenditures).

A regulatory framework that permits a utility to recover a large percentage of its capital expenditures through riders rather than base rates allows a utility to side-step any financial downside of an MYRP, including the cost containment features, while allowing the utility to take advantage of the upside of an MYRP, including reduced regulatory lag and a narrowed prudence review. For the reasons stated, riders should be employed sparingly and strategically so as to not undermine the efficacy of MYRPs and to ensure greater cost containment and consumer protections.

An overuse of riders for capital investment cost recovery can obscure the true financial impact to customers.

Broadly speaking, as the relative magnitude of investments recovered through riders increases, the Commission’s ability to take a holistic view, in a rate case, of planned investments and their expected financial impact on ratepayers can materially decrease. The rate case proceeding should be an opportunity for the Commission and other parties to evaluate the Company’s proposed investments as they are reflected in an MYRP. Such an evaluation should allow for a full accounting of how the proposed MYRP will financially impact ratepayers both in the near- and long-term.

The process of ratemaking has always presented the Commission with striking a balance between reliability, affordability, safety, and other public policy goals. In striking the right balance, the Commission, along with consumer advocates and interested parties, should also have visibility into and be able to reasonably comment upon what the appropriate prioritization for those investments can and should be. When a utility recovers a disproportionate amount of its revenue requirement through riders, it distorts the picture presented to the Commission and customers related to how much base rates are expected to increase. Stated differently, if significant amounts of new capital expenditures are recovered through riders rather than base rates, the Company can accurately state that base rates are only increasing by a nominal amount while obscuring the increases to customer bills as a result of escalating rider amounts.

As the Commission has noted in its Utility Rates Study, the use of special cost recovery mechanisms, such as the TCR rider, inherently create the potential for unproductive incentives.

¹⁰ Minn. Stat. § 216B.16, sub. 19(a)(1).

"The risk to incentives is especially significant when special recovery is allowed for cost categories that do not inherently pose a danger of severe financial risk; i.e., costs that are *not* always outside of the control of the utility, unpredictable or substantial. In those instances, allowing automatic recovery would also be expected to erode incentives for cost control."¹¹

Furthermore, as the Commission has explained, "making certain cost categories subject to automatic recovery removes them from inclusion in the overall review of costs (those that decrease as well as those that increase) when a general rate case is ultimately filed."¹² Indeed, it "effectively takes them 'off the table' in a rate case review and thereby constricts the Commission's rate-making authority. And while special recovery [like the TCR rider] will have the effect of dampening the magnitude of rate requests that utilities make when they do ultimately file a rate case petition, the reality is this effect merely masks the full rate implications for ratepayers."¹³

This issue is underscored by the fact that transmission and distribution costs comprise roughly half of a residential customer's monthly bill.¹⁴ As the State of Minnesota continues on its path toward a cleaner and more distributed electricity system, an increasing percentage of distribution investments will almost assuredly be of a type that Xcel "considers necessary to modernize the transmission and distribution system."¹⁵ If the Commission continues to certify distribution and transmission investments identified under Minn. Stat. § 216B.2425 Subd. 2 (and then subsequently allows for TCR rider cost recovery) the Company, over time, will be permitted to operate in a regulatory framework that is unduly tilted in its favor – one that shifts a large percentage of risk away from Xcel and onto customers, and dampens the importance, efficacy and transparency of rate case proceedings.

Recovery of grid modernization costs through the TCR rider may diminish the transparent accounting of all distribution system costs in rates and could lead to double recovery.

Another important issue raised by the use of TCR rider recovery for AGIS Initiative investments is one of clear accountability for tracking the costs and benefits associated with the AGIS Initiative. An approach that handles cost recovery through the TCR rider and outside of base rates enhances the risk that certain costs associated with the AGIS Initiative will be double recovered - once through the TCR rider and again through base rates. Due to the separate venues for cost recovery, there is likely to be overlapping or difficult to distinguish costs related to distribution investments. It will not always be clear which costs should be attributed to AGIS investments,

¹¹ Minnesota Public Utilities Commission, Report to the Legislature: Utility Rates Study as Required by Laws of Minnesota, 2009, Chapter 110, June 2010, at 8 (Utility Rates Study), *available at* https://mn.gov/puc/assets/012854_tcm14-5188.pdf.

¹² Utility Rates Study at 8.

¹³ Utility Rates Study at 8.

¹⁴ Xcel Energy, "Inside your 2019 electric bill," *available at* <https://www.xcelenergy.com/staticfiles/xcel/Regulatory/Regulatory%20PDFs/rates/MN/InsideYourElectricBill-EnvironmentalDisclosureCostofGeneration.pdf>.

¹⁵ Minn. Stat. § 216B.2425 Subd. 2.

recovered through a rider, and which costs should be classified as other distribution investments, recovered through a general rate case. Given this opportunity for confusion, there is a risk that certain costs will be double counted. By having to review distribution system investments across multiple filings, it makes it far more challenging to ensure accountability and avoid this potential double recovery issue. For these reasons, the Commission should embrace an approach that accounts for all AGIS Initiative costs in base rates to reduce the risk of double recovery and to better ensure that Xcel be held accountable for the cost estimates it has included in its IDP.

Given the expiration of Xcel's most recent MYRP, the Company should not be eligible for TCR rider recovery.

Strategen submits that Xcel is not currently eligible to request certification of distribution investments under Minn. Stat. § 216B.2425, because it the Commission may lack the statutory authority to certify the distribution investments identified by Xcel in its IDP. While not a central point among those raised in these comments, we do note that it is unclear whether Xcel is not currently "a utility operating under a multiyear rate plan approved by the [C]ommission," a statutory prerequisite for Commission certification of identified distribution investments.¹⁶ As noted in Xcel's Petition for Approval of True-Up Mechanisms (True-Up Petition), the Commission approved a four-year MYRP in the Company's 2015 general rate, MPUC Docket No. E002/GR-15-826. The MYRP expired on December 31, 2019. In anticipation of the expiration of its MYRP, Xcel filed a general rate case on November 1, 2019, in Docket No. E002/GR-19-564.

Xcel's True-Up Petition was granted by the Commission and the Company withdrew its general rate case application, voluntarily committing to not filing a new general rate case until on or after November 2, 2020. Given that Xcel's most recent MYRP expired on December 31, 2019, and no new rate case application is currently pending before the Commission, it follows that Xcel is not "operating under a [MYRP]" as required by Minn. Stat. § 216B.2425 Subd. 2e. Accordingly, the Commission may lack statutory authority to certify any distribution investments that are identified by a utility operating outside of an active MYRP.

Xcel's withdrawn MYRP application demonstrates that the MYRP is an appropriate cost recovery vehicle for the AGIS Initiative.

Xcel, in its since withdrawn rate case application, which was filed on November 1, 2019, included the AGIS costs in the Company's MYRP request. The Company nonetheless still sought to "preserve the option to put the AGIS costs in a rider until such time as [Xcel] file[s] [its] next general rate case."¹⁷

Xcel does not offer any support for its position that AGIS costs need or should be recovered in a rider. In fact, by including AGIS costs in its since withdrawn MYRP, Xcel has explicitly indicated that recovery AGIS costs through base rates is a wholly appropriate mechanism for cost recovery.

¹⁶ Minn. Stat. § 216B.2425 Subd. 2e.

¹⁷ IDP Filing at 155.

Any benefits that could be attributed to AGIS cost recovery through a rider rather than base rates are outweighed by the risks attendant with such an approach, as identified herein.

Xcel's MYRP cycle should be synced and harmonized with stakeholder-informed, integrated planning processes.

The timing and calibration of a four- to five-year MYRP cycle should be harmonized with power system planning and procurement cycles. This is particularly true given Xcel's IDP, which provides a 5-year action plan as part of a long-term plan for the distribution system, as required by filing requirement 3.D.2. The IDP action plan will likely have a material impact on system operation costs due to the nature and scale of new technologies deployed, which are partially predicated on achievement of greater efficiency. Overreliance on interim cost recovery mechanisms, such as the TCR rider, to account for major investments included in a 5-year IDP action plan could result in a cumbersome regulatory process and dilute the cost reduction incentives integral to an MYRP. This is even more critical with the anticipated investments identified through the Company's Integrated Resource Plan (IRP) as well.

Accordingly, MYRP, IDP, and IRP cycles should be aligned, such that an approved or accepted IRP or IDP action plan informs the setting of base rates or target revenues for the subsequent MYRP control period, which should improve regulatory efficiency and preserve the cost containment integrity of the MYRP framework. Such harmonization and calibration should help to ensure that the IDP and IRP processes are directly and contemporaneously translated into customer benefits through the revenue recovery process. More specifically, Xcel's investment plans - both on the generation side, as informed by the IRP, and the distribution side, as informed by the IDP - should inform a multi-year investment plan to outline a revenue requirement forecast which is a key component of the MYRP.

By linking the IDP and IRP action plans more directly to the Company's MYRP rate case, the Commission can achieve far greater awareness of the customer bill impacts and investment prioritizations that result from these action plans. The Commission could also help to ensure that key benefits articulated in the respective plans are realized at the same time as costs for the investments are recovered. Moreover, as outlined elsewhere in these comments, recovery of investment plan costs through the MYRP rather than through disparate riders can help ensure consumer protection from cost overruns. Finally, such an approach could be paired with metrics to ensure that major projects are subject to the same types of performance incentives as other parts of the Company's business.

Such a holistic approach to these three critical components of Xcel's regulatory framework is consistent with the Legislature's guidance governing MYRPs. Indeed, an MYRP's "forecasted base rate must include the utility's planned capital investments and investment-related costs"¹⁸ and the Commission is required to "ensure that rates remain just and reasonable during the course of the plan, including terms and conditions for rate adjustment."¹⁹ An MYRP cycle that is not

¹⁸ Minn. Stat. § 216B.16, subd. 19(a)(1).

¹⁹ Minn. Stat. § 216B.16, subd. 19(e).

aligned and calibrated with the Company's IDP and IRP action plans is likely to result in a rate plan that falls short of the statutory obligations laid out in Minn. Stat. § 216B.16, Subd. 19.

Critical Consumer Protections Are Needed Should the Commission Grant Certification

Notwithstanding the positions set forth above, which outline specific issues with Commission certification of the AGIS costs, if the Commission is inclined to grant certification, specific consumer protection measures must be conditions of any such action. Indeed, the customer safeguards outlined below would be equally relevant and prudent should the Commission direct the Company to recovery AGIS Initiative costs through its MYRP.

Nationally, the record of utilities' AMI and smart meters deployment has been mixed – unsurprising given the level of complexity involved. Some utilities have had to interrupt their roll out of smart meters to reassess the technology selected, and some have switched vendors. Still others have incurred hundreds of millions of dollars in cost overruns due to systems integration issues. And some utilities have failed to realize expected benefits from smart meter projects because of change-management issues.²⁰

These false starts, cost overruns, and sub-par results underscore the need for consumer protections – both to ensure that customers are not on the hook for cost overruns due to poor project management and to guarantee realization of the promised customer benefits.

Cost Recovery Caps

If the Commission were inclined to permit use of the TCR rider for AGIS Initiative costs, there is a need for a consumer protections akin to the asymmetrical capital cost-true up in the MYRP, in which ratepayers benefit from capital expense savings but do not pay for capital expenses above the baseline. Accordingly, the Commission should implement fixed and variable cost recovery caps, as follows.

Fixed Cost Recovery. The Commission should implement fixed cost recovery caps for the AGIS projects. For the AMI and FAN projects, in particular, the Company should recover no more than the lower of actual incurred costs or their proposed costs in the IDP filing, including both capital expense and any proposed deferred expense, as applicable.

Variable Cost Recovery. The Commission should also implement variable cost recovery caps, including O&M and labor costs, for the AMI and FAN projects that result in a per-meter cap on cost recovery. For the AMI and FAN projects, the Companies should recover, for each meter installed and in operating service, no more than the lower of actual incurred costs or their proposed aggregated costs applied on a per meter basis.

²⁰ Anjan Asthana, Adrian Booth, and Jason Green, "Best practices in the deployment of smart grid technologies," McKinsey on Smart Grids, Summer 2010, available at https://www.mckinsey.com/~media/mckinsey/dotcom/client_service/epng/pdfs/mck%20on%20smart%20grids/mosg_bestpractices_vf.ashx.

Cost recovery caps of this nature were also required by the Hawaii Public Utilities Commission as a condition for its approval of the Hawaiian Electric Companies' proposed grid modernization investments, including AMI.²¹

Benefits Assurance

At a minimum, the Company should be required to commit to delivering to customers the benefits that it has identified in its cost-benefit analysis.

By providing Xcel cost recovery through a rider mechanism, a significant concern is that the cost-savings associated with projects included in the rider mechanism would not be captured at the same time as the cost recovery. To address this concern, if the Commission approves cost recovery through the TCR rider, Strategen recommends that Xcel be required to establish a pass-through methodology and/or process that will provide a means by which the savings associated with the AGIS Initiative be timely passed on to the Company's customers.

To that end, as a potential template to be adapted for the TCR rider and the AGIS Initiative, the Commission and the Company could look to a benefits pass-through methodology proposed by the Consumer Advocate and Hawaiian Electric Companies, and adopted by the Hawaii Public Utilities Commission, in Docket No. 20147-0170.²²

In that proceeding, the Hawaiian Electric Companies reached agreement with the Consumer Advocate to use a rate case-centric approach to facilitate pass through of benefits from a planned enterprise software system. The types of benefits included were: O&M expense reduction benefits; capital cost avoidance benefits; and tax cost avoidance benefits.

Progress Reports

Strategen recommends that the Company be required to file quarterly reports that contain the following elements:

1. The Company's plans and scope for implementation in the upcoming months and/or year;
2. The status of the number of meters and units of telecommunications infrastructure that the Company has installed and placed in service, in comparison to the Company's plans and scope;
3. The status of the installation of the FAN in comparison to the Company's plans and scope;
4. Implementation status of metering and network communications headend systems in comparison to the Company's plans and scope; and
5. The actual capital and deferred costs incurred by the Company.

²¹ See *In re Application for Approval to Commit Funds in Excess of \$2,500,000 for the Phase 1 Grid Modernization Project, to Defer Certain Computer Software Development Costs, Etc.*, Docket No. 2018-0141, Decision and Order No. 36320, at 24, filed March 25, 2019.

²² See *In re Hawaiian Electric Companies ERP/EAM Implementation Project*, Docket No. 2014-0170, Order No. 36166, Attachment: Consumer Advocate and Hawaiian Electric Companies' Supporting Documentation for Proposed ERP Benefits Pass-Through Methodology, filed February 20, 2019.

Conditions to Ensure Realization of Customer-Facing Benefits from AGIS Initiative

Strategen reaffirms its recommendation that the Commission should direct the Company to move forward with the most important aspects of the AGIS investments, namely AMI and FAN. That said, specific conditions for approval are necessary to protect consumers and to ensure that customer-facing benefits are actually realized.

AMI is a foundational element to advancing Xcel's grid capabilities, including provision and measurement of new customer rate and demand-side management service offerings; improved grid awareness, visibility and performance; improved operational efficiencies and performance; and new potential customer benefits including access to customer energy data. The 0.87 cost-benefit ratio (CBR) identified by Xcel significant understates the potential customer value of those benefit streams for a variety of reasons.

Xcel does not comprehensively include the potential customer revenue streams, excluding the benefits of a majority of customer tariff and service offerings identified in their Demand response potential study²³, as well as potential customer benefits such as improved reliability, and reduced outage duration. This underscores the need to ensure delivery of all customer value, including customer-facing benefits to make up for a cost-benefit ratio that falls well below 1.0.

The Company's IDP proposes to enable grid insight and energy management options provided by advanced meters. Strategen supports this initiative and further asserts that the full value of advanced meters cannot be realized unless advanced rates are implemented. Advanced rates, in turn, cannot be effective unless customers and the Company have the data necessary to respond to them. Underscoring this point, studies have shown that customers who have access to their usage data may achieve significant bill reductions and bill savings, between 6% to 18%.²⁴ Advanced rates, in turn, could allow and encourage customers to harness their data to generate savings, provide grid benefits when and where needed, and reduce their greenhouse gas emissions. The granular data and information generated by AMI can inform the design of advanced rate offerings and better allow rates and programs to be targeted to those customers that would be best served by them. Collectively, the customer-facing data and the advanced rate offerings that are enabled by AMI are important elements to achieving system-level benefits with the AGIS investments.

²³ Reference Brattle study identified in CBA spreadsheet

²⁴ See, e.g., *Improving Access to Energy Usage Data*, American Council for an Energy Efficient Economy (AEEE), available at <https://aceee.org/sector/local-policy/toolkit/utility-data-access> (showing that an energy efficiency program enabled by advanced metering infrastructure saved participating residents 10% on their energy bills in comparison to a baseline year); Michael Murray and Jim Hawley, *Got Data? The Value of Energy Data Access to Consumers*, Gridworks, Mission Data (January 2016) available at <https://gridworks.org/wp-content/uploads/2017/01/Gridworks-DataAccessReport.pdf> (compiling twelve studies that showed energy savings between six and eighteen percent, when customers have access to meter data).

Accordingly, the Commission should direct the Company to comply with the data access requirements outlined here and to file an Advanced Rate Design Roadmap, as a condition of certification. The Advanced Rate Design Roadmap should provide the basis for future programs that drive customer savings and maximize investments made through the AIGS Initiative.

Data Access Policies to Help Unlock Customer Value

The deployment of AMI offers significant operational benefits for utilities and the potential for significant energy savings for consumers. A major lesson from prior state deployments of AMI is that full realization of consumer benefits from efficiency or time-shifting of usage will not occur unless consumers have convenient access to their own energy data made available by advanced meters. It is also critical that such policies are timely and consistently implemented. Strategen offers that, should the Commission be inclined to grant certification of the Company's AGIS Initiative, that such approval be conditioned on ensuring that consumers receive their share of the benefits of AMI – specifically, access to the energy data generated by their advanced meters, along with accompanying cost information.

More specifically, to ensure that Xcel's electricity customers have functional, secure access to new data-enabled technologies and services to help them save energy and money, and otherwise realize value from the state's advanced metering infrastructure deployment, Strategen recommends the following:

1. **Provide consumers easy access to the best available information about their energy usage through two interfaces**, including (a) energy usage information transmitted through the Company's Field Area Network (FAN) and back to the Company's information technology systems and provided to the consumer and authorized third parties via the utility website; and (b) real-time information directly from the Home Area Network (HAN) radio in the advanced meter to a device controlled by the consumer and the ability for the consumer to easily share that data with energy management service providers of their choice.

The data collected by advanced meters should be provided in a standardized protocol in order to support innovative new technologies, as a component of basic utility service. Meter data transmitted through the FAN should be provided to the consumer via Green Button Connect My Data (CMD) standard. The HAN radio contained in each meter should be enabled as meters are deployed so that customers can experience immediate, tangible benefits. The Company should further provide a "Bring Your Own Device" (BYOD) offering to allow customers to easily connect any HAN-compliant device to the advanced meter.

With respect to these data access elements, it is instructive to review the Settlement Agreement approved by the Public Utilities Commission of the State of Colorado pertaining to Public Service Company of Colorado related to its own Advanced Grid Intelligence and Security (AGIS) initiative. The enablement of HAN concurrent with AMI roll-out and the requirement that the company plan on implementing Green Button

CMD.²⁵ Although Xcel has indicated that it would implementing Green Button CMD in the “near-term,” the Commission should require Green Button CMD by a date certain, no later than one year from full AMI roll-out.

2. **Provide customers and authorized third parties with access to historic billing information in a machine-readable, automated manner.** Access to billing data is important so that new digital services can provide information to consumers on the exact bill impacts of their energy decisions. Historical bills should also be able to be transmitted directly from the utility to any authorized third party electronically via a standardized XML format.
3. **Provide consumers and third parties with rate information in standardized, machine-readable formats.** Utility rate schedules should be published in standardized, machine-readable forms because it allows new technologies across the U.S. to easily calculate the bill impacts of certain decisions regarding energy efficiency or other distributed energy resources. Most customers are concerned with dollars as opposed to kilowatt-hours. Providing innovative companies with access to the Company’s approved rates in a standardized, machine-readable format, maintained in a centralized database, is important facilitates automation of the cost-calculation process, letting software do the work, no matter how complex rates may become. The Commission should require Xcel to maintain accurate and up-to-date rates in the National Renewable Energy Laboratory’s Utility Rate Database so that software applications can easily convert kilowatt-hours or therms into dollars and present customers with accurate options for cost-savings measures.
4. **The customer authorization process should be easy for consumers to use and require the least number of steps.** Signing up for third party energy management services should be easy, akin to downloading a smartphone application. By simplifying the user experience online and minimizing the number of customer actions required, i.e., reducing the number of “clicks”, the Company can ensure that customers can immediately gain additional value from their smart meter with numerous software applications now available on the market. Customer authorization processes that require many inputs from customers or that require many steps will result in significantly less adoption of data-enabled energy management services and fewer benefits for consumers from the AMI investment.
5. **Provide a set of open data access standards that would create the ability for third parties to access sets of customer energy use data, either aggregated or**

²⁵ *In re Application of Public Service Company of Colorado for an Order Granting a Certificate of Public Convenience and Necessity for Distribution Grid Enhancements, Including Advanced Metering and Integrated Volt-Var Optimization Infrastructure*, Proceeding No. 16A-0588E, Decision No. C17-0556, adopted June 21, 2017, at 7 (Xcel Colorado Settlement Agreement).

anonymized.²⁶ Standards should be developed that recognize the need for ensuring customer privacy, while also allowing for the sharing of granular data sets that can be matched with data sets from sources other than the utility, such as demographic information. The goal of adopting Open Data Access Standards is to provide granular energy use data in small data sets in ways that are useful for third parties, while not unduly burdening utilities and associations, and protecting the privacy of individual customers.

Developing Modern Rates for a Modern Grid

All customers deserve fair and equal access to the benefits of expanded customer choices and clean energy. For Minnesota, an advanced, resilient, and modernized grid is foundational to enhancing customer choice, ensuring affordable and reliable electric service, while also transforming the system to achieve a renewable energy future. The new generation of advanced meters expected to be deployed through the AGIS Initiative will enable the collection and presentation of interval usage data and outage notifications for both residential and commercial customers.

Advanced rates require certain enabling technologies to be effectively implemented. The deployment of advanced meters, along with the associated communications infrastructure and backend systems, is an integral element and prerequisite to developing more sophisticated rates. The functionality provided by these technologies permits energy interval data, load forecasting, and two-way communication between the utility and end-user, which are critical to the development of more advanced rate designs. In addition, access to interval data from advanced meters allows customers to more effectively manage their energy use and respond to price signals.

Rate design must also evolve to help customers actively participate in this transition. Customers need information they can act on and the technology to help them manage their electricity. Advanced rate design will play an important role in facilitating and sustaining the incorporation of the large amounts of DERs, control of these resources (demand response), and other grid services necessary for achieving Minnesota's clean energy future.

Need for an Advanced Rate Design Roadmap

Xcel's grid modernization efforts can serve as a pathway to enable additional value from DER, and create opportunities for customers to more fully participate in the energy system. These opportunities cannot be fully realized without dynamic rate options and programs that help align customer behavior with grid needs. As the Companies continue to invest in technologies such as advanced meters, the need to develop sophisticated rate designs and programs, including demand response, that leverage the capabilities of advanced meters becomes increasingly important.

²⁶ See Docket No. M-19-5050, CUB's Notice of Petition and Petition to Adopt Open Data Standards, filed August 6, 2019.

Rate design is a topic that is intertwined with growing market-based service opportunities and may further be enabled by newer and more advanced metering technology. To aid Xcel in maximizing the benefits of AMI, the Commission should direct the Company to develop a succinct Advanced Rate Design Roadmap that describes how the Company will leverage the technological capabilities of advanced meters to support the Companies' planned programs and the Commission's state priorities.

The Advanced Rate Design Roadmap should briefly describe the Companies' plans to offer advanced rate designs and programs, including demand response, and outline advanced rate design proposals for further development and consideration.

The Advanced Rate Design Roadmap should include, at a minimum:

1. A timeline for the Company to offer updated dynamic rates for all residential and commercial customers (including, the introduction of time-varying rates), which should include offerings that deliver a minimum 400 MW of demand response;
2. Potential rate reform considerations to support low-income customer participation in these offerings;
3. Enrollment mechanisms for convenient customer participation in the advanced rate offerings;
4. Implementation plans for offering advanced rates, including education and outreach to customers; and
5. Evaluation plans for monitoring, verifying, and improving the effectiveness of advanced rate designs.

This requirement and approach is very similar to that taken by the Hawaii Public Utilities Commission in Docket No. 2018-0141, where it approved the Hawaiian Electric Companies' grid modernization investments, including AMI, but made a portion of cost recovery contingent upon HPUC acceptance of an Advanced Rate Design Strategy.²⁷

Conclusion and Recommendations

The value of AMI is predicated Xcel's realization of customer benefits. The Commission must ensure that Xcel is acting timely and responsibly to achieve and credit customers with the full value promised through their AMI implementation.

Costs should be recovered through the Company's MYRP and not certified for recovery through the TCR rider. Should the Commission be inclined to certify the AGIS investments, in whole or in part, said certification should be "as modified" to be conditioned upon inclusion of cost recovery caps and other consumer protections outlined herein. Indeed, the commission should require Xcel to develop and commit to a clear schedule and timeline for the implementation of new customer rate and demand-side management service offerings. Any delay in the schedule should be

²⁷ See *In re Application for Approval to Commit Funds in Excess of \$2,500,000 for the Phase 1 Grid Modernization Project, to Defer Certain Computer Software Development Costs, Etc.*, Docket No. 2018-0141, Decision and Order No. 36320, at 50-53, filed March 25, 2019.

considered to constitute a failure to deliver on customer benefits. Further, the AMI capital and operational savings identified by Xcel in their CBA should be incorporated into Xcel's MYRP in the form of reduced revenue requirements. Such savings should also be incorporated into future Integrated Resource Planning processes, as applicable. Finally, the Commission should continue to require Xcel to demonstrate how they are maximizing the customer benefits of AMI as new use cases and value streams continue to be discovered and explored. Today, these benefits include customer access to energy data to help enable home energy management and new energy monitoring tools. These benefits will continue to grow as the utilities industry finds new ways to leverage AMI, and the Commission should ensure that Xcel maximizes the potential customer value from this investment.

For the reasons stated, Strategen recommends that the Commission direct the Company to move forward with the AGIS Initiative, but with specific conditions to prevent customer exposure to cost overruns or double recovery as well as to ensure that customers are able to fully benefit from these foundational investments.

To that end, we recommend that the Commission direct Xcel to move forward with its AMI and FAN investments, subject to the following conditions:

Cost Recovery

- Certification should be denied, and AGIS investments be recovered through rate cases.
- In the alternative, certification should be granted as modified, with rider recovery subject to certain consumer protections, including cost caps and a methodology for passing benefits to customers as they are realized.

Critical Consumer Protections

- Require the Company to submit an Advanced Rate Design Roadmap that offers a specific timeline and implementation strategy for the delivery of innovative and advanced rate offerings to customers, including a minimum of 400 MW of demand response.
- Require the Company to enable critical customer-facing data access elements, including:
 - Enablement of Green Button Connect My Data by a date certain, no later than one year after smart meter deployment.
 - Enablement of Home Area Network (HAN) functionality from Day 1 of smart meter deployment.
 - Require customer usage data and rate schedules be provided electronically in machine readable format.
 - Provide a set of open data access standards that would create the ability for third parties to access sets of customer energy use data, either aggregated or anonymized.