

September 30, 2020

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
Saint Paul, Minnesota 55101-2147

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E999/CI-17-879

Dear Mr. Seuffert:

Attached are the Comments of the Minnesota Department of Commerce, Division of Energy Resources (Department), in the following matter:

In the Matter of an Inquiry into Electric Vehicle Charging and Infrastructure

Between June 1, 2020 and July 30, 2020 Minnesota Power, Otter Tail Power and Northern States Power d/b/a Xcel Energy submitted their second Transportation Electrification Plans (2020 TEPs) as required by the Commission's December 12, 2020 *Order Making Findings and Requiring Filings*. The 2020 TEPs were submitted by:

Jennifer J. Peterson
Policy Manager
Minnesota Power
30 West Superior Street
Duluth, MN 53802

Jason Grenier
Manager of Market Planning
215 South Cascade Street
PO Box 496
Fergus Falls, Minnesota 56538

Holly R. Hinman
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

Attached are the Department's responses to the Minnesota Public Utilities Commission's (Commission) topics for comment as published in its July 20, 2020 Notice of Comment Period on the three electric utilities second TEPs.

The Department recommends that the Commission accept Minnesota Power, Otter Tail Power and Xcel Energy's 2020 TEPs and require the utilities to submit additional information for future TEPs beginning with the TEPs due June 1, 2021. The Department is available to answer any questions that the Commission may have in this matter.

Sincerely,

/s/CHRISTOPHER T. DAVIS

Analyst Coordinator

CTD/ja

Attachment



Before the Minnesota Public Utilities Commission
Comments of the Minnesota Department of Commerce
Division of Energy Resources

Docket No. E999/CI-17-879

I. INTRODUCTION

On December 28, 2017 the Minnesota Public Utilities Commission (Commission) opened an *Inquiry into Electric Vehicle Charging and Infrastructure*, Docket No. E999/CI-17-879. On March 16, 2018 the Commission held a day-long workshop with national and local experts to provide an overview of the major considerations surrounding the intersection of electric vehicles (EVs) and the electric utility industry. On May 9, 2018 the Commission issued a Notice of Comment (NOC) period on:

- Barriers to EV Adoption and Guiding Principles for EV Regulatory Policy; and
- Evaluation Criteria and Regulatory Treatment of EV Filings.

From July 25, 2018-July 27, 2018, the Commission received initial comments on the topics raised in its NOC. Reply Comments were received August 24, 2018. On October 30, 2018 the Minnesota Department of Commerce, Division of Energy Resources (Department) submitted additional data showing the percentage of time a fuel was marginal in the Midcontinent Independent System Operator, Inc. (MISO) real-time market for 2016 and 2017. On February 1, 2019 the Commission issued its *Order Making Findings and Requiring Filings* (2019 Order). The 2019 Order points are included below as Attachment A.

Order Point 14B directed Minnesota Power, Otter Tail Power, and Xcel Energy to provide the following:

- a. By June 30, 2019, a Transportation Electrification Plan identifying what EV- related initiatives the utility is contemplating over the next two years, including next steps as specific programs to scale up current or currently proposed EV pilots or tariffs. The plan should identify the extent to which the utility's planned or contemplated initiatives would:
 - i. Facilitate availability and awareness of public charging infrastructure and residential charging options for both single family and multiple unit dwellings, including programs or tariffs in development to address flexible load or reduce metering and data costs;
 - ii. Educate customers on the benefits of EVs;
 - iii. Assist in the electrification of vehicle fleets with a focus on medium and heavy duty trucks and buses;
 - iv. Offer DCFC specific tariffs and which tariffs are currently in use;

- v. Optimize EV benefits by, for example, aligning charging with periods of lower customer demand and higher renewable energy production and by improving grid management and overall system utilization/efficiency; and
- vi. A discussion of current and planned charging practices/tariffs for public charging stations along with a discussion of any concerns related to those charging practices.

The first Transportation Electrification Plans (TEPs) were filed between June 30, 2019 and July 1, 2019 by:

- Otter Tail Power Company (Otter Tail or OTP);
- Northern States Power Company d/b/a Xcel Energy (Xcel); and
- Minnesota Power Company (Minnesota Power or MP).

On December 12, 2019 the Commission issued its *Order Accepting Filings and Establishing Requirements for Additional Filings*. The Order Points are included below in Attachment B.

Order Point 8 establishes the requirements for future TEPs, beginning with the TEPs due June 1, 2020:

1. In each annual Transportation Electrification Plan, utilities must provide the following information and data to the greatest extent practicable. For any instance in which the utility is not able to provide the information and data, or it is not practicable to do so, the utility must (1) explain why it is unable to provide the information and data; and (2) make a reasonable effort to provide an approximation of the required information and data. If the utility is unable to provide an approximation of the required information and data, the utility must provide the reason or reasons and explain whether it will be possible to provide the required information and data in the future.
 - a. Number of EVs in service territory, by type where possible (e.g. light duty, transit, medium duty, heavy duty).
 - b. Number of customers and vehicles on each off peak or managed charging rate, energy consumed, and average hourly load profiles by month.
 - c. Level of demand (in kilowatts) resulting from electric vehicles during each hour of the day, or if not yet available, during each time period in a utility's time-differentiated tariff, for each electric vehicle tariff offered by the utility.
 - d. Consumption of electricity (in kilowatt-hours) by electric vehicles during each hour of the day, or if not yet available, during each time period in a utility's time-differentiated tariff, for each electric vehicle tariff offered by the utility.

- e. Number and capacity of known Level 2 Charging Stations (public, and any enrolled in a utility program).
- f. Number and capacity of direct current fast charging (DCFC) stations (including breakout of DCFC installed through a utility program).
- g. Any system upgrades performed to accommodate EV charging, total costs paid by utility and by customer, and average cost per upgrade. Cost should be reported separately for the following customer groups: Residential, Government Fleet, Private Fleet, and Public Charging.
- h. EV adoption forecast scenarios (low, likely, high) by sector (residential, medium duty, and heavy duty).
- i. EV load forecast scenarios (low, likely, high) for capacity and energy, by sector (residential, medium duty, and heavy duty).
- j. A summary of the utility's ongoing transportation electrification efforts, including existing programs and projects in development over at least the next 2 years.
- k. How the utility plans to facilitate:
 - i. availability and awareness of public charging infrastructure, including an assessment of the private sector fast charging marketplace for the utility's service territory;
 - ii. availability of residential charging options for both single family and multiple unit dwellings;
 - iii. programs or tariffs in development to address flexible load or reduce metering and data costs; and
 - iv. fleet electrification.
- l. A summary of customer EV education initiatives. Utilities need not include specific examples of outreach materials.
- m. How the utility plans to optimize EV benefits, including a discussion of how to align charging with periods of lower customer demand and higher renewable energy production and by improving grid management and overall system utilization/efficiency.
- n. Summaries of any proposals or pilots, including links to full reports, submitted to other regulatory agencies or jurisdictions (for example, proposals submitted under Conservation Improvement Programs or pilots run in other states).

Between June 1, 2020 and July 30, 2020 Xcel Energy, Otter Tail Power and Minnesota Power submitted their second TEPs.¹

On July 20, 2020 the Commission issued a NOC on the utilities' 2020 TEPs. The NOC included the following questions:

¹ Xcel Energy submitted a Supplement to its TEP on July 30, 2020. The Supplement reflects EV proposals that Xcel included in its June 17, 2020 Report filed in Docket No. E999/CI-20-492 (*In the Matter of an Inquiry into Utility Investments that May Assist in Minnesota's Economic Recovery from the COVID-19 Pandemic.*)

1. Should the Commission accept Minnesota Power, Otter Tail Power, and Xcel Energy's second transportation electrification plans?
2. Are there any additional components utilities should include in subsequent TEPs, or modifications to existing requirements?
3. Are utility EV forecasts in line with state and national market growth projections? Do utilities EV forecast scenarios adequately address a range of futures including the possibility of state or national clean car standards and corporate procurement goals?
4. Are there sectors of EV Charging and Infrastructure the Commission should revisit or examine more closely after experience with existing pilots and tariffs?
5. Do current and proposed EV programs achieve a reasonable rate as outlined in Minn. Stat. 216B.03? Please address:
 - a. Whether current EV programs achieve equitable outcomes for customers?
 - b. If there are gaps the Commission should address to ensure equitable application for customers?
6. Are there other issues or concerns related to this matter?

II. DEPARTMENT RESPONSE TO COMMISSION QUESTIONS

A. *SHOULD THE COMMISSION ACCEPT MINNESOTA POWER, OTTER TAIL POWER, AND XCEL ENERGY'S SECOND TRANSPORTATION ELECTRIFICATION PLANS?*

The Department recommends that the Commission accept each of the three utilities' 2020 TEPs if the reports include reasonable responses to Order Point 8, parts a-n of the Commission's December 12, 2019 Order. The Department discusses each part of Order Point 8 below.

Number of EVs in service territory

Table 1 below shows the aggregation of EVs reported by Minnesota's three electric investor-owned utilities (IOUs)--Minnesota Power, Otter Tail and Xcel Energy--in their 2020 TEPs. Note that the numbers don't differentiate between battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV).

Table 1: Number of EVs Reported by Minnesota Electric IOUs

	Minnesota Power	Otter Tail	Xcel Energy	IOU Total	Non-IOU	State Total
Vehicle Type						
Light-duty			9,048			
Medium-duty			0			
Heavy-duty			8			
Total	180	60	9,056	9,296	3,663	12,959

Xcel informed the Department that the 8 heavy-duty EVs listed are the buses owned and operated by Metro Transit and participating in its Fleet Service program. Minnesota Power and Otter Tail both stated that they are unable to breakdown the number of EVs in their service territories into types (e.g., light-duty, medium duty and heavy duty). Otter Tail stated it is unaware of any transit, medium duty, or heavy duty EVs in its territory. The number of EVs in the three service territories were provided to the utilities by Commission Staff.

EVs on off-peak charging rates

Table 2 below shows the number of customers with EVs that each of the three electric IOUs have on off-peak rates and the total energy usage in kWh that the customers consumed for the 12-month period May 1, 2019 – April 30, 2020.

Table 2: EV Customers on Off-Peak Rates for 3 Electric IOUs

	Customers on Off-Peak	Total Energy Usage (kWh)
Minnesota Power	7	30,451
Otter Tail	8	23,613
Xcel Energy ²	1,753	3,298,261
Total	1,768	3,352,325

Hourly EV demand

Currently neither MP nor Otter Tail have the technology to gather hourly EV demand on their systems. However, MP stated that it will have the ability in the near future once its Meter Data Management (MDM) and Advanced Metering Infrastructure (AMI) implementation is completed.³

Xcel provided the requested data in its TEP, Section 1, Part B, Attachments D and E.

Hourly EV energy use

Currently, neither MP nor Otter Tail have the technology to gather hourly EV demand on their systems. However, MP stated that it will have the ability in the near future once its Meter Data Management (MDM) and Advanced Metering Infrastructure (AMI) implementation is completed.

Xcel provided the requested hourly EV energy use data in its TEP, Section 1, Part B, Attachments F and G.

² Xcel's number of off-peak charging participants includes an estimate from Xcel's Residential TOU pilot project.

³ In its Integrated Distribution Plan (IDP) - filed November 1, 2019 in Docket No. E015/CI-18-254 – MP stated that its Meter Data Management System (MDM) would be installed in 2019-2020 and optimized for billing and rates through 2021 (page 10). In that same filing Minnesota Power stated that its AMI system is scheduled to be fully deployed by 2023 (page 11).

Number and capacity of known Level 2 charging stations

Table 3 below shows the number and capacity of known Level 2 charging stations in each of the three electric IOU service territories. Table 3 includes two entries for Xcel to illustrate the number of known level 2 charging stations that are and are not included in Xcel's EV programs.

Table 3: Level 2 Charging Stations for 3 Electric IOUs

	Level 2 Charging Stations	Capacity (kW)	Total Capacity (kW)	Enrolled in Utility EV Program
Minnesota Power	22	Assume 7.7+	170	No
Otter Tail	8	7.2-10	88	No
Xcel Energy	386	Average 7.7		No
Xcel Energy	150		4,100	Yes
Total	566		4,358	

Number and capacity of known direct current fast charging stations

Table 4 below shows the number and capacity of direct current fast charging (DCFC) stations of the three electric IOUs.

Table 4: DCFC Charging Stations for 3 Electric IOUs

	DCFCs	Capacity (kW)	Total Capacity (kW)	Enrolled in Utility Program	Public/Private?
Minnesota Power	24	Unknown	1,500	1300 kW/20 Chargers	16 Public/8 Private
Otter Tail	1	50	50	No	Utility
Xcel Energy	63	50-100+	6,300	No	Public
Total	88		7,850		

Costs of system upgrades needed for EV charging

Table 5 below shows the costs of system upgrades the three electric IOUs incurred in the past year due to EVs.

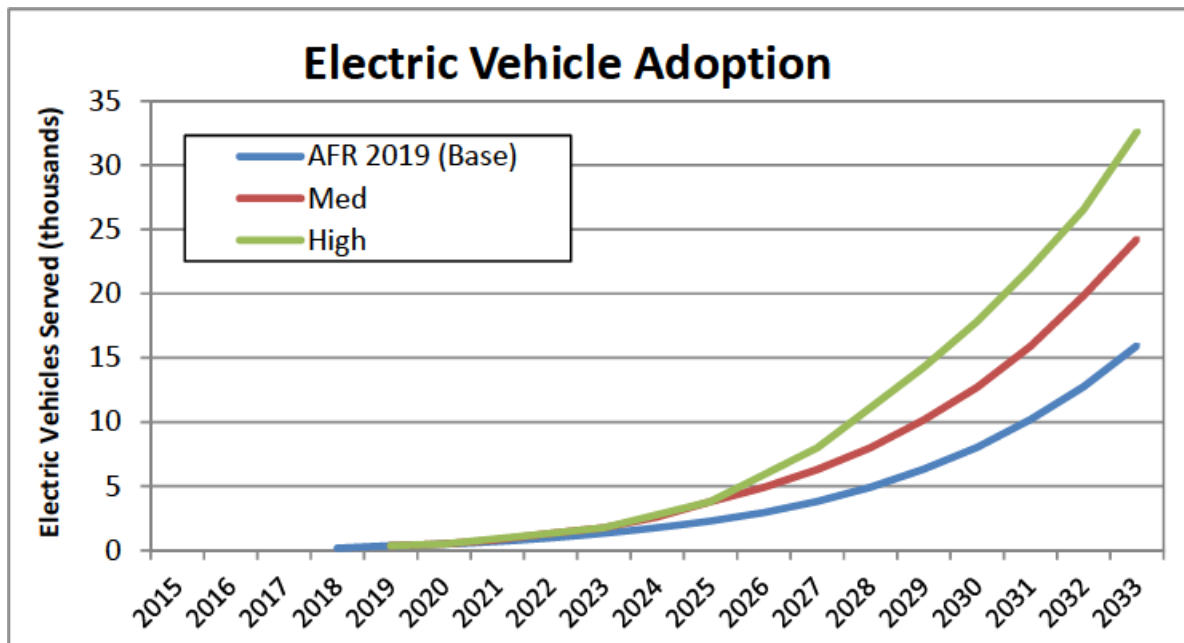
Table 5: System Upgrade Costs Required due to EVs

	TOTAL UTILITY UPGRADE COSTS	TOTAL CUSTOMER UPGRADE COSTS	AVERAGE UPGRADE COSTS	TYPE
Minnesota Power	\$0	\$0	\$0	
Otter Tail	\$8,257	\$0	\$8,257	Public Charging
Xcel Energy	\$546,261	50-100+	\$273,130.50	Fleet Charging
Total	\$554,518			

EV adoption and load forecasts

Minnesota Power

Minnesota Power provided the following figure depicting the Company's EV adoption forecast, as presented in the Company's 2019 Annual Electric Utility Forecast Report (Docket No. E-999/PR-19-11).

Figure 1: Minnesota Power's EV Adoption Forecasts

Currently, MP projects that EVs have an approximately 0.2 percent penetration level among residential customers and an estimated 350-450 MWh of annual energy consumption, which is approximately 0.05 percent of all sales to residential customers. MP projected that by 2030 EVs will represent 7

percent of sales to residential customers, or approximately 20,000 MWh, from approximately 8,000 EVs.

Otter Tail

Otter Tail stated that its EV count increased from 44 in 2018 to 60 in 2019. Otter Tail also stated that its adoption forecast for all sectors in its service area is low but did not provide that forecast. Otter Tail stated that it has filed a pilot plan with the Commission (Docket No. E017/M-20-181) to develop a basic DCFC network with 11 chargers, offer DCFC non-demand rates to DCFC host sites, expand its off peak rates for home and business charging, and install 10 L2 chargers throughout its Minnesota service territory. The Commission approved Otter Tail's proposal by voice vote on August 27, 2020. Otter Tail concludes that with this infrastructure in place it will achieve market adoption rates of approximately 2.6 percent, the percent of Otter Tail customers that stated in a late 2018 survey that said they were very or somewhat likely to purchase an EV in the next 3-5 years.

In DOC IR No. 001, the Department asked:

On August 27, 2021, the Minnesota Public Utilities Commission (Commission) approved the Company's Electric Vehicle (EV) portfolio in Docket No. E017/M-20-181, including:

- A DC Fast Charging Service network and Time of Day rate schedule;
- The installation of Level 2 EV charging stations at community host sites;
- The ability to add EVs to its controlled service offerings for reduced charging rates; and
- Deferred accounting for pilot investments expenses.

Given the new charging network approved by the Commission in Docket No. E017/M- 20-181, could Otter Tail please provide a forecast with low, likely, and high forecasts of EVs in the Company's territory, including by sector (residential, medium duty, and heavy duty), if possible?

Otter Tail provided the following response to the Department's information request.

Otter Tail Power Company (Otter Tail or the Company) used current Minnesota EVs registration data and the Auto Alliance Vehicle Sales Dashboard to generate low, expected, and high growth rates to forecast customer EV adoption. Otter Tail forecasted energy consumption based on each EV using an estimated 4,000 kWh annually. The residential EV growth can be seen in Figure 1 and residential EV energy growth in Figure 2. Otter Tail estimates coincident peak growth to be minimal, less than half of 1MW, from EV charging over the next five years.

Based on current outreach Otter Tail has done in its service area, and low numbers currently reported by Xcel Energy and Minnesota Power Company in their EV filings, little to no medium duty vehicles are expected in Otter Tail’s service area. Heavy duty vehicles in Otter Tail’s service area in the next few years will be a maximum of 2-8 and remain limited. EV adoption rates will be greatly influenced by technology improvements, cost reductions of EVs, auto dealership participation, home and public charging infrastructure options, greenhouse gas emission reduction policy, Volkswagen settlement project funding, and customer incentives offered by the state or utilities to assist EV adoption.

Figure 2: Otter Tail Forecast of EV Growth

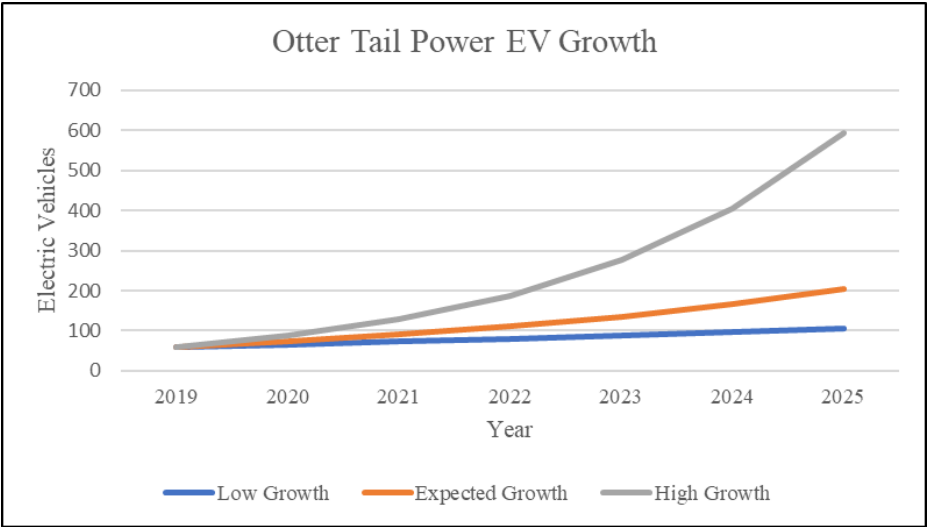
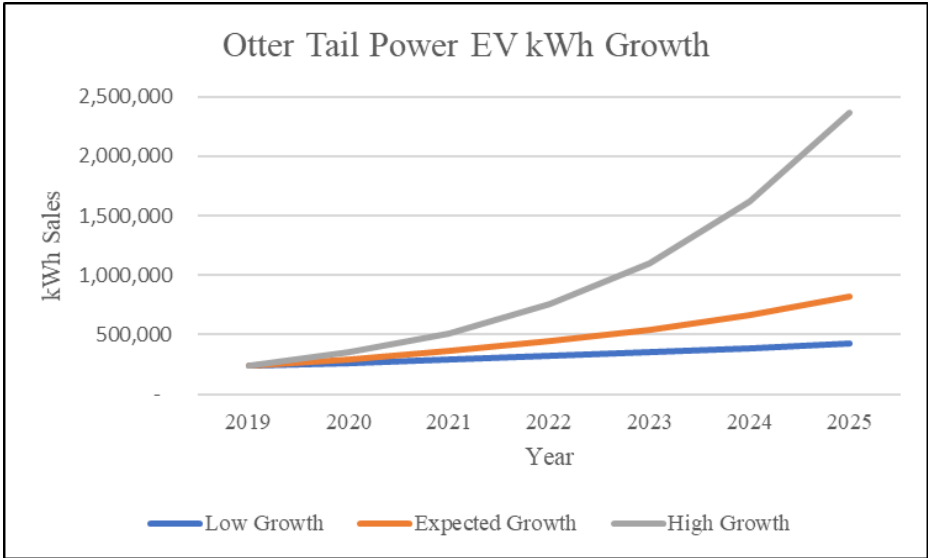


Figure 3: Otter Tail Forecast of EV kWh Growth



Xcel Electric

Table 6 below is a reproduction of Xcel's table showing forecasted EV adoption by type.

Table 6: Forecasted EV Adoption by Type

Vehicle Type and Scenario	2020	2025	2030
Light-duty vehicles (Low)	12,042	26,425	63,642
Light-duty vehicles (Mid)	12,198	48,783	126,801
Light-duty vehicles (High)	13,036	129,135	375,680
Medium-duty vehicles (Low)	0	222	1,541
Medium-duty (Mid)	0	300	2,036
Medium-duty (High)	0	667	4,393
Heavy-duty (Low)	11	142	1,216
Heavy-duty (Mid)	13	207	1,714
Heavy-duty (High)	20	508	3,981

Table 7 below is a reproduction of Xcel's table showing forecasted load.

Table 7: Forecasted Load (kWh and kW)

	2020		2025		2030	
Vehicle type and Scenario	kW	kWh	kW	kWh	kW	kWh
Light-duty vehicles (Low)	11,402	49,097,527	49,780	110,858,410	118,762	263,975,937
Light-duty vehicles (Mid)	11,518	49,408,325	91,324	201,725,972	236,301	521,967,113
Light-duty vehicles (High)	12,165	51,149,425	240,674	527,083,250	698,689	1,531,707,314
Medium-duty vehicles	1	985	3,614	6,904,553	24,682	57,009,767
Heavy-duty vehicles	1,265	1,703,184	16,011	25,483,062	132,593	238,384,017

Minnesota Power

Minnesota Power provided its required summary on page 14 of its 2020 TEP.

Otter Tail Power

Otter Tail provided its summary on page 6 of its 2020 TEP.

Xcel Electric

Xcel provided its summary in the Background section of its 2020 TEP, Table 1 and in Section VIII.

Utilities' plans for facilitation

Availability and Awareness of Public Charging Infrastructure and Assessment of Private Sector Fast Charging Marketplace

Minnesota Power

MP provided the required information on pages 15-17 of its filing. MP discussed availability and awareness of public charging infrastructure but did not directly assess private sector fast charging marketplace.

Otter Tail

Otter Tail provided this information on pages 6-7 of its 2020 TEP. OTP discussed both public charging infrastructure and determined that there is no DCFC development by the private sector at this time.

Xcel

Xcel provided information on this requirement in Section II, Parts A, B, D and E of its 2020 TEP. Xcel provided all the required information.

Availability of Residential Charging Options for Both Single Family and Multiple Unit Dwellings

MP

MP provided the required information on pages 15-17 of its 2020 TEP.

Otter Tail

Otter Tail discussed the present lack of a multi-unit dwelling option on page 7 of its filing. In Otter Tail's petition for its recently approved portfolio of EV projects and rates, Docket No. E017/M-20-181, the Company discussed residential charging on pages 19-20.

Xcel

Xcel provided information on residential charging options on pages 10-13 of its 2020 TEP. On page 14 of its TEP, Xcel mentioned filing a proposal focusing on multi-dwelling units (MDU) no later than September 2020. On September 10, 2020 Xcel filed its Multi-Dwelling Unit Electric Vehicle Service Pilot Program in Docket No. E002/M-20-711.

Summary of customer EV education initiatives.

Minnesota Power

Minnesota Power discussed its EV education efforts on pages 17-19 of its 2020 TEP.

Otter Tail

Otter Tail discussed its EV education initiatives on page 7-8 of its 2020 TEP.

Xcel

Xcel discussed its education efforts in Section III of its 2020 TEP, pages 15-17.

Optimizing EV benefits

Minnesota Power

On page 19 of its 2020 TEP, Minnesota Power stated that it is exploring ways to align EV charging periods with periods of lower electric system demand and higher renewable energy production through its Residential EV Tariff, Commercial EV Tariff Pilots, and its proposed SmartCharge Reward pilot.⁴

Otter Tail Power

On page 8 of its 2020 TEP, Otter Tail briefly discussed how it is attempting to optimize EV benefits through time differentiated and seasonal differentiated rates and retiring renewable energy credits (RECs) for all energy consumed at Company-owned DCFC sites.

Xcel

⁴ MP's EV Residential Portfolio Filing includes the proposed Residential EV Charging Rewards Pilot Program, a Residential EV Charging Rebate Program and a dedicated education and outreach budget and is in Docket No. E015/M-20-638., filed July 31, 2020. MP's current residential EV rate was approved in Docket No. E015-15-120 and its Commercial EV rate was approved in Docket No. E015-19-337.

Xcel discussed optimizing EV benefits in Section VI, part B of its TEP. Xcel stated that it is exploring both the use of rates to send a price signal to customers to encourage charging in preferred times and, in Colorado, Xcel is testing managing EV demand by working with automakers to send an optimized charging schedule to the EV every time it plugs in at home. The pilot is designed to shift EV charging outside of Xcel Colorado's system peak, place the charging into the cheapest hours of the day, and mitigate the curtailment of wind power.

Summaries of proposals or pilots

Minnesota Power

Minnesota Power has not submitted any EV proposals or pilots to other agencies or jurisdictions.

Otter Tail Power

Otter Tail has not submitted any EV proposals or pilots to other agencies or jurisdictions.

Xcel

Xcel summarized its filings to Colorado and Wisconsin on page 7 of its 2020 TEP.

Conclusion and recommendations

After reviewing the Commission's requirements for the contents of the electric utilities' 2020 TEPs and comparing the requirements to the 2020 TEPs of Minnesota Power, Otter Tail Power and Xcel Energy, the Department concludes that the three utilities all complied with the Commission's December 12, 2019 *Order Accepting Filings and Establishing Requirements for Additional Filings*.

B. ADDITIONAL RECOMMENDED OR MODIFIED COMPONENTS FOR FUTURE TEPs

Are there any additional components utilities should include in subsequent TEPs, or modifications to existing requirements?

The TEPs are designed to provide the Commission and other parties with information that will help inform policy regarding the electric utilities and their customers' role in creating an electrified transportation system that brings benefits to all customers. As demonstrated in the three TEPs filed, Minnesota's utilities are working to:

- Educate customers about the existence and potential benefits of EVs;
- Develop charging systems that allow customers to travel larger distances per charge; and
- Provide cost signals so that customers charge their vehicles at times that won't increase distribution system costs.

The Department concludes that the TEPs should continue to include the information presently required. However, the Department has two recommendations for information that should be included in the 2021 TEPs with the intent of bringing further transparency and clarity on the extent to which the benefits of transportation electrification to utility customers are at least equal to, if not greater than, the costs.

First, each utility's TEP should include a 5-year budget for future expenditures, as well as provide historical expenditures, for each EV program, by budget category. In addition, the budget categories by program should be aggregated so that the Commission and stakeholders can see the total amounts that are being proposed or expended for each budget category (e.g., marketing, EV charging infrastructure, etc.).

In addition, each utility should include an estimate for each system upgrade needed to accommodate EV charging, and an estimate of the expenditures on other investments that improve a utility's ability to serve EV load. Although some of these upgrade expenditures may be included in specific EV program budgets, the Department recognizes that the total amount may have to be estimated. For example, in its TEP, Xcel stated that it often can be difficult to assign the exact load that created the need for an upgrade, for example a planned transformer upgrade could be coincident with customers charging via Xcel's EV tariffs. The Company stated that it is developing protocols to facilitate reporting distribution system upgrades that coincide with customers joining an EV-specific tariff.

Further, the Department notes that on pages 107-122 of Xcel's latest Integrated Distribution Plan (IDP), Docket No. E002/M-19-666, Xcel described its Incremental System Investment (ISI) initiative. Xcel stated that the ISI initiative, with a 2021-2024 budget of \$345 million, is driven by the need to improve reliability on the elements of the system that are the closest to its customers as well as provide the infrastructure to support increased DER integration, including EVs. It would be helpful for stakeholders to be aware of what portion of the budget to upgrade the grid is to accommodate EV charging. To truly understand the costs and benefits of transportation electrification, these ISI costs must be considered.

Second, each TEP should include an evaluation of the EV programs that have passed the pilot phase. Evaluation is needed to enable the Commission and stakeholders to continue to estimate the benefits to the grid and the costs of achieving these benefits to determine the direction of potential future investments and policy.⁵ As Minnesota proceeds with new transportation electrification endeavors, it is important to focus on the evaluation phase. Conducting evaluations will help the Commission determine to whom costs and benefits should be assigned and under what circumstances ratepayer funds should be used to subsidize further development of the grid to increase transportation electrification. The answers to these questions are likely to change over time as EV ownership grows, costs to the electric system change, and the Commission and stakeholders have more information.

⁵ In our July 25, 2018 initial comments in this docket the Department stated "Like the Commission, the Department understands that this emergent technology offers promise to ratepayers in Minnesota, but to help ensure that these promises are realized in a reasonable manner, it is important to evaluate the expected effects."

The chief component of the evaluations should be an examination of the cost-effectiveness of programs as currently designed and improvements that could improve their cost-effectiveness. The electrification of transportation presents several potential benefits for society and for ratepayers, but EVs and EV-related infrastructure will necessarily involve costs that will be borne by ratepayers. It's a question of when, rather than if: when EVs impact the distribution system and induce capital investments in EV-related infrastructure, then it will be necessary for utilities and stakeholders to better understand the associated costs and benefits of such investments so that a prudent regulatory paradigm is developed such that ratepayers fairly share in the costs and benefits and that costs are allocated appropriately among customer classes.

In discussing the costs and benefits of EVs and EV-related infrastructure, it is important to differentiate between the costs and benefits created for ratepayers and the costs and benefits created for society.

This distinction is important, as many costs and benefits of EVs are external to the ratemaking process, which culminates in a ratepayer's utility bill, embedded in which are the quantifiable costs that utilities incur to provide electricity service to EVs and any quantifiable benefits that EVs provide to other ratepayers. While many external costs and benefits are important considerations in the Commission's approach to EVs and decisions involving utility investments in EV-related infrastructure, the public interest of ratepayers demands that any costs and benefits created by EVs be material to the ratepayer so that cost allocation and benefit sharing are allocated fairly.

Depending on incremental costs to serve increased load, a net increase to electricity sales could provide benefits to ratepayers even if an individual ratepayer does not own an EV. Such benefits would occur if increased revenues due to higher sales exceed increased costs, once the net benefits are given to ratepayers in a rate case. In addition, other future potential benefits include technological innovations that may improve the operations of the distribution system by providing ancillary services to the distribution system operator, such as voltage regulation, frequency regulation, demand response, and energy arbitrage.⁶

Consequently, for the 2021 TEPs, the Department recommends that the Commission require Minnesota Power, Otter Tail Power, and Xcel Energy to conduct cost-effectiveness analysis of their non-pilot EV programs, from both the utility and ratepayer perspectives. The analysis should consider all costs and benefits, including:

- The upfront capital and ongoing O&M expenses of each program;
- An estimate of any increase in annual distribution costs due to the addition of EV load, including during on-peak and off-peak times, and identification of any costs not specifically included in the budgets of EV programs;
- The additional kWh sales over which distribution costs will be divided;
- The change in distribution costs per kWh sold; and

⁶ Benefit to the wholesale market and transmission system may also occur in the future as a result of the newly issued FERC Order 2222 *Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Issued September 17, 2020.

- The increase in revenues generated from EV programs.

C. EV FORECASTS

Are utility EV forecasts in line with state and national market growth projections? Do utilities EV forecast scenarios adequately address a range of futures including the possibility of state or national clean car standards and corporate procurement goals?

Forecasting EVs, in terms of the number of vehicles, expected kWh consumption, and kW demand, is important because electric utilities must plan for any additional needed resources, and because it is important to estimate the potential benefits and costs of transportation electrification. Each of the electric Minnesota's electric IOU EV forecasts are included above in section IIA8.

Minnesota Clean Cars Rule⁷

The Minnesota Pollution Control Agency (MPCA) is considering adopting rules that require vehicle manufacturers to deliver vehicles to the Minnesota market that produce lower emissions of greenhouse gases (GHG) and other air pollutants. The Clean Cars Minnesota rulemaking has two parts: the Low-Emission Vehicle (LEV) standard and the Zero-Emission Vehicle (ZEV) standard.

- The LEV standard would require manufacturers to deliver vehicles for sale in Minnesota that meet the more stringent GHG and other air pollutant emissions standards established by California. The LEV standard sets a tailpipe emissions standard for auto manufacturers; it does not require a personal vehicle inspection program.
- The ZEV standard would require manufacturers to deliver a certain number of vehicles with ultra-low or zero tailpipe emissions each year for sale in Minnesota, including battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and hydrogen-fueled vehicles. The ZEV standard would result in additional electric vehicles available to consumers in Minnesota but does not require any individual to purchase an electric vehicle.

To date, 14 states and the District of Columbia have adopted the LEV standard, and 11 states have adopted both the LEV and ZEV standards.

In the Fall of 2020, the MPCA expects to publish its official *Notice of Intent to Adopt Rule With a Hearing* for the Clean Cars Minnesota rule (Notice of Intent to Adopt, or Notice).

The Notice of Intent to Adopt will share the proposed rule language and information pertinent to this rulemaking, including:

- The length of the open comment period

⁷ Amendments adopting Low-Emission Vehicle and Zero-Emission Vehicle air pollution standards (Revisor's ID R-4626)

- How to submit a comment
- How to obtain a Statement of Need and Reasonableness
- Date(s) for the official public hearing held by the ALJ

The Notice of Intent to Adopt will be published in the State Register.

As part of its Notice, the MPCA will provide its most recent EV sales forecasts. The Department plans to compare the MPCA's forecasts with Minnesota's three IOU forecasts when it is released publicly, hopefully by the time Reply Comments are due in this docket on October 20, 2020.

D. NEED TO REVISIT OR EXAMINE SECTORS OF EV CHARGING AND INFRASTRUCTURE

Are there sectors of EV Charging and Infrastructure the Commission should revisit or examine more closely after experience with existing pilots and tariffs?

The Department believes that our recommendations to focus on EV program evaluations in the 2021 TEPs will provide additional information about the sectors of EV charging and infrastructure that should be revisited or examined. The Department looks forward to additional recommendations on this topic from other participating stakeholders.

E. REASONABLE RATES

Do current and proposed EV programs achieve a reasonable rate as outlined in Minn. Stat. 216B.03? Please address:

- *Whether current EV programs achieve equitable outcomes for customers?*
- *If there are gaps the Commission should address to ensure equitable application for customers?*

As the Department stated before, the regulatory challenge for EVs is two-fold: (1) maintaining the principles of cost causation, which broadly requires that ratepayers who benefit from a utility investment pay for that utility investment; and (2) avoiding the cross-subsidization of EV owners by non-EV owners. Put another way: the Commission's challenge is to ensure that EV owners pay for capital investments and distribution system upgrades that they induce through the aggregate impact of EVs on the distribution system, while also ensuring that non-EV owners pay for these same investments to the extent that they also benefit.

Determining whether the rates of the three electric IOUs are reasonable will be difficult until the TEPs include more comprehensive information about utility system expenditures for EVs and more evaluations, including cost-effectiveness analyses, are conducted. At this point, Minnesota utilities do not yet know what expenditures should be assigned to EVs, nor what benefits EVs bring.

Regarding equity, the Department believes that equity among customers can be improved in a few different ways:

- By properly assigning all EV-related costs to EV customers.

- By properly allocating costs among different customer classes. One possibility for the future is to assign EV customers their own customer class.⁸
- By ensuring that EV programs are available to the broadest range of customers within a class. For example, ensuring that customers that live in multi-dwelling units can participate in EV programs.
- By ensuring that as many customers as possible are on time-of-day rates that encourage them to charge their EVs when system load is lowest which minimizes the need for increased distribution system or generation costs.
- Limit programs, such as rebates for EVs, that are likely to subsidize higher-income customers unless the value of the contribution of one EV's revenues to non-EV customers can be quantified, and is positive, and after confirming that the customer would not have made the investment absent the rebate/subsidy.

A near term and difficult problem with utility investments in EV infrastructure is that In the current market, most EVs will be purchased by customers with higher incomes, and higher income neighborhoods are likely to cause the need for increased distribution system costs that all customers will share.

It is important that utilities continue to be transparent about their EV investments, specifically on the distribution system, about where, when, and why they are making investments and the driving purpose. These issues should be evaluated (and continued to be evaluated) in the next iterations of Integrated Distribution Plans, Hosting Capacity Analysis (as applicable), Service Quality filings, and in the next iterations of the TEPs. EV and EV infrastructure upgrades can exacerbate or minimize issues of equity and fairness across a utility's service territory, and once created, inequities will not come with easy solutions.

F. OTHER ISSUES

Are there other issues or concerns related to this matter?

The Department has not identified other issues or concerns related to this matter at this point. The Department looks forward to viewing issues other stakeholders may raise in their comments.

III. RECOMMENDATIONS

The Department recommends that the Commission accept Minnesota Power, Otter Tail Power, and Xcel Energy's second Transportation Electrification Plans, and require the following additional information to be included in future TEPs:

- the 5-year budget for future expenditures, as well as historical expenditures, for each non-pilot EV program, by budget category. In addition, the budget categories by program should be

⁸ This will likely change over time as the country moves towards all-EV transport. This is a topic that needs to be continued to be monitored for best practices across the country.

aggregated so that the Commission and stakeholders can see the total amounts that are being proposed or expended for each budget category (e.g., marketing, EV charging infrastructure, etc.).

- an estimate for each system upgrade needed to accommodate EV charging, and an estimate of the expenditures on other investments that improve a utility's ability to serve EV load.
- non-pilot EV program evaluations that examine the cost-effectiveness of the programs as currently designed and potential changes that could improve their cost-effectiveness.

/ja

CERTIFICATE OF SERVICE

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

Minnesota Department of Commerce
Comments

Docket No. E999/CI-17-879

Dated this **30th** day of **September 2020**

/s/Sharon Ferguson

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