

STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

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December 20, 2023

**In the Matter of Xcel Energy's 2023 Transportation Electrification Plan
Docket No. E002/M-23-452**

**Initial Comments of Fresh Energy, Minnesota Center for Environmental Advocacy, Sierra Club,
Union of Concerned Scientists, Plug In America, and Environmental Law and Policy Center**

Fresh Energy, Minnesota Center for Environmental Advocacy, Sierra Club, Union of Concerned Scientists, Plug In America, and Environmental Law and Policy Center (the Clean Energy Groups, or CEGs) submit these Initial Comments in response to the Commission's November 17, 2023 [Notice of Comment Period](#), focusing on Xcel Energy's Transportation Electrification Plan.

The CEGs recommend the Commission accept Xcel Energy's 2023 Transportation Electrification Plan (TEP) with requirements for subsequent filings to fill in gaps in the plan. Recommendations for subsequent filings include:

- An additional offering for heavy-duty electric vehicles;
- Streetside charging near high concentrations of multi-dwelling units and/or renters;
- A robust discussion of equity; and
- Discussion of intra-Company coordination between electric vehicle, energy efficiency, and building electrification planning, including, for example, ECO programs

We further recommend the Commission approve the EV Subscription Service Expansion, the Home Wiring Rebate, Fleet and Public Charging Pilot Programs bridge funding, and Electric School Bus Vehicle-to-Grid demonstration, and enhanced Residential Advisory Services *with modifications* discussed in these comments.

In summary, we recommend the following modifications to the proposed programs:

- Subscription Service Expansion
 - Include an optional, add-on subscription tier for drivers wishing to charge more than 1,000 kWh off-peak.

- Home Wiring Rebates
 - Require rebate recipients to remain on a managed charging program for the duration of the pilot, provided they are at the same premise where the rebate was used;
 - Track home ownership and rentership across both the market rate and enhanced rebate recipients;
 - Implement additional eligibility criteria for the enhanced rebates, as described with Section 3.b; and
 - Ensure requirements and criteria for the rebate are compatible with the state electric panel grant program and federal incentives, and educate customers on the potential to convert multiple systems in their home to electric power.
- Electric School Bus V2G Demonstration
 - Expand the program to at least 10 installations;
 - Allow school bus operators that otherwise have or are willing to pay for their own charging infrastructure to participate in power export opportunities;
 - Expand bus operator eligibility to include additional state and federal program grant recipients;
 - Include payments or other price signals to participating school bus operators for V2G services provided;
 - Follow National EV Infrastructure (NEVI) Program standards for quarterly data reporting;
 - Consider utilizing a third party vendor to administer the pilot and
 - Waiver the requirement for Contribution in Aid of Construction (CIAC) for any school bus charging requests for service in the Company's service area.

1) Introduction

Planning for transportation electrification continues to increase in importance. Effective utility programs are necessary to both increase adoption of electric vehicles (EVs) – which will reduce Minnesota's greenhouse gas (GHG) emissions, improve public health, and reduce household expenses – and to ensure that new EV charging loads are integrated efficiently with current and planned renewable energy generation. We appreciate the opportunity to participate in this docket.

a. Green House Gas Reductions

Numerous independent studies spanning well over a decade have come to the same conclusion: reducing global warming pollution to the levels required to avoid the worst impacts of climate change will require a dramatic shift to electric vehicles (EVs) powered by renewable and other zero-carbon energy sources.¹ EVs are cleaner than gasoline and diesel vehicles today

¹ See, e.g., Pinto de Moura, Maria Cecilia, 2022, *Low Carbon Pathway for Transportation: Ramping up vehicle electrification and phasing out petroleum*, Union of Concerned Scientists, <https://www.ucsusa.org/resources/low->

and will become even more so as the electricity generation mix used to charge the vehicles continues its transition from fossil fuel sources to renewable energy.²

A report by research firm MJ Bradley & Associates (now ERM) found a mass market for light-duty EVs consistent with meeting the state's long-term greenhouse gas reduction goals would reduce annual greenhouse gas emissions in Minnesota by over 17 million tons per year for light-duty vehicles alone, leading to \$10.4 billion cumulative net benefits from greenhouse gas reductions by 2050.³

b. Public Health

In addition to reducing greenhouse gas emissions and the associated climate impacts, electrifying transportation would have tremendous public health benefits from reducing local air pollution. The Minnesota Department of Health estimates that particulate matter and ozone pollution contributed to 1,607 deaths people in 2015 in the Twin Cities metro area alone.⁴ For comparison, there were 394 fatalities from traffic accidents in Minnesota in 2020.⁵

This bears repeating: every year more than four times more Minnesotans die from complications attributable to air pollution than from auto accidents. Most troublingly, the costs of this pollution are not distributed equally: “the highest estimated rates of air pollution-related death and disease are found in neighborhoods with the largest percentage of Black, Indigenous, and People of Color (BIPOC), low-income and uninsured residents, and people who live with a disability.”⁶

[carbon-pathways-transportation](#); Williams, J.H. et al., “Pathways to Deep Decarbonization in the United States,” Energy and Environmental Economics, Inc. (E3), November 2014; Williams, J.H. et al., “The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity,” Science 335, no. 6064 (January 2012): 53-59; Melaina, M. and K. Webster, “Role of Fuel Carbon Intensity in Achieving 2050 Greenhouse Gas Reductions within the Light-Duty Vehicle Sector,” Environ. Sci. Technol. 45, no. 9 (2011): 3865–3871; International Energy Agency, “Transport, Energy, and CO2: Moving Towards Sustainability,” OECD/IEA, 2009; National Research Council, “Transitions to Alternative Vehicles and Fuels,” (Washington, D.C.: The National Academies Press, 2013).

² Reichmuth, David, March 2023, “Today’s Electric Vehicles Can Greatly Reduce Emissions From Driving”, Union of Concerned Scientist, *The Equation*, <https://blog.ucsusa.org/dave-reichmuth/todays-electric-vehicles-can-greatly-reduce-emissions-from-driving/>

³ M.J. Bradley & Associates, July 2018, “Plug-in Electric Vehicle Cost-Benefit Analysis: Minnesota,” <https://www.erm.com/globalassets/documents/mjba-archive/reports/2018/mn-pev-cb-analysis-final-15aug18.pdf> (hereinafter MJB&A Analysis)

⁴ Minnesota Department of Health and Minnesota Pollution Control Agency, 2022, *Life and Breath: Twin Cities Metro Area*, <https://data.web.health.state.mn.us/documents/20147/0/LIFE+and+BREATH+III+METRO+BRIEF-FINAL.pdf/708c1326-4d48-d2a0-64e6-6ae7f6e2995f>

⁵ Minnesota Department of Public Safety, Annual Minnesota Motor Vehicle Crash Reports, “2020 Crash Facts”

⁶ Minnesota Department of Health and Minnesota Pollution Control Agency, 2022, *Life and Breath: Twin Cities Metro Area*, <https://data.web.health.state.mn.us/documents/20147/0/LIFE+and+BREATH+III+METRO+BRIEF-FINAL.pdf/708c1326-4d48-d2a0-64e6-6ae7f6e2995f>, pg. 2

Swapping EVs for gas and diesel vehicles remove these harmful emissions in the densely populated urban areas where they are most harmful. MJ Bradley & Associates estimate that EV adoption consistent with meeting the state’s long-term greenhouse gas reduction goals could provide cumulative \$700 million in health and other societal cumulative net benefits from emission of nitrogen oxides (NOx, one health-harming combustion pollutant) by 2050.⁷

c. Grid Services

EVs have great potential to enhance the efficient use of grid resources and provide grid services, including support for the incorporation of renewable energy, through both smart charging and, in some cases, power export. Grid efficiency and services from EVs will lead to benefits for all utility customers, and successful implementation of utility EV programs and rate options can both accelerate transportation electrification and enhance the benefits those EVs can offer. According to the MJ Bradley & Associates analysis, the deployment of EVs consistent with the states long-term goals could lead to \$10.2 billion in reduced electric bills for customers by 2050.⁸

In total, the MJ Bradley & Associates analysis finds that light-duty EVs adoption consistent with meeting the state’s long-term greenhouse gas reduction goals could provide cumulative net benefits of over \$30 billion to the state of Minnesota by 2050, with greenhouse gas reduction, NOx reductions, customer bill savings, and EV driver operating cost savings taken together.⁹

d. Minnesota Policy Landscape

The tremendous emissions reduction potential of EVs is especially relevant in light of Minnesota’s strong greenhouse gas reductions goals. The state’s Greenhouse Gas Emissions-Reduction Goal, which was updated in 2023 states: “It is the goal of the state to reduce statewide greenhouse gas emissions across all sectors producing those emissions to a level at least 15 percent below 2005 levels by 2015, to a level at least 50 percent below 2005 levels by 2030, and to net zero by 2050.”¹⁰ Within transportation sector, the Minnesota’s Climate Action Framework sets the goal of reducing emissions by 80 percent by 2040 and the goal of having 20% of vehicles on Minnesota roads be electric vehicles.¹¹

⁷ MJB&A Analysis

⁸ *Id.*

⁹ *Id.*

¹⁰ Minn. Stat. §216H.02, subd. 1.

¹¹ “Climate Action Framework.” *Our Minnesota Climate*, <https://climate.state.mn.us/minnesotas-climate-action-framework>.

As of 2020, the state had achieved a 23 percent reduction in emissions since 2005.¹² That improvement could put the state on a path to meeting its emissions reduction goals in 2025 and beyond. However, the 2020 data were anomalously low due to the COVID-19 pandemic. Many energy uses have rebounded since pandemic restrictions lifted, and 2021 data on GHG emissions from the Environmental Protection Agency confirm that Minnesota transportation emissions increased by 2.2 million metric tons of CO2 equivalents between 2020 and 2021.¹³ Accordingly, the state must continue concerted efforts to reduce emissions across the economy and for transportation, the largest source of emissions.¹⁴

The Minnesota Climate Action Framework also identifies the need for the State to have a comprehensive Electric Vehicle Plan and highlights the development of said plan as a priority action for the administration.

e. Utility Role

In the 2023 legislation session, Minnesota statute was modified to require that investor-owned utilities without pending related filings submit transportation and electrification plans by November 1, 2023, and periodically as ordered by the commission but at least every four years thereafter.¹⁵ The updated statute also dictates the criteria the commission must consider when deciding whether to approve, modify, or reject a transportation plan, which include whether programs, investments, and expenditures are in the public interest and are reasonably expected to: reduce emissions and air pollutants; improve operation of the grid; increase access to electricity as a transportation fuel for all customers; increase access to public chargers; support electrification of medium- and heavy-duty vehicles; stimulate job growth; educate the public about the benefits of EVs; provide transparent public reporting of program activities; balance the benefits of transportation electrification with the impacts on utility rates; and balance public and private participation in transportation electrification market.¹⁶

2) General Comments

As active participants on utility electric vehicle (EV) policy issues before this Commission since 2017, the Clean Energy Groups have advocated for utilities to accelerate EV adoption in a manner that is as equitable and accessible as possible. This role encompasses providing incentives for customers to charge at times most beneficial to the electric grid (“managed charging”); investing in both electric vehicle supply infrastructure (EVS) and electric vehicle

¹² Minnesota Pollution Control Agency and Minnesota Department of Commerce, January 2023, “Greenhouse Gas Emissions in Minnesota 2005-2020”, <https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf>

¹³ U.S. Environmental Protection Agency, Greenhouse Gas Inventory Data Explorer, <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#allsectors/allsectors/allgas/econsect/all>

¹⁴ Minnesota Pollution Control Agency and Minnesota Department of Commerce, January 2023, “Greenhouse Gas Emissions in Minnesota 2005-2020”, <https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf>, at 5.

¹⁵ Minn. Stat. §216B.1615, subd. 2.

¹⁶ *Id.*

supply equipment (EVSE); and create programs that enable all customers -- whether under-resourced, renters, multifamily housing residents, or commercial – to access affordable EV charging options.

This Transportation Electrification Plan (“TEP” or “Plan”) marks the beginning of a new process for parties to review a utilities’ entire portfolio of EV proposals alongside general discussion of where the utility plans to head with its EV programming, and as part of the broader discussion on how utilities are incorporating EV planning into its distribution planning. Below, the Clean Energy Groups review Xcel’s proposals and identify additional areas or “gaps” for the Company to plan towards.

a. Waiving CIAC for residential EV programs and pilots

The CEGs have generally supported waiving contributions in aid of construction (CIAC) for EV customers participating in EV-specific tariffs. **We support Xcel Energy adding language to their Minnesota Electric Rate Book to codify the company policy waiving CIAC for residential EV program tariffs.**¹⁷

b. Convening interest parties before supplement filed

Xcel mentions that it intends to file a supplement to its TEP in 2024. **The CEGs strongly encourage Xcel to convene stakeholder advisory meeting(s) before its supplement is filed**, to preview the results and receive feedback from interested parties ahead of time. Such meetings are an opportunity to provide informal feedback to Xcel directly, allowing parties to better understand Xcel’s overall vision for its proposals and provide relevant information to the Company that can spur more robust proposals.

3) Programmatic Proposals

As part of its general Transportation Electrification Plan, Xcel Energy offers five proposals for the Commission and interested parties to consider. The CEGs review each proposal below.

a. Residential EV Subscription Pilot Expansion

The ability to charge an EV at home provides both convenience and fuel cost savings. Those factors are central to the decision to adopt an EV for many drivers. Where the upfront cost of home charging is a barrier, utilities can leverage their core competencies and access to capital to support residential customers in the transition. That support can be the hook to get

¹⁷ Xcel Energy, 2023 Integrated Distribution Plan - Appendix H (2023 Transportation Electrification Plan), MPUC Docket No. E002/M-23-452 (Nov 1, 2023) (*hereinafter Xcel 2023 TEP*) at 79.

customers to enroll in time-varying rates and other vehicle-integration programs, such as Optimize Your Charge.

The Company proposes to make the EV Subscription Service a permanent rate offering nested under EV Accelerate at Home. The proposed permanent offering would transition the service to a three-part time-of-day rate and incorporate a monthly cap of 1,000 kilowatt-hour cap for charging included in the flat rate off-peak subscription charge.¹⁸ The proposal would also replace the option to pay the Company for a charger up front with the option for customers to source the charger themselves and update the pricing and customer service agreement consistent with proposed changes to EV Accelerate at Home.¹⁹

Results from the Subscription Pilot suggest customers understand and have strong interest in the off-peak subscription rate structure based on surveys showing high customer satisfaction.²⁰ From a customer experience perspective, and to continue progress in EV adoption among residential customers, extending that program to a permanent offering without any gaps in operation is of great value. Furthermore, transitioning the subscription rate to a three-part time-of-day rate will better reflect system costs across all price periods and send a more accurate price signal to drivers who may need to do some of their charging outside of the off-peak period.

The bring-your-own charger option is also a welcome change that stakeholders have been pushing for quite some time²¹ and which the Commission directed the Company to propose.²² As in the pilot version of the Subscription Service, customers choosing a Company-provided charger in the permanent subscription option under the EV Home Service will pay toward the cost of the charging equipment and ongoing costs. Those program costs are not borne by non-participants, making the program low-impact in terms of ratepayer costs while offering the immense value of guiding participants to charging at off-peak times.

CEGs recommend an additional approach to managing super use of off-peak charging among Subscription participants beyond capping the amount of charging included in the off-peak subscription at 1,000 kilowatt-hours. We especially recommend the program include an

¹⁸ Xcel 2023 TEP at 49.

¹⁹ *Id.* at 49.

²⁰ *Id.* at 48.

²¹ *In the Matter of Xcel Energy's Petition for Approval of an Electric Vehicle Home Service Program*, Docket No. E002/M-19-559, ORDER APPROVING ELECTRIC VEHICLE HOME SERVICE AND VOLUNTARY ELECTRIC VEHICLE CHARGER SERVICE PROGRAMS AS MODIFIED (October 6, 2020) at 7; *In the Matter of Xcel Energy's Petition for Load Flexibility Pilot Programs and Financial Incentive Mechanism*, Docket No. E002/M-21-101, INITIAL COMMENTS OF FRESH ENERGY, MINNESTOA CENTER FOR ENVIRONMENTAL ADVOCACY, SIERRA CLUB, UNION OF CONCERNED SCIENTISTS, AND PLUG IN AMERICA (June 18, 2021) at 5-6.

²² *In the Matter of Xcel Energy's Petition for Approval of an Electric Vehicle Home Service Program*, Docket No. E002/M-19-559, ORDER APPROVING ELECTRIC VEHICLE HOME SERVICE AND VOLUNTARY ELECTRIC VEHICLE CHARGER SERVICE PROGRAMS AS MODIFIED (October 6, 2020), Order Point 3 at 14-15.

optional add-on off-peak subscription tier. The Company states that the purpose of the cap is to prevent customers with multiple EVs to charge under the same subscription on the same charger.²³ It is conceivable that those super users could also be high-mileage single EV drivers. Full-time ride-hailing drivers, for example, typically put 3,000 miles per month on their vehicles.²⁴ If a customer was driving an EV with average efficiency and doing all of their charging at home, that would add up over 990 kilowatt-hours per month. A full-time ride-hailing driver doing even slightly above-average full-time ride-hailing driver mileage would charge over 1,000 kilowatt-hours per month, which may also explain the four percent of drivers charging over that threshold.²⁵

A solution that can accommodate both the two EV household and high-mileage drivers is an optional add-on off-peak subscription fee. While only four percent of pilot participants exceeded 1,000 kWh per month during the pilot, that share will likely increase as EV adoption expands beyond early adopters. An approach that offers an add-on, higher subscription would further future-proof the program for a time when EV adoption is widespread, while also offering the opportunity to learn about customer preferences and the potential cost savings of sharing a single charger in two EV households as well as offer high-mileage drivers an option that would give them more certainty around their monthly charging costs. The risk of customers charging a second vehicle without paying the add-on subscription would be circumscribed by the infrequency of dual EV households in the near term and bounded by the total number of off-peak charging hours in a month and the charging needs of the first EV.

b. Home Wiring Rebate Program

The second proposal Xcel Energy presents is a modified version of the Home Wiring Rebate program it currently offers in Colorado. With a total budget of \$7 million over four years, the Home Wiring Rebate program would offer market-rate rebates up to \$500 and “enhanced rebates” up to \$1,200 for qualifying customers²⁶, for an estimated 6,662 recipients (of which 999 would be for “enhanced rebates”).²⁷ Eligible costs to be covered by this rebate include home wiring costs, Level 2 charger, and/or other permitting, materials, installation, and electrical work by a licensed electrician to install a 240-volt circuit that draws 100 amperes or

²³ Xcel 2023 TEP at 49.

²⁴ Li, Richard and Garrett Fitzgerald, “Ride-Hailing Drivers Are Ideal Candidates for Electric Vehicles,” RMI (March 29, 2018), available at <https://rmi.org/ride-hailing-drivers-ideal-candidates-electric-vehicles/>. Calculation assumes 136 miles/day*5 days/week*4.29 weeks/month.

²⁵ *In the Matter of a Petition of Northern States Power Company for Approval of a Public Charging Network, and Electric School Bus Pilot and Program Modifications*, MPUC Docket No. E002/M-22-432, OAH Docket No. 71-2500-38758, PETITION, ATTACHMENT Z (August 2, 2022) at 2.

²⁶ Xcel 2023 TEP at 53.

²⁷ *Id.* at Table 9 at 56.

less.²⁸ Owners and renters of single-family homes, townhouses, and duplexes are eligible for this rebate, with renters required to get permission from the property owner to participate.²⁹

As a condition of receiving this rebate, recipients are required to participate in one of Xcel Energy's managed charging programs for at least one year. Recipients may receive the Home Wiring Rebate in several ways, included as a direct discount from an Xcel-contracted electrician performing the electric work and/or EVSE installation; as a one-time credit on their electric bill; through direct payment; or through a mailed check.³⁰

The CEGs have generally supported offering additional investments by Xcel Energy to help customers overcome the cost barrier to using and charging an electric vehicle in a manner most beneficial to the customer and to the electric grid, particularly for under-resourced customers, and previously asked Xcel to consider bringing its Home Wiring Rebate program launched in its other service territories to Minnesota.³¹ We also support the inclusion of renters in this pilot. We are particularly pleased to see that rebate recipients must join one of Xcel Energy's managed charging programs to receive this program offering.

However, we are concerned that market-rate rebate recipients need only stay in the program for one-year, and enhanced rebate recipients may unenroll at any time, including before the first year is up.³² **We recommend requiring all rebate recipients to remain in a managed charging program for at least the duration of the pilot so long as they remain at the premise where the rebate was used,** in order to maximize the benefits of this rebate program for non-participants. A final decision on a reasonable length of participation may be made at the pilot's conclusion, after outcomes are evaluated.

Given the additional barriers that renters will face to participate in this program, **we also recommend tracking how many rebate recipients across both the market-rate and enhanced rebates are renters.** This will allow external parties, the Commission, and the Company itself to evaluate the equitable impact of this program across one additional criterion, and determine if additional efforts or program improvements are required to reach renters above and beyond efforts to reach owners.

I. Enhanced Rebates

The Clean Energy Groups are pleased to see Xcel Energy outline a number of eligibility pathways for potential recipients of its "enhanced rebate" of \$1,200, which is meant to provide additional financial support to qualifying customers at a level more proportionate to their

²⁸ *Id.* at 54.

²⁹ *Id.* at 55.

³⁰ *Id.* at 54.

³¹ Clean Energy Groups, Reply Comments, *In the Matter of a Commission Inquiry into Electric Vehicle Charging and Infrastructure (Transportation Electrification Plans)*, MPUC Docket No. E999/CI-17-879 (October 21, 2021) at 3.

³² Xcel 2023 TEP at 55.

potential need, thereby increasing access and equity within the Home Wiring Rebate program. Qualifying customers for the enhanced rebate include those meeting “equity criteria” such as residing at a premise within a “Disproportionately Impacted Community” (per federal definition) or Environmental Justice Area (as defined by the Minnesota Pollution Control Agency); or being a current or previous participant in the Weatherization Assistance Program, Affordable Housing Rebate Program, or Minnesota’s Low-Income Renter Classification.³³

The CEGs generally support multiple eligibility pathways as a means to provide flexibility and ease for qualifying customers to participate in programs such as the Home Wiring “enhanced rebate” program. We also note that the Company utilizes a similar approach for its income-qualified energy efficiency programs, also known as “Energy Conservation and Optimization” or ECO programs. To support utilities in their use of eligibility pathways or “categorical eligibility” for their income-qualified ECO program, the Department of Commerce recently published a list of federal, state, municipal, and utility programs that could be used in lieu of income-verification to demonstrate eligibility.³⁴ This list is not exhaustive, but includes programs such as:

- Weatherization Assistance Program (WAP)
- Low Income Home Energy Assistance Program (LIHEAP)
- Supplemental Nutrition Assistance Program (SNAP)
- Medicaid/Medical Assistance
- MinnesotaCare
- Special Supplemental Nutrition Program of Women, Infants, and Children (WIC)
- Minnesota Family Investment Program (MFIP)

Additional programs are listed within the Deputy Commissioner’s Decision in Xcel Energy’s 2024-2026 ECO Triennial Plan.

Based on this list and on Xcel Energy’s income-qualified ECO programs, **the CEGs recommend Xcel Energy add additional eligibility pathways for its enhanced rebate program**, with a strong recommendation on adding participation in one of Xcel’s own income-qualified ECO programs as proving eligibility for the enhanced rebate, given that information exists within the Company.

Finally, as with this rebate program or other clean energy rebate programs from the state or federal government, it will be important to make it easy for customers to determine if and how they qualify for enhanced rebates. As Xcel Energy rolls out categorical eligibility for its income-qualified energy efficiency programs, we encourage the Company to coordinate internally so that learnings and best practices from administering the energy efficiency programs may be applied to the Home Wiring “enhanced rebate” rollout as well.

³³ *Id.* at 53

³⁴ See Appendix E of the Minnesota Department of Commerce Deputy Commissioner’s Decision, *In the Matter of Xcel Energy’s 2024-2026 Energy Conservation and Optimization Triennial Plan*, Docket No. G,E002/CIP-23-92 (December 1, 2023) at 251.

II. Compatibility with other public programs funding electric panel upgrades

During the 2023 legislative session, Minnesota lawmakers created a \$7.5 million electric panel upgrade grant program (“state grant program”), to be administered by the Department of Commerce. \$3.5 million of this program is required to be used within Xcel Energy’s service territory.³⁵ Eligible recipients must be an owner of a single-family home or multifamily home (defined as two or more units). Eligibility is capped at those with annual incomes at or below 150 percent Area Median Income (AMI), with at least 50 percent of units in a multifamily building occupied by a resident who meets this income requirement.³⁶

Unlike Xcel’s Home Wiring Rebate, this program is not currently available to renters. Additionally, the state grant program is meant to enable home electrification writ large, including for electric vehicles but not solely for them.

The state grant program includes a maximum grant of \$3,000 for qualifying recipients in single-family homes,³⁷ with up to \$50,000 for a multifamily building,³⁸ though exceptions can be made at the discretion of the Department of Commerce. The legislation was written to complement similar incentives available under the Inflation Reduction Act (IRA),³⁹ and is designed to ensure a recipient of both the IRA and the state grant program doesn’t receive more than 100 per cent of the actual costs.

While Xcel has verbally confirmed that stacking the Home Wiring Rebate with available state and federal incentives is not prohibited, the design elements of the state grant program may make compatibility between the two programs limited. Differing requirements and criteria for projects may confound potential participants who would benefit from comprehensive support from stacking these programs. As a utility company regularly interfacing with customers, Xcel Energy is in a unique position to provide that support, in coordination with the Department of Commerce. **We recommend Xcel ensure requirements and criteria for the Home Wiring Rebate are compatible with the state grant program and federal incentives, and educate customers on the potential to convert multiple systems in their home to electric power as well.**

³⁵ H.F. 2310, Sec.2, Subd. 8.

³⁶ Minn. Stat. §216C.45, “Residential Electric Panel Upgrade Grant Program”

³⁷ For those below 80% AMI. For those above 80% but at or below 150%, maximum grant is \$2,000. *Id.* at subd. 6

³⁸ *Id.* at Subd. 6 (d). “The maximum grant amount that may be awarded under this section to an eligible applicant who owns a multifamily building is the sum of \$5,000, plus \$500 multiplied by the number of units containing a separate electric panel receiving an upgrade in the multifamily building, not to exceed \$50,000 per multifamily building.”

³⁹ I.e., the HEEHRA home electrification rebates, <https://www.rewiringamerica.org/policy/high-efficiency-electric-home-rebate-act>

c. Electric School Bus Demonstration

1. Electric School Buses and Vehicle-to-grid integration

School buses are ripe for electrification as documented in the recently released paper from Exelon and CALSTART, “The Electric School Bus Transition: Accelerating Equitable Deployment Through Understanding of Grid Impacts and Policy solutions.”⁴⁰ With 22 models from 12 manufacturers to choose from,⁴¹ the buses hold great potential to protect children’s sensitive cardiovascular systems from harmful diesel fumes.⁴²

Despite the robust model availability and immense public interest, barriers including upfront cost undermine the rapid deployment of electric school buses (ESBs). Resource-constrained school districts, in particular, face an impossible choice between spending money in classrooms and paying the upfront cost of new school bus technology. Education is the primary mission of schools, while transportation, however important, is secondary. Utilities can assist schools in contributing resources to initiate the transition to electric school buses. Support for charging infrastructure for school buses follows the same logic as support for other infrastructure programs at issue in the proposal.

Vehicle-grid integration, including both managed charging and power export applications, is critical for minimizing the burden and maximizing the benefits EVs provide to the electric grid. Those benefits include putting downward pressure on rates and supporting the stable operation of the grid through increasing the efficiency of grid utilization, avoiding otherwise necessary grid upgrades, integrating renewable energy resources, and providing ancillary services. Power export applications can be set up to send the electricity directly back to the grid (V2G) or to a load on the customer side of the meter (vehicle-to-load, V2L, vehicle-to-home V2H, or, generally, V2X), thereby offsetting the customer’s demand for power from the grid.

Vehicles of any type—across light-, medium-, and heavy-duty segments—have the potential to participate in vehicle-grid integration opportunities. School buses are particularly well suited for vehicle-grid integration, including power export applications, due to their predictable duty schedules, long periods of downtime, and large batteries. These characteristics mean they can be used to test a variety of approaches. The Company intends to discharge power from the bus batteries in response to grid conditions.

⁴⁰ Budzynski, Chris (Exelon), Ian Fried, and Liz Walsh (CALSTART), December 2023, “The Electric School Bus Transition: Accelerating Equitable Deployment Through Understanding Grid Impacts and Policy Solutions”. (*hereinafter Exelon and CALSTART Electric School Bus Report*)

⁴¹ Huntington, Alyssa, et al., June 2022, *Electric School Bus U.S. Market Study and Buyer’s Guide: A Resource for School Bus Operators Pursuing Fleet Electrification*, WRI, at 17, <https://www.wri.org/research/electric-school-bus-us-market-study-and-buyers-guide-resource-school-bus-operators>.

⁴² Union of Concerned Scientists, February 2022, “Diesel Engines and Public Health”, <https://www.ucsusa.org/resources/diesel-engines-public-health>.

The characteristics of school buses also mean that the potential to generate revenues or other value streams from participating in vehicle-grid integration, particularly power export applications, tends to be higher than many other vehicles on a per-vehicle basis. A higher per-vehicle value stream means a faster and greater payback of the investment in the buses and related charging with power export infrastructure. As Exelon/CALSTART's report states: "For utility companies, V2G utilization can lower infrastructure investments, decrease required grid upgrades, and increase grid flexibility and grid resilience. For operators, V2G utilization has the potential to decrease the TCO of ESBs by lowering monthly electricity bills."⁴³

In this case, the utility's proposal is extremely modest in multiple ways: the scale of the pilot and the limitation on who can discharge to the grid. It also lacks adequate reporting mechanisms and does not include equitable compensation to the bus operators who provide power to the grid.

II. Review and Recommendations

The Clean Energy Groups support for a vehicle-to-grid (V2G) electric school bus demonstration project is well-documented.⁴² We also support Xcel's proposal to prioritize participants that serve "low-income, BIPOC, and rural communities,"⁴⁴ given the disproportionate harm these communities experience from air pollution.

a. The bidirectional electric school bus pilot should be expanded to include additional installations.

Given the scale of the expected MN Department of Commerce ESB Deployment (40 ESBs) there is every reason to allow and encourage more of those ESB operators/owners and others to participate, including the growing number of others who purchase their own chargers through the US EPA Clean School Bus Program, MPCA VW support, or otherwise, including on their own. A larger school bus V2G pilot could explore how to deploy buses in a way to promote equity and energy justice. For instance, investing some percentage in identified environmental justice (EJ) communities to allow the use of summer buses to improved reliability needs during heat events, enhance locational/equitable reliability, or expand equitable hosting capacity and DER access could improve equity and energy justice.

ESB batteries have the capacity to power critical spaces in times of need once V2X systems are in place. ESBs equipped with bidirectional charging could serve as mobile power units for emergency resilience response assets to deliver emergency backup power to a school building being used as a shelter or for certain essential functions within a school building, such as heating or cooling, lighting, or refrigeration.⁴⁵

⁴³ *Exelon and CALSTART Electric School Bus Report 5.*

⁴⁴ Xcel 2023 TEP at 58.

⁴⁵ WRI Electric School Bus Initiative, V2X Implementation Guide and Mutual Aid Agreement Template, at 7

The average battery capacity of an ESB is about 150 kWh, according to publicly-available information by NUVVE. Consider a school building used as a shelter as is often the case in emergencies. Estimating a school's average energy consumption per day, an ESB's battery presumably could power an average school building for about two days (or more) and, therefore, could power certain critical loads within the building, including e.g., the heating or cooling and lighting for a gymnasium and the charging of local residents' laptops and cell phones, for multiple days. Or another possibility: the battery of one ESB can "power the equivalent of five [hospital] operating rooms for more than eight hours, and a single operating room for 43 hours" (i.e., nearly two days).⁴⁶

ESBs and V2X technology is already being used to support the grid during periods of stress in several pilots. For example, San Diego Gas & Electric (SDG&E) partnered with Cajon Valley Union School District and NUVVE Holding Corporation on an ESB V2X pilot project during the summer of 2022. This pilot consisted of eight bidirectional chargers and eight V2X-capable Lion Electric school buses that were discharging electricity to the grid during several Emergency Load Reduction Program (ELRP) events that arose due to historic demand for electricity driven by several extreme heat events. This project helps demonstrate the ability to use ESBs and V2X to provide resilience services and generate revenue streams.⁴⁷

ESBs in Beverly Massachusetts sent energy back to the grid in the summers of 2022 and 2023; in 2022 alone more than 80 hours worth of power were discharged during some of the hottest/high demand times.⁴⁸

We recognize Xcel would like to file a supplement next year, that may include an expanded version of its electric school bus demonstration once more is known about the Department of Commerce's electric school bus program. However, we believe Xcel can and should expand its demonstration project beyond the two participants it is currently planning for, particularly if 2026 is the expected start date of the demonstration phase as Xcel proposes.

⁴⁶ Environment Texas Research and Policy Center, March 2022, Electric School Buses and the Grid

An average school building consumes approximately 400 kWh per week, according to one study cited herein. Dividing 400 kWh by 7 days in a week yields an average of 57 kWh of electricity consumption per day. So, a 150 kWh battery could charge an entire school for more than 2 days, based on these figures. Source for the study: Koumoutsos, Kostas, et. al. Gathering and processing energy consumption data from public educational buildings over IPv6. Energy, Sustainability and Society, Volume 5. 2015

⁴⁷ SDG&E, "SDG&E and Cajon Valley Union School District Flip the Switch on Region's First Vehicle-to-Grid Project Featuring Local Electric School Buses Capable of Sending Power to the Grid," News Release, July 26, 2022 quoted in WRI's Electric School Bus Initiative V2X Implementation Guide and Mutual Aid Agreement Template

⁴⁸ Highland Electric Fleets "Highland Electric Fleets Coordinates Electric School Buses' Summer Job-Supporting Local Grid with Vehicle-to-Grid Technology", <https://www.prnewswire.com/news-releases/highland-electric-fleets-coordinates-electric-school-buses-summer-job--supporting-local-grid-with-vehicle-to-grid-technology-301611928.html>

Specifically, we recommend Xcel:

- **Expand its program budget to allow *at least* 10 electric school buses as part of this initial demonstration; and/or**
- **Allow school bus operators or districts that otherwise have or are willing to pay for their own charging infrastructure, to participate in power export opportunities.**

We also recommend coordinating with and/or allowing electric school buses purchased under the Minnesota Pollution Control Agency Volkswagen Settlement funds and/or U.S. EPA Clean School Bus program to participate, alongside those funded through the Department of Commerce.

Relatedly, **we encourage Xcel to consider partnering with a school district that already has an electric school bus in operation.** The potential benefit of doing so would be having a partner who already has a baseline comfort with operating an electric school bus, which could make launching the demonstration easier. As Xcel is aware, there are already some in its MN territory operating electric school buses.

- b. *An equitable compensation mechanism for schools who export power through the pilot is lacking but needed.*

The power exported to the grid has value, depending on when, where, and how much; this should be tested in the pilot so that among its key results are creating equitable payments or other price signals to lower costs for ESB operators. Both Xcel and all school bus operators participating in the pilot will be able to learn from the various charging strategies that could be tested. These can assist in determining the appropriate price signals, including signals sent through rates.

As the Exelon/CALSTART report states: “In determining the appropriate levels of compensation, consideration should be given to the type, location, time of day, and magnitude of benefit provided by the exported power. By developing mechanisms to capture the potential value of V2X services, utility companies can create more equitable rate and compensation structures for ESB operators.”⁴⁹ The authors go on to emphasize, “incentive-based or technology-based mechanisms to manage the load are still in a nascent stage that will only advance with additional pilot projects. Nonetheless, it is important to recognize the opportunity to the industry to help inform future policy and regulations.”⁵⁰ **Accordingly, the CEGs recommend Xcel include payments or other price signals to be paid to the participating ESB operator for services provided by school buses into the pilot design.**

⁴⁹ Exelon/CALSTART at 32

⁵⁰ Id.

c. Reporting frequency should be increased.

Xcel proposes a combination of annual and quarterly reporting on the pilot. This is inadequate as regards charger reliability. When reporting annually or quarterly, a charger could go down or only be somewhat reliable between reporting periods and go unknown unless the user complains vociferously. In a short-term pilot as Xcel is proposing, valuable time and learnings would be lost. **We suggest following NEVI standards for quarterly reporting and criteria. Specifically, NEVI Standard 23 CFR 680 (680.112 on data submittal and 680.116 on communication, connectivity, reporting and availability).** Following these standards (which are required for NEVI funded chargers) will allow bus operators to learn in real time about the charging costs, ensure that any chargers not properly operating will be known by them and Xcel in real time, and lead to quicker resolution of any problems.

Overall, by proposing merely two installations (potentially only two buses), failing to provide price signals for power exported, and only reporting annually or quarterly, this pilot unduly limits what can and should be able to be learned. Not including and testing levels of payments to the school/bus operator for the value provided to the grid further undermines the likelihood of the project moving from pilot to program.

d. Additional Recommendations

The CEGs further recommend the Company:

- **Proactively work with interested school districts and school bus operators to select appropriate vehicle and EVSE to support participation in the V2G demonstration; and**
- **Consider utilizing a third-party to coordinate and run the pilot (with additional buses included), based on successful pilots run elsewhere.⁵¹**

Finally, in the years since the V2G Electric School Bus Demonstration was proposed, resources to support running a successful demonstration have only increased. The [Electric School Bus](#)

⁵¹ E.g. as mentioned above, 20 electric school buses (ESBs) and V2X technology are already being used to support the grid during periods of stress in several pilots in the U.S. For example, San Diego Gas & Electric (SDG&E) partnered with Cajon Valley Union School District and Nuvve Holding Corporation on an ESB V2X pilot project during the summer of 2022. This pilot consisted of eight bidirectional chargers and eight V2X-capable Lion Electric school buses that were discharging electricity to the grid during several Emergency Load Reduction Program (ELRP) events that arose due to historic demand for electricity driven by several extreme heat events. This project helps demonstrate the ability to use ESBs and V2X to provide resilience services and generate revenue streams. See: SDG&E, “SDG&E and Cajon Valley Union School District Flip the Switch on Region’s First Vehicle-to-Grid Project Featuring Local Electric School Buses Capable of Sending Power to the Grid,” News Release, July 26, 2022.

[Initiative](#), housed under the World Resources Institute, is one such resource for Xcel to consider as it heads further into planning for this demonstration.⁵²

e. Supporting school districts wanting to electrify their buses

While Xcel focuses on how it will support electric school bus adoption through its V2G school bus demonstration, it also has another opportunity to support electric school bus adoption and use, which is to be a proactive resource and partner to all schools in its service territory looking to use an electric school bus. In particular, navigating the interconnection process and potential distribution upgrades required to charge an electric school bus is a novel challenge for schools. For example, a recent news story highlighted several challenges a school faced in electrifying its bus fleet, including the need to upgrade the transformer at the bus garage, at a potential cost of \$400,000 to \$500,000 to the school district, per an estimate from Xcel Energy.⁵³

Therefore, as a first step towards a more holistic approach to supporting schools, **we recommend waiving the CIAC for any electric school buses within Xcel Energy's service territory.** School districts are a prime customer to support in this manner, given their often-limited resources.

f. Commercial Fleet EV Service and Public Charging Pilot

The CEGs support the Company's request for bridge funding to continue the Fleet EV Service and Public Charging Pilot programs.⁵⁴ As explained below, both programs offer valuable and needed support to market segments that are critical to the EV transition. The need for the two programs is also evidenced by the backlog of prospective participants.

Public charging is an essential element of a comprehensive charging network. Reliable access to public charging is necessary for distance travel, higher-mileage drivers, and for those with limited or no access to charging at home. Even for drivers that only occasionally take longer trips or otherwise have a need to charge in public, access to public charging is critical for consumer confidence and, in turn, advancing EV adoption.

Unfortunately, inadequate public charging is a problem for today's EV drivers and deters others from making the switch to an EV. In a survey performed by Plug-In America, 34% of today's EV

⁵² In particular, we recommend the following two links to start: <https://electricschoolbusinitiative.org/3-design-considerations-electric-school-bus-vehicle-grid-programs> and <https://electricschoolbusinitiative.org/v2x-implementation-guide-and-mutual-aid-agreement-template>

⁵³ Patty Dexter, Sun This Week, "[Students ask District 196 to switch to electric school buses.](#)" (Updated December 8, 2023).

⁵⁴ Xcel 2023 TEP at 65-69.

drivers cited lack of sufficient public charging as a moderate or severe concern.⁵⁵ And, in a separate study conducted by Consumer Reports, 63% of those who are not considering an EV as their next vehicle reported “charging logistics” as the greatest barrier to purchasing an EV, with not enough public charging stations cited as the most significant charging logistics concern.⁵⁶ Extending the Public Charging Pilot will work to address these concerns by contributing to a robust public charging network that will better meet current EV drivers’ needs and positively impact EV adoption.⁵⁷

Like public charging, fleet electrification presents a major opportunity to advance EV adoption. As the CEGs explained in prior testimony before this Commission,⁵⁸ vehicle fleets are a high-leverage point of intervention to accelerate EV adoption and reduce harmful transportation pollution for two interrelated reasons. First, engagement with a single fleet operator presents the potential to transition numerous gas- or diesel-burning vehicles to zero-emitting EVs. Second, fleet vehicles tend to be high-mileage vehicles and are often larger vehicles that burn more fuel per mile driven due to their size and payload. Fleet vehicles, and fleets as a whole, can therefore have a significant negative impact on our climate and local air quality, especially where fleets burn diesel fuel.⁵⁹ Fortunately, commercially-available electric options exist for the vast majority of fleet vehicles,⁶⁰ and the lower fuel and maintenance costs of zero-emission vehicles make them attractive for fleet use where economic considerations are paramount.

The Fleet EV Service breaks down barriers to unlocking the benefits of fleet electrification. Despite lower total-cost-of-ownership in many electric vehicle segments (driven by lower fuel and maintenance costs) and rapidly declining vehicle costs, the upfront cost of electric vehicles and charging infrastructure can nonetheless present a barrier to fleet operators who wish to transition. Through programs like Fleet EV Services, utilities can leverage their grid expertise

⁵⁵ Plug In America, The Expanding EV Market (Feb. 2022), available at <https://pluginamerica.org/wp-content/uploads/2022/03/2022-PIA-Survey-Report.pdf>.

⁵⁶ Consumer Reports, Battery Electric Vehicles & Low Carbon Fuel: A Nationally Representative Multi-Mode Survey (April 2022).

⁵⁷ See, e.g., Shanjun Li et al., The market for electric vehicles: indirect network effects and policy design, 4 J. Ass’n Env’t. & Resources Econ. 89, 128 (2017) (finding that “EV demand and charging station deployment give rise to feedback loops” and that “subsidizing either side of the market will result in an increase in both EV sales and charging stations.”); Katalin Springel, Network Externality and Subsidy Structure in Two-Sided Markets: Evidence from Electric Vehicle Incentives, 13 Am. Econ. J.: Econ. Pol’y 393, 426 (2021) Springel (2021) (finding “evidence of positive feedback effects on both sides of the market, suggesting that cumulative EV sales affect charging station entry and that public charging availability has an impact on consumers’ vehicle choice.”).

⁵⁸ See Direct Testimony of Samantha L. Houston, Docket No. E-002/M-22-432 (filed February 7, 2023) at 6-8.

⁵⁹ Exposure to diesel exhaust can lead to premature death and other devastating health problems, including asthma and respiratory distress, pregnancy complications and adverse reproductive outcomes, cardiac and vascular impairments, and heightened cancer risk.

⁶⁰ As of October 2020, there were zero-emission models commercially available across all bus types and class 2b-8 trucks. By the end of 2022, there were 544 total models available across those vehicle classes. Based on manufacturer announcements, there will be multiple companies selling EVs in virtually all medium- and heavy-duty market segments by 2025, including 58 percent of the major OEMs. EDF & ERM, Electric Vehicle Market Report at 33 (April 2022), available at https://blogs.edf.org/climate411/files/2022/04/electric_vehicle_market_report_v6_april2022.pdf.

and access to capital to help fleet operators make the transition to electric. And, as with the Fleet EV Services program, utility support for fleet electrification can also foster grid integration of EV charging by incentivizing participating fleets to utilize time-varying rates as well as more advanced forms of vehicle grid integration, in turn placing downward pressure on rates for all utility customers.

In addition, the Company's request to continue both programs is reasonable in light of the need. As evidenced by the backlog of applicants,⁶¹ there is considerable unmet demand for these programs. Continuing funding will avoid possible loss of momentum, investment, and relationships, as well as potentially harmful market signals. Moreover, increased public charging and fleet emission reductions are necessary to keep pace with the state's EV adoption and climate goals. Unfortunately, 2021 data from the Environmental Protection Agency suggest that the state is not currently on track to meet its ambitious but necessary climate goals, with transportation and industry requiring the most attention.

Extending the Fleet EV Service and Public Charging Pilot programs will further the state's climate objectives and its EV adoption goals and strategies.⁶² For example, in 2019, MNDOT and MPCA released their report entitled "Accelerating EV Adoption: A Vision For Minnesota" report which identified "build out charging infrastructure" as a key strategy.⁶³ Since that time, the growth of infrastructure has not kept pace with the rate of EV adoption. From 2019 to 2022, EV registrations in Minnesota increased five-fold, while the number of public charging ports only increased about threefold.⁶⁴ Infrastructure deployment enabled by the Public Charging Pilot will help close this gap. **For all these reasons, the Commission should approve bridge funding for the Fleet EV Service and Public Charging Pilot.**

Finally, the CEGs recognize the Company's intent to propose the transition of both pilots to permanent programs in a 2024 filing.⁶⁵ We support the Company's intention and agree that, barring unforeseen issues, transitioning to permanent programs is likely appropriate. **The CEGs**

⁶¹ Xcel 2023 TEP at 65-67, Appendix H10.

⁶² See, e.g., "Climate Action Framework" (setting goals to reduce greenhouse gas emissions from the transportation sector by 80 percent by 2040 and achieve 20% on-road electric fleet); Minnesota Department of Transportation, 2023 MN Electric Vehicle Plan at 24 (identifying goals of "s]upport[ing] Minnesota's greenhouse gas (GHG) emission reduction goals and minimize transportation's impact on human and environmental health," "facilitat[ing] regional and statewide travel while setting the standard for EV infrastructure in the Midwest," and "advanc[ing] EV adoption."); Minnesota Department of Transportation, 2021 EV Assessment at 12-13 (finding "Minnesota needs more EV chargers to increase convenience and visibility/awareness of EV charging for prospective drivers, ease range anxiety, and increase access to EV chargers statewide," and recommending "EV targets for government fleets (light-duty and medium- and heavy-duty vehicles)").

⁶³ Minnesota Department of Transportation, Minnesota Pollution Control Agency, and Great Plains Institute, 2019, "Accelerating EV Adoption: A Vision For Minnesota", <https://www.pca.state.mn.us/sites/default/files/p-gen4-13.pdf>

⁶⁴ See Atlas Public Policy, EValuateMN (reporting annual data on EV registrations and infrastructure and showing 641 charging ports and EVs as 1% of new vehicle registrations in 2019 and 1,866 charging ports and EVs as 5% of new vehicle registrations in 2023).

⁶⁵ Xcel 2023 TEP at 66-67.

also submit that, in a future filing, the Company should consider expanding the scope of its programs to capture more types of fleet customers and to keep pace with the state’s infrastructure needs as its EV goals ramp up.

g. Residential EV Advisory Services

The CEGs support approval of the Company's proposal to expand and improve its Residential Advisory Services.⁶⁶ These enhanced advisory services will increase participation in the Company’s EV programs, including its two new residential programs, by improving customer awareness. And, because most charging occurs at the home, robust participation in residential managed charging programs is critical to efficiently integrate EV charging load and leverage it to improve grid flexibility.

Beyond the Company’s own programs, the Residential Advisory Services will improve EV adoption by increasing knowledge of EV benefits and helping customers navigate additional incentive programs. This is especially important given the number and variety of local, state, and federal incentives. The Company can play a valuable role in aggregating and conveying such information to customers directly and via the key trade allies it plans to work with, like auto dealers and electricians, as well as trusted messengers like HOURCAR.⁶⁷

Auto dealers are uniquely situated to help educate prospective EV owners. The CEGs strongly support the Company’s plan to partner with dealers to disseminate information about valuable EV incentives and programs during the vehicle purchase process, improving access and knowledge for new EV adopters. Unfortunately, many customers are unaware of the wide range of available charging and vehicle purchase incentives. A recent, nationwide study conducted by Consumer Reports found that 46% of Americans were not aware of any incentives for EV drivers, including incentives to purchase an EV.⁶⁸ In addition to the Company’s other efforts, partnering with dealers will help address this knowledge gap.

The improved customer knowledge driven by the Residential Advisory Services can advance EV adoption. Familiarity with EVs and willingness to purchase an EV are highly correlated. The Consumer Reports survey found that 67% of Americans who say they would definitely buy or lease an electric-only vehicle if they were to buy a vehicle today were “very” or “somewhat” familiar with the fundamentals of owning an EV.⁶⁹ Survey respondents who said they would not consider purchasing an EV had much lower familiarity with EVs.⁷⁰ This makes promoting

⁶⁶ *Id.* at 70-71.

⁶⁷ *Id.*

⁶⁸ Consumer Reports, April 2022, “Battery Electric Vehicles & Low Carbon Fuel: A Nationally Representative Multi-Mode Survey”

⁶⁹ *Id.*

⁷⁰ *Id.*

customer awareness of EV fundamentals through events such as ride and drives, which allow customers to gain firsthand experience with EVs, key to increasing EV adoption.

4) Gaps and additional programs for Xcel to plan towards

As our introduction outlined, we are at a pivotal moment in our efforts to address climate change and meet our state and international GHG reduction goals. Xcel Energy has outlined a series of common-sense proposals that will continue the work the Company has already begun. However, additional efforts and planning are still required to meet the climate challenge and build swiftly towards an electrified, equitable clean energy future.

Below the CEGs summarize additional programs and highlight missing elements of Xcel's TEP. These ideas have surfaced in several of our recent TEP comments, and we encourage Xcel to revisit our recommendations as they look to build more programs into their EV portfolio.

a. Heavy-Duty Vehicles

Heavy-duty vehicles are critical segments to electrify given the outsized per-vehicle and aggregate contributions of diesel trucks to greenhouse gas emissions and local air pollution.⁷¹ In addition, truck activity tends to be concentrated around freight centers and corridors where their tailpipe emissions harm the health of people in surrounding communities.⁷² Zero-emission trucks cannot come soon enough for those communities. Electric trucks, in turn, can provide many of the same benefits as light-duty EVs for the grid and ratepayers through smart vehicle-grid integration.

To date, the only offering the Company has for heavy-duty trucks is the Fleet Charging Pilot. That pilot provides valuable support. However, it is shared with vehicles across light- and medium- segments, limiting its ability to kick-start the uptake of electric trucks in the Company's service area and the state more broadly. Utilities have an important role to play in providing support that accelerates electric truck adoption for fleets as well as independent truck operators. **The CEGs recommend Xcel develop additional offerings for heavy truck electrification, including infrastructure support and commercial EV rates.**

b. Piloting additional managed charging programs

Vehicle-grid integration can include a variety of approaches, from basic managed charging to bidirectional charging. Managed charging can range from time-of-day electricity pricing to dynamic rates and demand response, while bidirectional charging could range from exporting power when called during an extreme temperature event to regular participation in a virtual power plant (aggregations of distributed energy resources that can provide services similar to

⁷¹ Union of Concerned Scientists, April 2022, "How to Eliminate Pollution from Heavy-Duty Vehicles". <https://www.ucsusa.org/resources/heavy-duty-vehicles-and-nox>

⁷² *Id.*

conventional plants). Ideally, every EV driver or fleet operator will engage in vehicle-grid integration in some way, but not everyone has to participate in the most sophisticated applications. Minnesota drivers need a variety of tools and programs for drivers to choose from so there's an opportunity for everyone to benefit from vehicle-grid integration, while still using their vehicles for the vehicles' main purpose—transportation. In order to develop a slate of options that provide drivers options that meet their needs while maximizing the potential for EV batteries to support the grid, Xcel must continue to pilot approaches beyond EVSE-based time-varying rates.

c. Serving multifamily residents and renters (streetside charging)

The CEGs have been proponents of utilities' role in providing affordable and accessible EV charging options for renters and customers living in multifamily residents, both of whom experience barriers to at-home charging, for many years. While Xcel's Multi-Dwelling Unit (MDU) EV Service Pilot is a step towards addressing these customer needs, additional solutions exist.

An example that we have highlighted in our previous comments is streetside charging.⁷³ Pilots are underway in multiple cities such as London⁷⁴ and Kansas City,⁷⁵ where streetlights are used as a power source. As the City Manager in Kansas explained, "the purpose of this is to make sure electric car charging infrastructure is accessible and available to everyone in all neighborhoods. One of the biggest barriers to electric car ownership is trying to find a place to charge."⁷⁶

This is a solution that Xcel itself has supported, including development of a streetside charging pilot in its estimated schedule of developing EV programs filed on July 15, 2022.⁷⁷ Unfortunately, development of this pilot seems to have stalled since that filing. The importance of testing out other models for supporting accessible and affordable EV charging remains. **The CEGs ask Xcel to detail its plan on bringing a streetside charging pilot forward, as previewed in their compliance filing from July 2022.**

⁷³ Clean Energy Groups, Reply Comments, [In the Matter of Commission Inquiry into Electric Vehicle Charging and Infrastructure \(Transportation Electrification Plan\)](#), Docket No. E999/CI-17-879 (Oct 21, 2021) at 4.

⁷⁴ Green Car Reports, "[Ubriicity plans to add 1,050 more EV chargepoints at UK lampposts](#)," (September 2023).

⁷⁵ Fox4, [Kansas City tests nearly 2 dozen curbside EV charging stations](#) (May 24, 2023).

⁷⁶ *Id.*

⁷⁷ Xcel Energy, [Compliance Filing – Scheduled for Developing Electric Vehicle Programs](#), Docket No. E999/CI-17-879 (July 15, 2015) filed in response to Order Point 2A of the [Commission Order Accepting 2021 Transportation Electrification Plans and Additional Informational Requirements](#), filed May 12, 2022.

d. Discussion of equity within TEP and EV planning

The Clean Energy Groups have advocated for utility EV planning to address equity and access in past comments on utilities' TEP,⁷⁸ a priority shared by the Commission⁷⁹ and recently codified into Minnesota Statute, which states that a TEP may include "programs targeting transportation electrification in low- and moderate-income communities and in neighborhoods most affected by transportation-related air emissions" and that the Commission should consider whether a utility' TEP will "increase access to the use of electricity as a transportation fuel for all customers, including those in low- and moderate-income communities, rural communities, and communities most affected by air emissions from the transportation sector."⁸⁰

In its TEP, Xcel discusses how specific programs are incorporating equitable elements. For example, the electric school bus demonstration lists a priority to work with schools serving "low-income, BIPOC, and rural communities," while the Home Wiring Rebate includes an "enhanced" option geared for under-resourced customers and/or communities of color, as demonstrated by the list of eligibility pathways included. Xcel is also proposing a Commercial EV Pilot Application Review that includes an "Equity and Accessibility" category that will enable evaluation of whether the project under review "increases access to electricity as a fuel for all, increases awareness and adoption of EVs, serves disproportionately impacted or underserved customers, including income qualified communities, BIPOC communities, tribal nations, and rural communities, and is affiliated with or promotes small or underutilized business."⁸¹

The CEGs support the embedding of equity throughout the Company's proposal. However, a separate discussion on how Xcel is approaching equity and access within its EV planning is still warranted, given the Company is still relatively early in its efforts to incorporate equity within its EV programming. In particular, the CEGs would welcome a description of how Xcel is designing equity and access to its programs, and who they are speaking with internally and externally to do so.

Finally, Xcel mentioned during its December 8, 2023 TEP meeting that its Equity Stakeholder Advisory Group (ESAG) and/or successor body, the EJ Accountability Board, may have a role in supporting more equitable development of Xcel's EV programs. As a participant in that process, Fresh Energy notes that to-date, EVs have not been discussed. However, the CEGs support

⁷⁸ Clean Energy Groups, Initial Comments, *In the Matter of a Commission Inquiry into Electric Vehicle Charging and Infrastructure*, Docket No. E999/M-17-879 (September 30, 2020) at 3-5.

⁷⁹ Commission Order Making Findings and Requiring Filings, Docket E.999/Ci-17-879 (February 1, 2019) at 13. Order point 16.a and 16.b ask utilities to include a discussion of "a. environmental justice, with a focus on communities disproportionately disadvantaged by traditional fossil fuel use" and "b. Low-income access and equitable access to vehicles and charging infrastructure"

⁸⁰ [Minn. Stat. §216B.1615, subd. 2.\(5\) and subd. 3\(2\)](#)

⁸¹ Xcel TEP 2023, Appendix H11 at 2.

bringing EV programs to ESAG and/or the EJ Accountability Board, as a means to further embed equity within Xcel's EV programs and proposals, and operations.

e. Coordinating transportation electrification with energy efficiency and building electrification

As Minnesota gets further along the path of the clean energy transition, more integration and coordination across transportation electrification, building electrification, and energy efficiency will be needed. Electric utilities in particular play a vital role in ensuring this coordination happens. Inclusion of the TEP in the broader Integrated Distribution Plan is a first step. Another is ensuring that electric vehicle planning occurring in other teams within Xcel Energy, are mentioned and linked to the TEP. **In particular, the advent of fuel-switching incentives within the ECO program that support transportation electrification should be discussed within Xcel's TEP, as Xcel's most recent ECO Triennial Plan did with its proposed electric bike (e-bike) rebates.⁸² Additionally, the TEP is also suitable for hearing from Xcel on relevant state policy developments, such as the recent discussions around adding "EV Readiness" to the commercial building code.⁸³**

Conclusion

The CEGs thank the Commission for the opportunity to comment on the Company's TEP. We look forward to continued work with the Commission, the Company, and other stakeholders to support the growth of EVs in Minnesota in a manner that lowers barriers to EV adoption for all customers, supports an innovative and sustainable EV marketplace, and maximizes the environmental and grid benefits of transportation electrification.

Sincerely,

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⁸² While Xcel Energy proposed e-bike rebates, the Department of Commerce denied the request until technical guidance could be worked out. See Minnesota Department of Commerce Deputy Commissioner's Decision, *In the Matter of Xcel Energy's 2024-2026 Energy Conservation and Optimization Triennial Plan*, Docket No. G,E002/CIP-23-92 (December 1, 2023) at 119.

⁸³ A Technical Advisory Group met this past fall to discuss adding EV Charging capabilities for new commercial buildings in response to enabling Minnesota legislation allowing the Department of Labor and Industry to do so. See <https://www.dli.mn.gov/about-department/boards-and-councils/electric-vehicle-charging-facilities-technical-advisory-group>.

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CERTIFICATE OF SERVICE

I, Anjali Bains, hereby certify that I have this day, served a copy of the following document to the attached lists of persons by electronic filing and electronic mail.

Comments of Fresh Energy, Minnesota Center for Environmental Advocacy, Sierra Club, Union of Concerned Scientists, Plug In America, and Environmental Law and Policy Center

Docket No. E002/M-23-452

Dated this 20th day of December 2023

/s/ Anjali Bains

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