



# Memorandum

## Xcel Energy Transportation Electrification Plan (TEP): Commercial Customer Research Findings

**To:** Ryan Odell, Xcel Energy  
**From:** Opinion Dynamics Evaluation Team  
**Date:** February 5, 2024

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Xcel Energy's 2021–2023 Transportation Electrification Plan (TEP) is intended to support the State of Colorado's goal of 940,000 electric vehicles (EVs) on the road by 2030 and position itself as a national leader in vehicle electrification. Xcel Energy's Transportation Electrification Plan (TEP) programs for commercial customers help address critical barriers limiting the electrification of communities, fleets, multifamily buildings, public access, and workplaces.

Xcel Energy's Fleet Electrification Advisory Program (FEAP) is designed to provide eligible commercial and industrial customers seeking initial support on developing fleet electrification plans with a free suitability assessment, data analysis, advisory services based on operational data from the existing fleet, and business goals. FEAP assessments typically take three to six months to complete. As of August 2023, FEAP had provided 13 reimbursements to eligible customers who were unable to pay the upfront cost of a fleet assessment to help overcome financial barriers to fleet electrification. In the 2024–2026 TEP, Xcel Energy plans to incorporate more vehicles, chargers, and market information into FEAP planning tools and help fleet operators identify take-home vehicle needs and gather insights from estimated at-home charging costs.

Xcel Energy's Electric Vehicle Supply Infrastructure (EVS) Program aims to lower the upfront costs of charging infrastructure for multifamily, fleet, workplace, and public market segments by fully furnishing participating sites with make-ready charging infrastructure. Eligible customers can procure their own Level 2 charging equipment from an approved product list or select Xcel-owned and maintained equipment that customers will pay for through a monthly charge on their bill. Low-income properties, fleets, and workplaces are also eligible for additional rebates to cover a significant portion of the expected costs of Level 2 and DCFC chargers through the program. As of August 2023, 25 unique site hosts have completed a project through the EVS Program since its launch. In the 2024–2026 TEP, Xcel Energy plans to consolidate commercial EVS offerings into a single "Commercial EVS" program, reduce port minimums, remove the minimum equipment charging capacity requirement, and include Primary General customers, curbside capable EVS equipment, and futureproofing in the program.<sup>1</sup>

The Partners in Energy (PiE) Community EV Advisory Program is designed to provide resources to help communities develop plans for achieving their TE goals in areas such as engaging residents, supporting fleets, or evaluating

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<sup>1</sup> Primary General is the second highest voltage level offered by Xcel Energy and is primarily used by larger commercial and industrial customers.

opportunities for siting public charging infrastructure. Participating communities gain access to Xcel Energy's PiE consultants, who assist in developing EV action plans to support efficient marketing efforts and EV charging deployment. As of August 2023, a total of 19 communities have received EV planning and marketing support from Xcel Energy's PiE program. In the 2024–2026 TEP, Xcel Energy will continue supporting their existing partners and building new relationships with communities just beginning EV planning, leverage existing relationships and the PiE framework to provide robust tools, data, and expertise, and continue to support EV planning services for communities to accelerate growth in EV adoption as well as charging infrastructure deployment.

As part of the evaluation of Xcel Energy's 2021–2023 TEP, the evaluation team completed interviews with customers who participated in Xcel Energy's EVSI Program, FEAP, and PiE Community EV Advisory Program, as well as interviews with the staff who implement the FEAP and PiE offerings. The overarching objective of the interviews was to gather information about the customer experience with these programs, including Xcel Energy's marketing efforts, participants' awareness of TE offerings, reasons for program participation, challenges Xcel Energy could address, future electrification goals, and recommendations for program improvements. Notably, Xcel Energy is in the approval process for their 2024–2026 TEP filing. Key findings and recommendations in this memo can help inform the design and implementation of the next TEP cycle. The key findings, methods, and detailed research results are presented in the following sections.

## Key Findings and Recommendations

**Key Finding 1:** FEAP participants expressed high levels of satisfaction with their experience with the program; however, some suggested a need for additional support and information to move forward with fleet electrification. Some participants noted that gaining internal support has been a challenge, and additional information regarding emissions and fuel savings, operations and maintenance, and battery recycling options could help garner internal support for electrification. Additionally, some participants struggled to understand the information in the fleet assessments, and few were aware of the option to re-run the fleet telematics analysis.

- **Recommendation 1:** Consider alternative ways to present fleet assessment results to be digestible to a broader range of stakeholders. Be sure to clearly highlight emission and fuel cost savings compared to gas and diesel vehicles, in addition to information about operations, maintenance, and vehicle life cycle. Consider providing a cover sheet with the assessment that provides an executive summary and a glossary of terminology used in the assessment. Also, consider having FEAP staff available to attend meetings with company leadership to present assessment results if requested.
- **Recommendation 2:** Consider additional outreach to fleet customers, letting them know they can request a re-run of the fleet telematics analysis to account for changes to fleet vehicles or routes. Also, consider extending the fleet telematics data re-run period beyond 12 months, as decision-making for fleet electrification can be a lengthy process.

**Key Finding 2:** Delays associated with customer agreements and EVSI installation have led to fewer than anticipated charger installations and customer frustration. EVSI Program participants noted that negotiating customer agreements and prolonged equipment delivery times due to global supply chain issues have led to project delays. Participants also noted a lack of proactive customer communication around when work would be performed, and determining site capacity has been a source of frustration. Xcel Energy staff have acknowledged delays in sourcing EV infrastructure and charging equipment. Most utilities do not have control over the procurement schedule for customer project components. As a best practice, some utilities, including Xcel Energy, have started to keep an inventory of residential and commercial project components to mitigate the risks of significant delays to project timelines.

- **Recommendation:** We recognize Xcel Energy is working to address issues associated with communication and has started to stockpile equipment to reduce project delays—this should be a continued focus for the EVSI

Program going forward. EV charging infrastructure energization timeline delays are a widespread issue affecting utilities across the US. Utilities and regulators in other jurisdictions have begun to address this issue by mapping out the detailed steps in the energization process from initial application to charger energization and tracking the time associated with each step in the process as well as any sources of delay that are within utility control and outside of the utility control.<sup>2</sup> Xcel Energy should also consider rolling out a more detailed project tracking system for future EVSI projects to improve customer communication, identify key bottlenecks, and help Xcel Energy and stakeholders better understand the multifaceted drivers of timeline delays. Once issues are identified, this information can be used to develop solutions to address the key drivers of project delays. Establishing this type of process in the near term will be especially important for streamlining the energization process, as requests for EVSI upgrades within and outside the Xcel Energy EVSI Program will likely increase over time, further exacerbating energization delays if not addressed proactively.

**Key Finding 3:** Futureproofing, or building EVSI capacity beyond what is immediately needed for current installations to support future charging needs, is an important consideration for participants and may increase EVSI Program participation. EVSI participants are interested in building out additional charging at their sites; however, they also have concerns about the additional grid capacity required to support this additional charging infrastructure. Participants are generally not building excess capacity to accommodate future charging needs as this was not initially a component of the EVSI Program. Further, program staff suggested that futureproofing properties may help improve participation, specifically among multifamily and commercial new construction properties.

- **Recommendation:** We understand that Xcel Energy's 2024–2026 TEP includes a new offering that allows customers to complete futureproofing up to 300 kVA per site to on-site charging infrastructure to support future charging needs. Results from our research suggest this type of futureproofing offering can help address Xcel Energy customers' charging needs and increase program participation, thereby helping to support growth in TE. In addition to futureproofing, Xcel Energy should continue to host capacity maps and provide support to help customers interpret and use these maps to understand the available grid capacities at their sites and the scope of upgrades necessary to support their EV charging infrastructure needs. This can help customers make informed decisions with Xcel Energy about where to site charging installations to minimize grid upgrade costs.

**Key Finding 4:** Providing support for make-ready infrastructure still fills an important market gap for increasing charging access at commercial properties, but support for the chargers themselves may be less needed outside of certain equity customer segments. Nearly all EVSI Program participants indicated that they would not have moved forward with installing charging without Xcel Energy's assistance due to the high costs of installing, owning, and maintaining charging infrastructure. As the chargers themselves are often not a significant expense, few EVSI Program participants indicated they applied or received rebates for the chargers installed at their properties, except for two participants who were awarded income-qualified charger rebates.

- **Recommendation:** Continue to offer make-ready support but monitor for market changes and gaps as federal and private funding for public charging increases. Focus rebates for chargers on equity-focused market segments, particularly at multifamily properties and public charging in high emissions communities.

**Key finding 5:** EVSI participants are interested in load management but have concerns about how it will impact business operations and end users. Most participants reported being aware of TOU rates and demand response programs. Interest in load management, however, varied by customer segment, with fleet and multifamily participants expressing less interest than public and workplace charging participants. Fleet participants expressed concerns about being able to maintain fleet operations, and multifamily participants did not want to adjust or restrict charging due to concerns about inconveniencing end users.

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<sup>2</sup> California Public Utilities Corporation. *Public Workshop: EV Infrastructure Rule Service Energization*. September 29, 2023. <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/transportation-electrification/ev-service-energization-workshop-ppt.pdf>.  
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- **Recommendation:** Xcel Energy commercial customers are a heterogeneous population with different load management needs and opportunities, likely dependent on several factors, such as their sector, operations schedules, and vehicle class types that charge at their sites (e.g., light duty vs. MDHD). Given this, Xcel Energy should proceed cautiously when rolling out load management programs, as a “one size fits all” approach is unlikely to meet the needs of all commercial customer segments. Consider conducting additional research to assess how load management needs and preferences vary by commercial customer segments and identify whether there might be opportunities to develop a load management program offering tailored to specific commercial segments. Xcel Energy could also consider deploying a flexible load management approach where the site hosts can select interventions and develop a load management plan that works best for their organization.

**Key finding 6:** Xcel Energy’s PiE Community EV Advisory Program has provided communities in Colorado with a wide range of support for administering education and outreach campaigns to encourage greater adoption of EVs. Participating communities face several challenges in implementing their community EV plans. Key challenges include managing uncertainty around funding EV plans, retrofitting existing properties to allow for the installation of charging, and getting buy-in from community members and key stakeholders.

- **Recommendation:** To address the challenges facing communities in Colorado, Xcel Energy should continue to ensure that communities have access to EVSI rebates to help offset costs to install charging that is critical to increasing EV adoption. Xcel Energy should also expand its support to communities through additional coordination on EV education and promotional efforts, in addition to multilingual translations for any marketing materials provided to communities. Further, Xcel Energy could help communities refine their approach in selecting which stakeholders are key in developing and implementing EV plans and getting key stakeholders involved who have traditionally not been willing to engage.

## Methods and Interviewee Characteristics

Between June and October 2023, Opinion Dynamics completed 25 in-depth interviews with participants of Xcel Energy’s FEAP, EVSI, and PiE Community EV Advisory programs (Table 1). The team recruited interviewees via email from a list of customers provided by Xcel Energy. All interviewees were offered a \$50 incentive for completing the interview. The team also completed interviews with two Xcel Energy staff members and implementers involved with FEAP and PiE in June 2023.

Table 1. Results of 2021–2023 TE Program Participant Interviewee Outreach

Program	Completed Interviews
EVSI – Fleet	2
EVSI – Multifamily Assigned Parking	2
EVSI – Multifamily Shared Parking	2
EVSI – Public Charging	1
EVSI – Workplace	4
FEAP	6
Community EV Advisory	8
<b>Total</b>	<b>25</b>

The six FEAP interviewees represented school districts and local governments, with fleets mostly composed of light-duty vehicles (Table 2). Three of the six interviewees had existing EVs in their fleet; however, none reported completing recommendations in their fleet electrification plan at the time of the interview. All interviewees reported working with

Xcel Energy for at least one year on their fleet electrification plans. Two of the six interviewees also reported receiving rebates through Xcel Energy’s EVSI Program.

Table 2. Summary of FEAP Participant Interviewee Characteristics

Type of Organizations	Approx. Fleet Size	Type of Fleet Vehicles
School Districts and Local Governments	100-350	Front-end loaders, passenger buses, pickup trucks, school buses, sedans, SUVs, tractors, vans, and other heavy-duty equipment

The 11 EVSI Program interviewees represented each of the five EVSI Program components and a variety of organization types (Table 3). All but three interviewees installed Level 2 charging at their property. Most interviewees reported that charging installed through the EVSI Program has been in service for less than six months.

Table 3. Summary of the EVSI Program Participant Interviewee Characteristics

Type of Organizations	# Ports Installed	Primary Use of Property	Charging Level	EV Charging Project Types
Public Companies, Small- to Mid-sized Businesses, Local Governments, Homeowner’s Associations	1-15	Transportation, Manufacturing, Multifamily Housing, Parking Garage, Office Space, Restaurant, and Campus	DCFC and L2	2 Fleet, 2 MF Assigned, 2 MF Shared, 1 Public, 4 Workplace

The eight PiE Community EV Advisory Program interviewees represented local governments, nonprofits, and energy consultancies, with some being involved with PiE for nearly four years (Table 4). Most interviewees reported that they did not receive a rebate from Xcel Energy and were still planning their community EV action plans with PiE.

Table 4. Summary of the PiE Community EV Advisory Program Participant Interviewee Characteristics

Type of Organizations	TE Planning with PiE	Project Status	Had Existing EV Charging	Had Existing Fleet EVs	Received Xcel Energy Rebates
Local Governments, Nonprofits, and Energy Consultancies	> 3 months to < 4 years	Inactive, Planning, Implementation,	5 Yes, 3 No	2 Yes, 6 No	2 Yes, 6 No

## Detailed Results

### Fleet Electrification Advisory Program

#### Participation Process

Xcel Energy’s FEAP is open to commercial customers operating a fleet of five or more vehicles primarily in Xcel Energy’s service territory. Eligible customers first submit an intake form and proceed to review, evaluate, sign, and return the terms and conditions to FEAP staff by email. Eligible customers are invited to scope their project and next steps with Xcel Energy. Customers proceed to work with Xcel Energy’s fleet analytics partner Sawatch Labs to kick off the 90-day data collection period, which includes the installation of telematics devices on fleet vehicles to gather driving information. Through FEAP, customers receive an assessment that includes information about charging site suitability, cost estimates for EVSI, recommendations on suitable EVs, advice on rate plans that can lower costs, and their eligibility for other Xcel Energy TE offerings. After completing the assessment, customers receive access to an interactive online dashboard that includes downloadable summary reports.



## Program Awareness and Enrollment Decision

**FEAP participants primarily learned about the program from Xcel Energy representatives.** FEAP staff mentioned that most participants are municipalities with existing relationships with Xcel Energy. All but one interviewed FEAP participant mentioned learning about FEAP from an Xcel Energy representative. The remaining participant reported learning about FEAP from the Colorado Regional Air Quality Council Office. Two participants also mentioned that employees in the Charge Ahead Colorado and Drive Clean Colorado offices (1 mention each) introduced them to FEAP via email.

**Supporting Colorado's sustainability goals and addressing public health and climate change concerns are primary motivations for fleet electrification.** All six interviewed participants mentioned their motivation to electrify their fleets was to reduce the carbon footprint of their vehicles to meet their emissions targets. They went on to mention being particularly concerned about the environmental and public health risks associated with their gas and diesel vehicles. One participant also mentioned that reducing the operation and maintenance costs associated with their existing fleet was a deciding factor.

**Lack of knowledge about fleet electrification is the primary motivation for participating in FEAP.** All interviewed participants were motivated to participate in FEAP to learn about the costs and benefits of electrifying their fleet. Additionally, participants wanted to learn more about best practices for operating and maintaining EVs and charging sites (2 mentions), technical requirements relating to electrical systems for supporting fleet charging stations, and equipment options to make the best use of their budgeted procurement funds (1 mention each).

## Fleet Electrification Challenges

**Gaining internal support has been the greatest challenge to fleet electrification.** Three interviewed participants mentioned that enthusiasm around their fleet electrification projects from some of their leadership has been waning because of doubts about the technical advantages of EVs in terms of the environmental benefits and total cost of ownership. They mentioned that more technical assistance from Xcel Energy in demonstrating EV benefits to their leadership would help gain the support they need to apply for government grants and rebates that they are dependent on, specifically on the carbon emissions and fuel savings associated with each of their recommended sites, which EV models and rate structures would work best for them, and how to train their fleet staff to operate and maintain EVs (1 mention each).

**Additional guidance or training on maintaining, operating, and retiring EV vehicles at the end of their life cycle could be helpful to some fleet operators.** One interviewed participant mentioned they would like information about EV battery recycling options to help move forward with their EV procurement plans. Another participant mentioned that they would like general information from Xcel Energy on how to maintain Level 2 and DCFCs, in addition to the level of staff commitment needed for maintenance to move forward with their EV procurement plans with a basic strategy for taking care of the chargers to minimize maintenance costs.

**Participants generally found gathering telematics data easy due to existing GPS tracking devices installed in their fleets.** Among those who had issues, two mentioned having issues retrieving telematics data due to car accidents or dead batteries. Another challenge mentioned by one participant involved difficulty persuading some of their fleet drivers to bring in vehicles to have tracking devices installed due to privacy concerns around their driving behavior being monitored by their organization. The participant said this issue was eventually resolved but set their timeline for the assessment back by a couple of weeks.

## Interpreting the Fleet assessment

**Participants are new to electrification and find the fleet assessment reports helpful in understanding their baseline operations and requirements for fleet electrification.** All interviewed participants reported that the fleet assessment report provided them with helpful recommendations for site locations to install charging and EV model options to replace their existing fleet vehicles. Participants added that the assessment provided valuable information for forecasting their carbon emissions (2 mentions) and that even though more information was needed (as discussed above), the third-party validation helped to build leadership approval, trust, and commitment to fleet electrification (1 mention).

**Some participants struggle to understand the fleet assessments and would like to see the information presented in a more simplified way.** One interviewed participant mentioned having difficulty following the assessment's methods and results because of their unfamiliarity with the acronyms, concepts, and terms that were introduced. These participants suggested it would have been helpful to include a glossary in the assessment. Further, another participant mentioned having difficulty with summarizing the information in the assessment and suggested that a single data spreadsheet with a list of top recommendations is needed.

**Few participants are aware of the opportunity to re-run fleet telematics analysis.** Two of the six interviewed participants reported that they were aware of the opportunity to re-run their fleet telematics analysis to account for changes to fleet vehicles or routes. Both mentioned that they did not take advantage of the service because they did not have time. To address this issue, participants offered suggestions to extend the six-month period for accessing their data on the dashboard (1 mention) and the 12-month period for re-running the analysis (1 mention). One participant additionally proposed a five-year period as the ideal time for most public institutions, considering the complicated and lengthy process they typically go through to procure EVs. Extending the period for participants to re-run their fleet telematics analysis could be especially valuable for future program years because Xcel Energy plans to incorporate more vehicles, chargers, and market information into FEAP planning tools for the 2024–2026 TEP.

## Plans for Fleet Electrification

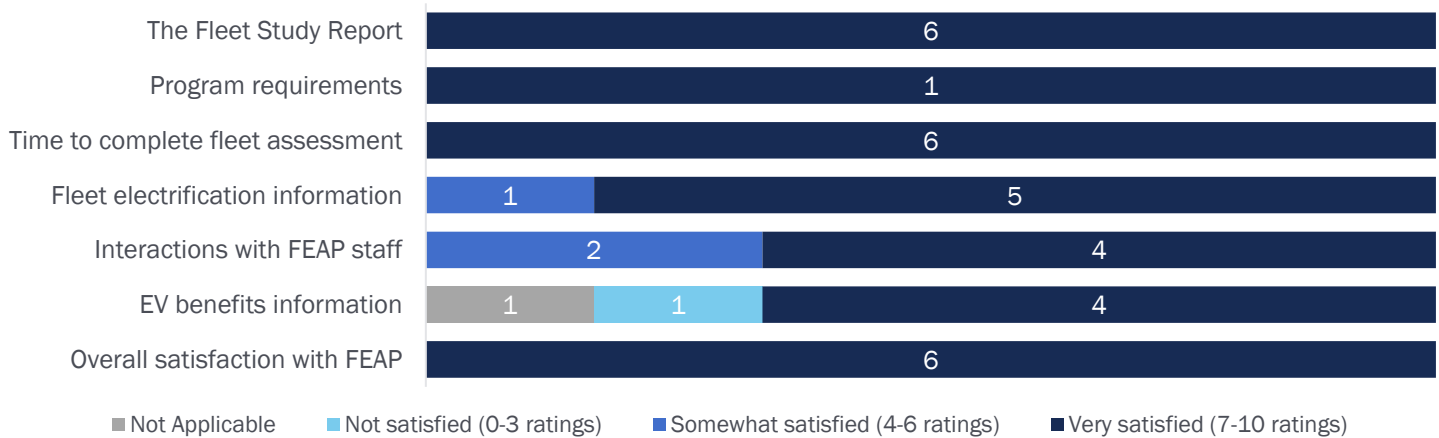
**Most FEAP participants are also participating in Xcel Energy's EVSI Program.** In the interviews, FEAP staff mentioned that customers often go through the EVSI Program to receive infrastructure support as the natural next step to FEAP. Most interviewed FEAP participants (5 of 6) mentioned that they have applied or have plans to apply to the EVSI Program as they were advised by their FEAP advisors (5 mentions). One participant applied, and two participants have made plans to apply after testing the performance of FEAP's recommended EVs. Two interviewed FEAP participants reported that they're waiting to hear back from Xcel Energy on when they may start charger installations, and one participant just began discussing their charger options with program staff while going through construction.

**All fleet managers have plans to or have applied for financial assistance from federal or state funding sources to procure EVs but have not yet added new EVs to their fleet since participating in FEAP.** Interviewed FEAP staff mentioned that FEAP participants need more financial support on vehicle procurement. Staff also mentioned customers are often coordinating with Colorado grant programs to fund installations or EV purchases. Most participants (5 of 6) mentioned that they applied for grants from sources such as Drive Clean Colorado, Charge Ahead Colorado, Colorado Clean School Bus, and the US EPA. Most participants pursue grants because they need funds to procure the recommended EVs or chargers (4 mentions).

## FEAP Satisfaction

Participants reported high levels of satisfaction with most aspects of FEAP. All interviewed participants reported being very satisfied with the Fleet Study Report, program requirements, and the time it took to complete the assessment (Figure 1). Participants were somewhat less satisfied with the information they received from Xcel Energy regarding fleet electrification, the benefits of adopting EVs, and their interactions with Xcel Energy’s FEAP staff. Participants mentioned that they would have liked to have additional information about fleet electrification beyond what was on Xcel Energy’s website, including emission reductions and fuel savings associated with EVs, rate structures offered, operations and maintenance, and battery recycling options. Two participants mentioned that they did not receive enough information about the benefits of EV adoption. One of these participants went on to emphasize a need for clearer upfront information regarding the cost benefits of adopting EVs over gas and diesel vehicles.

Figure 1: FEAP Participant Satisfaction (n=6)



## Electric Vehicle Supply Infrastructure Program

### Participation Process

To participate in Xcel Energy’s EVSI Program, commercial customers fill out and submit an application and then work with an Xcel Energy advisor to develop the preliminary infrastructure design. EVSI program staff work with customers to finalize a customer service agreement and review the details of the preliminary designs and applications to determine the most suitable program pathway for the customer. Program pathways include fleet, workplace, multifamily, primary general, community charging hubs, and public EVSI offerings. After executing the customer service agreement, the customer is required to select an electric pricing option for EV charging and submit verification of EV charging equipment procurement to let Xcel Energy know that they may proceed with the detailed infrastructure design and construction process. During the design and construction phase, Xcel Energy constructs and installs EVSI at the project site, and conducts electrical inspections before installing EV charging equipment.

### Program Awareness and Enrollment Decision

Participants learn about Xcel Energy’s EVSI Program through various channels. Participants mentioned most commonly learning about the program by word of mouth from residents of the multifamily property where they work (2 mentions), organizations undergoing similar projects, and colleagues (1 mention each). Others reported coming across information about the program from a charger vendor (2 mentions), Xcel Energy’s website (2 mentions), or reading about it in the



news (1 mention). Two participants recalled a formal introduction to the EVSI Program by an Xcel Energy representative with whom they were already in contact.

**Participants are motivated by various aspects associated with installing charging, but most would not have proceeded with installing charging without Xcel Energy's assistance.** Participants were primarily motivated to install charging to address environmental concerns or meet sustainability goals (5 mentions), to increase profitability or property values (5 mentions), or to provide safe and unrestricted charging for customers or tenants (5 mentions). However, most (8 of 11) participants mentioned they would not have moved forward with their plans without Xcel Energy's assistance due to the high cost of installing, owning, and maintaining EVSI. The interviewed program staff and manager did mention that EVSI was one of the most significant costs to providing EV charging at commercial sites. Interviewed participants who mentioned that they would have moved forward with their project without Xcel Energy's assistance clarified that they would have installed fewer chargers (2 mentions) or would have postponed their project (1 mention) without Xcel Energy's assistance.

**Multifamily EVSI participants have different considerations when deciding how to install EV charging on their property.** Two of the four interviewed multifamily properties participated in the Multifamily Assigned Parking EVSI Program. Interviewees mentioned participating in the Assigned Parking offering to give their residents unrestricted charging access, avoid costly modifications associated with creating shared charging spaces, and avoid any obligations to manage charging demand. The remaining two multifamily participants opted for the Shared Parking offering either because they did not have assigned parking or did not own the parking lot used by tenants.

**End-user input on installing EV charging weighs heavily on decisions for properties providing publicly accessible charging.** Three interviewed multifamily properties, two participating in the Multifamily Assigned Parking program and one participating in the Multifamily Shared Parking program, mentioned they would have likely not installed charging without the requests from homeowners and tenants. Additionally, two interviewed Public Charging and Workplace program participants who also provide publicly accessible charging mentioned end users (e.g., employees, friends, the public) were influential in their decision-making processes on fee schedules and charger siting.

**Few participants reported receiving a rebate to offset their costs to purchase and install eligible chargers.** Under Xcel Energy's Rebate Program, qualifying customers may apply to receive a rebate for each Level 2 or DCFC port to offset costs. Two participants received the Income-Qualified and High Emissions Community Rebate for Multifamily EVSI, and one Fleet EVSI participant received the Fleet and Workplace Income-Qualified Rebate. All three participants suggested that the incentive level was appropriately set for motivating customers to install on-site charging through the program. The remaining participants were happy with having their make-ready costs covered even if they were not awarded a rebate for the chargers.

## Challenges to Charger Installation, Operation, and Maintenance

**Negotiating customer agreements and lengthy reviews of terms and conditions for participation have stalled projects.** Program staff mentioned that projects can be significantly delayed because of lengthy reviews or customer opposition to customer agreements. One participant mentioned delays in completing their project due to a legal negotiation process to modify an easement agreement to remove all liabilities to the landlord if the participant were to abandon the EVSI before 10 years. Other interviewed participants recalled a lengthy internal review process for the requirements regarding the ownership of the infrastructure for 10 years under the property easement agreement (2 mentions), financial responsibilities for potential line extensions (2 mentions), and prequalified charger options (1 mention), but did not go on to say that they caused a significant delay to complete their projects.<sup>3</sup>

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<sup>3</sup> To participate in the EVSI Program, customers must agree to provide Xcel Energy with any required license agreements, permits, or easements to install, own, and maintain the EVSI and take full responsibility of line extension & charging equipment costs. Participants are also responsible for  
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**Providing additional information and instructions for the EVSI Program application could help reduce customer confusion.** One interviewed participant recounted the difficulty they had using the Higher Emissions Community map to identify their location for the rebate application because instructions were not provided with the weblink to the map. Another participant recalled some difficulty selecting from the prequalified charging options because they were not sure what charger would work best for their organization. Further, one participant reported some general confusion as to what each stage of program participation realistically entailed.

**Prolonged equipment delivery lead times due to global supply chain issues have led to longer than expected installation timelines and participant frustration.** All interviewees were reportedly informed by Xcel Energy and their equipment vendors that the global supply chain issues were impacting delivery times for EVSI. Interviewees mentioned increased wait times of up to 6 months for shipments of chargers (2 mentions), meter housing panels (2 mentions), switchgear (1 mention), and breakers (1 mention). High-amperage circuit breaker shortages are one component that contributes to the longer lead times, and lead times for breakers have grown significantly longer post-pandemic. Most utilities do not have control over the procurement schedule for customer project components, and as a best practice, some utilities have started to keep an inventory of both residential and commercial project components to mitigate the risks of significant delays to project timelines.

**Participants report a lack of proactive customer communication from Xcel Energy regarding their project, which was an additional source of frustration throughout the participation process.** Five interviewed participants reported they did not receive sufficient updates from Xcel Energy staff regarding work being performed for their EVSI projects. Additionally, two interviewed participants recalled having to reach out to Xcel Energy staff after a prolonged period of waiting for the results of testing to determine electrical output and distribution capacities. Another participant mentioned that Xcel Energy's engineers swapped out an EVSI part in the final design without involving the participant in the decision.

**A lack of a single point of contact to coordinate project activities was a major challenge encountered by participants that persisted throughout the installation process.** Participants expressed general frustration with the time it took for them to speak to the appropriate point of contact at Xcel Energy to address issues on the construction site. For example, one participant recounted a lack of coordination among different contractors who were carrying out EVSI construction. The participant mentioned the contractors were bringing different versions of the paperwork and drawings to the site and failing to give advanced notice of their visits. This participant did go on to mention that Xcel Energy addressed this issue by sending a coordinator to the site, but the remaining participants, who also indicated a need for additional coordination, did not mention receiving similar assistance. Note that the evaluation team identified the need for a single point of contact through non-participant site host interviews conducted in 2022, and Xcel Energy has since agreed to adopt the single point of contact model to address coordination challenges.

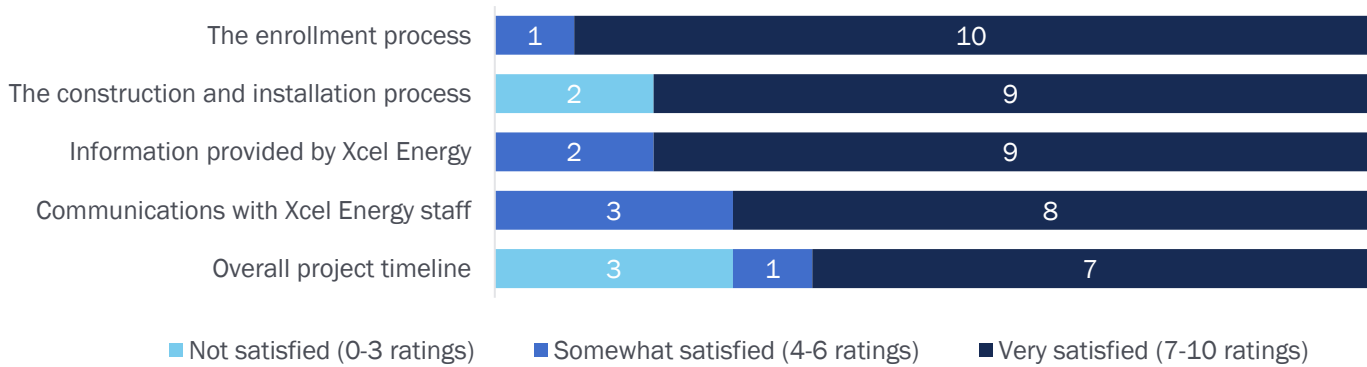
## EVSI Program Satisfaction

**Most participants report high levels of satisfaction with the EVSI Program, apart from the project timeline and communication.** Nearly all interviewed participants indicated that they were very satisfied with the EVSI enrollment process (Figure 2). Participants were least satisfied with their project timeline and communications with Xcel Energy staff (see above for additional details).

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all ongoing maintenance of charging stations over 10 years for which they maintain ownership and must use charging equipment that meets applicable technical and safety standards, demonstrates interoperability, cyber security, and smart charging capabilities.

Figure 2: EVSI Program Participant Satisfaction (n=11)



## End User Charging Preferences and Behaviors

**Chargers have been installed and operational by most participants but for only a short period of time.** Seven interviewed participants reported that chargers are operational, and four mentioned that access to their charging stations has been temporarily blocked due to either pending activations (3 mentions) or safety concerns associated with unrelated construction activities (1 mention).

**Charger utilization is meeting or exceeding expectations for most participants.** Three participants reported that charger utilization levels are meeting expectations. Two out of the three mentioned using email newsletters, social media, signage, and charging app listings to raise awareness among their potential end users. Additionally, two participants who installed charging for private use reported utilization exceeding their expectations. There were two participants who reported that utilization was not meeting expectations, one of whom reported trying to increase awareness with emails and newsletters. Opinion Dynamics plans to complete a charging pattern analysis with EVSI Program participant charging data in 2024, which will provide further insight into end-user charging behaviors at EVSI sites.

**Most participants are neither providing publicly accessible charging nor requiring payment from their end users.** Seven interviewed participants reported chargers installed through the EVSI Program are reserved for private use, and usage is billed as part of their or end users' monthly electric bill. The remaining interviewed participants reported that they charged a usage fee based on either a fixed hourly rate (1 mention) or a flat kWh rate (3 mentions). All four participants reported that end users must download the charger vendor's app to use the chargers and make payments. Participants have not yet implemented charging idling fees as they are not experiencing any major issues with managing demand.

## Additional Support Needed

**Some participants have concerns about futureproofing their property for additional capacity.** Apart from one multifamily Shared Parking participant, all participants reported that they did not build excess capacity to accommodate additional charging and mentioned this could be a concern in the future. One participant suggested Xcel Energy could consider building out excess capacity at sites to allow customers to add additional chargers without making additional electrical upgrades through a process known as futureproofing. One participant, a property that manages bus fleets, added that futureproofing might be especially beneficial for customers who may want to respond quickly to contract opportunities that involve procuring more EVs. These findings are aligned with Xcel Energy's plans in the 2024–2026 TEP to futureproof on-site charging infrastructure and provide needed grid assets, where applicable, to help speed up timelines for customers to adopt EVs. Interviewed program staff also suggested that futureproofing properties may help improve participation, specifically in the multifamily and new construction programs.

**Most participants expect Xcel Energy to address power outages or any other issues with the charging infrastructure within 24 hours.** Eight interviewed participants mentioned that they would like to see issues with chargers resolved within a 24-hour period. These participants were not sure whether this was an achievable goal but did want Xcel Energy to resolve issues as soon as possible if the issue directly impacted their equipment, facilities, or fleet operations.

## Future TE Needs and Interest in Managed Charging

**Most participants reported that they are not actively managing charging demands but are tracking charging use through various tools and resources to develop a plan.** One interviewed participant reported using a lite version of charge management software called “In Control” that allows them to select parameters for charging and lower operating costs. Some mentioned using third-party software tools (3 mentions) or logging in to their billing account through Xcel Energy’s website (1 mention) for tracking and monitoring their charger usage, and some mentioned considering using a reservation system through the charger vendor to manage use in the future.

**Participants were uncertain about future TE needs at the sites they own or manage.** Two interviewed participant, one multifamily property with assigned parking, and one public charging property anticipate demands for charging to grow at a fast rate based on growing interest among their end users for EVs. These participants are actively engaged in preparing to meet the demand. The multifamily property with assigned parking went on to mention that they would be returning to the EVSI Program to expand their capacity to accommodate additional chargers in lieu of a dozen new requests from residents for private on-site charging stations. The public charging property reported that they are working on a plan to address financial constraints for creating spaces to install additional charging stations in lieu of internal discussions around their data-driven predictions for growth in demand.

**Participants are at least somewhat familiar with the benefits of time of use (TOU) rates and demand response programs and are interested in learning more about them.** Most participants indicated being aware of TOU rates (9 mentions) and demand response programs (6 mentions) and understanding the benefits of these offerings.<sup>4</sup> In fact, several properties participating in Workplace, Fleet, and Multifamily Assigned Parking EVSI Programs were already enrolled in TOU rates (5 mentions). Fleet and multifamily charging properties expressed less interest in demand response programs than public and workplace charging properties. Fleet properties required around-the-clock charging to maintain fleet operations while those in multifamily properties simply indicated less flexibility and willingness to adjust charging times due to concerns about placing restrictions or limits to the charging times or speeds for their end users.

## PiE Community EV Advisory Program

### Participation Process

The process for PiE Community EV Advisory Program projects begins when eligible communities fill out an application that gathers information about the community and requests a narrative about reasons why they are interested in participating in PiE, current TE activities within the community, and community resources and commitment. The application is followed by a kickoff meeting to help organize the project team and establish a tentative work plan and timeframe. Xcel Energy and its program delivery partner, Brendle Group, then help develop the community’s goals, strategies, and tactics to incorporate into the plan through a series of facilitated workshops. PiE provides project management support throughout the process to encourage progress and execution and establishes Memorandums of Understanding (MOUs) prior to planning and at the start of implementation to define expectations of roles,

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<sup>4</sup> Demand response programs, in this context, refer to an arrangement where the utility either sends a notification asking customers to avoid charging during peak times when energy use is high, or they remotely adjust a customer’s EV charging by sending a signal to the vehicle or charger to limit charging during peak times when energy use is high.

commitments, and contributions. The PiE team also provides implementation support that helps enable the community to be successful with the strategies and tactics they have identified (e.g., mapping, marketing materials, media relations, education and outreach, events, resource sharing, community data and activity tracking, grants, and ongoing program coordination). The PiE team typically provides project implementation support as needed for up to 12 months.

## Collaboration with Community Partners and Partners in Energy Program

**Supporting Colorado’s sustainability goals and creating an integrated network of chargers to accommodate EV growth is the primary motivation for participating in the PiE program.** All but one interviewed participant mentioned that they had already worked with Xcel Energy to develop a sustainability plan that addressed the need to reduce carbon emissions and improve air quality in their cities and viewed the PiE program as a natural next step for engagement with Xcel Energy. One participant mentioned collaborating with regional nonprofit organizations affiliated with the state’s energy office to achieve their sustainability goals before seeking additional support from PiE. Participants mentioned that internal discussions around sustainability action plans and the general lack of charging in their community motivated them to work with Xcel Energy to investigate where they could install charging stations that would not only save them the most money but also create the most impact on their community.

**Most participants reported that they are in the implementation phases of their projects and had charging stations installed in their community before developing an EV plan.** Five interviewed participants mentioned that charging stations were installed across multiple locations in their city prior to their official decision to create an EV plan. The participants went on to say that though chargers were installed, they were owned by individual owners and not part of an integrated network that they were seeking to create with the help of PiE. The participants added that Xcel Energy’s PiE consultants collaborated with them and their community partners to map out existing charging sites and identify ideal sites for additional public charging stations.

**The process of engaging with community partners involved public outreach and education campaigns to encourage greater adoption of micro-mobility and EVs.** Interviewed participants mentioned they had conducted calls, events, workshops, and focus groups among managers of town facilities, public spaces, school districts, and commercial or multifamily buildings to gather information about their awareness and interest in promoting micro-mobility options (i.e., e-bikes and e-scooters) or EVs to their tenants. Through these activities, participants provided education on the benefits of EV adoption and presented resources for learning more about their requirements for electrifying their property (i.e., energy codes) and eligibility for funding opportunities.

## PiE Community EV Advisory Program Resources and Services

**PiE has provided a wide range of support for administrating education and outreach campaigns for participating communities.** All participants, irrespective of their progress through the program, recalled that the PiE team demonstrated a strong willingness to engage in conversations related to their short and long-term aspirational goals for building integrated charging networks within their communities. Additionally, participants in the implementation phases of their plans mentioned that PiE has helped host events, provide marketing collateral, and assist in annual reporting, which they recalled was especially helpful. All participants mentioned that the PiE team was willing to help with anything they needed to increase their capacities, both during the planning and implementing phases of their plans.

## Major Challenges to PiE Community EV Advisory Program

**Most participants reported that managing uncertainty around funding for implementing their community EV plans is a challenge to community EV advisory.** For most participants, implementation of all the strategies they worked to develop with PiE is contingent on the funding they would receive either through grants, incentives, or rebates they may receive



from sources that include Xcel Energy's EVSI Program and the State of Colorado (e.g., Charge Ahead Colorado and Fleet Zero). These participants reported that they have just submitted their applications or are planning to submit their applications soon to secure funds to cover any costs associated with installing the EVSI in their recommended site locations. One participant mentioned that they are concerned that the actual costs of their projects may exceed the funds they may secure due to inflation but did not mention any plans for preparing for this scenario.

**Participants see retrofitting existing properties to install EV charging as a major barrier.** Two interviewed participants reported that this issue relates first to the extra costs associated with modifying or upgrading existing buildings or the electrical infrastructure that serves the property for accommodating charging and second to the fact that upgraded county energy codes have no triggers in place to mandate a retrofit EVSI installation. The participants went on to mention that retrofit challenges are most typically associated with multifamily or large corporate properties that often lack an internal champion to persuade the rest of their organization to consider installing charging. The PiE team mentioned that they are working on developing a tool that provides insight into infrastructure upgrades that might be needed at a site before conducting outreach to property owners. They hope that this tool will allow them to focus on properties that could more easily and affordably install charging and highlight areas where utility infrastructure upgrades are needed to accommodate charging.

**Participants have encountered challenges swaying certain members of their community to consider EVs as a viable option due to competing priorities, misinformation, or strongly held partisan beliefs.** The PiE team mentioned that transit agencies and school districts are often difficult to get on board with electrification as they have competing priorities or do not have the staff capacity to take on electrification. Some interviewed participants reported having received negative feedback from some community members towards their EV plans based on their disapproval of the political administration behind the EV plans and broader climate action plans of their city. Some participants also mentioned that community members are misinformed in other areas, like the cost of EVs in the used market, the level of interest in adopting EVs among other community members, or concerns about recycling EV batteries. Another participant mentioned that members of their leadership lack the political will to support the transition. The PiE team acknowledged that EVs and related technology are still fairly nascent and that they provide outreach and education that highlights the benefits of EVs and attempts to alleviate concerns to keep projects moving forward.

## Additional Support Needed

**All PiE participants are highly satisfied with the PiE program but did offer some suggestions on additional ways PiE can support their community.** When asked to rate their satisfaction with the PiE program, all participants indicated they were very satisfied with the program (three providing a rating of "10," three providing a rating of "9," and two providing a rating of "8" on an 11-point scale from "extremely dissatisfied" to "extremely satisfied"). Participants mentioned that PiE staff have been effective, efficient, and communicative around project management, outreach, marketing, and annual reporting. However, some participants suggested that more capacity for coordinated EV education and promotion efforts (e.g., in-person and virtual event planning, advertisement through digital and traditional media) and multilingual translations for marketing materials would be helpful as they are too short-staffed or under-resourced to help community members.

**Communities need additional support getting community members on board with the community EV advisory and implementation process in addition to the outreach and marketing support they have received.** Interviewed participants mentioned that they need both additional informational and financial support to help encourage greater community involvement, namely information focused on how to operate and maintain EVs, make-ready, and charging equipment as well as which rate structures would best fit their needs. The most mentioned groups were multifamily properties and other private building owners who have expressed strong disinterest in installing EVSI on the basis that not enough people have asked for this amenity. Two participants suggested that additional incentives (e.g., gift cards) may help

increase attendance at events attended by Xcel Energy staff where potential site hosts can have questions answered about installing charging and get information to support their installations.

**Additional support is needed to bring together key stakeholders from other utilities and neighboring municipalities.** One participant mentioned that one of the utilities that serves their city did not participate in the Xcel Energy-hosted quarterly advisory group meetings intended to gather ideas for continuing to improve the TEP programs and portfolios and discuss whether additional projects and programs are necessary to support TE in Colorado. Another mentioned that there are too many regional stakeholder groups, including the Colorado Electric Vehicle Coalition, in their working group to make work manageable. Both participants suggested that PiE could help refine their approach to selecting stakeholders for working groups to consolidate feedback from all those they would want to contribute but also engage stakeholders who have not participated but may provide critical feedback on their plans.