Opinion Dynamics

MEMORANDUM

XCEL ENERGY TRANSPORTATION ELECTRIFICATION PLAN (TEP): RESIDENTIAL CUSTOMER RESEARCH FINDINGS

To: Ryan Odell, Xcel Energy

From: Hilary Polis and Evan Tincknell, Opinion Dynamics

Date: March 31, 2023

Re: Xcel Energy TEP Key Findings from Residential Customers and Dealership Staff

I. INTRODUCTION

Xcel Energy's 2021–2023 Transportation Electrification Plan (TEP) is designed to encourage transportation electrification, support emissions reductions, keep electric bills low, and benefit the electric grid. The 2021–2023 TEP includes several residential program offerings designed to encourage adoption of electric vehicles (EVs) and Level 2 EV chargers and incentivize EV charging during off-peak hours:

- EV Rebates: Income-qualified (IQ) customers can receive a rebate ranging from $3,000 to $5,500 (dependent on whether new or used) to offset the cost of purchasing or leasing an EV. [1]
- EV Charger and Wiring Rebates: Residential customers receive a rebate ranging from $500 to $1,300 (dependent on income) to offset the cost of installing a Level 2 charger.

[1] Income qualification for EV rebates and EV charger and wiring rebates requires either enrollment in SNAP or TANF, enrollment in LEAP, CO WAP, DSM IQ participation, CARE, or income below 60 percent of state median or below 200 percent of federal poverty or below 80 percent of area median.

- EV Accelerate At Home (EVAAH): Also referred to as the Home Charging Service, this program provides a Level 2 charger and covers the associated upfront, installation, and maintenance costs, for which the customer pays a monthly charge of $13.29.
- Optimize Your Charge (OYC): Customers with Level 2 chargers choose one of three off-peak charging windows (12:30 a.m. to 9:00 a.m., 9:00 p.m. to 6:00 a.m., 6:00 a.m. to 3:00 p.m.) and receive an annual $50 bill credit if they charge during the selected nine-hour window at least 25% of the time.

Opinion Dynamics conducted residential customer research as part of our evaluation of the Xcel Energy TEP to provide guidance for future improvements that will increase customer satisfaction, further EV and Level 2 charger adoption, and encourage off-peak charging. Notably, Xcel Energy plans to submit their 2024–2026 TEP in May 2023, and 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 results of this research are presented in the following sections.

2. KEY FINDINGS AND CONSIDERATIONS

- **Key Finding: Residential participants and dealership staff expressed satisfaction with Xcel Energy offerings and engagement.** Non-IQ and IQ participants alike provided generally high satisfaction ratings and positive feedback regarding the Xcel Energy offerings available and their participation experience. Dealership staff similarly suggested they were impressed with the range of Xcel Energy offerings and with the level of communication and support they received from Xcel Energy staff.
  - **Recommendation:** Continue to offer and, if possible, expand upon the existing array of residential EV-related offerings in the upcoming 2024–2026 TEP to encourage EV and Level 2 charger adoption and participation in managed charging offerings.
- **Key Finding: Despite inventory challenges, EV sales and customer interest remain strong and are expected to increase, and supply chain shortages are expected to resolve.** Dealership staff consistently reported manufacturing delays and challenges maintaining consistent EV inventory since the COVID-19 pandemic, and customers reported wide-ranging wait times to purchase or lease an EV. However, dealership staff also generally reported that customer interest in EVs remains strong and anticipate that interest in EV and plug-in hybrid vehicles (PHEVs) will continue to grow in coming years and that supply chain issues are likely to resolve in the relatively near future.
  - **Consideration:** While unforeseen inventory shortages have presented a challenge for initial TEP roll-out and achievement of early enrollment targets, market signals suggest that EV adoption, and by extension, future program participation is likely to increase considerably moving forward.
- **Key Finding: Vehicle range and access to public and multifamily charging remain key EV adoption concerns for IQ customers and non-IQ customers alike.** Lack of charging infrastructure continues to pose a barrier for EV adoption and an ongoing challenge to EV ownership, especially for renters and customers living in multifamily residences. These customers typically have fewer direct or realistic options for installing EV chargers at their home, and often cite challenges around obtaining landlord support for Level 2 charger installations. Non-IQ participants pointed to vehicle range and battery capacity as their leading concern around initial EV adoption, and a majority of IQ participants suggested that installing more public chargers could help not only ease range anxiety for prospective EV owners, but also improve existing EV owners' access to charging.
  - **Recommendation:** Xcel Energy should continue to scale EV Supply Infrastructure (EVSI) efforts that support EV charging in multifamily buildings and High Emissions Communities in the 2024–2026 TEP.
  - **Recommendation:** Xcel Energy should continue exploring options for improving access to low-cost public charging, particularly for IQ EV drivers, either by providing support to qualified customers to help cover the costs of public charging or by broadly pursuing installation of public charging with affordable rates for all customers.

- **Key Finding: Upfront cost remains a primary barrier to EV adoption, particularly among IQ customers.** While availability of more affordable EV models has increased in recent years, upfront cost remains a leading barrier to IQ customers purchasing an EV, and the second most common concern among non-IQ customers. Dealership staff also noted they rarely engage with IQ customers actively seeking a new EV or PHEV primarily given the relatively high upfront cost of these vehicles, and IQ customers often expressed confusion around eligibility for tax credits and Xcel Energy offerings, particularly whether they could be combined or applied to used vehicles.
  - **Recommendation:** Xcel should continue to offer point of sale (POS) vehicle and home charging incentives with a focus on reaching IQ customers. Xcel Energy and could consider offering customers additional assistance navigating stacking of incentives available from Xcel Energy and tax credits available from federal and state sources.
- **Key Finding: EV drivers and dealership staff in Xcel Energy territory would benefit from additional marketing, education, and outreach regarding Xcel Energy's EV offerings.** Participating customers most often learned about Xcel Energy EV-related offerings from the Xcel Energy website and generally expressed openness to learning about future offerings via email or digital advertising. Specifically, participant feedback points to financial and environmental factors as leading motivations for EV adoption and managed charging participation. Dealership staff from network member dealerships consistently acknowledged receipt of training or marketing materials from Xcel Energy, but suggested they would benefit from additional resources, particularly around available program offerings.
  - **Recommendation:** Consider developing a strategic marketing plan to align marketing efforts designed to promote EV adoption, Level 2 charger access, and managed charging enrollment with key stages of the car-buying journey and with customer communication preferences. Consideration of the following factors can help to maximize customer benefits and future program enrollment:
    - Marketing Channels: Future marketing should prioritize broad email outreach and digital advertising to align with customer communication preferences and maximize reach to prospective EV drivers. Digital advertising could target popular online resources for car shopping and research, in addition to more generalized search engine or social media-based advertising.
    - Marketing Messaging: Marketing and outreach efforts should highlight financial and environmental benefits to align with leading motivations among Xcel Energy customers when considering whether to purchase an EV or participate in managed charging programs.
    - Informational Tools: Consider expanding upon and promoting existing tools to help prospective EV buyers realize the financial benefits of adopting EVs and participating in Xcel Energy rebate programs or managed charging offerings. Xcel Energy could consider enhancing their existing EV cost calculator tool by including income-based rebate parameters and providing total cost of ownership and projected fuel savings, as well as information about the financial benefits of managed charging and EV rate options. Other utilities have had success channeling EV owners to managed charging offerings through EV cost calculator tools, and Xcel Energy could consider featuring their tool more prominently on the Xcel Energy website and promoting it though marketing efforts. Providing links to PlugShare and other third-party sources that allow customers to review available public charging options could also help to address range anxiety.[2]

[2] Recargo, Inc. PlugShare. Last modified March 31, 2023. https://www.plugshare.com/

  - Managed Charging Public Awareness: Marketing managed charging offerings and their benefits to prospective buyers can help (1) prime future buyers to enroll in managed charging programs; (2) educate customers about financial, grid reliability, community, and environmental benefits associated with managed charging; and (3) address customer concerns regarding costs to participate or risk of their car not being fully charged when needed.
  - Managed Charging Marketing at Point of Sale: Integrating managed charging information with EV promotions and content during the EV or charger shopping phase can help identify and attract qualifying customers and is generally more cost-effective than efforts to later identify and reach EV drivers. Xcel Energy could consider engaging dealership staff around managed charging offerings and providing them with training or informational materials to relay to EV shoppers. Partnering with marketplace vendors to offer POS EV charger rebates and managed charging enrollment options has also proven to be an effective strategy for encouraging managed charging program enrollment.
  - Managed Charging Education After Engagement: New EV owners navigate a steep technology learning curve. Managed charging program design best practices suggest that Xcel Energy should provide more detailed information about managed charging offerings and associated technical context to customers after they have expressed interest in participating.

- **Key Finding: OYC participants are consistently charging off-peak, and while they don't consistently attribute their charging behavior to the program, the OYC offering and other Xcel Energy managed charging programs present a valuable opportunity to encourage strategic load shifting.** The OYC offering has effectively encouraged many customers to schedule overnight charging, and 90% of participants report mostly charging during their selected window despite the small incentive and minimal participation requirements. However, only a handful of IQ and around half of non-IQ OYC participants felt the program directly influenced their charging behaviors, and some participants indicated they forgot that they were enrolled or expressed dissatisfaction with the relatively small $50 annual incentive.
  - Recommendation: Xcel Energy should strategically examine the role of the OYC offering alongside those of others, such as Charging Perks and EV TOU rates, in encouraging EV charging behavior that optimizes grid operation. The type of sharp 9:00 p.m. spikes in demand or "timer peaks" exhibited in the charging patterns of OYC program participants could pose risks for the utility distribution system as EV penetration increases. Xcel Energy is currently in the process of developing tools to disaggregate EV load from AMI data, which could be used to segment EV drivers based on their charging patterns and channel customers into managed charging programs based on existing load shapes. Using this approach, OYC would be a good fit for EV drivers that regularly charge on-peak, while Charging Perks could be a better option for EV owners with a broad range of charging patterns, enabling Xcel Energy to address dynamic grid needs.
  - Consideration: Xcel Energy could consider increasing the OYC incentive amount and/or delivery frequency to improve overall customer satisfaction.
- **Key Finding: Feedback from dealership staff and EV rebate recipients suggests the vehicle rebates are having a limited influence on IQ customers' EV purchase decisions.** Dealership staff reported that many participants would have purchased an EV regardless of the program or only learned about the program after deciding to purchase or lease an EV. Dealership staff also acknowledged that they are hesitant to advertise the offering at the risk of over-promising to potentially unqualified customers.
  - **Recommendation**: In addition to broadly marketing towards potentially qualified customers earlier in the purchasing process, as suggested above, Xcel Energy staff could also continue to explore options for pre-qualifying customers, which could encourage dealerships to more effectively promote the offering to customers.

3. METHODS

Opinion Dynamics scoped a series of research activities with residential customers based on conversations with Xcel Energy portfolio directors and regulatory staff to cover all residential portfolio offerings (EV rebate, Charger and Wiring rebate, EVAAH, and OYC). We conducted three separate research efforts with mutually exclusive groups of customers and market actors to gather feedback regarding current Xcel Energy offerings, explore potential for managed charging engagement, and better understand opportunities to better serve EV owners in the future. Research activities included a web survey of non-IQ participants, IQ participant interviews, and dealership staff interviews.

3.1 NON-IQ PARTICIPANT SURVEY

Opinion Dynamics fielded a web survey of 262 Xcel Energy EV offering participants. The survey sample consisted of Xcel Energy residential customers who participated in at least one EV-related offering between August 2021 and October 2022, based on available Xcel Energy program-tracking data. We excluded IQ participants from the survey sample to ensure adequate sample availability for separately fielded IQ interviews. We conducted a census attempt of 953 households. The survey was fielded online in January 2023, and no incentive was provided. The participant survey addressed the following research questions:

- How do customers learn about Xcel Energy's EV charging and vehicle rebate offerings?
- How do customers choose which offering(s) to apply for, and how do these preferences vary across customer segments?
- Are customers satisfied with the programs, the participation process, and the charging optimization options available?
- How can managed charging offerings be designed to most benefit and satisfy EV owners?
- What factors are driving customers' purchase decisions? How can the 2024–2026 TEP focus its marketing and incentive structure to target these factors?
- Are customers able to access the financing needed for their purchase?

3.2 IQ PARTICIPANT INTERVIEWS

Opinion Dynamics conducted in-depth interviews with 16 Xcel Energy IQ residential customers who participated in at least one EV-related offering between August 2021 and October 2022, based on Xcel Energy's program-tracking data. The sample frame consisted of 116 IQ participants. We fielded interviews in February 2023, recruiting customers via email and phone. Interviews typically lasted 30 to 45 minutes, and we offered a $25 gift card to each interviewee. The IQ participant interviews addressed the following research questions:

- What factors drove IQ customers' purchase decisions and how can the 2024–2026 TEP focus its marketing and incentive structure to target these factors?
- Are IQ customers able to access the financing needed for their purchase?
- What opportunities exist to improve IQ customers' program participation experience and access to EV charging and vehicles?

3.3 DEALERSHIP STAFF INTERVIEWS

Dealership staff are an important source of feedback and market insight. Because they interface directly with customers throughout their decision-making process, dealership staff provide a unique perspective on customer attitudes and behaviors extending beyond those who already participate in Xcel Energy's EV-related offerings. We conducted interviews with staff from 13 dealerships in Xcel Energy's service territory, including 7 dealership network members and 6 non-network members. The sample for this effort included a total of 52 contacts (17 from Xcel Energy dealership network members and 35 from non-member dealerships).[3] Contacts included general managers, sales managers, sales representatives, marketing directors, and owners. We fielded interviews between December 2022 and March 2023, recruiting customers via email and phone. Interviews typically lasted 20 to 30 minutes, and we offered a $50 gift card to each interviewee. These interviews addressed the following research questions:

- What portion of current inventory is comprised of EVs? How is this expected to change in the next one to five years?
- How have supply chain issues impacted EV availability and what are their anticipated effects in the near future?
- How has interest in EVs evolved in recent years and how is it anticipated to change in the near future?
- What factors are driving income-qualified customers' purchase decisions? Are the rebates reducing the upfront cost barrier and are customers able to access the financing needed for their purchase?
- Are the incentive levels appropriate to motivate adoption of EVs among income-qualified customers?
- What types of program support have dealerships received and what else, if anything, can Xcel Energy do to help dealership staff promote EV adoption? How can future program designs or services maximize EV adoption, particularly among income-qualified customers?

4. DETAILED RESULTS

The following sections provide detailed results from each of the three research activities: a web survey of non-IQ participants, IQ participant interviews, and dealership staff interviews.

4.1 NON-IQ PARTICIPANT SURVEY

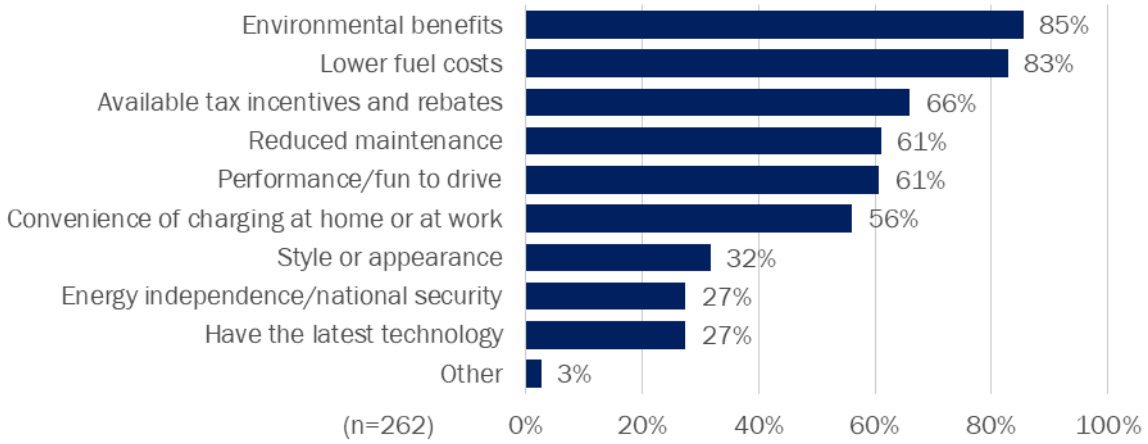
Opinion Dynamics fielded a web survey with 262 non-IQ residential customers who participated in Xcel Energy EV-related offerings. More than three-quarters of respondents (79%) participated in either the charger and wiring rebate (67%) or EVAAH (55%) offerings, and almost half (47%) were enrolled in the OYC offering. The vast majority (89%) of respondents drove a battery electric vehicle (BEV), and 16% drove a PHEV.[4] Less than half (43%) of respondents also drove a gasoline-powered vehicle (37%) or non-plug-in hybrid vehicle (6%). Nearly all respondents (98%) reported primarily using a Smart Level 2 charger when charging at home.

[3] These 52 contacts represented 45 individual dealerships.
[4] A small number of respondents (5%) owned or leased both a BEV and PHEV.

EV ADOPTION

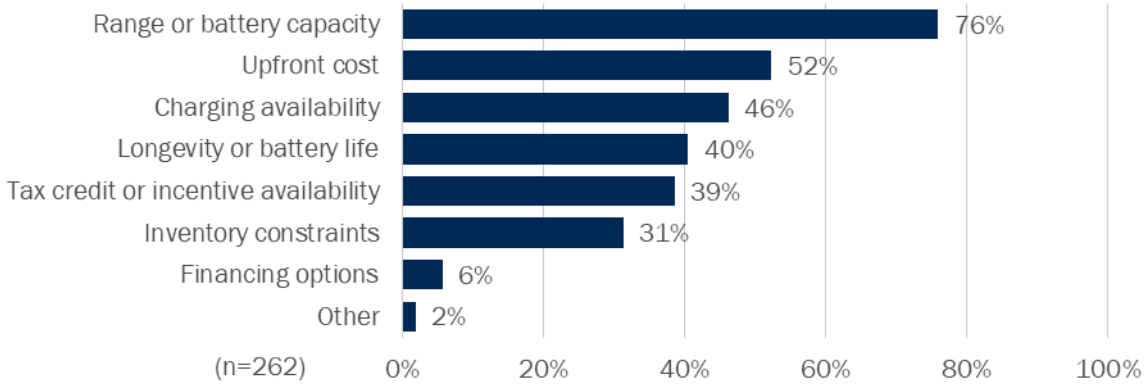
Survey respondents frequently cited environmental benefits (85%) and lower fuel costs (83%) as primary motivations for purchasing or leasing an EV. Other common motivations included available tax incentives and rebates (66%), reduced maintenance (61%), and vehicle performance (61%). These factors may be especially valuable to include in future marketing efforts designed to encourage EV adoption and are well-aligned with findings from research with EV drivers in other jurisdictions. Figure 1 provides the full range of reasons customers provided for adopting EVs.

Figure 1: Non-IQ Participant Motivations of EV Adoption



Battery capacity or limited range emerged as the leading concern among respondents when first deciding whether to purchase or lease an EV, identified by 76% of respondents. Around half of respondents also cited upfront cost (52%) or charger availability (46%) as a primary concern. Figure 2 provides a more complete list of concerns cited around EV adoption.

Figure 2: Non-IQ Participant Concerns Regarding EV Adoption



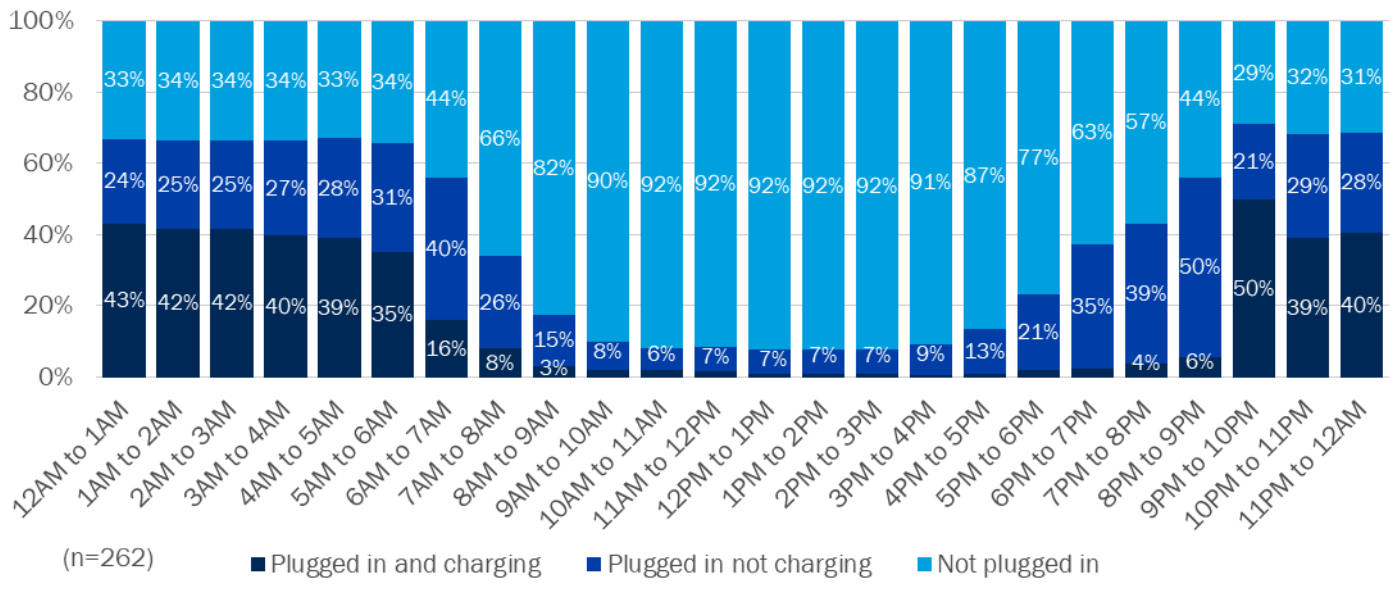
Lack of immediate inventory also represents a likely barrier to EV adoption in recent years—most respondents (70%) had to join a waitlist when purchasing their EV, though most of them (60%) received their vehicle within six months. We also asked customers whether the availability of special low-interest financing would have impacted their decision when purchasing or leasing an EV. Although a majority (64%) of respondents suggested it would not have influenced their decision, 29% indicated they would have purchased an EV sooner if low-interest financing had been available. The remaining 7% of respondents suggested they would have purchased instead of leased or would have considered a more expensive EV.

DRIVING AND CHARGING BEHAVIOR

Non-IQ participants report that their EV accounts for the vast majority of their household's driving and that the vast majority of EV charging occurs at home. A large majority (86%) of respondents indicated their EV typically accounted for more than half of their household's weekly driving, and a similar number (85%) reported charging their EV at home at least 80% of the time. During a typical week, 31% of respondents also charge at public charging stations, and 12% charge at work. These findings align with the general industry understanding that 80% of charging occurs at home, though this may change over time as EV adoption expands to renters and other populations that are more reliant on workplace and public charging.

The vast majority of non-IQ participants (91%) regularly set schedules on their Level 2 chargers, and most suggested that while they often plug in their car in the early evening, nearly all of their active charging occurs after 9:00 p.m. These typical charging times reported by survey respondents are well-aligned with Opinion Dynamics' analysis of hourly load curves for OYC participants, which similarly identified a sharp ramp-up in charging beginning at 9:00 p.m. As such, EV charging is effectively occurring off-peak among these participants, but the concentration of charging around 9:00 p.m. could present a challenge for the distribution system if participation in OYC scales and participants continue to begin charging at the same time in the same locations. Future managed charging offerings could help to distribute charging across more distinct overnight windows. Figure 3 illustrates self-reported typical charging times among survey respondents.

Figure 3: Non-IQ Participant EV Charging Times

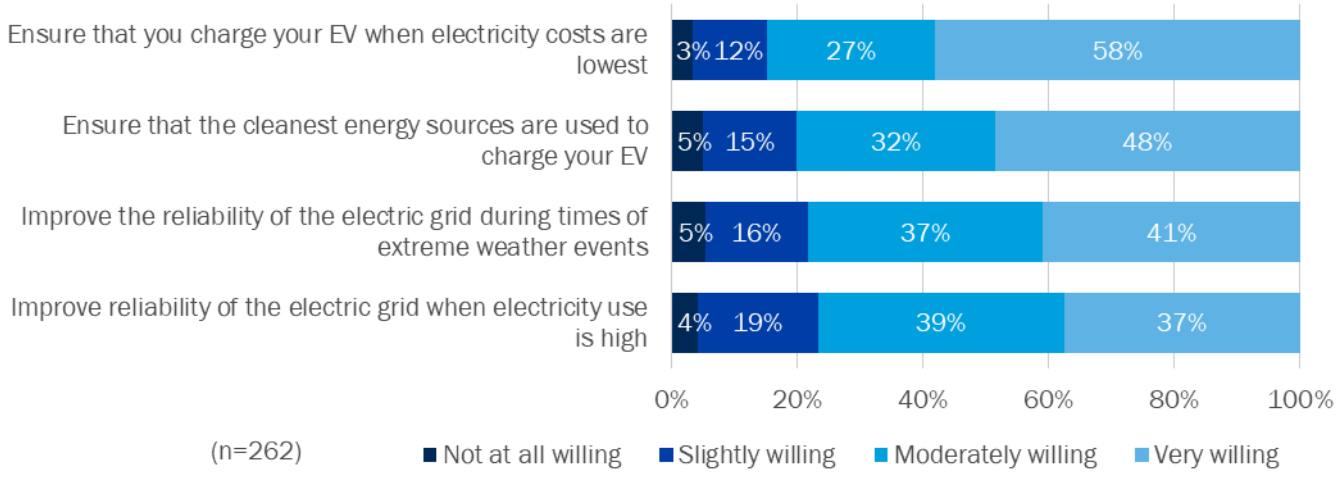


Among those enrolled in the OYC offering, customers overwhelmingly reported adhering to their selected charging window most of the time, yet nearly half stated they would expect to charge at the same time regardless of their participation in the program. The vast majority (90%) indicated they charge during their selected window at least 75% of the time, and OYC participants were somewhat more likely to report actively charging their EVs during overnight hours than non-participants. Among these participants, 48% reported they would continue to charge during the same times regardless of the OYC offering, while about one-third (34%) would charge slightly less, and a smaller portion (18%) would charge substantially less or not at all during their selected window. Nearly two-thirds (64%) of OYC participants expected they could realistically charge at least slightly more often during their selected window if additional incentives were made available. These findings point to potential future opportunities to build off the existing OYC offering or channel customers into other managed charging offerings to encourage charging during more specific time windows.

FUTURE MANAGED CHARGING OFFERINGS

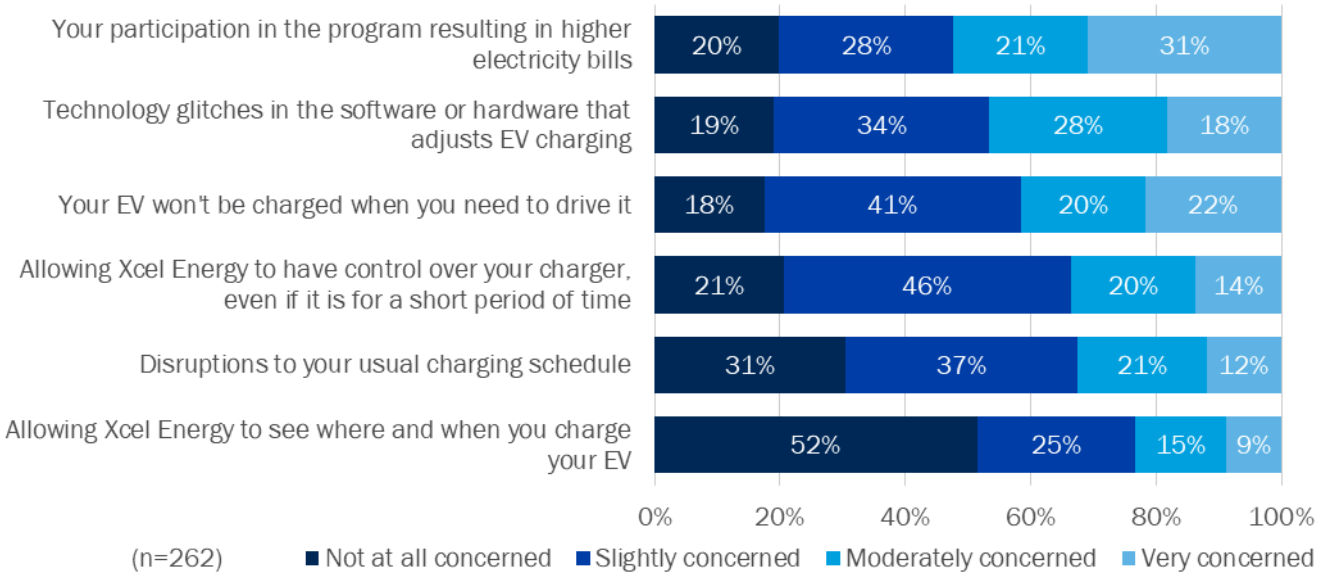
Non-IQ participants pointed to minimizing energy costs as a primary motivation for participating in future EV managed charging offerings, followed closely by environmental and grid resilience benefits. We asked EV drivers about their willingness to participate in managed charging offerings where specific benefits were expected and found that while the vast majority were willing to participating regardless of the specific benefit, the strongest motivators included minimizing electricity costs, ensuring clean energy sources are used to charge their EV, and improving grid reliability. These results are in line with those from most other jurisdictions where financial benefits tend to be the leading motivation. Figure 4 provides non-IQ participant willingness to participate in managed charging programs based on the specific benefit expected.

Figure 4: Non-IQ Participant Motivations for Managed Charging Participation



Non-IQ participants often expressed some concern around participation in managed charging programs resulting in higher electricity bills, technology glitches, or their EV not being charged when needed. As with the benefits presented above, financial concerns were the most commonly cited concern (52% at least moderately concerned) followed closely by potential technology glitches (46% at least moderately concerned), and potential for EVs to not be charged when needed (42% least moderately concerned). Marketing efforts for future managed charging offerings can therefore address these concerns directly, emphasizing the no-cost nature of these offerings to help minimize customer resistance to participate. Figure 5 provides non-IQ participant concerns regarding managed charging participation.

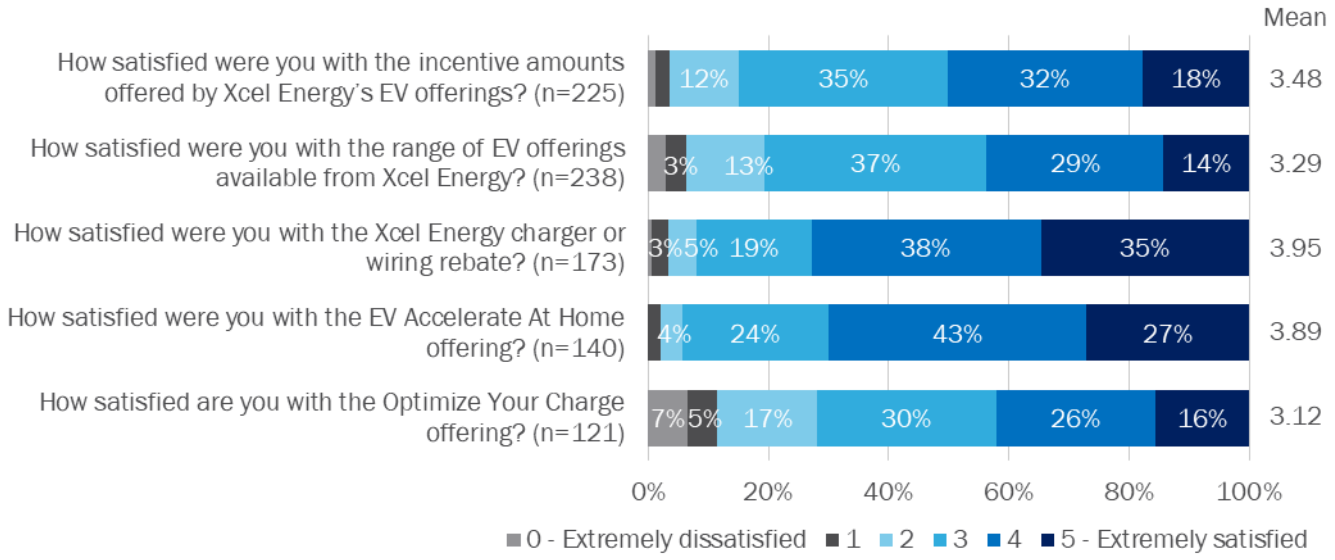
Figure 5: Non-IQ Participant Managed Charging-Related Concerns



PROGRAM SATISFACTION

Non-IQ participants expressed relatively high satisfaction with Xcel Energy's EV-related offerings, particularly with the charger and wiring rebates and EVAAH offering. We asked respondents to rate their satisfaction with the incentive amounts offered, the range of offerings available, and with each of the programs in which they participated. Among the small number of respondents who expressed dissatisfaction, the most common reasons included small incentives for the OYC offering, or high upfront costs associated with purchasing a Level 2 charger (among those not enrolled in the EVAAH offering). Future managed charging offerings may benefit from increasing the size or frequency of incentives, and Xcel Energy staff might consider higher charger rebates or additional emphasis of EVAAH availability to those considering a charger rebate. Figure 6 illustrates satisfaction ratings provided by non-IQ participants.

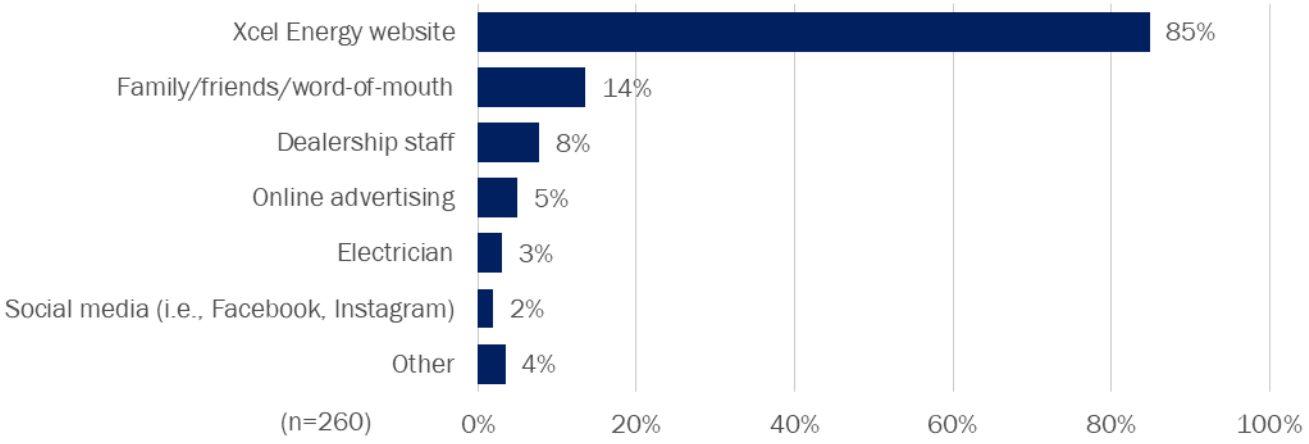
Figure 6: Non-IQ Participant Satisfaction



PROGRAM AWARENESS AND ENROLLMENT MOTIVATIONS

The overwhelming majority (85%) of non-IQ participants learned about Xcel Energy EV-related offerings from the Xcel Energy website. A smaller number of participants (14%) learned from family or friends or from dealership staff (8%). Figure 7 provides the most commonly cited sources of program awareness.

Figure 7: Non-IQ Participant Sources of Program Awareness



Most of those enrolled in the EVAAH offering said they preferred to avoid the upfront costs (74%) or the hassle of installation and maintenance (62%) associated with purchasing their own Level 2 charger. Only 5% indicated they were not aware of available Xcel Energy charger rebates. Among those who opted to purchase a Level 2 charger and receive a rebate, nearly two-thirds (64%) suggested they preferred to handle their own installation and maintenance, and 17% were unaware of the EVAAH offering.

4.2 IQ PARTICIPANT INTERVIEWS

Our evaluation team conducted in-depth interviews with 16 IQ participants, all of whom participated in at least one of Xcel Energy's EV-related offerings. Nine contacts represented EV-only households, while the other seven owned at least one EV and one non-EV. Half of all participants were first-time EV owners. Table 1 summarizes program participation and vehicle types among interviewees.

Table 1: Offerings Utilized and Vehicle Types by Participants

Description	Count of Participants (n=16)
Utilized EV Offerings	
EV Rebate	11
Charger/Wiring Rebate	9
EVAAH	5
OYC [a]	9
Vehicle Type	
Battery Electric Vehicle (BEV)	13
Plug-in Hybrid Vehicle (PHEV)	3

[a] Seven more participants than listed in the program tracking data mentioned they were enrolled in the OYC program.

EV PURCHASE DECISIONS

Most IQ participants purchased or leased a new EV (11 of 16); the remaining participants purchased a used EV (5 of 16). Participants most commonly purchased a Chevy Bolt or Nissan Leaf, likely due to their relative affordability. Table 2 below provides EV brands and models driven by interviewees.

Table 2: Vehicle and Purchase Descriptions

Vehicle Brand and Model	Purchased	Leased
Chevy Bolt (n=4)	4	0
Nissan Leaf (n=3)	3	0
Kia Niro (n=2)	0	2
Hyundai Ionic 5 (n=2)	2	0
Volkswagen ID4 (n=1)	0	1
Tesla (n=1)	1	0
Volvo C-40 (n=1)	1	0
Toyota Rav4 Prime (n=1)	1	0
Hyundai Santa Fe (n=1)	1	0
Total	**13**	**3**

A majority of IQ participants cited high gasoline prices as a primary motivator for purchasing or leasing an EV (11 of 16). By making the switch to an EV, participants were able to circumvent high prices at the pump and utilize electricity at home or at public chargers as a cheaper alternative. There were several other factors that motivated participants to purchase an EV, including the following:

- A desire to promote environmental well-being and reduce their carbon footprint (7 of 16)
- Ability to utilize tax incentives and EV rebates to reduce vehicle cost (4 of 16)
- Wanting to try something new (3 of 16)
- A positive experience overall with a previous EV (1 of 16)

"The gas prices started to get insane… but basically, inconsistent and unreliable gas prices that just kept going up is the main reason I purchased an EV."

IQ participants' most prevalent concerns about purchasing an EV included vehicle range (11 of 16) and availability of public charging stations (6 of 16). However, participants acknowledged that their range and charging concerns rapidly faded once they better understood their EV and developed a consistent charging routine. Some participants also mentioned concern with the general affordability of EVs and steeper upfront costs (5 of 16) compared to a gas-powered vehicle. Participants were generally unsure of what Xcel Energy could do themselves to alleviate these financial concerns. Some mentioned that lower-interest financing may have helped alleviate their vehicles' overall cost burden and impacted their ultimate purchase decision (5 of 16).

Most participants did not identify any particular challenges with their EV. Among those who did, some mentioned occasional difficulty finding public chargers (4 of 16) or experiencing reduced range because of cold weather (5 of 16). One participant mentioned they decided to trade in their EV and revert to a gas-powered vehicle to alleviate their range anxiety with the persistent lack of chargers along Interstate 70 in Colorado.

PROGRAM AND TAX CREDIT AWARENESS

IQ participants most frequently learned about Xcel Energy's EV offerings through general internet research or by checking Xcel Energy's website directly (12 of 16). Other participants learned about the offerings from an insert on their bill, social media post, or EV-specific newsletter. While many IQ participants displayed a general willingness to put in the time needed to search for EV incentives and rebate offerings, most would prefer to hear about future Xcel Energy EV offerings via email (8 of 16) or some form of digital marketing like social media or online advertisements (4 of 16).

Almost as many IQ participants learned about Xcel Energy's EV offerings after purchasing or leasing their vehicle as learned about them before their purchase. Of those who could recall (n=12), seven participants remembered learning about the offerings *before* the purchase of their EV, while five became aware of them *after* the purchase. Conversely, a majority of participants were already aware of state and federal tax credits before the purchase or lease of their EVs (11 of 16).

VEHICLE FINANCING

IQ participants utilized auxiliary rebates and credits in a few different ways to purchase or lease their EVs. Several IQ participants used a combination of Xcel Energy's EV rebate and tax credits (7 of 16) or Xcel Energy's EV rebate alone (4 of 16) to offset a portion of their vehicle's cost. Two participants said they received state and federal tax credits but were under the impression they could not combine Colorado's state tax credit with Xcel Energy's EV rebate. Two other participants did not utilize tax credits or Xcel Energy's EV rebate at all—these customers purchased used vehicles for approximately $20,000 - $29,000 via private sales, and although they had some general awareness of the existence of EV tax credits, they were unaware that Xcel Energy offered rebates for used vehicles or that their purchases were eligible for EV tax credits.

IQ participants who took advantage of Xcel Energy's EV rebate (n=11) differed on how much they felt the rebate impacted their decision to purchase or lease an EV. Five participants said the rebate was a significant factor in their decision to purchase or lease an EV, whereas the remaining six felt it had little to no impact on their decision. These customers typically cited one of two reasons: (1) they did not learn about the rebate until *after* they already purchased the vehicle, or (2) they felt compelled enough to purchase their EV by utilizing state and federal tax credits alone.

IQ participants who were interested in financing their EV purchase were generally able to do so. 11 of 16 participants financed their EVs through various channels including a credit union (5 of 11), their dealership (4 of 11), or a bank (2 of 11). Of the five participants who did not finance their vehicles, three of them leased their EVs and two bought their vehicles outright.

CHARGING PREFERENCES AND BEHAVIORS

IQ participants reported they mostly charge their EVs at home (12 of 16) and have either a Level 2 Charger (10 of 16) or a Level 1 Charger (6 of 16). Of the 10 participants with Level 2 chargers, eight had smart chargers installed. Neither of the participants with non-networked Level 2 chargers were interested in upgrading to a smart charger; one owned a PHEV and felt there was no need for a faster charger, while the other was "completely content with [their] current charger."

Of the six IQ participants who used a Level 1 charger at home, four of them were renters who said installing a Level 2 charger was not possible given a lack of buy-in from their landlords. One participating renter said only having access to a Level 1 charger at home was the main reason they mostly charge their vehicle at work where they can use Level 2 chargers for free. Another participant felt they did not need anything more than a Level 1 charger since they work from

home and do not travel often. An additional participant said they recently purchased a home and were planning on having a Level 2 smart charger installed in the coming months but were limited to a Level 1 charger until then.

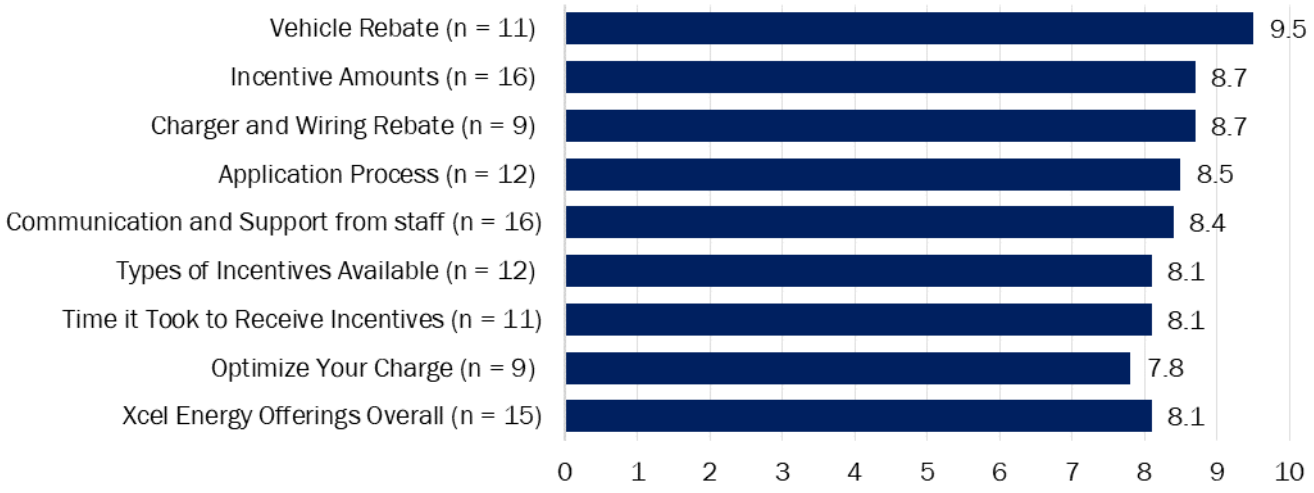
When charging at home, IQ participants report typically charging during the overnight hours (13 of 16), some more consistently than others. Reasons for charging at night included (1) to ensure the vehicle is at full charge the next day, (2) the convenience of charging during a long stretch of time when the car is not in use, (3) to take advantage of off-peak pricing, and (4) to conform to the charging hours set by the OYC program. Of the participants who charged overnight, most said they charge almost every night of the week (8 of 13) while others said they charge a few nights (4 of 13) or just one night (1 of 13) out of the week. Three participants said they mostly charge during the day; one mentioned they work from home and charge their car for about eight hours almost every day, and the other two said they charge during the day a few days out of the week, ranging anywhere from an hour to several hours.

PROGRAM SATISFACTION

IQ participants generally expressed high levels of satisfaction with Xcel Energy's EV offerings and their delivery. Participants were asked a series of satisfaction questions and prompted to give a rating on a 0 to 10 scale, with 0 being "not at all satisfied" and 10 being "extremely satisfied."[5] Figure 8 highlights average satisfaction across Xcel Energy's offerings. Participants were generally satisfied overall (average rating of 8.1). Participants were most satisfied with the EV rebate and charger and wiring rebates providing average ratings of 9.5 and 8.7, respectively. Participants were also very satisfied with the incentive amounts across all offerings (average rating of 8.7). Participants reported slightly lower satisfaction with the OYC program, with some noting they forgot they were enrolled in the program or would prefer a higher incentive. Figure 8 illustrates mean satisfaction ratings provided by IQ participants.

"When I found the Xcel Energy offerings, it was like something sent from Heaven. I never would've anticipated it. It was an incredible surprise."

Figure 8: IQ Participant Satisfaction with Key Program Elements



[5] Please note that not all participants were asked every question or responded to every question, either because some questions did not apply or the participant could not recall their experience with a specific aspect of the program.

4.3 DEALERSHIP STAFF INTERVIEWS

We conducted 13 in-depth interviews with staff at both network member (n=7) and non-network member (n=6) dealerships. For network member dealerships, we reached representatives from both Gold and Silver tiers. For non-member dealerships, we contacted a mix of urban and rural locations representing a range of automakers. Nearly all dealerships sold both internal combustion engine (ICE) vehicles and BEVs, while fewer than half (5 of 13) sold hybrid vehicles or PHEVs. Table 3 summarizes the types of cars that each interviewed dealership sells.

Table 3. Types of Vehicles Available by Dealership

Network Membership	Manufacturer Type	ICE	BEV	PHEV	Hybrid
Gold Member	Non-Luxury	✓	✓	✓	✓
Silver Member	Non-Luxury	✓	×	✓	✓
Gold Member	Luxury	✓	✓	✓	✓
Gold Member	Luxury	×	✓	×	×
Gold Member	Non-Luxury	✓	✓	×	×
Gold Member	Non-Luxury	✓	✓	×	×
Gold Member	Pre-Owned	✓	✓	✓	✓
Non-Member	Non-Luxury	✓	✓	×	×
Non-Member	Non-Luxury	✓	✓	×	×
Non-Member	Non-Luxury	✓	✓	✓	✓
Non-Member	Non-Luxury	✓	✓	×	×
Non-Member	Luxury, Non-Luxury	✓	✓	✓	✓
Non-Member	Non-Luxury	✓	✓	×	×

MARKET TRENDS

DEALERSHIP INVENTORY AND STOCKING PRACTICES

The vast majority of member and non-member dealership representatives noted they had very limited EV stock and primarily sold EV vehicles as pre-orders. Nine of the eleven contacts willing to discuss inventory availability indicated that 5% or less of their stock was typically comprised of EVs. All but one contact attributed limited availability to both EV manufacturing limitations and high customer demand. One representative for a pre-owned dealership that specializes in EVs and hybrid vehicles reported maintaining an inventory with about 50% EVs. Inventory availability was not necessarily indicative of EV sales; EVs made up between 10% and 40% of sales for 9 of 10 dealerships. Most representatives noted that EVs would comprise a larger portion of their sales in the absence of long wait times and limited availability.

Most dealership contacts (10 of 13) reported that diminished overall vehicle sales and leases have presented a challenge since the COVID-19 pandemic but are beginning to resolve. Contacts generally reported that overall sales have started to increase again, and interest in EVs continues to grow, stating increases in both tax incentives and customer interest, along with high gas prices, have helped encourage customers to purchase EVs and PHEVs over ICE vehicles.

Dealership staff reported widely varying wait times for new EVs ranging from two days to up to two years for certain models. Half (6 of 12) of the dealership representatives we spoke with suggested recent wait times for new EVs are typically three months or less. However, nearly as many contacts (5 of 12) indicated wait times were typically more than six months. Several contacts (4 of 12) also noted that while wait times were typically lower, they sometimes extended up to two years depending on the model. Representatives commonly attributed wait times to limited manufacturing paired with increasing customer demand.

Almost all dealership contacts reported that they expect interest in and sales of EVs to increase over the next three years (12 of 13). Additionally, these contacts suggested EV manufacturing would increase over the next three years to better align with customer demand and decrease wait times. The pre-owned dealership representative also suggested they expected sales to increase over the next few years.

CUSTOMER INTEREST & PURCHASE DECISIONS

Dealership representatives suggested gas prices were the primary motivating factor for customers to purchase EVs (9 of 13), in line with participant feedback pointing to the prevalence of financial motivations. Dealership representatives often noted increased interest in EVs when gas prices increase. Other dealership representatives mentioned that customers were generally becoming more comfortable with EV technology (4 of 13), reassured by increased availability of charging infrastructure (3 of 13), and desired to be more eco-friendly (3 of 13). Two dealership contacts also mentioned reduced maintenance costs and tax credit or rebate availability. One dealership representative mentioned the following about customer interest in EVs:

> "[Over my ten-year career] I've definitely been asked more EV questions in the last six, seven months, than I have any time leading up to this. So, the interest has definitely peaked."

Most dealership contacts pointed to the lack of charging infrastructure (11 of 13) and range limitations (8 of 13) as the main customer concerns when considering an EV. Other less commonly cited customer concerns included upfront cost (3 mentions), the cost of replacing the battery on an EV (2 mentions), and ambiguity around what qualifies for the new tax incentives (2 mentions).

Among IQ customers specifically, most dealership representatives felt that upfront cost is the primary barrier preventing purchases of EVs (9 of 12).[6] These dealership representatives mentioned they rarely see an IQ customer looking to purchase an EV due to the upfront cost. Other factors that dealership contacts mentioned included lack of charging infrastructure (2 mentions) and convenience of charging (1 mention) as concerns for IQ customers.

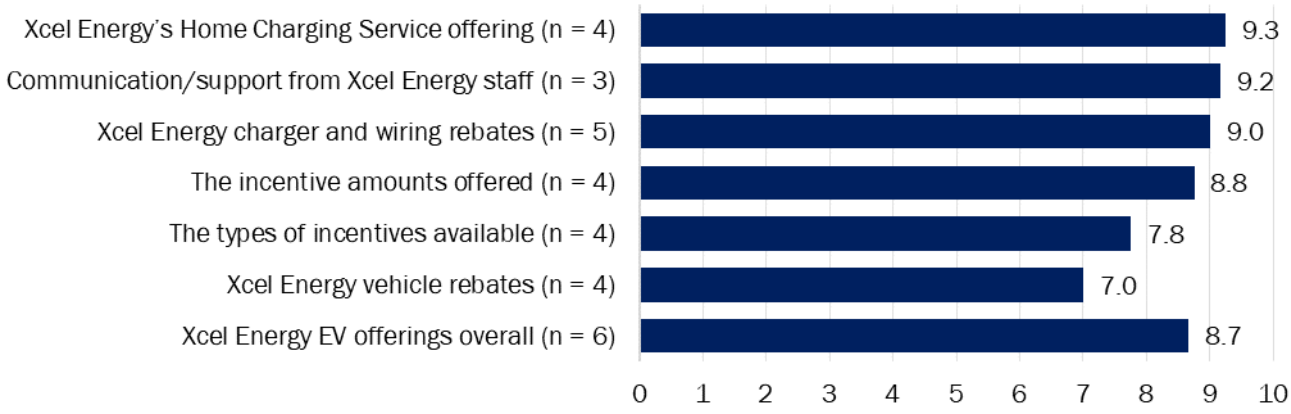
Most dealership representatives (7 of 12) bring up tax incentives when presenting vehicle options to customers at the start of the sales conversation, but most (8 of 12) do not bring up Xcel Energy EV rebates until later in the process. Dealership contacts often mentioned that they use tax incentives as a sales tactic, but most are hesitant to advertise the Xcel Energy vehicle rebates at the risk of over-promising to potentially unqualified customers.

[6] One dealership representative did not respond to this question.

NETWORK MEMBER DEALERSHIP STAFF SATISFACTION WITH XCEL ENERGY ENGAGEMENT & OFFERINGS

Overall, network member dealership staff expressed high satisfaction with Xcel Energy EV offerings and engagement, particularly with the EVAAH offering and support from Xcel Energy staff. On a scale from 0 to 10 with 0 being "not at all satisfied" and 10 being "extremely satisfied," Xcel Energy network member dealership contacts provided a mean rating of 8.7 for Xcel Energy EV offerings overall. Xcel Energy interviewees rated the Home Charging Service (9.3) and communication and support from Xcel Energy staff (9.2) highest among all key program elements. These contacts often noted they felt supported by Xcel Energy staff and that the level of communication was appropriate, and all contacts acknowledged it was easy to get in touch with Xcel Energy contacts when needed. Figure 9 illustrates mean satisfaction ratings provided by network member dealership staff.

Figure 9: Network Member Dealership Staff Satisfaction with Key Program Elements



All network member dealership representatives confirmed receipt of marketing materials from Xcel Energy regarding their EV-related offerings (7 mentions). A few mentioned that additional materials, particularly online resources, with information about these program offerings would be helpful (3 mentions). Two dealership representatives noted the particular value of the co-op marketing program, with one contact emphasizing its flexibility as follows:

> "I can't run an ad and mention any of our other brands, and yet, with this particular bucket of money and resources that Xcel Energy gives us as part of their partnership program, we were able to run one-minute spots where we kind of told a story about EV and the journey and we're the place to come and that's something we could have never done before."

Most network member dealership representatives indicated the program was running smoothly and did not express any concerns regarding customers accessing Xcel Energy offerings (4 of 7). Despite broadly expressing satisfaction with the programs, four representatives also offered the following recommendations to enhance Xcel Energy's EV offerings:

- Additional education and training for sales staff and customer education (2 mentions)
- Sponsor a membership with ChargePoint or another charging service for customers who do not have the ability to install charging in their homes (i.e., rentals, multifamily buildings) (1 mention)
- Offer rebates for electric motorcycles (1 mention)
- Remove the income qualification for incentives (1 mention)

NON-NETWORK MEMBER DEALERSHIP FAMILIARITY WITH XCEL ENERGY OFFERINGS

Half of non-network member dealership representatives were aware of Xcel Energy's offerings and directed their customers to the rebate program (3 of 6), but all were interested in participating in the Xcel Energy dealership network and in making rebate offerings available to their customers. Non-member dealership representatives who were aware of Xcel Energy offerings were aware of both the vehicle rebates and EVAAH. However, two of the three dealership representatives indicated they primarily promoted the vehicle rebate programs while the third dealership representative was looking to promote the EVAAH program.

Non-network member dealerships offered the following recommendations to improve Xcel Energy's future offerings:

- Work with multifamily buildings to install additional EV charging stations (1 mention)
- Increase customer education and outreach and provide physical marketing materials to dealerships (1 mention)
- Discounts for off-peak charging times (1 mention)