Business & Technology Advisory

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Preparing for Public Electric Vehicle Charging Infrastructure Rollouts

Key Highlights

- Interest in building additional public electric vehicle charging is growing.
- The number and type of vendors offering these services as turnkey solutions to co-ops is also growing.
- There are several key points when exploring a public charging program that are important to consider in the planning stage and at various points during the project.
- NRECA Consulting Services offers assistance for cooperatives interested in exploring and implementing an EV Public Charging Program.

What has changed?

As electric vehicle adoption increases across the country, so does the interest in expanding public charging infrastructure to more areas. The federal government may have funding available to expand the number of chargers soon. But even without this assistance, a growing number of co-ops are taking it upon themselves to explore public charging infrastructure.

There are several key considerations when planning to own and operate publicly available electric vehicle service equipment (EVSE). These include:

- Will the charger be Level 2 or DC Fast Charging (DCFC)?
    - Level 2 chargers will typically range from 6 kW to 19 kW.
    - Level 2 is ideal for locations with long dwell time. *Dwell time* refers to the amount of time the car owner will spend at the location. For example, parks, restaurants, and shopping centers are places where a driver is typically comfortable spending 1 to 2 hours while their car charge is topped off.
    - DCFC is often sized at 50 kW to 350 kW and is designed to get a car's battery to a roughly 80% charge in 20 to 30 minutes. These are ideal for areas such as rest stops, where the driver wants a quick in-and-out and back on the road.
- What is the purpose of the charger? Most EV studies show that 80% to 90% of EV charging takes place at home and a substantial amount takes place at work. What role will your public chargers have?
    - Are they placed in locations to support local businesses and encourage spending at those businesses? A Level 2 charger can encourage people to linger at shopping centers, visit tourist attractions, and spend money on local products and service.

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    - Is the location designed to support vehicle owners that cannot charge at home? Residents of multi-tenant buildings or those with street only parking lack the ability to charge at home. Does your area have these types of residences and how can public charging be best deployed to meet these consumers' needs?
    - Is the location designed for drivers passing through the service territory? Public charging to support highway use needs to be adequately spaced to meet the variety of battery sizes found in today's EVs. These locations often will need a DCFC and appropriate 24-hour restroom facilities, food, lighting, and security.
    - Will the chargers provide education or peace of mind for new or potential EV drivers? Some co-ops view public chargers in high visibility areas as a conversation starter for potential EV owners. Co-ops can leverage this engagement opportunity by providing information on staff contacts for those with questions about the chargers, and hosting events at the chargers for members to attend and learn. Some also view stations as a type of insurance policy for EV owners in the community that may forget to charge at home or need a charge while going about day to day business.
- Will usage policies be required? The level of anticipated usage should be considered in the business case. Taking up premium public space for underutilized EV charging, especially if it is closest to a building's main entrance, can cause resentment or negative perceptions. Likewise, if stations are overutilized by the same customers repeatedly, this can interfere with the broader community's use and create negative views of the station's value. Cooperatives may want to consider developing policies that address users who overutilize free public charging, however these policies may not be popular and may generate negative public feedback. Another standard practice is to encourage vehicles to move from the spaces once they are finished charging. This typically is accomplished by charging a per minute parking fee and communicated via the charging station's app.
- Are there fees associated with the location of the charger? For example, some shopping center owners will charge a monthly fee to charging station owners for the dedicated use of a parking space.
- Are there siting and permitting issues that may be a barrier or burdensome?
- Is the site covered or protected against the weather? This will be a convenience for the driver and help with issues such as possible glare on the charger's digital display.
- Are the chargers easy to find and have ample space for usage? Many older chargers are in dark corners in parking garages, in the back of buildings, or hidden from plain view. In addition, adequate space should be given between chargers.
- Is there sufficient electrical capacity at the site to serve the planned and possible future expansion of public charging?

What is the impact on cooperatives?

There will be several costs that the owner of a public charger will be expected to pay. These include:

- **The charging station:** Many vendors will provide the option of a single or dual head for the charger.
- **Site validation:** Ensures that all electrical components are adequate and functional.
- **Site activation fee:** Ensures that the station is communicating properly and functional.
- **Cloud services:** Hosted solutions are the standard offering and have associated yearly fees.

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- **Network fees:** Many chargers are "networked." This enables users to use a common app to access the charger and pay for services.
- **Charger management software:** Allows for metering of the charger, billing to users, troubleshooting, and proactive maintenance.
- **Warranty service:** How quickly vendors can service units that are out of service and if they are using local contractors or must travel to your area are important factors to consider regarding the warranty service.

Vendors will have different names and terminology for these services. Prices will vary and can be substantially different between vendors.

What do cooperatives need to know or do about it?

Some charging solution vendors will offer a turnkey solution that includes everything that is needed to launch a successful program. Other vendors will offer a best in class solution that mixes stations from different manufacturers with software from different vendors. Both approaches work. The best way to evaluate the different approaches and costs is through a formal request for proposal (RFP) process.

Key elements of an RFP will be:

- Description of charging station attributes critical to the co-op. This may include:
    - Level 2 or DCFC
    - Specific or general guidance for charging speed
    - Required specifications, such as NEMA 3R, NEC Article 625, Underwriters Laboratories 2594, compliance with Americans with Disabilities Act requirements, National Electrical Code, FCC and other relevant regulations for safety and operation
    - Accuracy of the integrated metering capability
- Networking requirements
    - Does the station need a credit card swipe mechanism?
    - Communications type: Wi-Fi, cellular, etc.
    - PCI compliance
    - Cybersecurity and physical security requirements
- Cobranding and advertising
    - What does cobranding look like?
    - Is a digital display required?
    - Would the co-op like to use the chargers' display to convey information to consumers or sell it as advertising space?
- Energy Management
    - Vendors should describe the capabilities of their software
    - Does the co-op need the ability to set (by port) allowed load based on percentage of current load or set a maximum load (kW) for the site?

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    - How does the co-op want data transferred from the cloud to the co-op's system? Many choose a CSV file or simple export. Is a more complicated solution desired?
    - Can the stations self-manage their energy and maintenance alerts?
- Warranty
    - The co-op should specify a minimum warranty length. Many vendors will charge a yearly fee for warranty service.
    - Specify a timeframe to perform warranty work. A common requirement is 72 hours.
- Site location(s)
    - Respondents to an RFP will want to know the address of potential sites. This may allow them to more precisely price out components, such as conduit which is charged by the foot.
    - Respondents will also want to know if concrete, asphalt, or sidewalks will need to be replaced by them after installation.
- Ultimate size of network
    - The number and size of a co-op's network may grow over time. Be specific about timeframe for expansion and ultimate goal around size of the network. This may result in a better price.
- Timeframes
    - Does the vendor experience manufacturing delays due to supply chain disruptions?
    - Are orders outpacing production capacity?
    - Ask vendors to specify how long it will take to deliver equipment once a contract is signed.
- References
    - Vendors will have varying degrees of time in this industry. New vendors bring new approaches and may not have the depth of experience. But that should not be discounted. Reference checks can help you understand things such as the relationship management experience, software issues, support issues, and overall experience with the vendor. These interviews can be done with a simple 2 to 3 question email or over the phone.
- Alternate Approaches
    - After you have written an RFP with all of your specifications and needs, it is good to ask the respondents for their approach. An alternate approach can bring solutions that are new or not thought of during the RFP creation process.

Response to your RFP will be very similar when it comes to charger hardware. The uniqueness of vendor offerings is often found in their consumer-facing software, the management software, warranty service, and value-added services. The value-added service can include proprietary software that can help the co-op determine the best location for public charging. Some vendors will offer access to expansive national or regional charging networks. This can be a huge convenience for EV owners. Many EV owners use 2 to 3 apps to charge at a variety of charger networks.

Managing and evaluating the response to the RFP can be a daunting task. However, it will result in the best set of solutions to meet the current and future charging needs of the cooperative, offering a variety of approaches and achieve competitive pricing. A recommended practice is to narrow down bidders to the top two and ask for a 1-hour question and answer session. You are not just buying hardware. You are entering

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into potentially a long-term relationship with a vendor that will directly interact with your consumer-members.

Using a consultant to manage your RFP process may be an ideal solution for many co-ops. A consultant will bring expertise to the specification aspect and contacts with a large number of EVSE suppliers. However, a consultant should spend time upfront with co-op staff understanding your goals and objectives. They should also try to understand your membership and your community. NRECA provides this service as part of our consulting work. Interested members can contact Brian Sloboda for more information (Brian.Sloboda@nreca.coop).

Electric vehicles (EVs) present new opportunities for electric co-ops in a rapidly changing electric market. New sales of EVs continue to grow at a steady pace. New models are being announced monthly, and most manufacturers are making serious commitments to the technology. Exploration and expansion of public charging networks will facilitate this movement and continue to place the co-op as the trusted energy provider for their members.

Additional Resources

- Charging Infrastructure for Electric Trucks
- Market Potential for Commercial Electric Trucking
- Preparing to Plug in Your Fleet - 10 Things to Consider
- Preparing to Plug In Your Municipal Electric Transit Bus Fleet - 10 Things To Consider
- Electric Vehicle Service Equipment Load Control Case Studies
- Residential Electric Vehicle Service Equipment (EVSE) Program Design for Co-ops

Contact for Questions

Brian Sloboda
Director, Consumer Solutions
Brian.Sloboda@nreca.coop

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