ENERGY EFFICIENCY AND CONSERVATION BLOCK GRANT (EECBG) PROGRAM

Key Activities Summary

Blueprint 4B: EV Charging Infrastructure for the Community

This Key Activities Summary provides a concise overview of the **EV Charging Infrastructure for the Community**. DOE plans to provide technical assistance support to all entities who select this Blueprint, which may include one-on-one attention from DOE or national lab experts, webinars, and peer learning opportunities.

blueprints
Energy Efficiency & Conservation Block Grant Program

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What

Thorough and thoughtful EV charging infrastructure planning – sometimes referred to as community EV readiness – sets communities up for success as the nation's vehicles transition from gasoline-powered engines to electric. Proactively planning and installing electric vehicle (EV) charging stations for your area will support this transition while taking into account your community's unique needs. Community EV readiness planning can occur at the local, state, or regional level and can take a variety of forms and complexities. While some communities work to meet current charging needs projected by EV adoption projects, others work to increase overall EV adoption. Such planning can also include consideration of alternatives to single-occupant vehicles such as increased investment in public transit, bike paths, and more walkable streets.

Case Study: Charging into the Future
Charging into the future: the transition to electric vehicles (BLS) examines factors and purchasing trends driving up consumer demand for EVs.

Case Study: Global EV Data Explorer
Global EV Data Explorer (IEA) has an interactive dashboard and downloadable data that identifies and discusses recent developments in electric mobility across the globe.

Justice and Equity

Installing publicly available EV charging stations makes it possible for more members of the community to go EV. Public involvement in selecting the location of charging stations can incorporate accessibility and equity concerns, including dwell time and associated economic and environmental benefits, in a way the private sector may overlook. Publicly funded charging stations could prioritize neighborhoods the private sector may leave out, like disadvantaged or Environmental Justice (EJ) communities. RFPs for charging vendors can also include preferences for local and women- and minority-owned small businesses.

Why

EV car sales in the United States increased from 0.2 percent of total car sales to 4.6 percent in 2021 over an 11 year period and many forecasts expect a strong acceleration in EV adoption to continue.[1] Comprehensive EV planning allows government officials the chance to think through impacts EV investment options may have on equity, the grid, air pollution, and greenhouse gas emissions. By strategically planning EV infrastructure, communities can better prepare themselves for the changing vehicle landscape and provide residents with the support they need, especially those that are not able to charge vehicles at home. Indeed, charging stations built through a careful planning process experience much higher utilization than those that were not.[2] Similarly, planning EV infrastructure in advance helps communities prepare their electrical grid for increased demand and futureproof their designs to allow for easy upgrades and installations over the long term.

[1] **Charging into the future: the transition to electric vehicles (US Bureau of Labor Statistics)**

[2] **How Does Utilization of Non-Residential EVSE Compare Between those Installed in Oregon in Planned versus Unplanned Locations? (EV Project)**

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2
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Key Activities

These selected Key Activities are suggestions of important steps a government could take to begin or make progress on their EV infrastructure planning journey. EECBG Program awardees that utilize a blueprint will receive expedited application review from DOE. Applicants must execute at least one of the key activities listed under each selected blueprint but should avoid going beyond the recommended activities. Going beyond these key activities may trigger additional reviews of your EECBG Program project to ensure you're meeting National Environmental Policy Act (NEPA), historic preservation, and/or other federal regulations. While each step is important, they should be seen as a guide. Awardees should determine their own priority activities based on their local context.

1. **Procurement, Legal and Technical Support to purchase EVSE**
2. **Stakeholder Engagement**
3. **Site Plan, Assessment, and Selection**
4. **Installation of EVSE**
5. **Communications and Program Promotion**

KEY ACTIVITIES

1 2 3 4 5

Key Resource

The **Charging Infrastructure Procurement and Installation (DOE AFDC)** website hosts information and resources about specific characteristics that can influence the procurement and installation process.

Key Resource

Developing Infrastructure to Charge Electric Vehicles (DOE AFDC) is an introduction to charging infrastructure terminology, different charging use cases, and resources on options, planning tools, and funding programs.

Procurement, Legal and Technical Support to purchase EVSE

First, determine if you need a formal solicitation process to purchase and install EVSE. Work with your organization's contracting and procurement team to understand what types of legal parameters you will need to establish a procurement plan for EVSE. The site host will have specific characteristics and goals that may influence the process (e.g., utilization rates, equity considerations).

- Choose an EVSE manufacturer and station vendor through an RFP that complies with certification requirements and is compliant with SAE International standards (i.e., SAE J1772). Cost estimates:
  - Level 2 charger: $3,000-$7,500/charger, incl. hardware and installation costs
  - DC fast charger: $55,000- $200,000/charger, incl. hardware and installation costs[3]
  - Actual installation costs vary significantly site-to-site.
- Work with your utility to get technical support for EVSE installations.
- Select the vendor that will best meet your needs.
- Identify local, state, and national codes and regulations that apply to EVSE installations and include requirements that installations be completed by licensed electrical contractors.
- Identify permitting requirements from local building authorities.
- Include testing measures to assess the safety and functionality of the EVSE.
- Determine the type of ownership model you would like to utilize. Most ownership modes are site host-owned and third party-owned (by a charging network).
- Develop requirements for maintenance and operation issues (e.g., who is responsible for maintaining EVSE and ensuring high uptime).
- Determine if your stations need to be networked and if utilization data needs to be collected.

If available in your area, the following information can help inform your planning efforts:

- **Data on local EV market and Charging Infrastructure, such as:**
  - Existing public charging infrastructure (aka. Electric Vehicle Supply Equipment (EVSE)
  - Vehicle registration or sales data
  - State, county, city or tribal fleet data
  - Existing financial incentives and relevant grant opportunities
  - Existing efforts related to expanding EV charging infrastructure (e.g., utility deployment investments)
  - Regional planning efforts and state-level EVSE goals or plans
  - Any EVSE permitting and inspection fees, processes, and timelines
- **Data to inform EV adoption projections and EVSE locations, such as:**
  - EV adoption projection data
  - Community housing makeup (i.e., a breakdown of single-family homes vs. multifamily housing units)
  - Population data to inform EV adoption projections
  - Transportation demand management data to help inform ideal locations for EVSE deployment
- **Relevant codes, such as:**
  - Building and municipal zoning codes that impact electrical wiring, construction, and EVSE
  - Parking codes and design standards, such as ADA-accessibility design requirements

[3] **https://theicct.org/sites/default/files/publications/ICCT_EV_Charging_Cost_20190813.pdf**

Stakeholder Engagement

» Develop a list of stakeholders to involve in the EVSE infrastructure planning process. The stakeholder group should consist of all entities impacted by EVs and EVSE.

» Hold regular meetings to collect initial input before beginning the planning process and collect feedback on your EVSE draft plans.

» Tailor your outreach to each unique audience to ensure you are communicating effectively and will solicit meaningful feedback.

» Hold public events, workshops, ride-and-drives, and other activities to engage your community and help them better understand the new technology.

Key Resource

Electrifying Transportation in Municipalities (Electrification Coalition) is a policy toolkit for electric vehicle deployment and adoption at the local level, including information on Equitable Charging for Affordable Housing.

Key Resource

Electric Vehicle Charging Equity Considerations (ANL) evaluates how to ensure investments in electric vehicle charging benefit disadvantaged communities.

Stakeholders may include:

» Government fleet representatives

» Other relevant government departments (e.g., public works, transit, permitting and inspection)

» Electric utilities with service territory in your jurisdiction

» Multifamily dwelling representatives

» Your **Clean Cities Coalition**. In addition to being a subject matter resource, Clean Cities Coalitions are doing a lot of work on engaging EJ communities and could help recommend which communities or organizations to engage.

» Local businesses, institutions, and universities

» Local environmental groups

» Low-income and disadvantaged community representatives and interest groups, such as ratepayer advocates

Site Plan, Assessment, and Selection

» Complete community EV adoption projections, readiness assessment, and siting assessment to determine the number of EVSE you will need to install. This should identify the level (e.g., Level 2, DCFC), number, and location (e.g., workplace, MUD, public) of EVSE needed to support your community based on existing infrastructure and anticipated infrastructure needs.

» Work with your utility to determine the feasibility of installing EVSE at the desired locations. Work with your utility to expand electrical infrastructure and capacity where needed. This process can take a while, so it is best to get started early.

» Select promising locations and if there are particular sites or areas that your plan should concentrate on.

Cost estimate: $5,000-$15,000

Key Resource

Charging Electric Vehicles in Public (DOE AFDC) includes information and resource links about the types of public charging stations and zoning codes, and parking ordinances to consider when siting.

Key Resource

Case study: **Advancing Iowa's EV Market Report** was produced for the Iowa Economic Development Authority (IEDA) as a study to assess the current electric vehicle (EV) market, forecast future market conditions and evaluate programs and policies that could potentially help the market meet these projections.

Key Resource

Case study: **EV Fast Charging Corridors Grant Program (Colorado Energy Office)** aimed to tackle one of the major barriers to PEV adoption in the state, the lack of publicly available fast charging along highways.

Key Resource

Plug-in EV Best Practices Compendium (County of Santa Clara) provides an overview of the key considerations for local governments who are seeking to support the deployment of plug-in EVs and charging infrastructure.

Installation of EVSE

- Test the safety and functionality of your EVSE
- EVSE installations are restricted to the footprints and levels of previous group disturbance within the EVSE site.
- All activities must be reversible, non-permanent techniques for installation and use the lowest profiled EVSE available that provides the necessary charging capacity
- Use colors complementary to the surround environment
- Install EVSE in convenient locations with good lighting
- Consider signage and pavement markings to help inform drivers about EVSE use
- Incorporate Americans with Disability Act requirements for site design[4]

[4] **Installing Electric Vehicle Charging in Compliance with the Americans with Disabilities Act Requirements (DOE AFDC).**

Key Resource

The **Charging Infrastructure Procurement and Installation (DOE AFDC)** website hosts information and resources about specific characteristics that can influence the procurement and installation process.

Key Resource

These **Electric Vehicle Readiness (DOE AFDC)** resources can help communities plan for the arrival of electric vehicles (EVs) and EV charging. EV readiness is a community-wide effort, requiring planning, charging infrastructure, policies, and support services.

KEY ACTIVITIES

Communications and Program Promotion

- Utilize social media platforms to share meetings and engagement opportunities as well as infrastructure development updates.
- Share program updates and metrics to demonstrate the demand and effectiveness of the EVSE installation.
- Continue to solicit feedback from the community for continued infrastructure improvements.

Key Resource

Case Study: **Seattle: An Early Electric Vehicle Adopter, Still Leading the Charge (AFDC)** describes how Seattle used a combination of plans, ordinances, pilot projects, and a robust community engagement process working with City resources and partners to create one of the strongest EV readiness strategies in the country.

Key Resource

Case Study: The **Tahoe-Truckee, CA and NV Plug-in EV Readiness Plan (Tahoe Regional Planning Agency and Truckee Donner Public Utility District)** includes resources on consumer awareness, overcoming barriers to adoption, and implementation ongoing actions.

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