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Blueprint 4A: Electric Vehicles and Fleet Electrification

This Electric Vehicle and Fleet Electrification Blueprint includes a high-level overview of the process and benefits of fleet electrification, showcases important tools and online resources, and outlines Key Activities to help guide EECBG Program entities to success. A Key Activities Summary PDF is also available for download

which provides a concise summary of the Blueprint Key Activities. A How-to-Guide is also available for download to provide more granular steps, recommendations, and resources within each key activity. DOE plans to make technical assistance available to support all entities interested in EVs and fleet

Check out two important Blueprint 1 resources:

1. [Key Activity Summary](#)
2. [How-to-Guide](#)

electrification, which may include, one-on-one support from national lab or DOE experts, webinars, and peer learning opportunities.



What Are EVs and Fleet Electrification?

Planning for and purchasing electric vehicles (EVs) for government fleets, as well as the associated charging infrastructure, such as charging stations and site upgrades.

Check out two important Blueprint 4A resources:

1. [Key Activity Summary](#)
2. [How-to-Guide](#)

Why Consider EVs and Fleet Electrification?

Every government, whether state, local, or tribal owns and operates a variety of vehicles, such as passenger cars, school buses, shuttle buses, heavy duty garbage trucks, and snowplows. Electrifying the fleet, by replacing vehicles with gasoline or diesel engines with electric vehicles,



will reduce transportation sector emissions, improve air quality, and, if done right, reduce your government's operational expenses and maintenance needs. Planning is a key component to electrification of the transportation sector. To ensure new electric vehicles can be operated successfully, governments need to consider many important details, such as parking and charging options, fleet routes, frequency of use, and specific issues like turning radius limitations on city streets and continuous operating time.

Who Should Consider This Blueprint Topic?

Governments seeking to improve regional air quality, stimulate the EV market and infrastructure in their jurisdictions, improve public health, and save money on future fuel and maintenance costs. This blueprint topic area is relevant for governments whose fleets are aging or have scheduled replacements, as choosing EVs will have long-term economic and environmental benefits.

Who/What Will You Need?

To complete a fleet electrification and infrastructure siting assessment, you will need the involvement of the following stakeholders:

- Fleet manager(s)



Justice and Equity:
Many heavy-duty government vehicles have traditionally run on conventional diesel fuel,

- Fleet maintenance staff
- Input from other departments that use fleet vehicles to ensure EVs can meet their required use cases.
- Energy managers to support electricity rate schedules, data tracking, and Electric Vehicle Supply Equipment (EVSE) metering needs.
- Representative from your utility to help identify any electrical upgrades necessary to support EVSE.
- Facilities staff to guide EVSE construction and installation projects.
- Electrical contractors to build out any additional wiring needed for EVSE.
- Compliance manager to ensure EVSE comply with relevant building codes and safety standards.

Materials you will need include:

- Fleet data for financial, feasibility, and siting assessments
- EV and EVSE maintenance trainings or materials
- EVSE data tracking system
- EV charging schedule

Additionally, you will likely want procurement and contract support for the purchase of EVs and the EVSE and will want to plan for training of the fleet maintenance staff and drivers of the new vehicles.

[View and download the Blueprint Key Activities Summary](#)²⁴ .

including transit buses, school buses, garbage trucks, and other service vehicles. When these vehicles run through environmental justice communities, the diesel exhaust may exacerbate the effects of already higher-than-average air pollution. Thus, when replacing conventional fleet vehicles with EVs, governments may wish to consider placing a priority on heavy-duty vehicles that run service routes through lower-income or environmental justice communities.

Governments can also consider including preferences for local and women- and minority-owned small businesses in RFPs related to EVs and charging equipment procurement.

ENERGY EFFICIENCY AND CONSERVATION
BLOCK GRANT (EECBG) PROGRAM

Key Activities Summary

Blueprint 4A: Electric Vehicles and Fleet Electrification

This Key Activities Summary provides a concise overview of the **Electric Vehicles and Fleet Electrification**. 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.



Key Activities

These selected Key Activities are suggestions of important steps a government could take to begin or make progress on their fleet electrification 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.

Blueprint 4A How-To Guide: Electric Vehicles and Fleet Electrification

KEY ACTIVITY CHECKLIST: BLUEPRINT 4A

1. Develop Fleet Replacement Plan

- Gather information on fleet requirements
- Engage with stakeholders
- Plan for driver/ technician training

2. Site Planning and Preliminary Assessments

- Determine locations for charging

Develop Fleet Replacement Plan, Including Stakeholder Engagement and Input ▼

Siting Planning and Preliminary Assessments ▼

Develop Utility Data Sharing Agreement ▼

Develop Charging Plan Including Cost Assessment of Electric Bill ▼

Procurement, Legal, and Technical Support to Purchase EVs and EVSE ▼

Installation of Charging Infrastructure ▼



Next Steps to Get Started

If your organization chooses to select this Blueprint activity, you may be eligible to receive technical assistance from [DOE's Vehicle Technologies Office](#).

Sign up to [join the EECBG EV Cohort](#).

Additional Federal Funds to Leverage and Braid with Your EECBG Program Award

BIL Funding:

- [DOE's Alternative Fuels Data Center \(AFDC\) Federal and State Laws and Incentives Database](#): A searchable database compiled by DOE that identifies laws, regulations, and potential funding incentives for projects involving or related to alternative fuels and advanced vehicles. These search results identify opportunities specifically related to the BIL.
- Specific funding opportunities that were either created or expanded through the BIL to support EVs, fleet electrification, and alternative-fuel vehicles are listed below. Applicable BIL statutory references are included in brackets after each resource description:
 - **BIL Opportunities through DOT (FHWA)**
 - [List of grants for charging and fueling infrastructure](#) [☞] (DOT): A list of resources regarding programs that support electric vehicle and alternative fueling infrastructure. Specific funds/programs discussed include:
 - [National Electric Vehicle Infrastructure \(NEVI\) Formula Program](#) [☞] : [Division J, Title VIII]
 - [Charging and Fueling Infrastructure Discretionary Grant Program](#) [☞] : [11401]
 - [Congestion Mitigation and Air Quality \(CMAQ\) Improvement Program](#) [☞] (DOT): Provides funds that can be used for transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments. [11115]
 - [Truck Emission Reductions at Port Facilities Grant](#) (DOT): Funding to study and provide grants to reduce idling at port facilities, including through the electrification of port operations [11402]
 - **BIL Opportunities through DOT (FTA)**
 - [Grants for Buses and Bus Facilities \(DOT\)](#) [☞] : Funding to buy or modernize buses, improve bus facilities, and support workforce development, including technical changes to reduce emissions [30018]
 - [Low or No Emission Grant \(Low-No\) Program \(DOT\)](#) [☞] : Funding for zero-emission and low-emission transit buses and for the acquisition, construction, and leasing of facilities required to support them [30018]
 - [Public Transportation Research, Demonstration, and Deployment Funding](#) [☞] (DOT): Funding to develop innovative products and

services assisting transit agencies in better meeting the needs of their customers [30007]

- **BIL Opportunities through DOT (Maritime Administration)**

- [Port Infrastructure Development Program](#)[☞] (DOT): Funding to improve the safety, efficiency, or reliability of the movement of goods through ports and intermodal connections to ports. Recent BIL funding focuses on reducing emissions at ports [Division J, Title VIII]

- **BIL Opportunities through EPA**

- [Clean School Bus Program \(EPA\)](#)[☞] : Funding to replace existing school buses with zero-emission and low-emission models [71101]

- **BIL Opportunities through DOE**

- [Smart Grid Grants](#) (DOE): Funding to increase the flexibility, efficiency, and reliability of the electric power system [40107]
- [State Energy Program \(SEP\) Grant Funding](#) (DOE): Provides funding and technical assistance through multiple programs to states, territories, and the District of Columbia for the purpose of enhancing energy security, renewable energy, and energy efficiency [40109]
- [Public School Energy Program](#) (DOE): Funding to make clean energy improvements at K-12 public schools. Alternative energy vehicles and alternative fuel vehicle infrastructure improvements are supported [40541]

IRA Funding: [DOE's \(AFDC\) Federal and State Laws and Incentives Database](#): A searchable database compiled by DOE that identifies laws, regulations, and potential funding incentives for projects involving or related to alternative fuels and advanced vehicles. These search results identify opportunities specifically related to the IRA.

Specific funding opportunities, including grants and rebates, that were either created or expanded through the IRA to support EVs, fleet electrification, and alternative-fuel vehicles are listed below. Applicable IRA statutory references are included in brackets after each resource description:

- [Clean Heavy-Duty Vehicles \(EPA\)](#): Funding for replacing existing heavy-duty vehicles with zero emission vehicles. Funds can also be used for

zero-emission vehicle infrastructure, workforce development and training, and planning and technical activities [60101]

- [Port Electrification Grants \(EPA\)](#): Funding for the purchase or installation of zero emission port equipment or technologies, including all-electric vehicles and fuel cell electric vehicles (FCEVs) [60102]
- **IRA Tax Credits:** The IRA also included a variety of tax incentives, including tax credits that directly support EVs, fleet electrification, and alternative-fuel vehicles. These are listed below:
 - [Section 45W – Credit for Purchase of Commercial Clean Vehicles](#)²⁷ : A tax credit available for the purchase of plug-in hybrid electric vehicles, all-electric vehicles, and fuel cell electric vehicles (FCEVs) [13403]
 - [Section 30C – Alternative Fuel Refueling Property](#): A tax credit available for the for alternative fuel vehicle refueling and charging property in low-income and rural areas. Alternative fuels include electricity, ethanol, natural gas, hydrogen, biodiesel, and others. [13404]
- **State and Utility Funding Opportunities:**
 - [Alternative Fuels Data Center: Federal and State Laws and Incentives \(DOE\)](#): A searchable database compiled by DOE that identifies laws, regulations, and potential funding incentives for projects involving or related to alternative fuels and advanced vehicles. Results can be filtered by technology and state jurisdiction.
- **Other DOE Funding Opportunities and Resources:**
 - [Technology Integration Competitive Project Funding \(DOE\)](#): This resource summarizes recently funded Technology Integration projects and includes lessons learned and key considerations that could be leveraged by others pursuing projects related to affordable, domestic transportation fuels, energy efficient mobility systems, and other fuel-saving technologies and practices.

Additional Resources

- [Clean Cities Coalition Network \(DOE\)](#): A coalition fostering the nation's economic, environmental, and energy security by working locally to advance affordable, domestic transportation fuels, energy efficient mobility systems, and other fuel-saving technologies and practices.

- [Alternative Fuels Data Center \(DOE\)](#): Provides information, data, and tools to help fleets and other transportation decision makers find ways to reach their energy and economic goals using alternative and renewable fuels, advanced vehicles, and other fuel-saving measures.
- [Electric Vehicle Tools Fact Sheet \(DOE\)](#): Provides a sampling of key DOE and national lab resources available to states and local jurisdictions to help them plan for the future of electric vehicles.
- [Electrifying-Transportation-in-Municipalities | American Clean Cities Climate Challenge \(RMI and WRI\)](#)[☞] : A policy toolkit for EV deployment and adoption at the local level.

Case Studies:

- [Philadelphia's Municipal Clean Fleet Plan \(City of Philadelphia\)](#)[☞] : A plan laying out a strategy for the City to transition its fleet to clean and electric vehicles. Includes data from the City's fleet assessment and analyses.
- [Clean Fuels Technical Assistance Program Reports \(MEA\)](#)[☞]
- [Alternative Fuels Data Center: Case Studies \(DOE\)](#): Videos and web stories sharing case studies and success stories about alternative transportation technologies. Searchable by alternative fuel type, technology, and type of vehicle use (ex. Delivery Services, Law Enforcement, Transit). Includes advanced vehicles and regulated fleets.
- [Alaska Electric School Bus \(APM\)](#)[☞] : Article from Alaska Public Media about the performance of Alaska's first electric school bus at temperatures as cold as 40 degrees below.
- [Massachusetts School Fleets Get Answers through Electric Bus Testing \(DOE\)](#): Case study on Type C electric school buses and Level 2 bidirectional vehicle-to-grid (V2G) charging stations to test the technology in cold weather environments. Includes information on timing for the bus delivery and charging equipment, implementation, and learning experiences.
- [Fleet Electrification Success Stories \(DOE\)](#): Success stories of electrification throughout the federal fleet, including at National Parks and military locations.
- [Case Studies Archives \(Electrification Coalition\)](#)[☞]): Provides links to over a dozen case studies of municipal fleet electrification projects for cities of a variety of sizes

Inspirational Videos:

- [Maryland State Fleet Commits to Zero-Emission Vehicles \(DOE\)](#): The state of Maryland is converting its fleet to zero-emission vehicles, including the Ford Mustang Mach-E and Chevrolet Bolt EUV.
- [Cherokee Nation EV Initiatives \(DOE\)](#): The Cherokee Nation is reducing its carbon footprint with green energy and clean vehicle projects, including a solar canopy, electric vehicles, and charging stations.



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