

MUNICIPAL FLEETS



Municipal EV Readiness Toolkit

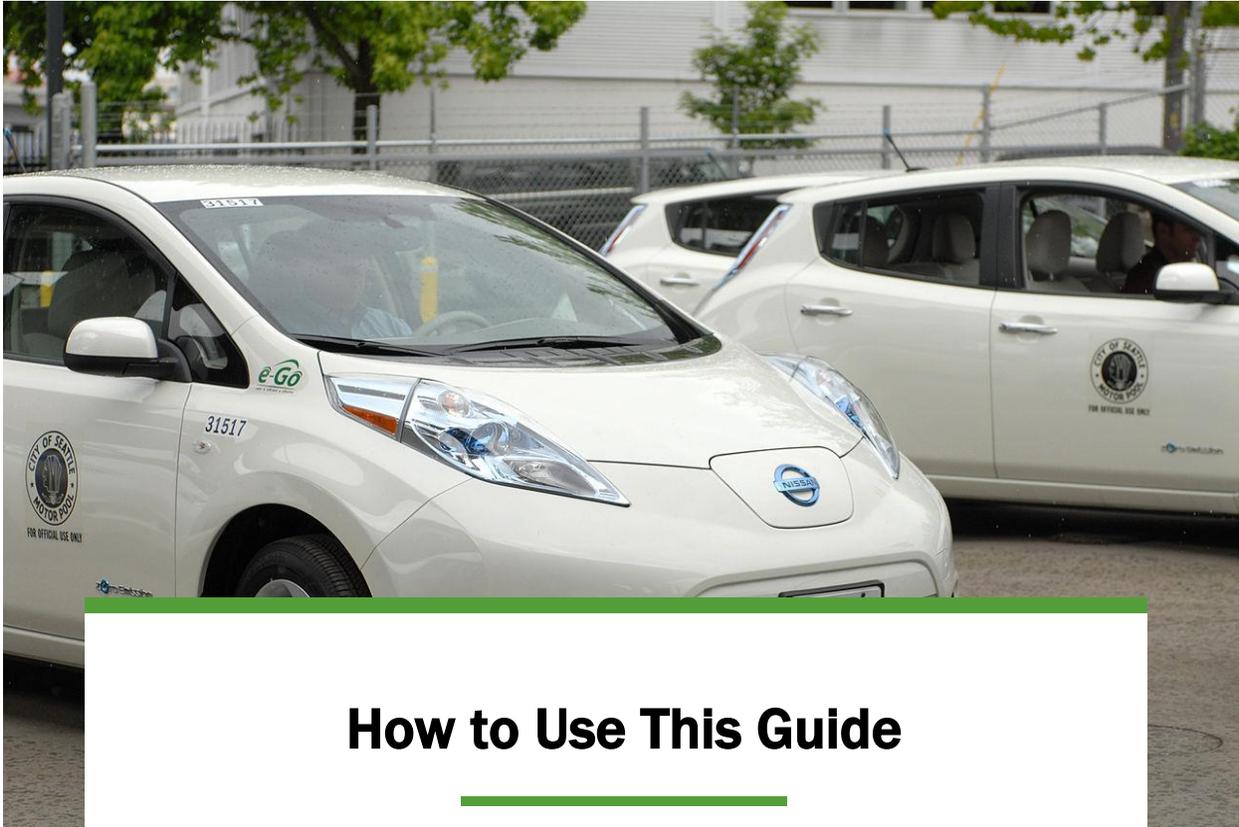
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& Maine Clean Communities Coalition



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How to Use This Guide

Maine municipalities can lead the way on vehicle electrification by replacing their fleet vehicles with Electric Vehicles (EVs). Municipal fleet electrification is a significant step in reducing municipal greenhouse gas emissions and air pollution. Municipalities that adopt EVs into their fleet will also save money, support sustainability goals, improve public health, and promote local energy sources. By demonstrating EV technology, municipal EVs encourage community members to consider purchasing their own EVs. This guide outlines three steps a municipality can take to electrify their fleet. Each step is detailed with suggestions and sources such as websites, articles, and tools.

Transitioning Municipal Fleets to EVs

Transportation is responsible for 54% of Maine's greenhouse gas emissions. Maine released the state's first climate action plan, [Maine Won't Wait](#), outlining key strategies and targets to reduce greenhouse gas emissions. One emission-reduction goal is putting 41,000 light-duty EVs on the road in Maine by 2025 and 219,000 by 2030. Maine municipalities will play a key role in leading the state's transition to electric vehicles and reducing our environmental footprint.

The strategy to a successful transition of your municipal fleet can be broken down into three high-level actions:

1. Create an effective planning strategy and update local policies to support fleet electrification
2. Pinpoint the proper state, federal and manufacturing funding incentives and keep a well-tracked budget
3. Install the proper EV infrastructure to meet the fleet's needs



Source: Bangor Daily News

Planning for Municipal EVs

To support the transition of electrifying our municipal fleets, Maine is utilizing a hands-on approach to develop new policies that prioritize the procurement of EVs and support the development of the state's EV infrastructure. Effective planning tactics, such as incorporating EV procurement into our state transportation roadmap, climate action plans and developing forward-thinking policies will ease the transition of adopting electric vehicles.

Prioritization of Maine's statewide EV growth:

- [Efficiency Maine Trust Act](#): Efficiency Maine Trust is tasked with establishing and administering programs that provide rebates for the purchase or leasing of electric vehicles.
- [State of Maine](#): Maine Governor calls for a "[Clean Transportation Roadmap](#)" to help achieve the state's climate action goals and increase the number of EVs on the road by 2030. Since 2019 the number of battery electric and plug-in hybrid electric vehicles increased by 90% to 5,577 vehicles and the number of public charging stations increased by 62% to 265 stations.

Municipal fleets are a logical choice to transition to EVs due to the predictable duty cycles and a shorter distance traveled of around 200 miles per charge in a single day. With the proper infrastructure installed, these EVs should recharge overnight and will be ready again by morning. The combination of manufacturing and state-funded rebates can make the leasing or purchasing of new EVs much more affordable.

Planning best practices for fleet electrification include:

1. Complete a Baseline Fleet Evaluation

Municipalities should start with a high-level baseline fleet evaluation. Identify opportunities to procure AFVs with a lower total cost of ownership than existing vehicles to identify an initial pool of candidate vehicles for further evaluation. The following tools will help understand opportunities available and the cost of transition to EVs.

Conducting a baseline fleet evaluation is an essential step for:

- Optimizing your fleet management
- Reducing the dependency on petrol and smoothly transitioning a fleet to electric.

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2. Update Fleet Purchasing Policy to Prioritize Electric Vehicles

Fleet managers are responsible for defining the fleet's policies and procedures. To remain effective, fleet policies must be routinely updated and shared with municipal leaders. Implementing a new EV policy may sometimes be a challenge due to the fear of charging accessibility and running out of electricity.

- [Massachusetts](#): The Green Communities Act requires the state to purchase hybrid and alternative fuel vehicles in such numbers that 50% of the fleet is hybrid or AFV by 2018.
- [New Jersey](#): In January 2020, Governor Phil Murphy signed legislation that requires the following for the state fleet: At least 25% of State-owned non-emergency light duty vehicles shall be plug-in electric by December 31, 2025; thereafter, 100% of these vehicles shall be plug-in electric by the end of 2035.

3. Sustainable Fleet Management

The [Federal Energy Management Program](#) (FEMP) suggest combining these core principles of sustainable fleet management:

1. Right-sizing fleets and vehicles to missions

Right-sizing a fleet is used to identify older and inefficient vehicles and replace them with more efficient alternative fuel options, in this case, electric vehicles. Right-sizing the fleet will determine optimum fleet inventory, eliminate any unnecessary vehicles, increase overall fuel efficiency and reduce the fleet's vehicle miles traveled (VMT).

The [Alternative Fuels Data Center](#) has a guide on best practices for right-sizing a fleet.

2. Increasing fleet fuel efficiency

Fleets can drastically increase fuel efficiency by swapping their vehicles to battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), reducing their dependency on petroleum-based fuels.

3. Optimizing cost-effective alternative fuel use

Battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) are suitable for many of Maine's municipal fleets and should be prioritized as we build out the state's electric vehicle charging network.

Using utility cost comparison tools:

[Fleet Procurement Analysis Tool](#)

The Microsoft Excel-based tool can evaluate a variety of procurement ownership structures, vehicle types, and procurement scenarios. The tool compares procurements side-by-side on a cost-per-mile basis and provides an analysis of cash flows and location-specific lifecycle emissions. Maine Clean Communities can guide you through the tool to maximize effectiveness.

[Alternative Fuel Life-Cycle Environmental and Economic Transportation \(AFLEET\) tool](#)

The AFLEET tool uses data from Argonne's Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) fuel-cycle model to estimate petroleum use, greenhouse gas emissions, air pollution emissions, and cost of ownership of light-duty and heavy-duty vehicles.

[Future Automotive Systems Technology Simulator \(FASTSim\)](#)

FASTSim simulates fuel and energy consumption for a range (e.g. conventional, electric, hybrid, fuel cell) of vehicle types that can be used to evaluate vehicle performance under a range of driving conditions. In less than 5 minutes, users can perform efficiency and cost comparisons of vehicle powertrains.

4. Learn What Electric Vehicles Are Available In Maine

While considering your fleet transition, it's important to know what EVs are currently on the market and which ones are available in stock and for funding opportunities.

Maine Clean Communities has multiple [fact sheets](#) listed on our website that go into detail over the different types of EVs, including, Light-Duty Vehicles, Medium, and Heavy-Duty Electric Vehicles, as well as charging infrastructure resources.

Efficiency Maine has a [comprehensive list](#) of all Maine car dealerships that participate in their EV rebate program.

- Light-Duty Vehicles: maximum Gross Vehicle Weight Rating < 8,500 lbs.

The most common Light-Duty EVs you'll see in municipal fleets are the [Chevrolet Bolt](#) and [Nissan LEAF](#). The [Toyota Prius](#) is also popular, although it's a Plug-in Hybrid Electric Vehicle (PHEV).

Common uses for PHEV could be for Code Enforcement, Fire Chief, Police Chief and other municipal leaders.

- Medium- and Heavy-Duty Vehicles:

There are several different options for Medium- and Heavy-Duty EVs on the market. They include transit busses, school busses, shuttle busses, cargo vans, medium-sized trucks and more. [Global Commercial Vehicle Drive To Zero](#) keeps an updated list of Medium- and Heavy-Duty technologies.

[Mount Desert Island](#) High School just purchased their first EV school bus for around \$350,000 in 2021 and approx. 80% of it was funded through the Volkswagen Emissions Fraud Settlement.



Lion Electric Type C School Bus

5. Building a Team for an Electric Fleet Conversion

Transitioning a municipal fleet to EVs will require support from several key leaders within the municipality. Consider building a team of leaders from several departments to spearhead the transition. This team can spearhead fleet analysis, EV procurements, develop fleet priorities and advocate for electrification. Key members may include, but are not limited to:

1. **Municipal Fleet Manager:** Getting the fleet manager on board with city fleet electrification will be a significant step. The fleet manager determines vehicle options to offer department heads for new purchases. They have the power to shift the offered vehicle options to electric only. Connect with the fleet manager on current vehicle inventory and if there is a plan to retire and replace vehicles with EVs in the upcoming years. Fleet managers may also determine to “right-size” their fleet (fleet manager determines vehicles aren’t being effectively utilized – may result in shifting vehicle allocation or needs) which could be used as a potential funding source for new EVs.
2. **Municipal Finance Director:** The city finance director will usually be the member who would guide the municipal fleet electrification assessment. The assessment consists of data on the total cost of vehicle ownership, identifying new fleet compositions and establishing a long-term program for replacing gas-powered vehicles with EVs. The finance director should explore public-private partnerships to reduce costs.
 - A private-public relationship might look like: Partnering with a utility company to have them install/own/operate the charging infrastructure.
3. **Sustainability Director:** If your municipality has a sustainability director, this person can help make the case for fleet electrification based on environmental benefits to meet the city and state climate action plans. If your municipality does not have a sustainability director, the host organization of [Maine Clean Communities](#), [Greater Portland Council of Governments](#) sustainability team may serve as this role.
4. **Elected City Leaders:** Determine if the mayor, city council members, or other elected officials are willing to champion a stance on climate action and discuss city fleet electrification with them.

Alternative positions could be the director of public works, town or city manager and board members.

Installing EV Infrastructure

1. Municipal Electric Vehicle Charging Stations

To ensure a smooth and efficient transition to an EV fleet, municipalities must ensure the proper infrastructure is being installed to meet charging demands. Depending on the charging station your municipality purchases, an EVCS can have multiple charging ports and can handle multiple vehicles. Some important factors to consider: what level chargers are needed, where will the chargers be located and whether or not they will be “network” or “non-network” chargers.

Breakdown of what charging infrastructure is available and best uses

Level 1 Chargers: Standard 120V outlet (standard home outlet). The charge time can vary between 8–15 hours. This would be an option for municipal EV’s that don’t have high daily milage requirements.

Typical Costs: \$300 - \$1,500 on equipment; 0 - \$3,000 on installation costs.

Level 2 Chargers: 240 volts of AC power from source to hardwired charging unit to the vehicle. The charge time can vary between 2-10+ hours depending on the vehicle. This is the perfect option for municipalities that park their fleet vehicles in the same location overnight.

Typical Costs: \$400 – \$6,500 on equipment; \$600 – \$12,700 for installation. Network charger will increase costs.

DC Fast Chargers: High-powered DC fast-charging station delivers DC power directly to the car bypassing the on-board charger. Charge time will be approx. one hour and if the charging station is both open to the public and a networked, can help offset the cost of fleet investments through charging fees.

Typical Costs: \$10,000 - \$40,000 on equipment; \$4,000 - \$51,000 installation



Source: Shawn Patrick Ouellette, Portland Press Herald Staff Photographer

Network vs. non-network chargers:

Network EV Charging Station:

With network chargers, fleet managers have the ability to see additional levels of data and control capabilities vs. a non-network station. Fleet managers can access updates remotely, utilize built-in reporting and analytics on charging usage and energy costs. Network chargers tend to be significantly more expensive for access to these features. If municipal lots are open to people who aren't fleet drivers, network chargers allow you an additional layer of control and potential opportunity to collect revenue from public usage.

Something to consider when choosing a network charger is whether or not you're locked into a contract or can switch servicers at any time, and whether or not you'll be stuck with specific hardware options with certain providers.

Non-network EV Charging Station:

Non-network stations are a much cheaper option with the tradeoff of having less access to extra features, robust data collection and control options. These standalone stations are not connected to a EVCS network and cannot be accessed remotely.



Financing and Budgeting

When exploring fleet electrification, there are a variety of funding sources available to help offset the overall cost of both the vehicle charging infrastructure in the form of rebates. These will typically be offered directly through the car manufacturer or Efficiency Maine.

Explore implementation of opportunities and strategies early in the process. Try to secure a commitment from stakeholders to allocate funding to electrifying the municipal fleet. Getting stakeholder commitments may help avoid possible organizational budgeting barriers.

Here are a few funding opportunities for municipalities to take advantage of:

1. Cooperative & Bulk Purchasing Strategies

[Cooperative purchasing](#) may be a good option if your municipality has strong partners within the state. It's a strategy used to negotiate the procurement of EVs at a lower cost for the purchasing parties.

“Cooperative purchasing is a method of procurement conducted by, or on behalf of, one or more governmental units for use by other governmental units.”

[City of Portland, ME](#) is planning to utilize a bulk purchasing program to offer lower-cost building and vehicle clean energy equipment as part of the “Electrify Everything” campaign.

2. State Funding Incentives

Electric Vehicles:

When purchasing a new EV there are often a variety of funding sources available to help off-set the overall cost of the vehicle in the form of rebates. These will typically be offered directly through [Efficiency Maine Trust](#).

Efficiency Maine Trust, Maine Governmental Entities EV Rebates:

Type of Vehicle	Rebate Amount
NEW Battery Electric Vehicles (BEV)	\$7,500
NEW Plug-in Hybrid Electric Vehicle (PHEV)	\$2,000
Level 2 Charger	\$350 per plug

Purchaser Eligibility:

- A Maine Governmental Entity or a Tribal Government located in the State of Maine. Entities sharing the same Employer Identification Number (EIN) will be considered one entity and will be subject to the limits per Purchaser outlined below.

Rebate requires pre-approval: Efficiency Maine [rebate application](#)

Rebate Limits:

- Maximum of 5 EV rebates per entity/organization per 12-month period, of which not more than 2 may be for leased EVs.
- Rebate amounts are contingent on funding and subject to change. Please check this page to determine the most current rebate amounts.

Charging Infrastructure:

Some of the biggest capital costs involved with fleet electrification are purchasing the electric vehicle charging station(s), hiring contractors to install them and any associated maintenance and upgrade costs. The two major sources of charging infrastructure incentives in Maine are:

- [Efficiency Maine](#) consistently updates their available EV charging station incentives with current rebate and grant information.
- [Central Maine Power](#) is exploring a “Make-Ready” program funding to advance EV charging accessibility.

3. Federal Funding Incentives

- FuelEconomy.gov has a full list of [EV tax incentives](#) for every car manufacturer currently available.
- The [Low or No Emission](#) competitive program provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities.