



**LIGHT DUTY
COMMERCIAL
AND
MUNICIPAL
FLEETS**

LIGHT-DUTY COMMERCIAL AND MUNICIPAL FLEETS

Municipal, utility, and commercial light-duty fleets are poised to be a crucial tool for spurring the adoption of electric vehicles (EVs) by making EV use more visible within a community. Currently available models of EVs include sedans, SUVs, light-duty trucks, and vans, all of which are often found in light-duty fleets. Fleet vehicles that take short trips and return to a designated parking location are ideal EV candidates, due to the predictability of use for battery range planning and charging infrastructure siting.

New EV goals and programs from federal, state, and local governments, as well as commitments from auto manufacturers to stop manufacturing ICE vehicles indicate that fleet managers need to begin planning for fleet electrification immediately. For many organizations, this means restructuring procurement, budgeting, long-term capital project planning, and operations. It will require more proactive involvement with local utilities and local building and planning authorities. By integrating EVs into commercial and municipal fleets, organizations can significantly reduce operational costs and greenhouse gas (GHG) emissions. EV topics and strategies around light-duty fleets include considerations for internal processes and support for EV fleet integration. While most strategies in this focus area discuss municipal fleets specifically, most of the information is applicable to commercial fleets as well.

Key Considerations for Fleet Managers Getting Started (Daniels & Nelder, 2021)

- Plan and install charging infrastructure before purchasing EVs.
- Engage with your electric utility to plan for charging infrastructure; be realistic about what types of chargers are necessary.
- Engage your electric utility to understand rate structures and minimize costs.
- Consider charging as a service, to effectively manage the charging of vehicles at scale.
- Prepare for grid power disruptions, including backup power.
- Address internal budget processes to incorporate the true cost of ownership.
- Collect data on your fleet, through telematics, to inform which vehicles make sense to electrify.
- Scale up purchasing of different models gradually; some vehicle types may not have a satisfactory EV replacement for several more years.
- Consider leasing vehicles to manage uncertainty.

PHASED APPROACH

Electrifying your community's fleet vehicles can be a great way to lead by example and demonstrate commitment to advancing transportation electrification overall. Depending on where you are in the process, it can be challenging to know what steps to take next, or even where to begin. Consider the following phased approach to inform your first or next steps.

Phase 1 - Laying the Groundwork

Preliminary research and evaluation are important first steps to help guide your community's fleet electrification process. Evaluate your fleet to better understand which vehicles might be eligible for replacement soon, and which vehicles would be good candidates for electrification. Research vehicle types and charging infrastructure to understand options for converting a few or many fleet vehicles. Explore funding options and financing mechanisms, to inform the procurement of new vehicles and any necessary charging infrastructure.

Phase 2 - Pilot Vehicles

Once you've done some research, consider selecting one or two vehicles to electrify. This can serve as a pilot project to inform future electrification efforts. Pilot vehicles can be "low hanging fruit" - vehicles that are very well suited for electrification and ready for replacement. Pilot vehicles can also be used to demonstrate the value of electrifying ahead of typical replacement schedules, or even to test the electrification of medium and heavy-duty vehicles, or vehicles with special uses, such as police vehicles.

Phase 3 - Full Fleet Electrification

Use the information you collected in Phase 1 and lessons learned in Phase 2 to plan for electrifying a larger portion of your fleet. Basic components of a full or partial electrification plan may include a goal, a vehicle replacement plan, and a charging infrastructure plan. Additionally, consider any necessary supporting strategies to ensure success. These strategies may include developing signage, employee education and training, and even community outreach and education.

Community Outreach and Education: Community outreach and education can be an important part of all phases of municipal fleet electrification. Sharing progress, successes, and lessons learned can help show your commitment to transportation electrification. Further, it can be both an inspiration and a learning opportunity for other community members, such as large employers, who might be interested in electrifying their own fleet.

Who Are the Target Audiences for Strategies Included in This Focus Area?

- Community fleet managers
- Community sustainability professionals
- Motor pool managers
- Fleet managers from local businesses
- Fleet maintenance staff

Key Messaging

- Cost savings
- Lead by example
- Prepare for the future
- Central parking facilities, as well as predictable routes and use, facilitate EV conversion

Typical Barriers

- Budget limitations
- Up-front cost of charging infrastructure
- Maintenance staff and other employees lack familiarity with EVs
- Limited EV offerings among SUVs and light-duty trucks in current market

What Are the Most Effective Outreach Channels for These Strategies?

- Internal city working groups
- Business peer organizations
- Local advocacy groups
- Pilots and demonstrations



VEHICLES

The strategies in this topic area focus on identifying vehicles in a municipal fleet that are good candidates for EV conversion, as well as selecting appropriate EV models to meet fleet needs. Choosing vehicles for a light-duty fleet is one of the most important decisions in exploring transition to an electric fleet overall. There are many factors to consider when choosing the most suitable vehicles for the job, including: use patterns, operating environments, safety, and maintenance. Light-duty fleets often consist of a range of passenger sedans, SUVs, light-duty pickup trucks, and vans.

Basic Information

Some fleet vehicles are a better fit for electrification than others based on patterns of use and current EV model type availability. Light-duty vehicles (Class 1–2) are generally viewed as being ready for EV adoption now. Medium-duty vehicles (Class 3–6) are expected to become available over the next 5–10 years. According to a survey of fleet managers, most believe that manufacturers will need to accelerate their production plans for heavy-duty vehicles (Class 7–8) and some of the heavier medium-duty vehicles for fleets to be able to meet their electrification targets by 2040 (Daniels & Nelder, 2021).

As a general rule, vehicles that travel short distances and return to the same location each night are good candidates for EV replacements. These vehicles can be fully charged each night. Low-range EV models are typically more affordable, which often makes them the most feasible EV fleet option.



First Steps and Quick Wins

The following are lower-cost strategies that can be implemented relatively quickly, for fleet managers who are ready to start incorporating EVs into their fleets.

Purchase a Pilot Vehicle

To start exploring how to best incorporate EVs into your municipal fleet, first choose a nonessential vehicle that is available for use by multiple staff members and replace it with an EV. Providing one vehicle that community staff members can check out is a good place to start. Be sure to introduce staff to the vehicle and provide basic EV training that includes:

1. **Appropriate Trip Type:** Based on the battery range of the pilot EV, provide guidance on the length of trips that are most appropriate.
2. **Available Charging Infrastructure:** Show staff members how to find public charging infrastructure, should it be necessary, and provide guidance on how to pay for charging (based on your community's expense and reimbursement policy).
3. **Basic Vehicle Operation:** Show staff how to use the vehicle including how to plug in the charger appropriately.

By way of introduction, you can host an internal ride-and-drive event where staff can test drive the vehicle and ask questions about how to use it. Provide an avenue for staff members to give feedback about their experience and offer suggestions for other vehicles that might be a good fit for EV conversion.

Maintain an EV Feasibility Inventory

EV feasibility inventories or studies can help inform electrification without the need for advanced, sometimes expensive telematics data. To start, develop and maintain an inventory of all vehicles currently in the light-duty fleet. Keep track of as much basic vehicle and usage data as is feasible, including metrics for daily travel like typical occupancy and trip duration. These categories can provide valuable insight about the how a vehicle is typically used, which is a major factor in the feasibility of electrifying fleet vehicles. Keep in mind that some vehicles may have unusual uses that can make electrification challenging. For example, a survey of fleet managers found that some trash trucks may be expected to act as snowplows during severe winter storms (Daniels & Nelder, 2021). Fleet managers may find a suitable EV for the primary use that doesn't meet the needs of the secondary use (e.g., snowplowing) because of the charging time required. This example demonstrates that the EV transition may require creative changes in operations to achieve full fleet electrification.

Once data has been collected, identify fleet vehicles that could be replaced by an EV and still fulfill the fleet's overall needs. Rank or prioritize the replacement of each vehicle. Other considerations include vehicle replacement plans, vehicle procurement processes, and budget cycles and availability.

Examples of internal feasibility studies include:

- The [City of Minneapolis](#) in Minnesota organized a [fleet study](#) in 2017.
- The [Cities Charging Ahead!](#) initiative included 28 cities across Minnesota under the leadership of [Great Plains Institute](#) and [Clean Energy Resources Teams](#) (CERTs) to receive technical assistance such as feasibility studies regarding EV fleet adoption.

Identify EV Models

Identify a specific, currently available EV model that could best replace current vehicles, based on typical use patterns. Several aftermarket offerings in the SUV and light-duty truck categories are regularly being added to original equipment manufacturer lineups, which means that your specifications will need to be updated semiannually. Characteristics that should be considered when choosing replacement models include:

- **Vehicle Type:** Does the community want to convert to fully electric battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), or some of each? Greater maintenance savings and emissions-reduction savings are found in BEVs; therefore, many communities are targeting transitioning to these vehicles to support carbon-reduction goals. PHEVs can be a good choice for communities that have not fully built out the required charging infrastructure or that use fleet vehicles for trips that exceed the range currently offered by BEV models.
- **Vehicle Range:** Be sure that the EV's battery range is consistent with the trip types required for the vehicle. If occasional longer trips are required, consider whether there are public charging options available along the route.
- **Payload:** Determine the hauling capacity needed for tools or other supplies and whether the vehicle will be used to transport multiple people to decide whether a passenger sedan, SUV, or truck is most appropriate. Be cautious about simply replacing like for like, as vehicle use may have changed since the vehicle was purchased and a different vehicle type may now be more appropriate.
- **Warranty:** Many communities are concerned about the potentially significant maintenance costs required if vehicle batteries start to lose capacity and need to be replaced. When selecting fleet vehicles, research the various manufacturer warranties.

[EVA](#)doption maintains a [list](#) of PHEVs and BEVs currently available in the United States as well as EV models for other [vehicles that are anticipated](#) in the near future.

Larger Efforts and In-Depth Studies

The following are longer-term strategies for fleet managers who want to do a complete or near complete transition of their fleet to EVs.

Develop a Vehicle Replacement Plan

Incorporate EV transitions into fleet vehicle replacement plans. Every ICE vehicle procured today represents a 5- to 10-year delay in achieving full fleet electrification. A survey of fleet managers found that where EV substitutes are available today, some fleets plan to wait until their existing ICE vehicles reach their planned retirement point before replacing them, while others plan to retire existing ICE vehicles early in order to capture operational savings from BEV replacements. Most fleet managers surveyed aim to replace a vehicle after six years or around 60,000 miles, to avoid expensive repairs and procure a reasonable amount of residual value through auction. Note that maximizing the residual value from EVs may not be as lucrative since there is a greater risk of technology obsolescence. Other fleet managers surveyed replaced vehicles after eight to ten years. Vehicles like police cruisers that are used nearly 24 hours a day are replaced more often (Daniels & Nelder, 2021).

By determining which vehicles are due to be replaced over the next 5–10 years, the community can identify opportunities to incorporate EVs, the required infrastructure to support EVs, and the budget needed for vehicle replacement and installation of charging stations. EVs currently have a higher up-front cost, which is typically offset by fuel and maintenance savings over the lifetime of the vehicle. Some opportunities may allow communities to use the money saved from reduced fuel costs to help cover the up-front costs of the vehicle.

Conduct an In-Depth Fleet Study

Conduct a fleet study to help to identify opportunities for trips that can be taken with EVs and ways to maximize the fleet's EV miles traveled. The study can also identify ways to optimize charging to reduce fleet operation costs. Fleet studies can be conducted internally or through a third-party consultant. Internal audits can be completed on a regular basis to ensure accurate data of fleet vehicle use and performance. External fleet studies can offer long-term analysis and planning support. Information that should be gathered and analyzed in a fleet study includes (Fleet Financials, 2007):

- Fleet and corporate policies regarding vehicle specifications, performance reviews, etc.
- Policy compliance including expense reports, driver assessments, and other fleet-related policy activities
- Records and documentation of all fleet vehicle registrations, titles, maintenance, repairs, and operations — this also includes any accident reports or other large expense reports for each vehicle.
- Records of all fleet vehicle trips, drivers, mileage, etc. — this data can also be collected using additional hardware such as GPS and other tracking equipment.

Xcel Energy's Fleet Electrification Advisory Program (FEAP) assists qualifying customers with an in-depth fleet study. The program begins with an analysis to help determine the best course of action for fleet electrification. In partnership with Sawatch Labs, participating in FEAP allows fleet operators to assess individual vehicles to determine if the vehicle's driving needs could be met with an electric vehicle (EV). Additionally, FEAP assesses charging site suitability and estimates the cost of infrastructure installation. Finally, FEAP helps advise on rate plans, pilots and programs to lower costs. At this time, FEAP is a pilot program, but may expand in future years. For more information visit: https://www.xcelenergy.com/programs_and_rebates/business_programs_and_rebates/electric_vehicles/fleet_electric_vehicles.

You can contract third-party companies to review fleet use and make recommendations about EV transition. These studies include installing telematic devices on select fleet vehicles that track data in real-time, including idle time, acceleration patterns, and daily miles. After multiple months of data collection, summaries of the data and an accompanying analysis report regarding feasibility for EV transitions are compiled for the fleet manager. This work provides insight about the potential performance and cost-benefits of EVs in your fleet. While all communities are different, some major takeaways from fleet studies in Minnesota found that (Cella, 2019):

- The correlation between average daily miles driven and dollars saved by switching to EVs is the most significant of all metrics. However, this is limited by the battery range of EVs. As battery technology continues to improve, the cost savings potential with EVs on longer distances will also improve.
- Vehicles that take many short trips are ideal candidates for EV conversion and result in quick savings.
- Vehicles that spend a lot of time idling are also ideal candidates for EVs, as they reduce the amount of fuel being wasted and the amount of tailpipe emissions being released during idling.

Examples:

- The City of Westminster in Colorado completed an [EV Action Plan in 2020](#). Preliminary strategies include conducting an in-depth fleet study, which will help the City update their vehicle replacement plan to include additional EVs.
- In partnership with Sawatch Labs, North Carolina conducted a [2019 Electric Vehicle Suitability Assessment](#) to identify recommendations for electrifying vehicles in North Carolina's fleet vehicles, which are distributed in dozens of communities across the state.
- In 2019, NREL conducted a [multi-jurisdictional fleet study](#) that included Louisiana, Connecticut, Rhode Island, Colorado, and Florida Power and Light. This study pulled data from smartphone and traditional telematics to identify barriers and opportunities for electrification in each jurisdiction. The study found that smartphone telematics are a convenient, low-cost method of data collection, but are not as robust as traditional telematics.
- The [City of Minneapolis](#) in Minnesota organized a [fleet study](#) in 2017.

CHARGING EQUIPMENT

These strategies are designed to help understand and plan for the infrastructure requirements associated with light-duty fleet electrification.

Basic Information

In order to keep an EV fleet in motion, charging equipment must be available. How often a vehicle needs to be charged depends on its range, use, and other factors. Most vehicles will need to be charged on a semi-daily basis. For more information on vehicle and charging types, see [Appendix A: Electric Vehicles 101](#).

Working with Your Utility

Electric utilities play an important role in many of the decisions regarding use and installation of charging stations for a light-duty fleet. Coordinating with Xcel Energy can help you streamline your transition to an electric fleet. Specifically, Xcel Energy can help you navigate electric rates, metering, and fleet studies. For more information see the working with your utility section. Also, sign up for Xcel Energy's newsletter to receive information regarding available programs and services.

- **Electric Rates:** One of the most important things to consider when installing EV charging equipment is the electric rates that will apply to the energy used by the chargers and the fleet. Electric rates may include time-of-day rates, electric demand rates, and electric use rates. See [Appendix A: Electric Vehicles 101](#) for more information on each component. Consider potential energy demand charges and energy use rates, as such price adjustments could increase energy costs by 45% to 89% if not properly managed (Fathy & Carmichael, 2019). Your Xcel Energy representative can help you understand your options to pursue the most cost-effective scenario. Share with your account representative your expected use patterns including number of charging stations, timing and frequency of expected charging, and any charging controls such as programmable schedules or external intervention controls. Vehicle use pattern studies can be used to help inform these conversations.
- **Metering:** Another consideration associated with supplying electricity to EV charging stations is the metering structure. Many fleet managers opt to meter EV charging separate from the electric use of the facility that supplies the fleet. This can yield a better understanding of the energy use and operating costs of the fleet and allow customers to take advantage of electric rates specific to EV charging applications. Work with Xcel Energy to understand the additional costs of installing a separate meter or ensuring that the charging stations have the ability to directly track energy use.
- **Fleet Studies:** Fleet studies can provide valuable insight into opportunities to save energy and money with EVs. Your utility is a good place to start when considering a fleet study as they may have funding or other support available. Contact Xcel Energy first to identify your available options.

Charging Station Placement

The location of EV chargers can have a significant impact on installation cost. When installing Level 2 and Level 3 charging stations, consider:

- **Supply breaker panel and grid capacity:** If the existing breaker panel does not have capacity to accommodate the new demand of the charging equipment, a new panel will need to be installed. This will significantly increase the overall installation cost of a charging station. If a significant amount of charging capacity is being installed, the utility infrastructure on the grid side of the electric meter may not be adequate. Adding grid capacity is potentially costly as well.
- **Distance from supply panel:** Electrical conduits must run from the supply panel to the charging station. For curbside installs, these conduits are typically buried underground. In parking garages, concrete boring may be required to route conduit to the charger location. Both trenching and boring costs as well as conduit material costs can become more expensive as the required distance increases. To minimize costs, locate EV charging stations as close as is safely possible to electrical supply panels.
- **Maintenance facilities:** Fleet maintenance facilities are sometimes overlooked when installing charging equipment for a light-duty fleet. EVs often need to be plugged in during maintenance operations. Engage maintenance staff to determine available supply capacities within maintenance facilities.
- **ADA accommodations:** Consider accessibility when installing EV charging stations, including equipment placement height and setback from existing curbs or parking spaces. [The City of Atlanta](#) in Georgia adapted ADA 2010 guidelines for EV purposes. The City's [report](#) includes drawings and dimensions that allow for easy access to charging stations.

Security

Security of and access to charging stations is another important decision you must make. Many fleets choose to install charging equipment in a private location to guarantee availability for fleet vehicles. This approach is a good way to prioritize fleet use, but it prevents the public from using charging stations when fleet vehicles are not using the equipment. Consider feasibility and usability goals of the charging stations to determine the location and security level of the stations.

Signage

You must also consider signage for charging stations. For publicly available charging facilities, the Federal Highway Administration (FHWA) has set minimum signage standards. These requirements are laid out by the [U.S. Department of Energy](#) and can be found in the [Alternative Fuels Data Center](#). Some more examples of signs can be found in the [Plug-In Ready Michigan](#) from [Michigan's Clean Energy Coalition](#).



First Steps and Quick Wins

These strategies can be implemented with minimal time or capital investment and are a good place to start for communities that want to better understand what EV charging infrastructure will be required to support an all-electric fleet.

Develop an Inventory of Potential Charging Sites

Use data about current fleet vehicle use (from a fleet study or another data source) to identify potential siting for EV charging stations. Use information about where fleet vehicles are kept when not in use and information about frequently visited locations to develop a preliminary inventory of potential charging sites. These sites can be checked against the location of electric equipment to narrow your list of potential sites. Contact your utility about possible programs to support charging station installation.

Develop a Time-of-Use Charging Plan

Where possible, enable charging controls to manage the time(s) of day at which vehicles charge. Optimize EV operations to take advantage of time-of-use electric rates by charging during off-peak hours, which can keep energy costs low. Many utilities, including Xcel Energy, base their electric rates on many factors, including energy use, peak demand, and time of use. Understanding these factors and the charges associated with each is essential to optimizing the way your EV fleet operates.

Many municipalities choose to use charging station controls, which allow charging to be managed from a central location. Furthermore, charging station controls do not interfere with the vehicle's ability to charge midday as needed. Software tools to help fleet operators manage charging costs are available from organizations such as [ChargePoint](#) and [AMPLY](#). Also consider opportunities for staggering EV charging so all vehicles are not charging at the same time.

Your Xcel Energy account manager can help you understand available rates and determine the most cost-effective option for your charging your fleet.



Larger Efforts and In-Depth Studies

The following charging equipment strategies may require additional planning, budget, and in-depth studies to help facilitate successful selection and installation of charging stations for light-duty fleet use.

Develop a Detailed Implementation Plan

Create an implementation plan that details specific steps that will be taken to install EV charging stations and infrastructure for your light-duty EV fleet. This can be included as part of a larger implementation plan for community-wide fleet electrification or can be produced separately. The plan should cover siting considerations and decisions, equipment choices, grid infrastructure needs, metering, contractor selection, and a timeline and schedule. You could evaluate new construction projects such as public parking, garages, maintenance facilities, and transit centers and ensure they are designed for current and future EV demand. Note that existing parking structures may require additional cost and effort to retrofit due to post-construction boring and conduit costs.

As you determine where and how much charging infrastructure to build, take a long-term view in order to reduce the total cost of the infrastructure. A survey of fleet managers found that only the largest organizations are taking a long-term, comprehensive approach to charging infrastructure. Most organizations are only adding a few EVs, and a few chargers to support them, incrementally each year. This is the most expensive way to develop a fleet's charging infrastructure and can lengthen the amount of time it takes to recover costs. Before you begin infrastructure planning, identify how many EVs you expect in your fleet, along with estimated charging requirements for those vehicles. Once you have developed this forecast, research from RMI recommends the following future-proofing techniques (Daniels & Nelder, 2021):

- Control electricity costs by managing the overall charging load.
- Consider your long-term vehicle replacement plan, to optimize the charger-to-vehicle ratio.
- Centralize high-powered chargers at a single location.
- Where possible, install the capacity for charging infrastructure (e.g., conduit, panel space) during initial construction to enable future expansion.
- Build charging infrastructure under a single master contract to ensure equipment and platform interoperability.

Coordination with your electric utility while developing this plan is vital to understand the full costs of installing charging infrastructure, which will also help inform site choice and prioritization. Some key points of coordination include

1. **Required Service Upgrades:** Your utility account manager can help you understand, based on anticipated number and size of charging stations to be installed, if service upgrades will be required to cover the additional electric load and what the associated costs may be. If service upgrades are required, it may be a good opportunity to install EV charging on a separate meter to take advantage of special EV charging rates that may be available.
2. **Utility Rate Analysis:** Coordinate with your electric utility to understand the rate implications of the proposed infrastructure. The anticipated size and timing of electric load will help determine if it is most cost effective to add the charging equipment to the building meter or if it should be sub-metered.
3. **Available Resources:** Many utilities are starting to provide incentives for the installation of fleet infrastructure. In some cases, the utility will install, own, and operate the infrastructure up to and possibly including the charging station significantly reducing the costs of installation. For specific Xcel Energy programs see [Working with Xcel Energy](#) or visit [the Xcel Energy website](#).

Charging as a service: Charging-as-a-service (CaaS) providers can help you manage the complexity of planning for and operating charging infrastructure, and shifts the risk from the fleet manager onto the CaaS provider. CaaS services can include all or a mix of the following services:

- Procuring and installing chargers
- Planning for future expansion
- Coordinating with the electric utility
- Managing charging, to minimize utility bills and ensure vehicles are charged when needed
- Maintenance and billing

Examples:

- The [U.S. Department of Energy](#) funded the Aggregated Alternative Technology Alliance to publish an [EV fleet procurement guide](#) in 2014 regarding municipal fleet electrification.
- The [Bay Area Climate Collaborative](#) compiled an [EV fleet deployment strategy guide](#) in 2015 to help municipalities in the San Francisco Bay Area transition to EV fleets.

Install Charging for Municipal Fleets

Work with local contractors to install the required charging infrastructure for your fleet. For many communities, installing EV charging stations is often the first big step toward an electric fleet. Use the location inventory you developed to select specific sites to install charging station. Once specific locations have been selected, obtain quotes from electrical contractors.

Work with your Xcel Energy account representative to upgrade electric services or install new meters as applicable. **Engaging Xcel Energy early in the planning process is important for timely progress.**

EMPLOYEE ENGAGEMENT

EVs can be an exciting new addition to municipal fleets for many employees. However, a lack of understanding can lead to misuse or avoidance of new electric fleet vehicles. Employee engagement is an important consideration that is often overlooked by fleet managers. For electric fleets to be used effectively, employees must understand the new technology and become familiar with using it. Employees must feel comfortable using an EV instead of an internal combustion engine (ICE) vehicle. Employees should also know how to maximize the benefits of EV use.

First Steps and Quick Wins

Strategies in this section can be easily and inexpensively implemented to encourage employees to understand and use the EV fleet.

Include EV Use Training in Employee Onboarding Process

Add training on how to use the EV fleet in the employee onboarding process as an easy way to boost exposure to and engagement with EVs. This training should include general information on EVs and the charging infrastructure used by the community, as well as relevant procedures on how to check out, use, and charge the employer's EVs.

Example:

- The [U.S. General Services Administration](#) developed example [training series material](#) in 2016.

Host a Ride-and-Drive Event with Fleet EVs

Ensuring that employees are comfortable using EVs is crucial to the effectiveness of the new technology. A great way to facilitate this is by exposing employees to the vehicles in a relaxed, no-pressure environment. Ride-and-drive events with fleet vehicles is a great way to accomplish this goal. These events can be a fun way to build excitement around EVs and bring them into the culture of the organization. Like community ride-and-drive events, employees can test drive EVs in the fleet and ask any questions they have about using them.

Examples:

- The [New York Department of Environmental Conservation](#) hosts [Green Your Commute Days](#) to help employees become familiar with EVs.

Involve Enforcement Personnel in Development of EV Policy

Ensure that your EV charging station policies are effectively enforced. This will help prevent unauthorized use or blockage of charging equipment. By involving local law enforcement or private security staff in the development of EV charging station regulations, enforcement personnel will be prepared to monitor the charging stations.

Establish Avenues for EV Feedback

Successful transition to an EV fleet requires employee buy-in. Strong two-way communication channels between the fleet manager and staff can help employees feeling involved in the process. Open and honest communication will help ensure that the transition to an all-electric fleet is as smooth as possible. The communication channel may vary based on the type of communication required. Some examples are provided below.

- **Constructive Criticism:** Feedback in this category might include correcting employee behavior around inappropriate use of charging or aggressive driving in company vehicles. These types of behavior are generally best handled on a one-on-one basis. Ideally, there would be a face-to-face conversation, but if that is not feasible, a personal phone call is likely most appropriate.
- **Personal or Group Praise:** This type of feedback can involve a group reaching their goal for EV use or other related milestones. This feedback is most effective when shared publicly. A community could set up an EV message board to share goals and successes with staff members.
- **General Information:** Updates about EV policy, charging station use procedures, or information on how to check out an EV from the vehicle pool should be shared periodically. A community could include a webpage on their internally facing website where staff members can access up-to-date information, or they could create a monthly informational email with any pertinent updates.
- **Anonymous Feedback:** Be sure to set up a mechanism for staff members to provide feedback on what is working and what could be improved. This could be a suggestion box in the break room or an anonymous survey.

Larger Efforts and In-Depth Studies

The following strategies seek to involve employees in the transition to an electric light-duty fleet. These strategies can result in long-term success and may require additional time and funding.

Develop EV Training for Maintenance Staff

Support employee professional development by providing training to fleet mechanics on EV maintenance and repair. Maintenance staff may need additional certifications to be qualified to work on EVs. Coordinate with fleet maintenance staff to determine if EV maintenance will take place in-house or if outside training will be required. Local community or technical colleges may offer courses in EV maintenance and may be good options for staff professional development.

Example:

- The [Clean Tech Institute](#) offers a [certified EV technician training program](#).

Involve Employees in Planning Process

Involve employees that are the most likely to use the EVs in the planning and procurement process. These employees could offer input about vehicle preferences as well as insight into which models will most effectively meet the needs of the fleet. Employees could participate in EV planning workshops or working groups to provide feedback on fleet use. Including employees on road tests will aid in the selection and procurement of vehicles, boost interest in the new vehicles, and help employees feel comfortable using the electrified fleet.

PROCUREMENT

Strategies in this topic area focus on helping fleet managers procure light-duty EVs.

Basic Information

Up-front costs for purchasing EVs and charging stations are currently considerably higher than ICE vehicles. However, due to the cheaper and more consistent price of electricity compared to petroleum, as well as the lack of certain routine maintenance (such as oil changes), the lifetime costs of EVs are typically significantly lower than ICE vehicles. Additionally, reduced GHGs can result in healthier communities, which means fewer resources being used to treat pollution-related illnesses. Communities can apply for grants and other funding sources to transition to an all-electric light-duty fleet. For more information about costs and benefits of EVs, see [Appendix A: Electric Vehicle 101](#).

EV charging stations can either be owned and operated by the community, or the manufacturer can retain ownership and operations of the charging station. Community-owned and operated charging stations may be the ideal option if intended for fleet vehicle use only. For charging stations that are available to employee personal vehicles, fleet vehicles, and the general public, many communities have learned that it takes more time and effort than they anticipated to own and operate these multi-use charging stations; therefore, many communities have shifted to a third-party management model.

The third-party management option means that the charging station manufacturer retains ownership of the station. The terms of the agreement are determined on a case-by-case basis but may include the manufacturer renting the spot from the community, splitting the profits generated by the station, or using the location in exchange for handling all planning, setup, and operations.

Common Barriers to EV

Procurement: A report from Rocky Mountain Institute (RMI) identified common procurement policies that can act as barriers (*Daniels & Nelder, 2021*):

- Buying from a bid list or through long-term purchase agreements that doesn't enable procuring from new manufacturers or dealers who are selling models that reflect rapidly evolving EV technology
- A combination of local dealer and two bid requirements means there needs to be two local options that may not offer new EV models
- Special process requirements for vehicles not pre-approved
- RFP and/or excessive quotes
- Centralized vehicle replacement fund that doesn't factor in the total cost of ownership

First Steps and Quick Wins

Strategies in this section are starting points to help communities pursue an all-electric light-duty fleet. These strategies can be quickly implemented with limited financial investment.

Refresh Procurement Guidelines

Add procurement guidelines for your community that require staff to justify the purchase of a non-EV option. You can also include a requirement that fuel consumption and GHG be considered as economic factors when making vehicle purchases. This will require procurement processes to capture all benefits of EVs and consider them as a part of the decision criteria.

Example:

- The [Pan-Canadian Framework on Clean Growth and Climate Change](#) developed procurement methodology as part of the 2018 [Greening Government Fleets report](#).

Track Available Incentives

Monitor grants, rebates, and other financial incentives for EV or EV charging infrastructure to help inform purchasing decisions. These resources can also be beneficial for reducing some of the financial obstacles for transitioning light-duty fleets to EVs. Maintaining an updated list of actively running group-buy and other purchasing programs in areas near your community will help you keep up to date on new purchasing programs as they become available and help fleet operators take advantage of programs before they expire. For more information about resources that may be available in your area see the [Appendix D: Funding Resources](#).

Larger Efforts and In-Depth Studies

The following strategies are larger efforts and in-depth studies for integrating EVs into community procurement planning. The benefits from these strategies can provide long-term foundational support for electrifying light-duty fleets.

Plan EV Purchases

Develop and execute a plan to purchase EVs to replace ICE fleet vehicles. This plan should include vehicles identified for replacement, timeline, targeted EV models to be purchased, and any available rebates, grants, or other incentives. The plan should also outline the procurement process, including all of the typical procurement process steps as well as any additional steps needed to take advantage of EV purchasing programs.

Examples:

- Drive EV Fleets is a resource provided by the [Climate Mayors](#) that is designed to help municipalities electrify their fleets and offers a purchasing collaborative.
- The [Pan-Canadian Framework on Clean Growth and Climate Change](#) included EV purchase planning as part of the 2018 [Greening Government Fleets report](#).

Develop a Group Buy Program

Developing a group-buy program can help to ease procurement obstacles if no other funding programs are currently available. Establishing a new group-buy program can also benefit other members of the community interested in purchasing an EV.

Example:

- The [Southwest Energy Efficiency Project](#), in partnership with the [Colorado Energy Office](#), developed a [group-buy program handbook](#) to help spread information about the benefits of group-buy programs and how to effectively develop one.

Explore Innovative Funding Solutions

A wide variety of incentives, grants, purchasing programs, and innovative funding mechanisms are available for EV fleets and charging equipment. These options are constantly changing, and it can be a challenge to stay up to date. However, it is good practice to periodically explore available incentives and funding options.

Example:

- The [U.S. Department of Energy](#) maintains a [database](#) of federal and state tax credits and other incentives that can help municipalities and companies reduce the overall cost of deploying EV fleets.

Resources

- [Xcel Energy](#) offers [online support](#) regarding how to select the right EV, understanding the benefits, and installing charging stations.
- The [U.S. Department of Energy](#) published a [handbook](#) for fleet managers regarding the integration of EVs into the fleet.
- The [Climate Mayors](#) Electric Vehicle Purchasing Collaborative is working to accelerate the conversion of public fleets to EVs across U.S. cities.
- The [Electrification Coalition](#) developed a [roadmap](#) in 2010 explaining the benefits and methods for electrifying fleets.