

FLEET Electrification Guide



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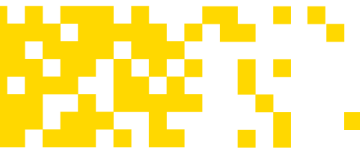
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Table of Contents



Introduction 1

STEP ONE

Familiarize yourself with the Electrification landscape
and assemble your team 2

STEP TWO

Collect data to conduct a fleet assessment 5

STEP THREE

Optimize your fleet with the right Charging infrastructure 7

STEP FOUR

Create your transition plan and begin implementation 10

STEP FIVE

Train your drivers and fleet technicians 11

STEP SIX

Evaluate progress and plan for future adoption 11

STEP SEVEN

Collaborate with other fleet professionals 12

Conclusion 12



LOUISIANA CLEAN FUELS

Introduction

Fleet electrification can be a daunting task. Whether your fleet is transitioning to electric vehicles because of climate goals, customer requests, policy and regulatory mandates, or cost reductions, fleet electrification requires long-term planning and collaboration across internal and external stakeholders.

Louisiana Clean Fuels (LCF) works with fleets across its territory to help fleet professionals:

- Navigate funding opportunities
- Conduct fleet assessments
- Create EV transition plans
- Assist with vehicle and infrastructure procurement and deployment
- Organize training for drivers and technicians

To further support your fleet electrification efforts, we have created a comprehensive Fleet Electrification Guide that can guide you through critical stages of the process and provide the resources and tools necessary for success.

“In support of our commitment to achieve net-zero emissions by 2050, we are working to integrate electric technology into our fleet of light-duty service trucks and other types of on- and off road equipment, aiming to have 50% of our light-duty fleet electrified by 2030.”

– Scott Barrios, former electric mobility portfolio manager at Entergy

Step 1. Familiarize yourself with the electrification landscape and assemble your team

Is Electrification Right for Your Fleet?

Before you begin investing your time into any fleet electrification project, you should first take a look at your fleet's basic operational structure and routes. Electrification can bring significant benefits to your fleet if it is the right fit. Those fleets that are best suited for today's EVs have operational predictability and strong predictive maintenance behaviors. Other indicators of a successful EV conversion are:

- **Proper Use Case:** Some types of fleets are just better suited to EVs – such as last-mile delivery or return-to-base fleets.
- **Operational Discipline:** Are your routes predictable? How well are new policies and procedures adhered to by your drivers? Do you fully utilize your vehicle's telematics data? Fleet management practices are key to the success of any fleet conversion strategy.
- **Long-Term Planning:** Fleets that begin working with their utility and organizations like your local Clean Cities and Communities coalition early on in the process often have better outcomes. The best time to start working on a plan is now – before you purchase your first vehicle.

Before diving into fleet electrification, it's crucial to define your objectives:

- Do you have specific goals?
- Does your organization set targets for greenhouse gas (GHG) emissions reductions or other sustainability metrics?
- Is the reduction of operational and maintenance costs a primary consideration?
- Are there regulatory requirements or emission mandates you must adhere to?
- Has your organization previously deployed other alternative fuel vehicles (AFV) or EVs?

If you answered yes to any of these questions, fleet electrification might be the right direction for your organization.

Before moving on to additional steps, establish an internal team dedicated to fleet electrification and appoint external partners to the project team.

Fleet electrification will be an integrated effort across the organization that requires long-term planning. It is essential to begin engagement with internal departments and stakeholders, particularly those directly affected by the decision, early in the process. Internal stakeholders include teams and leadership from fleet, facilities, finance, sustainability, and procurement departments. Additionally, it is important to gather feedback from drivers and technicians.



Build Relationships with Key External Stakeholders

Electric Utility Provider

If your organization has a contact at the utility, engage with them early to explore how they can support your fleet electrification project. If not, review your utility website for an appropriate contact, typically an area manager or account manager, who can direct you to EV-specific resources and programs. Most major utilities in the state offer incentives to their customers in the form of rebates and technical advisory assistance.

- For fleets that receive electrical service from CLECO, check out the [Fleet Solutions](#) website, fill out the [Fleet Interest Form](#).
- For fleets that receive electrical service from Entergy of Louisiana, check out the [Commercial Solutions](#) website.
- For fleets that receive electrical service from SWEPCO, check out the [Commercial Solutions](#) website.
- If a different utility provides your electrical service, visit their website to learn more about their services and EV programs.

Original Equipment Manufacturers (OEMs) / Dealers

Familiarize yourself with what vehicles are available on the market. It is also important to be aware of current production constraints that may lead to extended timelines for vehicle deployment. If you have an OEM preference, reach out to your contact to see what models are currently available or planned for the future.

- [Alternative Fuel And Advanced Vehicle Search](#)

Electric Vehicle Supply Equipment (EVSE) Provider

Similar to vehicles, familiarize yourself with EVSE providers available in the market. LCF staff can assist you in your search. Please reach out to us for more information.

Fleet Coaches

If your internal team has limited capacity, consider working with a third-party organization to assist in the planning process. LCF can support your organization with any one of these steps outlined in the guide. Learn more here: [LCF Coaching and Technical Support](#).

Identify Funding Opportunities

Research federal, state, and private funding opportunities for your project. Electric fleet vehicles are often more expensive than their internal combustion engine (ICE) counterparts. However, there are several funding opportunities available that aim to cover the added costs of EV adoption. These include:

Incentives

This can include discounts, rebates, tax credits, or tax exemptions for purchasing or leasing EVs or EVSE equipment. Examples:

Federal Commercial Clean Vehicle Credit

Green loans

Loans available at a lower interest rate to help fund clean energy or sustainability projects. Example:

We can help navigate funding opportunities here at LCF. Check out our [LCF Incentives Page](#) for a complete list of EV programs or visit these helpful resources:

- Electrification Coalition Funding Finder
- Electrification Coalition Guide for Funding and Financing Electrification



Innovative Solutions for Fleet Electrification

Fleet electrification is a canvas to test new operations and models for your organization. Consider other strategies like operational leasing or forgoing upfront costs by working with a fleet management company (FMC) or an EV-specific solution provider ('fleet-as-a-service').

Financing and Leasing Options

Explore financing options through OEMs or banks for vehicle leasing. Additionally, FMCs and third-party providers offer comprehensive fleet services, covering leasing, maintenance, service, and charging, all bundled into a convenient monthly fee. This is increasingly becoming an option due to the high capital costs of EV adoption.

Charging-as-a-Service

Charging-as-a-service, similar to 'fleet-as-a-service,' aims to reduce upfront electrification costs. These companies offer all-in-one charging solutions, covering equipment, site design, installation, energy management, and maintenance at a fixed rate.

Step 2. Collect data to conduct a fleet assessment

Once you have assembled your team and have a good sense of the electrification landscape, you will want to analyze your current fleet operations to establish which vehicles are the first candidates for electrification. To conduct a thorough fleet assessment, you will need to collect the following data points on your fleet:

Total number of vehicles	Vehicle types	Engine fuel type
Fuel consumption	Annual mileage	Route information
Engine hours	Anticipated replacement dates	Maintenance and repair costs
Dwell time	Overnight vehicle parking locations	*

* For larger fleets, you may use existing telemetry/GPS data for your assessment to identify optimal vehicles for EV replacement and to project daily charging demands to optimize your charging strategy.

Fleet assessments can be used to make important decisions and build the business case for fleet electrification. Tools like [AFLEET](#) (Alternative Fuel Life Cycle Environmental and Economic Transportation) by Argonne National Laboratory and [DRVE](#) (Dashboard for Vehicle Electrification) by Electrification Coalition can help you analyze the environmental (emissions reductions) and economic impacts (simple payback, total cost of ownership) of EV or AFV deployment.

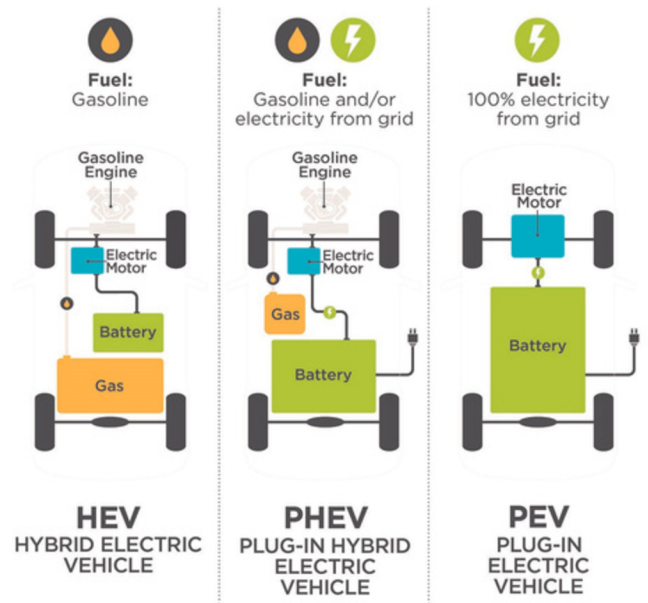


Fleet Assessment Resources

The LCF team can help you with your fleet assessment. In addition, we suggest speaking with your utility provider, who may have its own fleet advisory services and will conduct a fleet assessment for you.

Listed below are other examples of fleet assessment tools available at no cost:

- [Geotab EV Suitability Assessment](#)
- [ChargePoint Fleet Assessment](#)
- [Atlas Public Policy Fleet Analysis Tool](#)



Once you have completed a fleet assessment, you can list which vehicles are ready for electrification. Remember that fleet electrification is a process meant to be done in phases. You will often begin with aging vehicles with shorter routes with direct battery electric vehicle (BEV) replacements. In some cases, plug-in hybrid electric vehicles (PHEV), hybrid-electric vehicles (HEV), or AFVs could be suitable alternatives based on the vehicle's duty cycle or current market availability. Listed below are tools that can help you identify low- to zero-emission vehicle models available now:

- [AFDC Alternative Fuel and Advanced Vehicle Search](#)
- [AFDC Alternative Fuel and Advanced Technology Vehicles](#)
- [CALSTART Zero-Emission Technology Inventory \(ZETI\) Tool](#)
- [Louisiana Clean Fuels –Electric](#)

Step 3. Optimize your fleet with the right EV charging infrastructure






Once your fleet assessment is complete, and you've identified which part of your fleet and routes can transition to EVs, you can begin fitting EVSE for your project. Start by determining the charging locations for your fleet vehicles—whether it's at the depot, on-route, or at-home for take-home vehicles. If your plan involves charging EVs at your facility, identify suitable locations for EVSE installations and determine the charging mix.

- If your property is leased, work with the site owner to ensure EVSE projects and infrastructure upgrades are authorized.
- If you cannot obtain authorization from your site owner or are looking to immediately deploy EVs, options are available to you. These include utilizing mobile EV power stations, shared fleet charging depots, or making use of public charging stations.

Define Charging Needs

Determine the number and type of chargers you need for the project. Consider the following factors when establishing your charging mix:

- **EV specifications:** Range, battery size (kWh), and charge rate of the EV.
- **Vehicle usage:** Route distance, idle time, dwell time, vehicle availability, shift duration, and number of shifts.
- **Alternating-current (AC) Level 2 vs Level 3 direct-current fast chargers (DCFC):** Consider faster charging for larger vehicles or vehicles with high uptime. See the [U.S. Department of Transportation's Primer on Charger Types and Speeds](#).
- **Charger functionality:** Dual-port vs single-port chargers (i.e., will you charge multiple vehicles at the same time using the same station?).
- **Single-phase vs. three-phase power:** Determine if your site has single-phase or three-phase power. Consult with your utility or electrician to understand the electrical load your charging system can handle. Three-phase can handle more power and higher charging speeds than single-phase.

EV Charging Levels	Level 1	Level 2	Level 3
Range Added (per hour)*	3 - 5 miles	20 - 60 miles	150+ miles
Voltage	110 - 120 V	208 - 240 V	400 - 1000 V
Typical Power	1 kW	7 - 19 kW	50+ kW
Location		 	 

*All ranges are estimates and dependent on several factors

Define Charging Needs Continued

- **Centralized depot vs. decentralized**

charging: Evaluate whether all vehicles dwell overnight in a single depot (or multiple) and if some are parked at employees' residences. If there is a mix, explore charging options between the different sites.

- Other key questions:
 - Do the changes to your site or energy infrastructure require permits?
 - How close will the installed charging infrastructure be to the existing electrical service?
 - Does your utility have a pre-approved list of charging providers? Equipment? Contractors?

Understand your site space and determine charger locations:

- Where is your transformer in relation to proposed EV charging locations?
- Do you need trenching, an overhead solution, or a mobile solution?
- Consider space requirements if you are dealing with a mixed-size fleet.
- Consider that the charging cord needs to reach the charge port of the vehicle.

Identify your site's capacity and consider these key points:

- What is your current site's electricity capacity, and is it adequate for your electrification plans?
- Collaboration is key for large and public fleets. Engage with both your utility and your organization's facilities or energy team. For smaller projects, consulting with your electrician to assess the current site capacity is advisable. In general, the installation process may require coordination with a site engineer for effective management.
- If you plan on expanding your fleet of EVs in the future, consider asking about future proofing or building infrastructure now to minimize added costs down the road.

Designing Charging Systems

Work with your utility and site engineer to design the charging system and determine if your current energy infrastructure will support increased electricity demand.

- If upgrades are necessary, engage in discussions with your utility to plan the next steps and establish timelines. Note that obtaining the required power for the site may take several months or even years.
- Explore potential incentives offered by your utility for charging infrastructure or equipment. Your utility may provide you with infrastructure upgrades at low to no cost.
- Additionally, consider deploying solar or battery storage to your site alongside EVSE.



Effective Energy Management

Understand how EV charging will affect your electricity consumption and costs. Long-term savings are possible through strategic charging practices. Pay special attention if your organization operates under a demand charge rate. Charging can significantly increase your site's peak power demand if not properly managed. Your utility may offer a special time-of-use (TOU) EV rate for which you can sign up. These rates incentivize off-peak charging (when grid demand is lower), providing a cheaper electricity price per kWh when charging within these time windows.

Charging can be managed manually by setting up a charging schedule for your staff, or you can leverage charging management software for efficient monitoring and control of electricity usage. If charging is left unmanaged, it can drastically increase operational costs.

Sample Rate Schedule

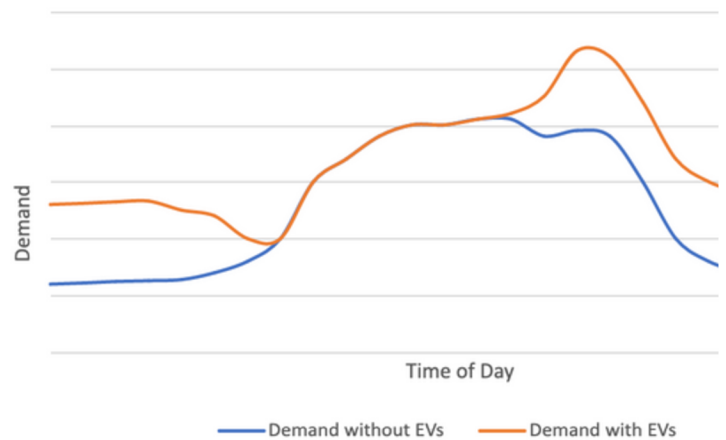
Demand Charge (peak demand)	\$15/kW
Energy Charge, On Peak (all kWh used)	\$0.18/kWh
Energy Charge, Off Peak (all kWh used)	\$0.06/kWh

Optimizing Your Charging Software

Experience:

- Ensure integration with your current software stack, including telematics and fleet management systems.
- Gain insights into your fleet's real-time status – see where your vehicles are on the road, charging and range status, and battery health.
- Maximize vehicle uptime by efficiently managing service and maintenance requests for technicians and fleet managers.
- Manage time and duration of charge to avoid on-peak rates and increased demand charges.
- If applicable, leverage on-site microgrid capabilities and renewable energy data to align energy production with vehicle charging. This can help offset electricity costs.
- If applicable, find software that makes reporting for grants, incentives, internal purposes, and customer use as streamlined as possible.

Sample Load Profile



Example of how EV charging can increase utility demand charges.



Step 4. Create your EV transition plan and begin implementation

Create your EV transition plan with your project team and define key milestones, timelines, goals, and success metrics. Utilize information from steps 1–3 to build your plan. Budgets, vehicle availability, utility timelines, and grant cycles will inform your planning process. Be sure to communicate project updates with both external and internal stakeholders.

REMINDER: FLEET ELECTRIFICATION IS A PHASED PROCESS THAT SHOULD BE APPROACHED STRATEGICALLY. BEGIN WITH A PILOT PROJECT OR WITH VEHICLES THAT MAKE SENSE TO ELECTRIFY AND USE THAT AS AN OPPORTUNITY TO LEARN ABOUT THE ELECTRIFICATION PROCESS.

Once the project is planned out, you will need support from stakeholders, both in upper management and the field. Present the business case to the board or key decision-makers, with results from the fleet assessment.

- [Geotab Business Case Guide](#)
- [EDF Business Case Examples with IRA \(Inflation Reduction Act\)](#)

Once internal approval is granted, the next step is applying for grants. Grants and incentives often have specific eligibility and program requirements (vehicle technologies, scrappage, tax liability, etc.). Be mindful of grant timelines. Some grant programs are awarded on a competitive, cost-reimbursement basis. If awarded a grant, it's important that you read the program guide and, if applicable, incur project costs after a formal contract has been signed.

Work closely with your team to procure EVs and EVSE. Depending on your fleet's size, a formal solicitation process may help streamline the purchase and installation of charging infrastructure.

Begin the charging infrastructure installation, considering building code requirements, zoning, compliance with other relevant local or state laws, permitting, and design specs.

- [Louisiana Laws and codes](#)

Step 5. Train your drivers and fleet technicians

Ensuring your staff is well-trained in the operation and maintenance of EVs is essential for successful implementation. For some, operating an EV might be a new experience. It'll be crucial that all personnel are familiar with the vehicles and charging before they are deployed into operation.

- [Federal Energy Management Program's Electric Vehicle Training](#)

Safety is always a priority. Despite the lower operational and maintenance costs of EVs, their high-voltage components introduce unique safety

considerations. Proper training for technicians and mechanics is imperative for servicing and working on these vehicles.

If you're interested in high-voltage EV training and certification for your technicians, reach out to LCF for details about our EV Safe Tech Program. We are collaborating closely with training organizations to facilitate training sessions for technicians and mechanics.



Step 6. Evaluate progress and plan for future adoption

Use data to evaluate goals and success metrics established in Step 4. From your first round of EV deployments, report results, highlight successes, identify barriers, and define best practices. This evaluation process will allow you to refine future deployment cycles.

Communicate lessons learned and next steps with your fleet electrification team. Reassess strategies and planning framework. Once you have evaluated your progress to date, you can begin the process over again, better equipped with experience from your initial electrification efforts.

Step 7. Collaborate with other fleet professionals

The commercial EV market is constantly evolving, and fleet electrification is a long, iterative journey. Many fleet professionals are navigating similar challenges along the way.

If you're looking to connect with others facing the same hurdles, consider joining LCF's Electric Fleet Working Group. This forum brings fleet professionals together to collaborate, share insights, and exchange real-world electrification experiences. Each meeting is hosted by a member fleet and features presentations from subject matter experts on key electrification topics, along with valuable opportunities for peer discussion and networking.



COLLABORATE WITH OTHER FLEETS WHO ARE ON THEIR ELECTRIFICATION JOURNEY. JOIN OUR ELECTRIC FLEET WORKING GROUP TODAY!

Louisiana Clean Fuels is here to assist you at every stage of the fleet electrification process. If you have any questions or would like more information on our services, please feel free to contact us.

We are here to help you succeed on your fleet electrification journey!



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