

THE ADVANCED GUIDE TO FLEET ELECTRIFICATION

Regardless of your industry, as a fleet owner, the transition away from traditional internal combustion engine (ICE) vehicles to battery electric vehicles (BEVs) is happening sooner than you expect. In fact, electric vans and trucks are scheduled to hit the market in late 2021 and 2022.

With a push by the current administration to ensure half of new U.S. fleet vehicles are electric by 2030 - as well as Electrify America's mission to double electric vehicle (EV) charging stations throughout the U.S. by 2023 - it's apparent that now is the time to start planning for your electric fleet or risk getting left behind. With a lead time of up to two years for large fleets to fully electrify, it is never too early to start planning for your electric fleet.

WHY ELECTRIFY NOW?

Transitioning to EVs sooner rather than later has a number of benefits. At least a fifth of the world's 2,000 largest public companies have committed to "net zero," meaning they've agreed not to add new emissions to the atmosphere. The UN has asked the world to aim for net zero by 2050. Your company can join in the ranks to reduce your carbon footprint, which, in turn, can give your brand a better image. It's an important distinction to consider as two-thirds of North Americans prefer brands that are "eco-friendly."

Another consideration in favor of electrification is the downward trend in cost. The high, up-front investment typically associated with BEVs is getting lower than ever. Almost half of all BEVs on the market now have an MSRP lower than \$37,000 (the average cost of a new ICE car).

With so many benefits — and the added ROI of electrifying — some might assume fleets everywhere are going electric. But electrifying a fleet isn't as easy as buying an EV or two. There are a number of factors that go into managing an electrified fleet.



THE CONSIDERATIONS THAT COME WITH CHARGING

From range anxiety to installation needs, the unknowns that come with charging can be daunting. But Ned Funnell, manager of technical services at Electrada, challenges fleet owners not to think of charging up vehicles as a time spent waiting, but rather, a passive process done when the vehicle is not in use anyway.

"Think of charging your EV like plugging in your cell phone. You don't wait for it to charge, you just charge it while you're sleeping or not using it," said Funnell. "The time it takes to fuel with fossil fuels is active time you sit at the pump and monitor the liquid. But EV charging is passive. There's no need to stop by a gas station with EVs."

CHARGING UP: CHOOSING A LEVEL

It is almost certainly less expensive to charge a BEV than it is to fuel up an ICE vehicle with gasoline...when done right. In order to ensure the lowest cost, you'll want to try to charge at your own facility as much as you can, as opposed to using public chargers.

However, different facility chargers come with different benefits.

Alternating Current (AC) or Level 1 charging (110v) - Refers to charging used with an ordinary household outlet that can take about a day to charge.

Level 2 charging (208-240v) - Uses a similar amount of power as an electric dryer. Typically hardwired as opposed to an electric outlet. Depending on the charging station and vehicle, Level 2 usually adds 20-40 miles of range per hour plugged in.

Direct current (DC) Fast charging - Off-vehicle charging unit that hooks up the battery directly through the car's charge port. DC charging is much more powerful than a vehicle's onboard charger and can charge much more quickly. Large vehicles like buses and semi trucks only charge via DC charging.

If you are installing Level 2 charging, it may make sense to have one charger per vehicle, as charging typically takes place off-shift. And if you opt to install DC chargers, which would increase installation costs per unit, it could recharge your vehicles in about a tenth of the time of an AC charger, so you'd ultimately need fewer chargers to power your fleet. Some fleets will primarily install AC chargers for passive off-shift charging, with a few DC chargers as a back-up in case of unplanned detours that leave your vehicles short on range.

Note that there isn't any one-size-fits-all answer for how quickly it takes to charge a vehicle based on the level of charging. Different makes and models come with different charging speeds, which vary from model to model.



CHEVY BOLT



TESLA MODEL 3



FORD F-150 LIGHTNING

TIME TO CHARGE: AC LEVEL 2	With a 7.2 kW onboard charger, the Bolt recharges 25 miles of range per hour plugged in.	With an 11 kW onboard charger, the Tesla Model 3 recharges about 40 miles of range per hour plugged in.	With a high 19.2 kW onboard charger, the Lightning may take about 10 hours to reach a full charge.
TIME TO CHARGE: DC LEVEL 3	With a maximum charge at 55 kW, the Bolt recharges at 200 miles of range per hour plugged in.	The Tesla's new v3 Supercharger can charge up to 1000 miles at 250kW.*	With a top-out at 150 kW, the Lightning can reach 41 miles of range in a 10-minute charge.

*While it won't actually go 1000 miles in one charge, it could charge from 0 to 60 in just a few minutes. The actual amount of time is unique to each model and can vary with factors like the weather. Source: Electrada

CHARGING UP: TIME-OF-DAY IMPACT

Unlike gasoline prices, which fluctuate due to seasonal changes or crude oil supply disruptions, electric charging prices can vary depending on the time of day. For example, you may pay less at night and more during the day. This practice recently started being used in California by EVgo, and occasionally Tesla's Superchargers will institute surge pricing based on demand, said Funnell.

"Imagine if you put gas in your car at midnight and it was \$2 a gallon, but at noon, it was \$4.50 a gallon. That's similar to how peak times with electric charging works," Nate Shadoin, director of fleet electrification at Mike Albert, said. "Some charging software only allows vehicles to charge at a certain rate, and they might slow it down during the day or increase the speed at night."

Owners of electric fleets have to consider these peak rates and ensure they are charging vehicles at the right time so as to not overpay for power. Working with a specialized electric fleet partner can help because they can negotiate with utilities, and make sure fleet owners won't have to worry about peak charging times.

THE FLEET ELECTRIFICATION PROCESS



If you think electrification might be right for your fleet, you may be wondering where to start.

1. Identify your baseline needs.

First, you need to decide if BEVs are right for your fleet. Are you primarily in an urban environment, or do your vehicles typically travel 300+ miles daily over interstates? Does your industry require you to haul heavy loads, or can you opt for a smaller vehicle? What is the status of your current fleet — is it almost time to cycle out for new vehicles, or can your current vehicles still last you a few years?

How you answer these questions will determine if your fleet is best suited for an electric truck, van, sedan or even if you're better off sticking to ICE vehicles or hybrids for now.

2. Research the type of charging equipment you'll need.

Installing charging infrastructure is not as simple as you think. Different vehicles require distinct types of chargers, and there are several levels of charging from which to choose that vary in pricing and charge times.

In some cases, you might not even need to install charging at your facility and instead you could affordably get by using public charging. If you do install charging stations, be sure you (and a fleet electrification partner) negotiate with your utility company to ensure you get a fair, fixed rate so you aren't responsible for any overpayment.

3. Locate and apply for grant funding.

Tax incentives and grant funding can go a long way. However, if you don't know where to look or how to get the benefits of your tax incentives, it can be easy to forget about them altogether. Federal tax credits can give you up to \$7,500 back, and states often have additional money-back incentives. Grant funding is another option to look into for lowering costs. If you live in a locality where grant funding is not available or you've been waiting for too long, a fleet electrification partner can help you strategize other ways to achieve lower costs.

4. Execute the charging infrastructure.

From contracts that vary by city or county, to environmental considerations, to sourcing the actual chargers – there is a lot that goes into the installation of charging infrastructure.

"Dealing with utilities alone is a bear," Dave Dorr, head of marketing at Electrada, said. "When getting the infrastructure you need to build chargers on-site, you can be waiting a long time."

5. Track your data.

Data is the backbone of effective fleet management. After electrification, consider continuously tracking things such as:

- Total cost of ownership compared to ICE vehicles, including down payments, fuel savings and charging infrastructure costs
- Carbon reduction
- New leads and sales after environmental positioning
- Employee satisfaction and retention for those driving EVs, as well as attracting new talent

Typically, once a fleet owner sees this data and compares it to older data, it solidifies their decision to set more procurement goals for BEVs in the future.



BARRIERS YOU MIGHT ENCOUNTER ON THE ROAD TO ELECTRIC

BUREAUCRACY & PERMITS

Whether it's from the government or utilities, expect bureaucracy on the road to electric. You will need to work with a number of different parties including utilities, property managers, environmental consultants and more.

"In an emerging market like EVs, working with partners where there is an existing relationship with well-established charging equipment vendors is very useful," Funnell said. "Oftentimes there will be a requirement in an obscure code somewhere that isn't always obvious, but a fleet partner can help you identify those."

PROPERTY LEASING CONSIDERATIONS

Many fleet owners have long-term leases on their facility as opposed to owning them outright. When leasing, you must take into consideration how to improve a property that does not belong to you. This might mean negotiating with the owner to pay for improvements or getting a lower price in rent in exchange for covering up-front costs of charging.

There is always the risk that the property owner may not allow such modifications. Come to the conversation armed with a plan, whether that's providing data points on the rise in EV to convince the property owner to pay for these improvements or even uninstalling charging upon the termination of your lease.

CAPITAL COSTS FOR ONGOING UPGRADES

Buying electric chargers, hiring contractors to install them and paying for continuous upgrades are just a few of the many capital costs involved with electrification.

All of these speed bumps can be mitigated with the assistance of an electric-focused fleet partner who can:

- Acquire all necessary permits, research government regulations and incentives and negotiate with utility companies
- Address concerns from property owners or landlords and uninstall electric equipment at the termination of a lease agreement, if necessary
- Handle all the capital costs including acquisition, installation and charging upgrades, allowing for one easily payable invoice.

WHY OPT FOR A FLEET ELECTRIFICATION PARTNER?

The reasons for opting for a fleet partner to help with electrification can best be described in an analogy from Dorr at Electrada:

When the Internet came around at the turn of the century, there were a lot of moving parts for companies. They bought a server, had to store it, cool it, power it, secure it and ensure all the hardware and software was always working. If there was ever a breach in security or the web presence went down, they had to handle it — and that proved to be expensive, insecure and fairly complex.

But when Amazon Web Services came around, they made it easy for companies: Just plug it in. They handled everything else, including the powering, customer support, negotiations and more.

"That is essentially the state of EV charging today if a company decides to take it all on on their own," said Dorr. "Our motto is 'We handle everything you need to power EVs.' We know the ins and outs of what it takes to get you to the front of the line."



ARE YOU READY TO ELECTRIFY YOUR FLEET?

Contact us at MIKEALBERT.COM