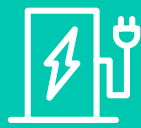


Electrify your fleet with confidence:

Data-driven secrets
to a mixed-energy future



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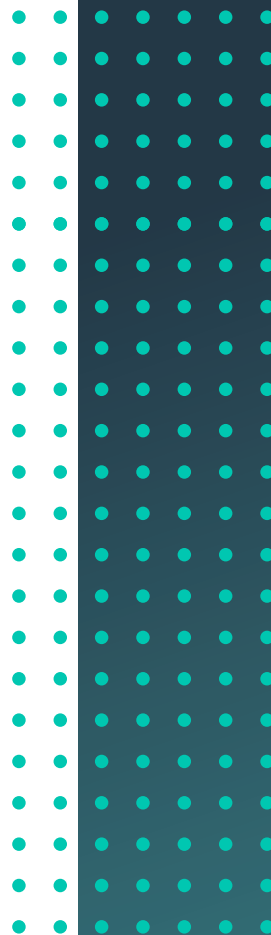


Introduction

As commercial electric vehicles (EVs) become increasingly cost-effective and available, fleet managers looking to electrify want guidance. Questions arise—about the accessibility of charging infrastructure, how to integrate electric vehicles alongside traditional ones, and the process of training drivers and getting their buy-in, which can all create adoption challenges.

A recent Automotive Fleet webinar led by associate publisher Chris Brown brought energy transition experts together to share insights on how to best begin the transition to electrification. Webinar panelists included **Carlos Carriedo**, Chief Operating Officer, Americas Payments & Mobility at WEX®, Adele Clements, Senior Director for Transportation, Parking, and Fleet Services at Emory University, and Sarah Booth, Director of Strategic Business Operations with Sawatch Labs. **Sawatch Labs**, a WEX company, offers fleet electrification analytics software to companies with commercial vehicle fleets. Using mile-by-mile predictive analytics, Sawatch tools determine **electric vehicle (EV)** suitability, cost modeling, infrastructure planning, and emissions reporting to help customers track and meet their goals for sustainability and profitability.

One essential tool emerged in the Automotive Fleet webinar discussion: data. In this piece we will trace the route to electrification, and expand on the methods you can put to use to help you get there, while considering what it is exactly that makes data such a game-changer. Poll results during Automotive Fleet's webinar showed fleet electrification efforts are widespread across organizations managing a commercial vehicle fleet. If you haven't already, now's the time to begin adoption planning.



Emory University's electrification journey

With over **15,000 students**, Emory, a top research university in Atlanta, Georgia, offers more than eighty undergraduate programs across nine schools. When Emory recently embarked on an electrification journey for its fleet of campus vehicles, it leaned on EV experts at Sawatch to help draft a strategic plan for both infrastructure construction and vehicle adoption.

Emory University has a fleet of 550+ vehicles. Clements shared her energy transition experience during the Automotive Fleet webinar, noting that Emory's EV adoption started primarily due to the campus's dense environment. Range anxiety occurs when driving an EV and worrying that you won't make it to your destination. The kind of range anxiety experienced by other organizations looking to build a mixed-energy fleet was not a barrier to adoption for Emory.

Clements' team used Sawatch Labs' analysis to determine that their cargo vans were the smartest place to begin to transition from internal combustion engine (ICE) vehicles to EVs. Emory's story is a great example of how data—when used to make procurement decisions and gain driver buy-in—can be a game-changer. "Our cargo van conversions to EV made so much sense once we were able to see the data. These vehicles wouldn't even need to be charged every day, so driving EVs would save our drivers a lot of time over the course of a year." The time savings Clements refers to is the time ICE drivers take to refuel while on the road.

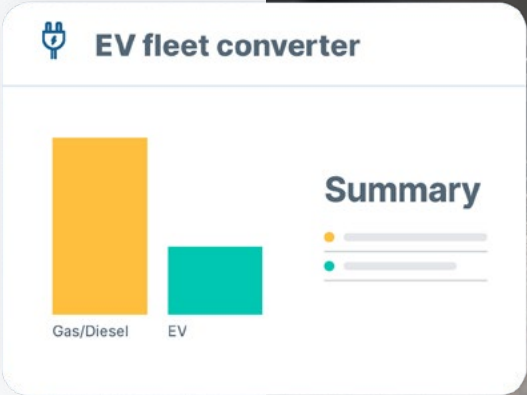


Sustainability goals played a role for Emory, but cost savings were the biggest transition driver

Clements’ team was initially motivated primarily by sustainability goals. But they also knew it made good business sense to convert to a mixed-energy fleet. As Clements describes it, “Emory’s goal is to be carbon neutral by 2050. We also recognize that the cost savings associated over the life of the vehicle by going to an EV can be substantial.” At the beginning of their electrification journey, Clements’ team committed to making data-driven decisions as they transitioned to EVs.

With Sawatch’s help, Emory focused on the part of the fleet equipped with an AVL system. Sawatch analyzed the vehicle use to determine whether transitioning made the most sense versus staying with an ICE vehicle. Clements wanted to be sure they looked at every single cost involved. This is where Sawatch’s ability to provide Emory with data helped them move quickly and effectively.

In the process of a fleet transition, infrastructure is an early hurdle. Emory had no charging infrastructure when the project began, and their first EV cargo vans used pre-existing campus parking charging stations shared with the public. “Soon after engaging with Sawatch, we launched the charging infrastructure portion of our conversion project. It took us two years to get through the permitting process. This involved an infrastructure assessment to determine the best location, what electrical infrastructure was needed, how we’d handle electrical panels, and how we’d do all the structural work required to build out a working electric charging space on campus.” There is great value in starting your transition planning early so that you can align vehicle delivery with infrastructure commissioning.



Quickly seeing the value of the energy transition at Emory

One thing became abundantly clear to Clements and her team at Emory: the staff loved their EVs. On top of that, Clements could see the savings beginning to accumulate. “From a maintenance cost perspective, I went back and looked at the history in preparing for this transition, and other than the telematics fees, the electrical costs, and the annual registration, the EVs we have brought on have been really inexpensive to maintain. One of the vehicles had to have some air put in the tires, which was handled by our fleet technician. The vehicles are amazing.” Emory recently reached a 25% EV milestone and will continue their transition, making informed decisions based on data and numbers. Emory continues to use Sawatch’s analysis to inform decisions as they work toward the future

Why fleets are moving to mixed energy

A recent Frost & Sullivan research report commissioned by WEX

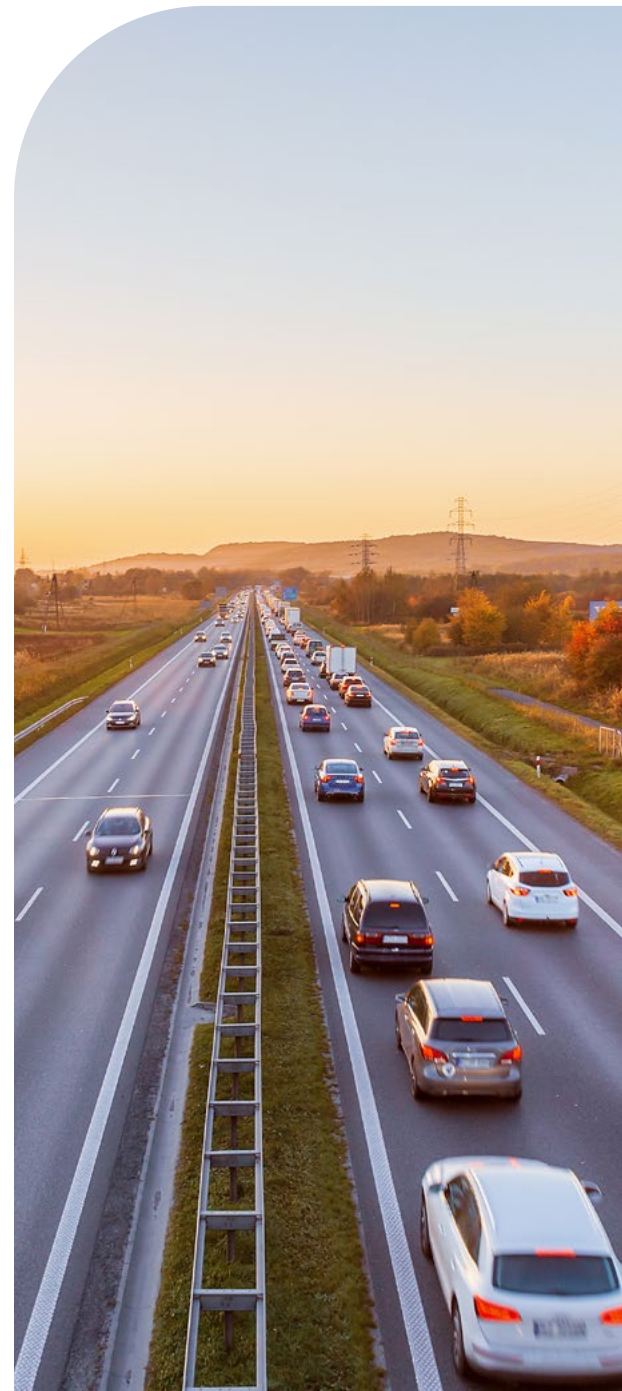
noted that 80% of fleet operators surveyed worldwide intend for at least 25% of their fleet vehicles to be electric by 2030. But while the transition is upon us, it is not going to happen overnight. Mixed-energy fleets will likely be the norm for the foreseeable future—it’s rare to hear of a commercial fleet going all electric without any period of transition. As WEX’s Carriedo explained, “Whether it’s because of investments in traditional ICE vehicles that have already been made and it takes up time for those vehicles to depreciate, or because a business needs time to build up the necessary infrastructure to convert, the shift to mixed-energy fleets will be gradual.”

This Frost & Sullivan data was confirmed by Automotive Fleet’s webinar audience. Of the listeners who responded 75% said they had already deployed EVs into their fleets, while 25% of respondents were considering electrification but hadn’t yet started planning.

The three top drivers motivating fleet managers to convert to a mixed-energy fleet are:

- Reducing emissions
- Meeting decarbonization goals
- Saving money

There are many variables at play, but financial considerations are the biggest driver of EV adoption. While the long-term cost savings are what is most impactful, when embarking on EV adoption, the upfront capital costs are significant. Keeping focused on the long-term view and factoring into your analysis what you can save over time will outweigh capital costs.



Changing trends in why businesses are adopting EVs

A few years ago, sustainability targets were the top driver in EV adoption, however some regulations that support the transition to electric vehicles have been reversed. Now, long-term cost savings are the biggest driver of EV adoption in the marketplace.

In recent years, the price of EVs has dropped, particularly on the light-duty passenger side. These days many EV cargo vans are comparable in price to ICE vehicles of similar make-up.

In many cases, the total cost of ownership (TCO) comparison alone can be enough for some fleets to conclude that EVs are the better option, even if sustainability targets are no longer a consideration. As Carriedo says, “The focus on long-term cost savings is key—the up-front capital costs of purchasing EVs can be significant, but this consideration must be balanced with the long-term view. Electrification offers a compelling case for a total cost of ownership advantage over ICE vehicles, whether it’s maintenance or energy costs.”

TCO alone presents a compelling reason for upfront vehicle analysis at the outset of a mixed-energy fleet transformation. Determining the TCO comparison, confirming that each vehicle in your fleet can fulfill driver needs, and mapping the costs out in a comprehensive manner allows you to build a sound adoption strategy based on facts and numbers. The data ensures operational feasibility and provides your business with the best return on every fleet investment you make.

Fleet managers and business owners are figuring out how to adopt EVs into their fleets in a data-driven, strategic way. Meeting your budgetary requirements and ensuring that the TCO is not higher than it would be with your current ICE vehicles allows for a smooth, cost-effective transition.



Data-driven decision-making and infrastructure planning

Key considerations when gathering data for your strategic fleet refinement plan include operational data sources such as telematics and fuel card transactions. As Sawatch's Sarah Booth describes it, “Using existing telematics or fuel card data, you can run analysis that will show you what each vehicle in your fleet is doing every single day of the year. This includes where each vehicle is parking, where they’re fueling, and where they need to charge.” That level of data ensures that each fleet vehicle is used intelligently and that each driver can feel confident that the vehicle they’re assigned is the best tool for their work.

Sawatch's technology automates much of the data collection, showing businesses a clear view into the data and a clear explanation of why that data is valuable. Booth describes her work in the field as factual, numbers-based, and more reliable than manual data.



Infrastructure planning when at the beginning of your electrification process

Before purchasing your first EV, consider the infrastructure you will need to build to support this new type of commercial vehicle. Booth shared that companies at the beginning of EV adoption will often install chargers at a one-to-one ratio. So, each EV/driver has their own charging station available to them 24/7. But this strategy does not scale well, and doesn't always work depending on your footprint. "Every opportunity a business has to optimize their equipment and right-size their charging infrastructure will help bring down costs," says Booth.

For Emory, leaning on Sawatch when it came to infrastructure planning helped them build for scale from the outset. "The biggest challenge for us was EV infrastructure when it came to adoption. Sawatch helped us figure that out." Using telematics data, Emory could see where each of their vehicles was parked every night. This informed them of where to best position their EV chargers. The position and number of charging stations is important, and can be difficult to calculate. In some cases, you might have multiple drivers using the same vehicle, and with that vehicle moving between departments comes additional complexity. When you're making that big of a financial commitment to install charging stations, where you install them should be a strategic decision based on data.

How operational data should frame your EV adoption strategy

When transitioning to EVs, Booth says this is the first set of data a business should assess. The data deep dive Sawatch performed for Emory began to bear fruit as their transition progressed and they began to make their EV purchasing decisions. "Because of the work we had done with Sawatch, we knew which vehicles could be replaced with an EV, and we were able to add five electric vehicles to our fleet. Four were E-Transit vans and one was a Kia Niro. These purchases were all based on the analysis that we got from Sawatch," Clements shared.

With a bird's eye view on the whole operation, the decisions Sawatch helps a business make become all-encompassing and strategic. As Booth shares, "We're not just looking at the miles driven, we are looking at how much energy drivers need to get from point A to point Z throughout the day." She went on to explain that the miles driven is an important piece of data, but that all miles are not created equal.



Variables to consider when analyzing fleet mileage during conversion planning

When determining which vehicles in your commercial fleet to convert, looking beyond just the mileage is valuable. As Booth explains, “EV range is impacted by ambient temperature - extreme temperatures in either direction (hot/cold). ICE vehicle efficiency is impacted by temperature as well, but in that regard climate has a bigger impact on EVs because you have to think a little bit more about where you’re charging when range is impacted.”

How fast you’re going, how many hills you go over, and how heavy your load is also impact how much energy your vehicle needs throughout the day. As Booth says, “We can compare speed, terrain, and load carried to energy provided in each battery pack for each available EV to determine which vehicle would be a good fit for each use.” This kind of in-depth analysis will lend itself to projecting what your business needs from a charging infrastructure standpoint. “This data can then be aggregated at each site within your infrastructure. Many fleets we work with have multiple campuses, and we provide them with an enterprise-wide analysis of what they should budget for and how they should plan their transition.”

Booth also recommends including local electricity rates for whatever service territory you’re in as you conduct your analysis. If you are part of a global or national organization, each office’s location will impact your EV infrastructure and cost analysis.

Additionally, as Carriedo reminds us, electricity prices offer a more stable cost than do fuel prices: “While electricity prices do fluctuate like fuel prices, electricity rate changes are less frequent and more predictable than volatile gas prices, which allows for greater price stability and more accurate planning.”

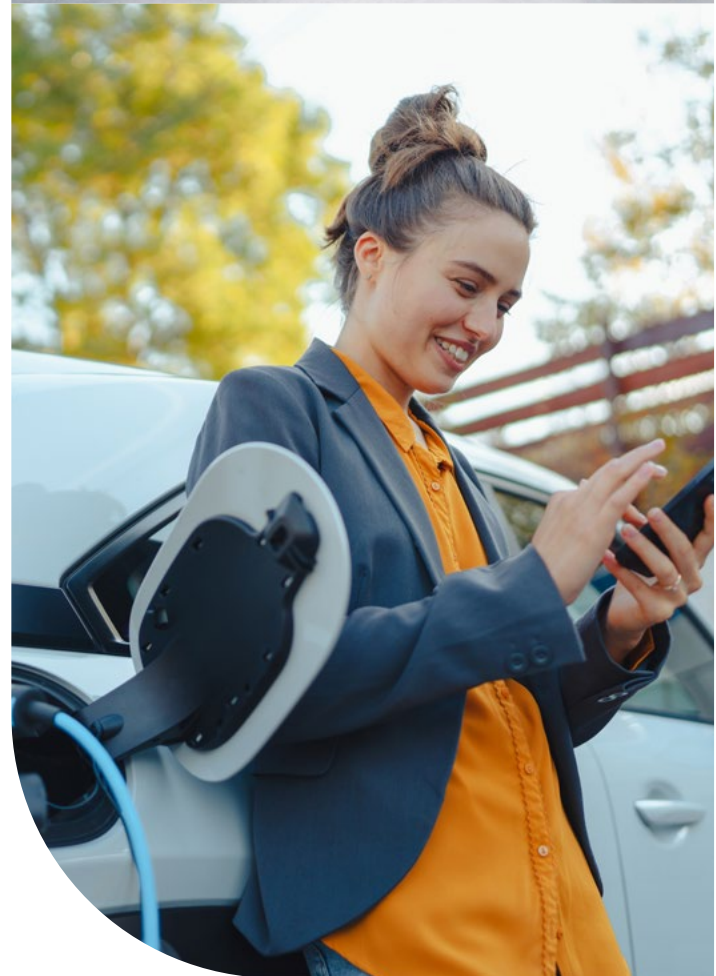


Platform integration and a one-stop shop for all your fleet needs

There are many hidden complexities in the transition from an all-ICE-fleet to a mixed-use-fleet. Fleet card providers help businesses by organizing all the necessary information and tools for both kinds of vehicles on a single platform. Carriedo describes how WEX built tools for fleet managers to do that. “With a fleet card, you will be able to charge EVs in myriad ways. Having an en route solution, the ability to charge at home, to charge at an office or a fixed location, and have all of that data flowing into the same platform in which your ICE vehicle data lives is essential. WEX offers that level of simplicity to its customers today.”

When you have fleets charging in multiple ways, you will want to be sure your tracking is streamlined and easy for your fleet managers to access and analyze. As Booth shares, “When offering at-home charging, make sure you have a good tracking reimbursement program in place, as well as an understanding of the variance between that residential electricity rate compared to your commercial rate at your depot facilities.”

Finding a provider with platform capabilities that give you consolidated reporting, asset utilization, and AI-powered route optimization will make the transition to a mixed-energy fleet all the easier. “At WEX, we are dedicated to meeting fleets where they are, whether that’s en route charging, at-home charging, or depot charging. We recently launched our EV depot solution, which now allows fleets to charge in a wide variety of locations, and those payments and data are under one platform. This helps boost efficiency and can help with fraud prevention,” says Carriedo.



Driver adoption, training, and behavioral change

Addressing driver hesitancy and lack of familiarity with EVs

An often overlooked facet of EV adoption is making sure your drivers feel comfortable with the idea of converting to driving an EV. These vehicles are their tools, and you'll want to be sure they feel good about working with a different version of one of their most important work tools. Booth has thought through the driver's experience. "It's important not to discount that converting to an EV is a change for your drivers, and change is hard for humans in general," she says. It's only a small obstruction if handled properly, however. "Once you've driven an EV, you realize it is like driving any other vehicle with some minor changes, but the unknown can make your staff feel unsure and resistant to change."

Sawatch has learned over the years that in many cases, if a driver has never driven an EV before, they prefer to take an ICE vehicle instead. But once you get them in an EV, they tend to love it. As Booth says, "It sometimes takes a little bit of education and awareness—and sometimes it's just a test drive that'll convert them. This is why implementing ride-and-drives is a sure way to encourage adoption." Dealerships will bring an EV onsite and let drivers go on test runs. Organizations with fleets have found this to be a great way to get drivers excited about EVs.

Clements used this tactic during Emory's transition to a mixed-energy fleet, and she found that the more training, communicating, and familiarizing she did in advance with drivers, the more quickly and easily they adapted to the transition. She also recommends engaging with the local power utility, which may be willing to come talk to staff about transitioning. Emory had Georgia Power come perform an EV demo for employees—it was marketed as a "sustainable transportation fair" and increased employee engagement, sparking curiosity from her staff.

Driver engagement and planning around driver needs

Another consideration when looking at EV adoption is ensuring that each driver has a vehicle best suited for his or her individual work needs. The process begins with an analysis of data including the average miles traveled by the company's commercial vehicle fleet, loads carried, and types of climate in which technicians operate.

Through data analysis, Sawatch can pinpoint which vehicles are good candidates for replacement with an EV. Booth says, "The fleet manager might tell the driver, 'We've analyzed all of your driving, and there are some factors we've taken into consideration

when determining you should move to an EV.'" The clear and factual explanation helps get the driver excited about the change. Because the decision is made based on numbers and facts, drivers will have more confidence in the decision and more quickly adapt to the conversion.

In a lot of cases, EV conversion means no more time spent at the pump during the workday, saving drivers time and hassle. Oftentimes charging at the depot at night prepares work vehicles for a full day of work. This too will compel drivers to embrace the switch.

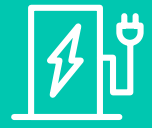


Innovations supporting EV integration

EVs are at the center of an evolving technological landscape: with AI, predictive analytics, and EV maintenance readiness, fleet management is changing. Today, you can use technology to look at which assets you are using in what ways, where they're charging, and determine if there is a better way to charge.

The most cost-effective fleet charging for take-home vehicles is at home, overnight—in part due to low residential electricity rates overnight. Businesses will benefit when their staff can charge both at a depot and at home overnight.

Easily accessible data is the key to all of these decisions. That's where fleet card providers come in—they provide the platforms that present all the necessary information to you directly, making cost optimization a given.



Adding EVs while keeping the data clear and straightforward

The smartest transition to a mixed-energy fleet includes strategic planning for how you'll collect and use the data you'll now be generating. With a mixed-energy fleet you are bringing increased complexity: you'll have different types of data, possibly coming to you on different platforms.

As data increases with the inclusion of EVs in your fleet, you will want to keep your information organized, avoiding adding yet another dashboard for managers to monitor. Finding a fleet partner with an integrated ICE and EV system solves for that. Carriedo describes how tracking and paying for charging can be integrated into a single platform where your ICE vehicles are accounted for. "Your fleet can charge in a variety of locations and fueling types with data flowing into the one dashboard you're already overseeing. And with advanced technology like route intelligence and predictive analytics, vehicle routing is simplified."

Final insights and looking ahead

As fleets adopt EVs, managing fuel and charging expenses can become increasingly complex. Simplifying the process saves time and money.

In the coming years, fleet management is going to involve overseeing mixed-energy fleets. The slow pace of EV adoption the marketplace is currently experiencing means we're on the right track. Starting small, learning while adopting, and iterating based on what you've learned, will lead to a successful transition. As your organization navigates the transition to a mixed-energy fleet, include your drivers in the process, partner with a fleet card provider with an integrated offering, and use data to build a sound, strategic approach to adoption. A smarter, more sustainable fleet is in our future and will not only be better for the environment, but will help businesses continue to grow, thrive, and compete in a global marketplace.



WEX is a leading, global fintech solutions provider, simplifying payments and back-end business processes in the fleet management, benefits management, and corporate payments areas. To learn more, please [visit the company's About WEX page.](#)

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