

MOVING FORWARD ON FLEET VEHICLE ELECTRIFICATION



WHITE PAPER

Electric vehicles have become a fast-growing and exciting business. Not only are new makes coming to market, but traditional vehicle manufacturers are now delivering or expanding their lines of EVs. And while not as much attention is given to the fleet segment, the EV fleet market will be large and grow rapidly. For example, Ernst & Young expects fleet EVs to grow 24-fold by 2030.¹

Electrified fleets deliver several operational advantages. Return on investment improves because operating costs are lower and more information is available to optimize daily vehicle use. Maintenance and repair is less complex and less demanding with an electric fleet. And EVs' telemetry and telematics offer invaluable fleet support. With electrification set to expand, the time is now for organizations to prepare for the evolution.

The move to electrification of fleets has reached a tipping point largely because so many new electric trucks and similar vehicles will be available, in many different classes. For example, electric Class 8 vehicles are under development by Nikola, Daimler, Tesla, Volvo and others. This vendor list is a combination of both existing and new manufacturers, a testament to expected growth in the market. They are lining up to be part of the anticipated migration that is about to start. And similar dynamism is seen in Class 5 and 6 trucks, vans and package delivery vehicles. In fact, numerous joint ventures have been set up by package delivery companies and various manufacturers. In short, there will soon be EV options for every type of vehicle, across all vehicle classifications.

Leading organizations are already moving to electrification. For example, Amazon is planning to deploy 100,000 electric vehicles by 2030. UPS is implementing a pilot program, launched in 2019, of 50 electric trucks. Frito-Lay has deployed Peterbilt electric box trucks and Tesla electric tractors at its Modesto, Calif., facility. DHL, Genetech and Clif Bar are some other examples of enterprises moving to EVs. In the public sector, the U.S. Postal Service is involved in the design and procurement of an electric fleet. The tide is unstoppable.

¹"EY Data Model: 24x More Fleet Electric Vehicles by 2030," Electrive.com, Feb. 3, 2021



Not only are the business and operational benefits of electrification compelling, but an increasing number of mandates are pushing migration. One notable example is the federal government mandating fleet electrification for the majority of vehicles used by various agencies and departments. Moreover, 12 states have adopted the zero-emission vehicle mandate. In Europe, the European Roadmap Electrification of Road Transport initiative requires that all new passenger vehicles be electric by 2030.

In addition, there are many different tax breaks and incentives for the purchase of EVs, adding up to substantial savings for fleet operators. These incentives can be an important component of the cost justification for electrification of the fleet. Currently, 45 states are offering incentives for EVs. Massachusetts, for example, offers \$2,500 per vehicle for cars.

Electrification: The Next Big Thing

In industries such as transportation, logistics, building materials and others, electrification is quickly becoming a key corporate initiative. This strategic change is being driven not only by environmental responsibility but also financial realities. For both public and private organizations, the primary benefits of moving to EV fleets include:

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- **Reduced environmental impact:** The need to lower the emissions of pollutants and reduce the environmental impact of petroleum production and byproduct waste (used oil, contaminated parts, etc.) are compelling reasons to make the switch. When the entire value chain of internal-combustion vehicle manufacturing and operations is considered, the beneficial impact of electrification is immense.
- **Lower operating costs and TCO:** It is widely recognized that the cost of energy is substantially lower for electric vehicles, especially for organizations that build solar installations to charge the batteries. Also, lower repair and maintenance costs improve TCO, and EVs often have simpler overall designs, particularly for the motive power components.
- **Improved driver experience:** With less noise, vibration and pollution, the driver experience is better in an EV. A better experience improves satisfaction and helps with driver retention.



Modern Telemetry and Telematics Are a Breakthrough

Although much of the focus in transitioning to EVs is on the environmental and cost benefits, the next-generation telemetry and telematics that these vehicles provide are highly useful. Using more modern design goals, EVs are not just cleaner but also much smarter. A combination of onboard technology and high-speed wireless communications and infrastructure will deliver orders of magnitude more data, forming the foundation for advanced telemetry and telematics.

For example, it is possible to automatically route vehicles to both optimize battery life and ensure the vehicles are close to a charging station when the battery runs low. But that is just the starting point. For example, telemetry integration with order management, inventory and other core business processes means less disconnect between shipping and other parts of the business process. The physical movement of goods and people becomes a business process that is digitally integrated with others.

And the coming generation of EVs will have technology ecosystems that provide far more than a simplistic view of vehicle operations such as speed, location and basic operating parameters. EV technology systems will have many more sensors that provide information about the environment, changes to routes or schedules, and real-time customer needs. A mesh of sensors in the vehicle, on the roads and elsewhere will interact. The amount of data will grow quickly and exponentially. To analyze and interpret this vast amount of information, new EVs and the

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systems that interact with them will require more advanced 5G network connections and use both artificial intelligence and machine learning tools to optimize the inputs. Many decisions will be automated to ensure timely changes or modifications that optimize the fleet.

What's Next for Electrification

With the growth and rapid adoption of EVs, some of the issues that had limited their popularity are falling away. The first is the charging infrastructure. Vehicles will need charging yards and a network of charging stations located conveniently along roadways. In a way, history is simply repeating itself: There were no gasoline stations 12 decades ago; however, once the market for internal-combustion vehicles reached a critical threshold, the stations were built to fill the need. Charging stations for EVs should follow a similar pattern. Another issue is the need for trained and certified technicians who are qualified to repair EVs. This will undoubtedly be driven by the OEMs initially.

During the early years of EV adoption, there was concern about battery technology. Today, however, heavy-duty batteries with longer duty cycles and lifetimes, higher power-to-weight ratios and rapid charging are coming in the next generation of vehicles, expected over the next one to three years.

Range management for EVs is also an issue that needs to be addressed. The latest generation of batteries provide greater range, but this must be augmented with improved driver/operator training to maximize EV potential. For example, training that stresses “plug in whenever possible” will help, as many stops are made near 115 volt outlets where just 20 to 30 minutes of charge time can make a difference. In addition, focusing on fewer sudden accelerations and judicious use of climate controls can noticeably improve range.

The reduction or elimination of the technical issues and the availability of more EV options will enable organizations to start detailed planning for their EV fleet options and migration. The starting point will be to understand the timing, details and impact of any regulatory demands in geographies where the organization has current or planned operations. The second task will be to assess where EVs are viable in the fleet.

This will require building financial models to understand both cost and operational issues and to calculate a TCO that addresses vehicle procurement and maintenance, as well as charging infrastructure to evaluate planned usage patterns, charging installation and local energy rates. With this analysis, enterprises will be able to develop an initial plan for their transition to EVs.

Key Takeaways

T-Mobile is at the forefront of supporting fleet electrification. The company is focused on delivering a complete solution that supports the entire electrification transition. For example, the [T-Mobile fleet management solutions](#) support Geotab's Electric Vehicle Suitability Assessment, a tailored adoption recommendation providing current fleet data that will serve as critical input for guiding the transition to EVs across the fleet. This solution supports mixed fleets, gathering all vehicle data regardless of motive power, in a single management platform.

The service also provides consistent data across different types of vehicles, delivering the necessary granularity. Geotab Telematics is fully integrated with the T-Mobile network and leverages the speed and ubiquity of this leading wireless network. The network is an important element of a modern EV operation, since it is necessary to support larger and near-real-time data transmission to and from vehicles and other infrastructure.

The T-Mobile for Business fleet management solution provides fleets of all sizes with compelling benefits, including:

- Optimal productivity with near-real-time optimization of assets and operations
- The ability to safeguard assets and ensure safe operations
- Simplified and accurate information to ensure compliance
- Data-driven insights on cost savings and time-saving actions that raise productivity
- Increased sustainability, with better fossil fuel usage and the ability to identify where EVs are the best option
- The ability to expand the use of fleet data captured in other applications, such as shipping systems, inventory management and more

There are more EV options on the horizon, and the infrastructure to support EVs is growing at a rapid pace. Both the vehicles themselves and the charging infrastructure are progressing quickly. As a result, the transition to EVs is now fully underway. For more information on the many ways that T-Mobile for Business can help you and your fleet successfully transition to electrification, please go to: www.t-mobile.com/business/solutions/fleet-management-solutions

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