



A TRUCKING FLEET PRIMER FOR COMMERCIAL TRUCK ELECTRIFICATION

Freight electrification is opening new opportunities and challenges for the freight industry and utilities alike.

The [North American Council for Freight Efficiency \(NACFE\)](#) and our partner organization, [Rocky Mountain Institute \(RMI\)](#) are uniquely positioned to help facilitate the conversation and help get North America on the road to truck electrification.

WHY UTILITIES?

Utilities are key partners for fleets considering deploying electric vehicles, as their policies regarding physical infrastructure build-out and electricity rate design will be vital to the success of vehicle charging.

Utilities come in many shapes and sizes, ranging from investor-owned to owned by members as part of a cooperative and from service areas covering relatively small, rural areas to multi-state territories. They are generally highly regulated when it comes to resource planning and tariff structures, and many are eager to see increased electricity demand from charging electric vehicles.

While many utilities have experience supporting light-duty electric vehicles, medium- and heavy-duty trucks have [unique charging requirements](#) that require innovative solutions. Fleets will need to begin the electrification conversation with utilities very early, understanding the substantial timelines required for planning, construction, and interconnection of new charging infrastructure. While there is no one-size-fits-all solution to charging, there is a roadmap that fleets considering deploying electric vehicles can follow to ensure a cost-effective charging strategy.

Fleets should be prepared to discuss with utilities:

- Long-term electrification plans, anticipated power needs, and draft site infrastructure design.
- Costs and timelines for building out “make-ready” infrastructure to support charging.
- How the location of the electric service on-site may

impact site design.

- What fees fleets can expect for electricity, including any time-of-use and/or demand charges.

KNOW YOUR PARTNERS

There are over 3,000 power utilities in North America, so understanding which ones to work with and how to connect is key.

- Trucking fleets may need to work with multiple utilities with different coverage areas, each of which may have its own transportation electrification policies and plans, infrastructure and funding programs, as well as rate structures.
- Many utilities are members of trade organizations such as [NRECA](#), [EPRI](#), [EEI](#), [APPA](#), and [SEPA](#), all of whom are thinking about advancing transportation electrification at a high-level. NACFE can help connect trucking fleets to these partners.

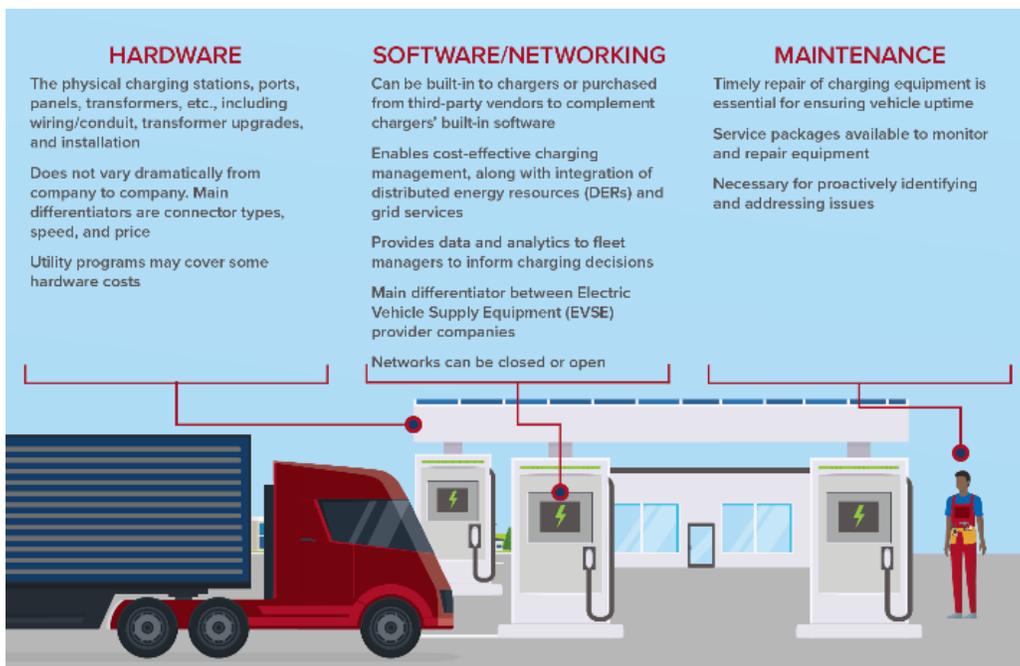
FLEET MANAGERS MEET FACILITY MANAGERS

Fleet managers will likely need to partner with facility managers, who already interact with the local utility that provides power to the depot, distribution center, or warehouse. Each fleet will have an account manager at their local utility, who can help connect them with appropriate programs and funding sources for electric truck charging infrastructure. NACFE and RMI are able to [provide guidance on how best to work with utilities to advance electrification objectives](#).

Some utilities offer guidance of their own for fleets, such as the [EV Charging Guidebook for Medium- and Heavy-Duty Fleets](#), sponsored by Southern California Edison and Pacific Gas and Electric.

PROFITS, EFFICIENCY & ENVIRONMENT

Improved Efficiency = Less Fuel = Less Emissions = Less Costs = More Profit



NACFE is also the team behind the “Run on Less” demonstrations. In late 2019, we monitored the daily activities of 10 regional haul fleets and documented their daily operations. This data is now the subject of analysis for use in BEVs and hybrids. The many videos created for Run On Less are a great way to learn about actual fleets.

HYDROGEN & BATTERIES

Whether on-board energy is stored in batteries or as hydrogen,

these new trucks are electric vehicles. A fuel cell (FCEV) and battery both are electric vehicles, and both have battery electric drivetrains. Green electricity is critical to both to achieve zero lifecycle emissions for the freight system, whether used to charge a battery or to produce hydrogen.

ELECTRIC TRUCK RESOURCES

NACFE has published four detailed guidance reports to help fleets and utilities understand freight electrification, available as free downloads:

- [Electric Trucks: Where They Make Sense](#) explores how electric trucks compare to traditional internal combustion engine (ICE) trucks on many attributes and factors relevant to charging and operational use. Truck payload versus the weight of batteries is one example of tradeoffs analyzed.
- [Medium-Duty Electric Trucks: Cost of Ownership](#) digs deeply into the first area of considerable use, especially with the growth of e-commerce. The report identifies 20 key factors for this evolving market. The work includes a separate total cost of ownership spreadsheet tool to analyze the cost trade-offs for ICE trucks versus battery electric vehicles (BEVs).
- [Charging Infrastructure for Electric Trucks](#) Unlike diesel trucks where fuel stops are abundant, fleets have to consider how and where to charge BEVs. The size of battery packs and the frequent use of trucks makes the challenges of recharging far more significant than passenger cars.
- [Viable Class 7 & 8 Electric, Hybrid & Alternative Fuel Tractors](#) Tractor-trailers will be powered by a variety of alternative fuels as the industry traverses the near term “messy middle” seeking a cleaner and more efficient future.

The next obvious market segment for electrification beyond buses and urban delivery is in regional haul operations. NACFE has published a report on such fleets: [More Regional Haul: An Opportunity for Trucking](#). This is a detailed overview on this significant growing segment of the heavy trucking industry.

WORKING TOGETHER

NACFE is engaged with various trade groups and we welcome opportunities to work directly with utility companies. We conduct [workshops](#) to bring all interested parties together into an open discussion. Our [schedule of appearances and events](#) can be found on our website and in our [newsletters](#). NACFE welcomes opportunities to collaborate and speak. We also want to field your questions because we are more impactful when we can see the situation through your eyes.

Please contact our Industry Engagement Director at David.Schaller@NACFE.org for initial conversations.

NACFE
NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

The North American Council for Freight Efficiency (NACFE) works to drive the development and adoption of efficiency enhancing, environmentally beneficial, and cost-effective technologies, services, and operational practices in the movement of goods across North America. NACFE provides independent, unbiased research, including Confidence Reports on available technologies and Guidance Reports on emerging ones, which highlight the benefits and consequences of each, and deliver decision-making tools for fleets, manufacturers, and others. NACFE partners with Rocky Mountain Institute on a variety of projects including the Run on Less fuel efficiency demonstration series, electric trucks, emissions reductions, and low-carbon supply chains. www.nacfe.org