

A UTILITY COMPANY PRIMER ON COMMERCIAL TRUCK ELECTRIFICATION



Freight electrification is opening new opportunities and challenges for both the freight industry and utilities. Both groups need to show flexibility to innovate business solutions that allow both to be successful in this evolving market. Utilities, freight companies, truck manufacturers, charging infrastructure companies, and governments will need close collaboration to realize potential of electrification.

However, these industries have not partnered closely in the past. 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 you get started down the road to truck electrification.

UNDERSTAND THE BASICS

Commercial trucks are dramatically different from passenger cars and light trucks. They are capital investments, just like factory machines, and are tools used to move freight for profit. Return on investment is closely monitored, and reliability is critical. These trucks are custom machines built to complete a specific task as efficiently as possible and are uniquely built with thousands of options to perform their specific roles.

The transportation industry, like the utility industry, is highly regulated and constantly faces significant challenges. [An annual report from the American Transportation Research Institute](#) outlines what fleets feel are their top challenges, and electrification is not in that list, yet. NACFE has identified it as one of the primary fleet concerns for future trucks. Starting the communication process is key.

Within heavy-duty applications there are several specialized segments:

- Long-haul trucks (with sleepers for multiple days or weeks on the road)
- Regional haul trucks (return home nearly every day)
- Vocational trucks that serve construction sites and other on/off road applications

Just as utility companies vary in their service territories and energy mixes, fleets vary widely in their operations, equipment and practices. Some fleets will have a three-year trade cycle for trucks while others will run them until end of life, often after 10 to 15 years.

NACFE publishes an annual report on fleet [adoption of new technologies](#). Think of these [MPG technologies](#) as range extenders; more efficiency, more range, less anxiety!

KNOW YOUR PARTNERS

There are over 700,000 truck fleets in North America and over 3,000 utilities, so how do you meet the fleets in your service area?

- **Join your state trucking associations.** They are made up of leaders from these fleets and are a great way to meet many smaller public and private fleets, some with as few as one truck.
- **For a more national list of the major fleets,** start with the Commercial Carrier Journal [Top 250 Trucking Companies](#) and Transport Topics annual [Top 100 Fleets](#) with a variety of categories such as For-Hire, Private, Less-than truckload (LTL), among others.
- Keep in mind that **large national fleets may have terminals and distribution centers in many states,** not just at their headquarters.

TRUCK MANUFACTURERS

For decades, the list of trucks manufacturers remained steady, but an equally large number of new companies have joined the list over the past few years. To stay up to date in this changing marketplace, we recommend the [“Zero-Emissions Technology Inventory”](#) (ZETI) tool from CALSTART.

PROFITS, EFFICIENCY & ENVIRONMENT

Freight electrification is the future from many perspectives — to improve profits, reduce costs, reduce emissions, reduce fuel use and improve efficiency. Whatever your focus, all of these goals are related.

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

ELECTRIC TRUCK RESOURCES

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

1. [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.
2. [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).
3. [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.
4. [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.

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.

WORKING TOGETHER

NACFE is engaged with [NRECA](#), [EPRI](#), [EEI](#), [APPA](#) and [SEPA](#) on electrification 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. Or visit us on-line at www.NACFE.org

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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