

Explicitly know your duty cycles, range requirements, dwell time, etc.

Charger efficiency is important in estimating total energy demand.

Measuring maintenance and downtime requires a long-term project to capture seasonal effects as well as sufficient mileage.

Have a system perspective on electrifying a facility.

Weather conditions at the vehicle at all times requires higher resolution sensors and equipment not installed on today's vehicles.

Use managed charging to minimize electricity demand and cost.

Validate what is actual measured and where in the vehicle it is measured.

Standards for reporting EV specifications need to be established to provide uniformity in reporting metrics.

Given the ease of operation, drivers of CBEVs want the technology to succeed.

Opportunity charging can help extend the range of vehicles during a work shift.

Consumption and efficiency can be confusing metrics.

Fleets may not always have a receptive contact at utilities with respect to electrifying their fleets.



LESSONS LEARNED

What NACFE learned while conducting Run on Less – Electric



Early adopters of CBEVs may choose duty cycles that reduce risks from range anxiety, keeping battery use above 50% SOC each shift.

Determine what sampling rate you can afford and if it is sufficiently accurate.

Vehicle telemetry data does not describe why a vehicle performed a maneuver.

Terminology like idling used for diesels may not directly apply to CBEVs.

The trucking industry could benefit from standardizing CBEV data buses and interfaces.

CBEVs must be specified for four-season operations and road grades and account for extremes in sizing battery packs.

State of Charge readings should be standardized across the industry.

Regenerative braking can reduce demands for grid energy or conversely help in range extension.

There are many opportunities in the fleet-utility relationship to negotiate net electricity pricing models.

Choose battery capacity and charging based on those duty cycles with some safety factor to account for battery aging.

A vehicle designed for a maximum power of 150 kW cannot charge at 350 kW without risking damage.

For more detailed information on these lessons learned, click [here](#).