

THINKING ABOUT ELECTRIFYING YOUR FLEET?

A White Paper from the International® Truck Zero Emissions Team



Know the ins and outs of charging

The old adage is “Measure twice, cut once.” Failure to follow this advice can have profound effects on any time and cost-sensitive project, including a fleet’s transition to battery-electric vehicles (BEVs).

While BEVs offer profound benefits such as reduced emissions, lower maintenance costs and a quieter driving experience, the journey to electrification has many steps—all of which must be followed in the right order. Failure to properly plan and execute this journey can lead to unwanted delays, added costs, and increased stress.

The International® Truck Zero Emissions team, in partnership with leading International® dealers, have developed this white paper to give fleet operators the knowledge and expert advice they need to avoid surprises during this period of transition—especially when it comes to charging.

1

Pick the right partner

Examples of heavy-duty fleets successfully reaping the benefits of electrification are becoming more and more common. And as these successes multiply, additional fleet operators are getting excited about starting electrification.

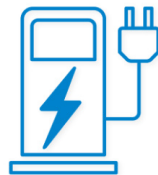
But there’s a risk when enthusiasm exceeds preparation. Fleets that have set short timelines for this transition are likely overlooking important groundwork. Therefore, it is crucial for fleet operators to start the process early and choose a trusted advisor to guide them through the journey.

Thanks to extensive work with fleets of all types and sizes, the Zero Emissions team at International Truck has developed a comprehensive, three-phase process to help fleet operators achieve a seamless transition to BEVs in the near-term and realize exceptional vehicle performance and return on investment (ROI) in the long-run.

OUR 3-STEP ELECTRIFICATION PROCESS



CONSULTING



CHARGING



CUSTOMER ONBOARDING

2

Know the timeline

It's tempting for fleet operators to focus more time and attention on selecting and ordering their new electric trucks than on identifying, planning, and installing the support systems, equipment and processes required to operate them. After all, BEVs represent one of the most significant advances in the trucking industry, and selecting the right truck for a given vocation is an exciting step.

In truth, however, the process of ordering and taking delivery of new electric trucks can occur over many months, whereas establishing an overarching, future-proof electrification strategy and building out the necessary charging infrastructure – “burying the wires” – can take two or more years. Needless to say, charging demands close attention from fleet operators from day one.

A qualified and trusted BEV manufacturer such as International Truck, along with its growing network of electric vehicle (EV) service ready dealer locations, can help fleet operators make the right decisions throughout this journey. The Zero Emissions team works hand-in-hand with leading EV charging infrastructure service providers to help fleets understand their near and long-term power requirements, as well as design and implement the systems and charging processes to meet those needs.

This journey begins with in-depth discussions with fleet representatives to answer key questions regarding their electrification strategies, including plans or projections for expanding their service areas and corresponding fleet size. This research will ensure the upcoming infrastructure investment is sufficiently scalable to meet the fleet's long-term needs rather than requiring additional construction just a few years down the road. It's critically important for fleet operators to consider not only their current needs, but also plan for the future. For instance, larger trucks with larger battery capacity will increase the amount of charging dispensers and electricity required.

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Choose the right EVSE

As more fleets join the journey to electrification, it has become common for fleet operators to be approached directly by providers of electric vehicle supply equipment (EVSE). While it makes sense to understand the multiple equipment options available for a given project, the investment should only be made in coordination with the BEV manufacturer.

Remember “measure twice, cut once?” Without carefully validating the interoperability and performance of your prospective EVSE, the fleet could end up with the most expensive outcome of all – equipment that doesn't work and unwanted demand charges.

To protect fleet operators from these and other surprises, International Truck conducts intensive performance and interoperability studies of charging equipment and software available from an array of EVSE providers or EV Charging Vendors. Confirming interoperability requires several days of charging tests, conducted under multiple sets of conditions, on the exact model of truck intended for deployment. This helps ensure that the fleets' investment will provide the performance, reliability, and ROI they need and expect. The only appropriate outcome when it comes to EVSE is minimal surprises. That's precisely what International Truck's process delivers.

It's also critically important to determine what type of parking lot layout is most cost effective and convenient for charging. This includes not only the spacing and the placement of the charging EVSE, but also the cord length of the charging EVSE dispenser to ensure that it can reach the charging port of your vehicle.

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Involve your utility early

Next, the truck supplier and fleet management should meet with representatives of the local utility, which will need to assess current and future energy loads and system capacity. To project future loads, the utility must understand the intended size of the electrified fleet, individual vehicle duty cycles and associated charging requirements.

At least 24 months before the vehicle delivery, include the local utility in your considerations to avoid unnecessary delays and added costs. If the fleet's projected energy load exceeds local grid capacity, for example, the utility will likely need additional time to upgrade its systems and equipment. The utility might also want to confirm the fleet operator's intent to transition to a specified number of BEVs in order to justify its investment in additional grid capacity. Bottom line, the earlier the utility is involved in the planning process, the better the chance the necessary power will be available when needed.

It is also important for all parties to understand the utility's rate structure. For example, if a demand charge threshold exists, the fleet could see much higher rates for electricity during peak periods. International Truck and a qualified EVSE provider can work with the fleet operator to avoid peak rates through scheduled charging and other strategies.

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Set yourself up for success

To properly assess charging equipment requirements, International Truck collaborates with select EVSE providers in conducting comprehensive site surveys at customer locations. The results of these surveys become the foundation for planned equipment upgrades and capacity expansions, including:

- Likely charging locations
- Quantity and design/capacity of chargers
- Dispenser cable length, traffic flow, etc.
- Existing utility power infrastructure
- Utility capacity constraints and upgrades
- Current and future electrification needs
- Expansion of grid resilience
- Backup power requirements

To help design the right combination of equipment, software and charging protocols, project partners should also have access to 12 months of electric bills for the depot as well as a copy of the fleet operator's energy contract, if available. This will help guide strategies to avoid demand threshold charges and perform vehicle charging at the most economical times and speeds.

Following the survey and related discussions, the EVSE provider should develop and present a site survey document detailing:

- Site plan with locations of existing and new charging stations
- Recommended inventory of charging units and dispenser cabling
- Recommended charging schedules/protocols based on fleet uptime requirements
- Estimates covering equipment purchase and installation

International Truck also works closely with leading infrastructure providers that can guide fleet operators through planning, permitting, and construction so their projects come in on time and on budget.

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Don't skimp on software and connectivity

Electric vehicles produce massive amounts of information, both on the road and when they're charging. International Truck strongly recommends that fleet operators leverage this invaluable data to ensure optimal vehicle performance and charging efficiency. While this software and connectivity adds to the total cost of vehicle acquisition, it more than pays for itself by enabling remote vehicle diagnostics, real-time access to state-of-charge information, charging system alerts, scheduled charging, insight to driver operating efficiency, and much more.

Connected chargers and on-vehicle telematics are proven to help avoid battery undercharge incidents at the beginning of the workday as well as breakdowns or other issues on the road. Additionally, software included with EVSE's that can be connected to the cloud will allow for scheduled charging and will effectively reduce charging costs.

SCHEDULE A CONSULTATION TODAY

As a leading provider of BEVs for a wide range of fleet applications, International Truck has extensive and unique experience in helping customers eliminate unwanted surprises, delays and added costs during the transition to electrification. Moreover, the International Truck Zero Emissions team is available to help guide fleets through every step of the process – including, most importantly, charging.

To learn more about this service, or schedule a consultation, contact your International® dealer or the International Truck Zero Emissions team, at www.internationaltrucks.com/charging-whitepaper

