CE SERIES ELECTRIC

SUCCESSFULLY DEPLOYING YOUR ELECTRIC SCHOOL BUS

THE PATH TO ZERO EMISSIONS SHOULD BE A SEAMLESS TRANSITION. HERE'S HOW IC BUS OPTIMIZES THE FINAL LEG OF THIS REWARDING JOURNEY.

Imagine the excitement of homeowners in the early 1900s when their homes were first electrified, replacing oil lamps with incandescent lights and other modern conveniences. Consider the anticipation of business owners of that era who commissioned their first motorized vehicles, opening boundless new markets and capabilities. In both cases, the transition to a revolutionary new technology brought profound changes to daily life.

But moving from old to new also introduced a whole host of additional considerations, expectations and practices. Each of these achievements is best viewed not simply as a single, historic milestone but the culmination of a carefully planned journey.

School bus fleets have embarked on a journey of similar magnitude – moving from Internal Combustion Engine (ICE) vehicles to electric school buses (ESB). This journey is unique to each organization based on countless variables such as fleet size and mix, local topography, duty cycles, charging infrastructure and more.

IC Bus, an industry leader in student transportation technology, has studied each of these variables as part of its development of a comprehensive, best-practices approach to achieving sustainable mobility. By mastering the complexities of this transition and serving as trusted advisors through each step in the journey, IC Bus stands alone in helping school bus operators fully realize the health, cost and uptime benefits of fleet electrification.

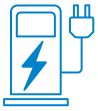
This guide focuses on **Deployment** – which extends well beyond taking delivery of a new ESB. In fact, through its extensive experience in guiding fleets through the electrification journey, IC Bus has determined that the most successful deployments begin before the order is received and extend through seven clear way points to ensure not only that the vehicle is ready for duty, but every person, process and asset associated with that new vehicle is positioned for success – from day one.

FLEET TRANSFORMATION IN THREE STEPS

To assist in this journey, IC Bus has developed a three-step "white glove" process comprising all the questions, considerations, planning, investments and ongoing support involved in transition to electric school buses. These three steps are:

Step 1 | CONSULTING

A discovery workshops dives into your fleet's electrification needs and concerns, building a customized electric vehicle roadmap for success.



Step 2 | CHARGING

Assessment of the placement of hardware and infrastructure, finding the best ways to support vehicle charging and uptime.

Step 3 | DEPLOYMENT

Ensure charging locations, staff, and remote diagnostics are prepared for the electric fleet to hit the road.

WHAT DOES DEPLOYMENT MEAN?

Deployment and commissioning of a new electric school bus can mean very different things. Electric vehicles require more than just a vehicle. The dealership has a commissioning process, including a pre-delivery inspection (PDI) as well as consultation and training.

IC Bus approaches deployment in a far more hands-on, research-based manner. ESB represent a transformational technology that requires extensive, shared insight into vehicle design, charging, operation and maintenance. The IC Bus deployment method is a fully collaborative process designed to eliminate surprises every step of the way and ensure optimal performance over the life of the vehicle. IC Bus goes the extra step of requiring certification of dealers to confirm that dealership employees have the knowledge, training and technical expertise to sell, support and maintain/repair these vehicles.

Led by a team whose sole focus is the deployment of IC Bus zero emissions vehicles, the IC Bus deployment process is the very definition of “white glove” service, encompassing seven steps which begin with the finalization of the ESB sales order:

Deployment Step 1: Project initialization

The new-vehicle order marks the transition from the Consulting and Charging phases of the customer journey to the Deployment phase. Once the order is entered, IC Bus Deployment team members begin a comprehensive review of the project, including a download of all customer details, including fleet type, operating requirements, performance/uptime targets, vehicle duty cycles, charging infrastructure and more. This step serves as a “triple-check” of roles, responsibilities and any pending activities such as installation of charging hardware and related infrastructure. The goal throughout this and each subsequent deployment step is to eliminate any surprises.

Deployment Step 2: Monitoring Infrastructure Build-Out

By the time a new ESB has been ordered, IC Bus consultants have already worked closely with the fleet customer, charging company and local utility to identify and design the appropriate power requirement and charging infrastructure and ensure charger operability. The objective is to have all charging hardware fully operational prior to delivery of the vehicle. The Deployment team will monitor the build-out of charging systems until complete.

Deployment Step 3: Finalize Delivery Schedule to Dealer

The IC Bus® dealer remains engaged at every step of the Deployment process. IC Bus Deployment team members work with the dealer to prepare both for vehicle delivery and inspection as well as the several-hour deployment event when the vehicle is turned over to the customer.

Deployment Step 4: Collaborative Pre-Delivery Inspection

Most IC Bus dealers have performed many pre-delivery vehicle inspections of diesel-powered school buses. Given the vast differences between ICE (Internal Combustion Engine) and ESB, however, there is a much broader scope to the electric-bus PDI process.

First, IC Bus ensures that every dealer professional who will interact with the customer and/or vehicle is fully trained for their areas of responsibility. The IC Bus PDI includes a top-to-bottom inspection and review of all vehicle systems. Next, IC Bus and dealership representatives will perform test drives and charging sessions tailored to the fleet’s unique requirements. The PDI typically occurs two weeks prior to customer delivery to provide adequate time to assess and optimize all vehicle systems.

Deployment Steps 5 and 6: Scheduling, Completion of Vehicle Deployment Event

Deployment day is more than a matter of picking up the new ESB. In actuality, the deployment event comprises several hours of review, training and hands-on activities for fleet managers, drivers, technicians and first responders representing the fleet's operating area.

THIS INTENSIVE TRAINING INCLUDES:

- Overall vehicle operation
- On-the-road driver training, including the use of regenerative braking technology
- Charging processes and protocols
- Maintenance and inspection (including safety requirements)
- Vehicle storage best practices
- Towing
- First responder training – electrical system parameters, safety requirements
- OnCommand® Connection (telematics/remote diagnostics) setup and operation

Deployment Step 7: Post-Delivery Review

The Deployment phase continues at least 45 days beyond final delivery of the vehicle to the customer. Throughout this period, Deployment team members monitor and assess vehicle operating data collected through the OnCommand® Connection solution. Among the metrics captured are overall vehicle performance and efficiency, fault codes, charging efficiency, GPS tracking, operating range and safety reports.

The Deployment team reviews this data with managers and other appropriate representatives of the fleet, comparing actual performance of the ESB and charging hardware vs. pre-deployment assumptions. This vital step can help fleets identify areas of need in driver training, charging practices and other areas. As an example, a fleet could determine through this review process that its drivers were not using the regenerative brake feature of their EVs, thereby artificially reducing vehicle operating range. Once this issue was rectified, the operating range improved to the pre-deployment target.

YOU HAVE ARRIVED

Fleet electrification can be a complex process. So many unknowns, but so many possibilities. By partnering with the right vehicle manufacturer, your fleet can take this bold step into the future with greater confidence, fewer surprises, at lower maintenance cost and with a brighter outlook for increased productivity, uptime and, of course, world-class sustainability.

Don't let anyone tell you that deploying a new electric vehicle is as fast and easy as launching a conventional vehicle. It's not. But by choosing IC Bus, you'll have the expertise and support of trusted advisors alongside you every step of the way.

Contact an IC Bus Trusted Advisor today to start your journey to EV