

THE ELECTRIC SCHOOL BUS TRANSITION:

Accelerating Equitable Deployment Through
Understanding Grid Impacts and Policy Solutions

Across the country, school bus operators are leveraging unrivaled federal funding and state incentive programs to transition their fleets to electric school buses (ESBs). This move uniquely benefits students, communities, and operators while addressing public health, environmental, and economic issues.

The [Electric School Bus Transition](#) report examines how underserved communities can be prioritized in this nationwide effort to electrify school buses. It also explores the complexities of adopting ESBs, including their impact on the electrical grid, the roles of utility companies throughout ESB adoption, and the corresponding policies in facilitating a fair and efficient transition.

Centering Equity in ESB Adoption

Switching diesel-powered school bus fleets to electric presents a **unique opportunity to address disparities**, especially in **areas disproportionately affected by air pollution and climate change**.

- By prioritizing equity when adopting ESBs, the communities most impacted can be the first to gain health and societal benefits.
- Engaging with communities in the decision-making process regarding fleet planning strategies empowers those communities to have a say in their transportation options.
- Stakeholders can develop a framework for implementing ESB programs that effectively cater to the needs of targeted communities based on the feedback and analysis of high-priority schools.

A united effort among policymakers, utility companies, and school bus operators can facilitate an **equitable** and **efficient transition** to electric school buses, paving the way for **just transportation solutions**.

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Understanding Grid Impacts

This report explores the effects of ESBs on the electrical grid, particularly with the capacity of distribution feeders to support charging buses. It highlights the potential need for infrastructure investments and the consideration of operational requirements and charging schedules to maximize grid efficiency and minimize expenses.

The Role of Utility Companies

Utility companies can play a critical role in supporting an equitable and efficient transition to electric school buses. Their responsibilities can encompass strategic planning, imparting insights from prior ESB implementations, developing utility incentives, and advancing rate design innovations. These roles are vital for assisting school bus operators in overcoming electrification challenges and steadily integrating ESBs into the electrical grid.

Potential Policy Enablers

The report emphasizes the need for policy backing and regulatory initiatives to supplement funding and expedite ESB deployment. Proposed policy mechanisms include:

- Utility-sponsored programs to lower barriers to adoption.
- Innovative rate offerings to manage operational expenses and grid impacts.
- Forward-looking strategies for grid planning and investment.
- Fair compensation mechanisms for vehicle-to-grid contributions.
- Scalable ESB deployments.

School Bus Electrification Journey Map: The Role of the Utility Company

The School Bus Electrification Journey Map illustrates the various ways that utility companies can offer assistance and guidance throughout the electrification process. School bus operators should contact their local utility companies early in the process and work directly with them to better understand the types of services that they can offer.



PREPARATORY WORK

Form a Dedicated Team

- Recruit and engage a team of individuals invested in a positive outcome
- Include as many as possible of Superintendent, Transportation Director, Fleet Manager, Facilities/Technology Services, Energy Manager, Finance/Grants, and School Bus Contractor (if applicable)

Funding and Financing

- Identify and apply for opportunities to offset project costs

Key Partnerships

- Identify key partner relationships, including vendor(s) and the utility provider

Establish

- Develop an internal team specializing in EV projects

Support

- Develop and identify potential incentive programs
- Begin outreach to school districts for these opportunities

Incentivize

- Promote the potential incentives that can be provided (e.g., equipment incentives, make-ready, partnerships, etc.)
- Emphasize opportunities to support underserved communities



FOUNDATION SETTING

Stakeholder Engagement

- Manage stakeholder relationships
- Define clear roles for external partners
- Be prepared to act upon the expertise of engaged parties

Set Goals

- Define the short-term and long-term fleet plan
- Determine site requirements

Coordinate with Utility

- Submit a service application to the utility to initiate a formal partnership and the service request

Engage

- Connect with the operator to join project team

Partner

- Provide additional insights on available financing options and potential business models

Collaborate

- Align on project goals
- Assign roles and responsibilities to each utility representative

Educate

- Inform the operator of options for make-ready assistance, rate design, charge management, etc.
- Share best practices from applicable projects done elsewhere



INSTALLATION OF INFRASTRUCTURE

Implement Charging

- Design and implement charging procedures/schedules
- Apply learnings from other ESB deployments via external parties

Share

- Share and promote the learnings and best practices from other ESB deployments to the operator

Install

- Ensure that charging infrastructure is sufficient for project needs
- Ensure that charging infrastructure fits within available capacity

Upgrade

- Make facility upgrades to accommodate new electrical infrastructure

Facility Assessment

- Schedule facility assessment with utility partner

Plan for Operational Shifts

- Understand range of bus operations
- Work with internal stakeholders to determine bus routing and charging

Procure Chargers

- Work with utility to determine most appropriate charger technology
- Interview vendors and select desired equipment
- Initiate purchase order for chargers and inform utility

Assess

- Conduct facility assessment to discuss site selection and charger placement
- If necessary, discuss optional or required upgrades to electrical infrastructure

Develop

- Begin planning for charging with the school bus operator, based on selected electricity rates and charge management strategies

Inform

- Inform operator of the range of potential chargers

Future-proof

- Pre-build on sites as needed and as predetermined by operator based on project goals, mandates, and funding



PROJECT PLANNING



TRAINING, TESTING, AND DEPLOYMENT

Workforce Development

- Ensure training is provided to all relevant parties (maintenance, drivers, first responders)

Test Equipment

- Complete road tests and test equipment

Performance Review

- Observe the performance of new equipment
- Set protocol to maintain and measure equipment performance

Measure

- Provide the operator with tools that provide insights on their electric bill



PERFORMANCE, BENEFITS, AND SCALING

Adjust Operations

- Shift operational plans as needed after deployment to optimize ESB suitability

Analyze

- Review the performance of the chargers based on previously identified measures of performance

Adapt

- Suggest different rates or charge management practices based on performance analysis

LEGEND

PROCUREMENT PHASES

Operator Perspective

Utility Support