Flipping the Switch on Electric School Buses

Part 6: Vehicle In Use Performance

Key Information and Resources

Electric school buses are a growing topic of discussion in the transportation industry. The U.S. Department of Energy (DOE) is providing a technical assistance program aimed at K-12 schools interested in implementing electric school buses into their fleets. "Flipping the Switch on Electric School Buses" is a multi-part technical assistance series. Each part contains several modules focused on key topic areas about electric school buses. Modules can be watched in order, or viewers can select just those most applicable to their needs.

The sixth part in the series focuses on vehicle in use performance. It provides information on how to track electric school bus performance and why it is important to do so, as well as electric school bus energy use, fuel economy, range, and reliability.

Modules in this part include:

- Module 1: Tracking Performance
- Module 2: Energy Use and Fuel Economy
- Module 3: Range and Reliability

Key Resources and Highlights

Below is a list of the key tools and resources provided during *Part 6: Vehicle In Use Performance* of the "Flipping the Switch on Electric School Buses" series.

Module 1: Tracking Performance

Presented by Lauren Lynch, National Renewable Energy Laboratory

- **Report: Electrifying Transit: A Guidebook for Implementing Battery Electric Buses (BEBs):** nrel.gov/docs/fy21osti/76932.pdf
    - This guidebook provides stakeholders with information about the decisions and considerations required for successful BEB implementation.

Module 2: Energy Use and Fuel Economy

Presented by Lauren Lynch, National Renewable Energy Laboratory

- **Future Automotive Systems Technology Simulator (FASTSim)**: nrel.gov/transportation/fastsim.html
    - FASTSim provides a simple way to compare powertrains and estimate the impact of technology improvements on light-, medium-, and heavy-duty vehicle efficiency, performance, cost, and battery life.

Module 3: Range and Reliability

Presented by Lauren Lynch, National Renewable Energy Laboratory (NREL)

- **Report: Surat Municipal Corporation Bus Electrification Assessment**: nrel.gov/docs/fy19osti/73600.pdf
    - This report examines the potential for Surat Municipal Corporation (SMC) to electrify its bus rapid transit system (BRTS) in Surat, India. Researchers from the NREL partnered with the Sardar Vallabhbhai National Institute of Technology to collect data from SMC and log in-use GPS data of SMC buses, and analyze the results. The analysis focuses on the operational feasibility and life-cycle costs of battery electric buses (BEBs) compared to diesel buses operated on eight BRTS routes out of four bus depots.
- **Video: Electric School Bus Training Connections: Best Driving Practices:** youtube.com/watch?v=uC3SKAT-Tns
    - This video provides examples of driving practices for increasing BEB efficiency and optimizing range