

ZOOM TO ZERO

Breakout #2: Electric – Plug in your Electric Bus

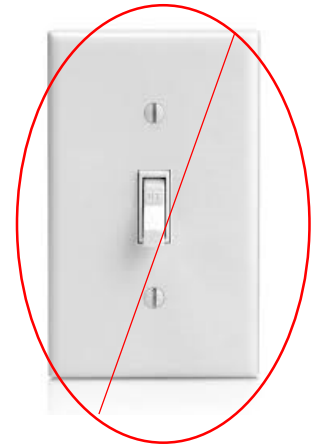
When deploying battery-electric buses there are so many options of how to charge up your fleet. Hear from some charging manufacturers and the considerations of smart charging, depot charging, and charging on the road.

Moderator: Fred Silver, Vice President, CALSTART



Breakout #2: Electric – Plug in your Electric Bus

- **Smart charging** is a form of electric bus charging in which the time and rate at which the **battery pack is charged can be controlled in a more "intelligent"** way than the simple use of a manual on/off switch.
 - Typically smart charging is **used to reduce the peak loads** on the electricity distribution grid supplying the power needed to charge an electric vehicle.
 - These systems can also facilitate the dynamic management of on route electrified buses
- *Panelist: Chuck Ebbets, Senior Account Manager, Viriciti*



Breakout #2: Electric – Plug in your Electric Bus

- **Depot Charging** is when your battery electric bus refuels at the depot usually overnight, but at a centralized bus yard or maintenance center.
 - Depot Chargers can be used on the bus routes but Depot Chargers tend to be at a lower power rating and thus take a longer period of time.
 - i.e. when there may be hours or longer to spare for the bus to refuel
- Panelist: Larry Hayashigawa, Business Development BTCPower Inc.

BTCPOWER



Breakout #2: Electric – Plug in your Electric Bus

- On Route Electric Bus charging can extend the daily operating range of a battery electric bus **so it can perform the same operational miles per day as a conventional bus** by using higher power charging systems along the bus route. Charging may occur over a period of minutes during normal bus stops.
 - Hi Power **Opportunity Chargers** can also be used as depot chargers especially when there is a shorter time in the evening to refuel the buses- you have limited space and may want to have more of a fast refueling approach

Brian Pollock, Business Development, Siemens Industry, Inc.

SIEMENS



Breakout #2: Electric – Plug in your Electric Bus

- Wireless Charging of a battery electric bus can be performed on route similar to on route charging at higher power levels or at the depot at hi or lower power levels

