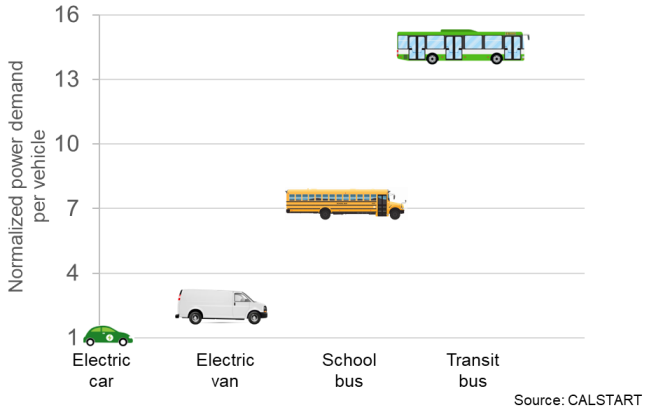
ICON Power

Turning fleet vehicles into mobile energy assets

Problem

- Nearly a quarter of the transportation related emissions stem from medium- and heavy-duty vehicles (MHDVs)
- Large scale electrification of these fleets can increase stress on electric grid and introduces additional challenges that require innovative solutions

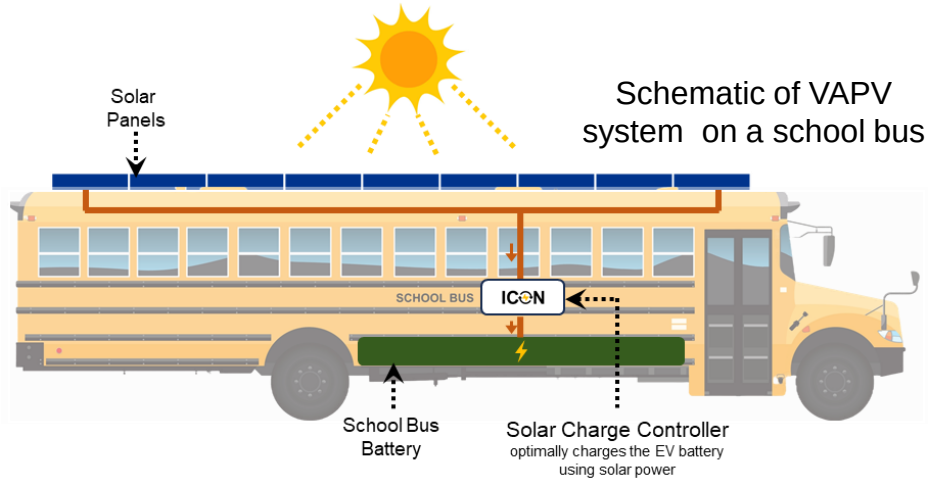


Proposed Solution

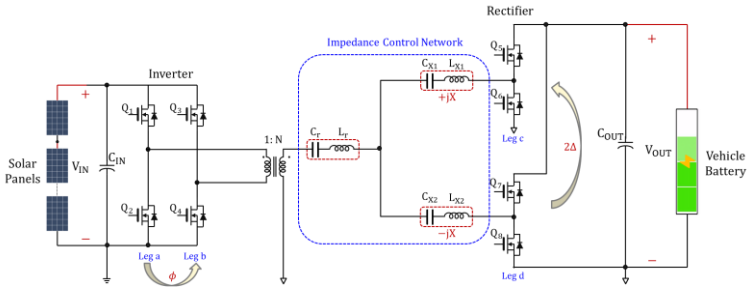
- Vehicle-Added Photovoltaic (VAPV) system generates electricity from solar panels retrofitted on the roof of MHDVs to supplement their energy need
- Electric school buses are a good entry point for VAPV due to their predictable operation, extended dwell times, and large battery capacity
- Further equipping these buses with V2X capability turns them into mobile energy assets and microgrids at the bus yard scale
- Our innovative power converter enables seamless integration of flexible solar panels on the roof and the vehicle battery forming the VAPV system

ICoN Converter

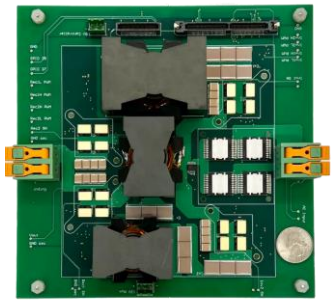
- **High-frequency operation:** enables compact design and lowers cost
- **Converter architecture:** maintains high and flat efficiency across wide solar panel and battery voltages while operating at high frequency



Schematic of VAPV system on a school bus



Impedance Control Network (ICoN) Converter Architecture



Proof-of-concept 3.7-kW Prototype