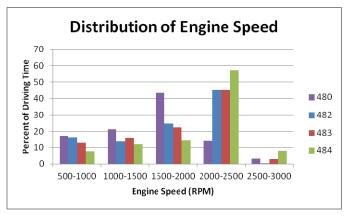
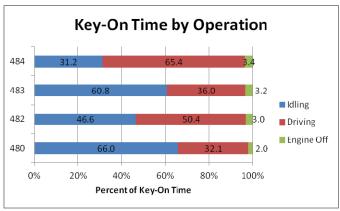


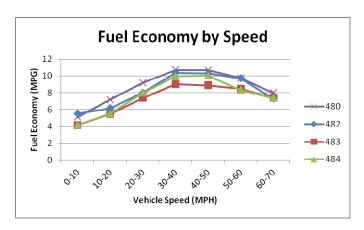
INL Hybrid Shuttle Buses

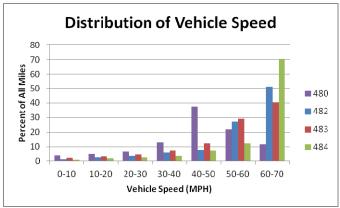
Four 28 to 36 passenger hybrid-electric shuttle buses, operated at the Idaho National Laboratory, were equipped with data loggers. The shuttle buses were delivered in 2010 with MaxxForce DT engines configured for 620 ft-lb of torque, and Eaton City-Delivery hybrid-electric systems, each containing a lithium-ion battery pack, electric motor, and Fuller six-speed automated manual transmission. Road speed, engine speed, and fueling data were gathered from the diagnostic port¹. Data were collected over several thousand miles of on-road operation through 2012. Buses 482, 483, and 484 were mostly operated in over-the-road, high-speed routes, which the buses were not primarily designed for. Bus 480 was used primarily for shuttle service. The results of the data collection are presented below.

| Bus Number | 480 | 482 | 483 | 484 |
|--|--------|--------|--------|--------|
| Distance Logged (Miles) | 2404.2 | 6920.4 | 7670.3 | 5266.6 |
| Overall Logged Fuel Economy (MPG) | 6.0 | 7.0 | 5.9 | 7.1 |
| Idling Fuel Rate (Gallons/Hour) | 0.96 | 1.01 | 0.97 | 0.95 |
| Moving Fuel Economy (MPG) | 9.3 | 8.1 | 7.7 | 7.9 |
| High Voltage Powered Heat Pump and A/C | Yes | No | Yes | Yes |









Data logged from diagnostic port using messages defined in SAE J1939 standard.

