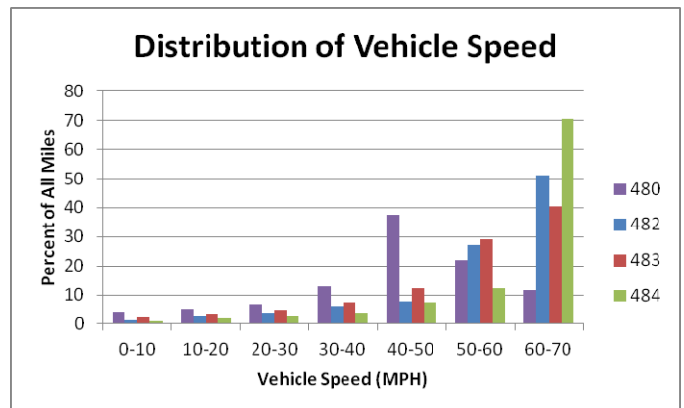
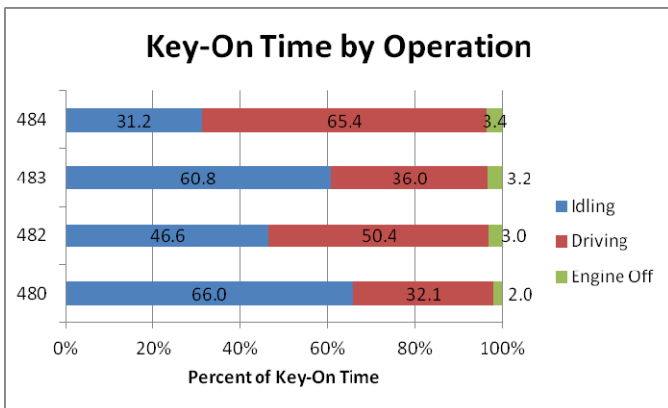
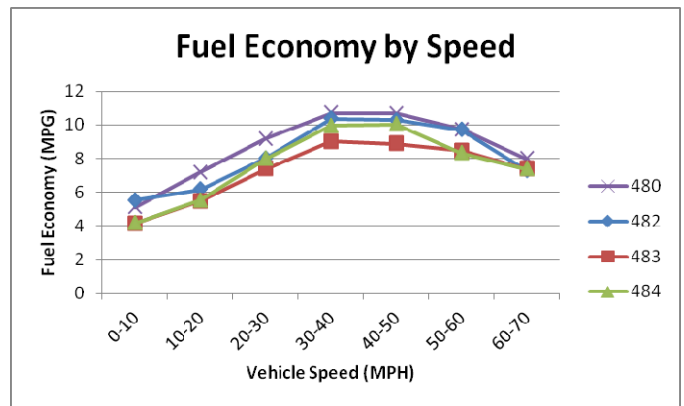
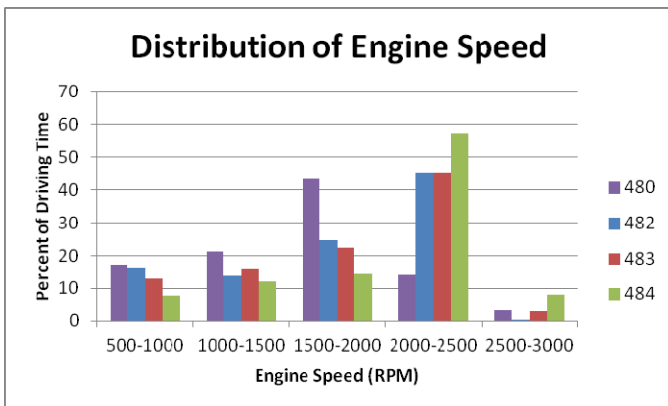




INL Hybrid Shuttle Buses

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



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