

2013 Ford Focus Electric

Battery Charge Profiles at Different Temperatures



Summary

The 2013 Ford Focus Electric's battery was charged with an AC level 2 EVSE from depletion at 95°F, 72°F, and 20°F.² For all temperatures, the charger consumes constant power until the last 30 minutes when power gradually tapers down (see Figure 1). The vehicle battery charge energy consumption shows a monotonic increase with temperature. The vehicle was also soaked at 20°F for about 2 1/2 days after the full charge at 72°F, resulting in an additional 18.12 kWh consumption. All tests were performed in a chassis dynamometer chamber with temperature controls.³

Select Battery Specifications¹

Manufacturer:	LG Chem
Type:	Lithium-Ion (LMO)
Nominal System Voltage:	318.2 V
Rated Pack Energy:	23 kWh
Cooling:	Active - Liquid Cooling

Key Charging Experiment Results

	Peak Power (kW)	Energy Consumed (kWh)
Charge at 95°F	6.94	24.70
Charge at 72°F	6.87	22.54
Charge at 20°F	6.87	21.57

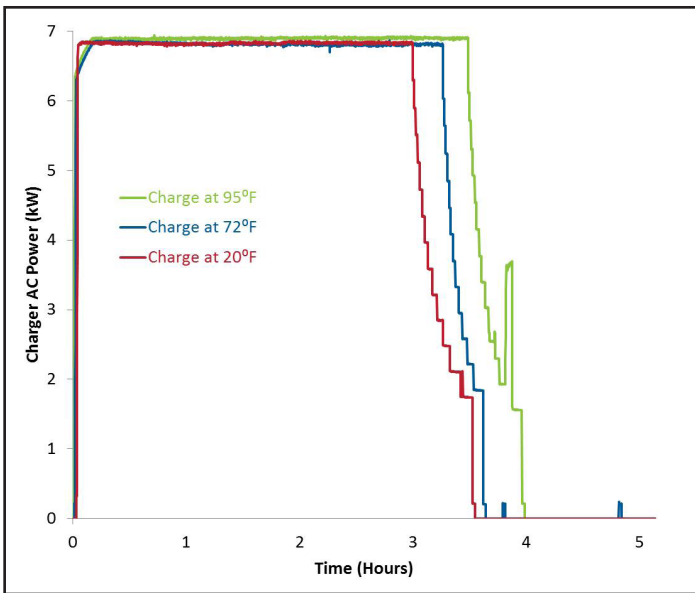


Fig. 1 Ford Focus BEV charger power consumption during charge

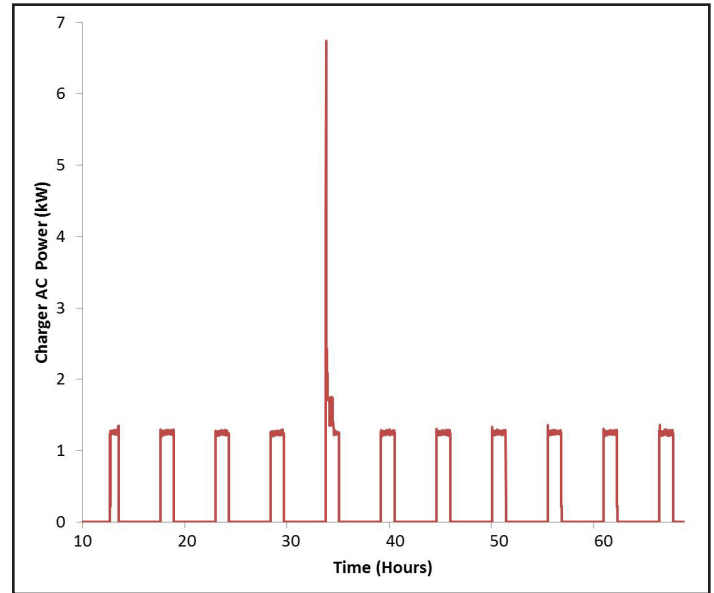


Fig. 2 Ford Focus BEV charger power consumption while left plugged in at 20°F

- Notes:
1. Vehicle specifications were supplied by the manufacturer, measured, or derived from a literature review. For detailed specifications, see Baseline Testing Results available at avt.inl.gov
 2. Ambient temperatures were adjusted at the end of charging: 95°F to 72°F, 72°F to 20°F, and 20°F to 72°F
 3. The experiments were conducted at Argonne National Laboratory (ANL) for the Advanced Vehicle Testing Activity (AVTA)

As a production vehicle, this vehicle is assumed to meet all Federal Motor Vehicle Safety Standards (FMVSS) for Battery Electric Vehicles.

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