# 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. 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.

**Select Battery Specifications**

- **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**

<table>
<thead>
<tr>
<th>Peak Power (kW)</th>
<th>Energy Consumed (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge at 95°F</td>
<td>6.94</td>
</tr>
<tr>
<td>Charge at 72°F</td>
<td>6.87</td>
</tr>
<tr>
<td>Charge at 20°F</td>
<td>6.87</td>
</tr>
</tbody>
</table>

**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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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