

Bi State Electric vehicle connector



U.S. Department of Energy



Transportation and Equipment Electrification Panel

Page

Stephen Russell Moderator

Massachusetts Clean Cities Coordinator and
Alternative fuel Program coordinator for
Massachusetts

Why BEVs (Battery Electric Vehicles)

1. Better for the environment

- Reduce carbon emissions, even when energy is sourced from coal
- Help the nation transition to renewable energy
- Reduce use of oil, transmission fluid and other hazardous fluids
- Cut noise pollution
- Fun to drive

2. Energy independence

- Keep our energy dollars here
- Keep and grow jobs here
- Stabilize transportation costs

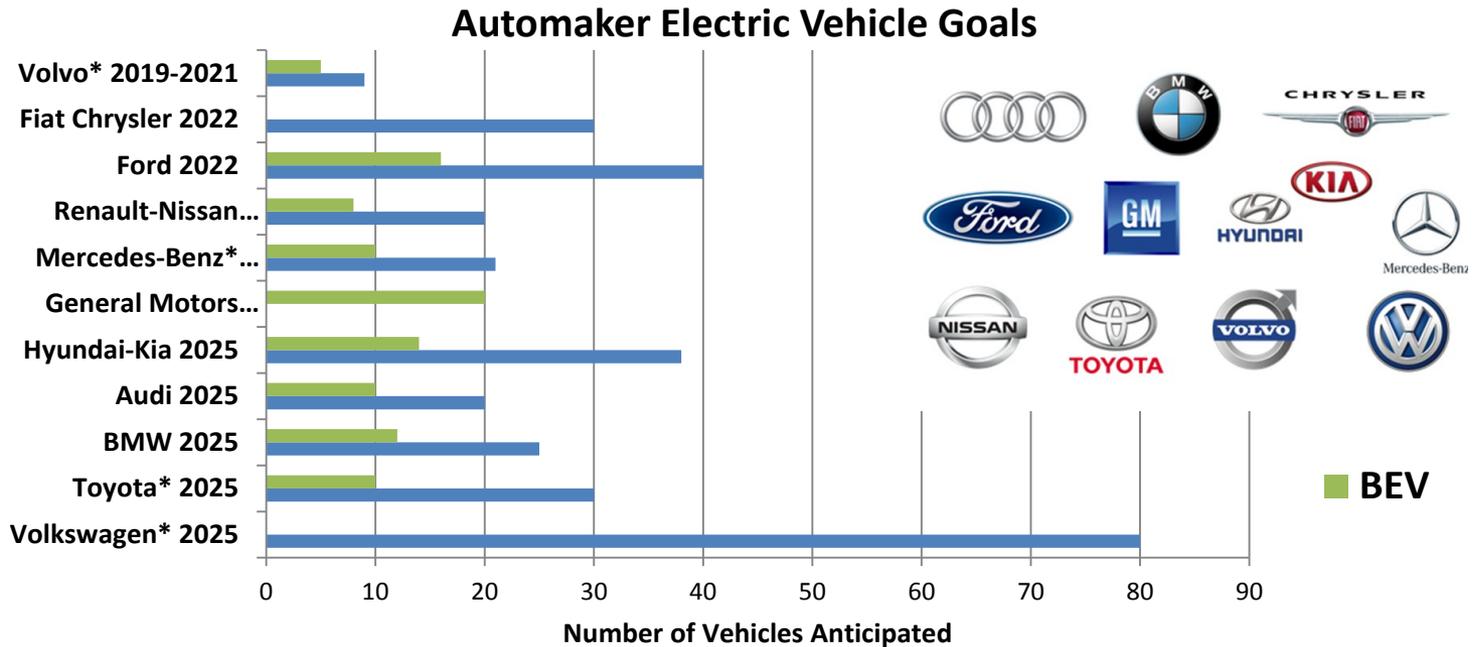
3. Future benefits

- Use of “smart grid” during peak demand
- Used batteries for a second life as an uninterrupted power supply



Future of EVs

- Electric vehicles expected to grow from 1 million in 2018 to 125 million in 2030. – *International Energy Agency*



- By 2025, 13 automakers expect to have more than 300 electrified models available and of those models, 105 being battery electric vehicles.

Charging the EV

Electric Vehicle Supply Equipment (EVSE):

- The conductors, attachment plugs, and all other equipment specifically installed to transfer energy between premises wiring and the electric vehicle, as well as exchange information.

Charging Level	Setting	Supply Power	Representative Example
AC Level 1	Residential/ Parking Lot 5 mi/hour @ 1.7 kW	120vac/20A (16A continuous)	
AC Level 2 (minimum)	Residential/ Commercial 10 mi/hour @ 3.4 kW	208/240vac/20A (16A continuous)	
AC Level 2 (maximum)	Commercial (up to) 60 mi/hour @ 19.2 kW	208/240vac/100A (80A continuous)	
DC Level 1	Commercial up to 500v @ 80Aac (up to) 120 mi/hour @ 40 kW	208vac/480vac 3-phase (input current proportional to output power; ~20A-200A AC)	
DC Level 2	Commercial up to 500v @ 200Aac (up to) 300 mi/hour @ 100 kW	208vac/480vac 3-phase (input current proportional to output power; ~20A-400A AC)	

Electric trucks are coming

- F 150 all electric
- <https://www.youtube.com/watch?v=bXFHgoon7lg&feature=youtu.be>





AltWheels Fleet Day Monday, October 7th, 2019

**Sheraton Four Points
Norwood, MA**

AltWheels Fleet Day is the largest meeting of corporate and municipal Fleet Managers on the East Coast and consists of panels, exhibits, and vehicles offering a showcase of alternative transportation solutions.

AltWheels Fleet Day will host the NAFA October Meeting

Billing Options

Smart EVSE provides multiple, adjustable billing options.

Free

- Many businesses have provided free charging as a loss leader

kWh Usage

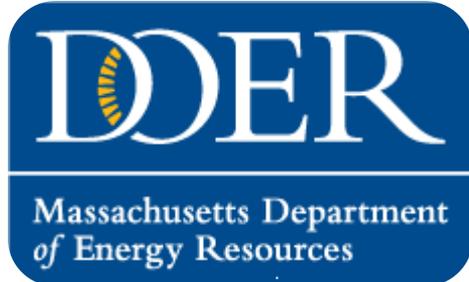
- Drivers can be charged by how much electricity they use. The amount per kWh is set by the station owner

Time

- Drivers can be charged by arbitrary time at the station (e.g. \$ per minute or hour)

Parking Fee

- Fee for charging can be embedded in a parking fee



Why should we care about EV Charging Infrastructure?