

APPENDIX C. GLOSSARY OF EV TERMS

battery. Electrochemical cells electrically connected in a series and/or parallel arrangement.

battery pack. A group of battery cells or modules connected in serial or parallel arrangement, fully configured as a unit meeting the voltage and packaging requirements of a vehicle.

battery system. A completely functional complex battery which includes the battery pack and battery support equipment, such as thermal management and battery controls.

capacity. The total number of ampere hours (Ah) that can be withdrawn from a fully charged cell or battery for a specific set of operating conditions, including discharge rate, temperature, age, stand time, and discharge termination criteria.

charge. (*verb*) Conversion of electrical energy into chemical potential energy within a cell by the passage of a direct current. (*noun*) Coulombs or ampere-hours of energy available in a cell or battery.

charge coupling. A take-apart transformer for inductive charging operating between 80 kHz and 300 kHz, composed of two primary components—the vehicle inlet and the coupler.

charger. An electrical device that converts alternating current energy to a regulated direct current voltage for replenishing the energy of an energy storage device (i.e., battery) and operating other vehicle electrical systems.

conductive coupling. A recharge cord and plug that physically connect to the vehicle circuit (*see inductive coupling*).

connector. A conductive or inductive device that, by insertion into an inlet on the electric vehicle, establishes connection to an electric vehicle for the purpose of energy transfer and information exchange. It is part of a *coupling* (a mating vehicle inlet and connector set)

controller. A solid-state device that regulates the amount of power delivered to an EV's traction motor.

coupler. The device connected to the electric vehicle supply equipment that transfers power to the electric vehicle for charging the energy storage system and permits the exchange of information between the EV and the EV's supply equipment. The coupler contains the primary coil of the take-apart transformer, an antenna for communications, a magnet for connection check, and provisions for locking the coupler in the vehicle to prevent tampering.

coupling. A mating vehicle inlet and connector set.

electric vehicle. (EV) An automotive-type vehicle for highway use, such as passenger automobiles, buses, trucks, vans, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Electric motorcycles and similar type vehicles and off-road self-propelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like are not included. (EV definition from 1999 National Electrical Code Handbook[®] 625-2)

electric vehicle supply equipment. (EVSE) The conductors, including the ungrounded, grounded, and equipment grounding conductors, the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of delivering energy from the premises wiring to the electric vehicle.

EV connector. Off-board component used to interface with the vehicle-mounted EV inlet to supply power and provide communication interface. (The power interface may be conductive, inductive, or other.)

EV cord. The off-board cable containing the conductors to connect the EV plug with the EV power controller to provide power for the vehicle and communications during charge.

EV inlet. Vehicle-mounted component which interfaces with the EV connector to receive power and provide communication interface.

ground fault. A short circuit to ground.

inductive charging system. A charging system that converts low frequency utility power to high frequency, transfers power across a take-apart transformer, and rectifies that power into DC voltage to the batteries.

inductive coupling. A recharge cord and plug that uses magnetic induction of electricity to transfer energy to the vehicle rather than using a physical connection (see *conductive coupling*).

infrastructure. All equipment and facilities required to generate, transmit, distribute, and deliver electricity to an EV.

Level 1 Charging. Charging from a common electrical outlet, which is 120 volts in the United States. The maximum power supplied for Level 1 Charging shall conform to the values shown: Nominal Supply Voltage 120 V. AC single phase; Maximum Continuous Current 12 amps; Branch Circuit Protection 15 amps (minimum); Nominal Continuous Power 1.44 kVA.

Level 2 Charging. High-power charging, which is 240 volts, 40 amps in the United States. The maximum power supplied for Level 2 Charging shall conform to the values shown: Nominal Supply Voltage 208-240 V. AC single phase; Maximum Continuous Current 32 amps; Branch Circuit Protection 40 amps; Nominal Continuous Power 6.66-7.68 kVA.

Level 3 Charging. Fast charging at 480 volts, 400 amps with three-phase power. This energy transfer method utilizes dedicated electric vehicle supply equipment capable of replenishing more than half of the capacity of an EV battery as quickly as in ten minutes. With this method, the electric vehicle accepts dc energy from an off-board power supply. The maximum power supplied for Level 3 charging equipment conforms to these values: Nominal Supply Voltage 600 V dc (maximum); Maximum Continuous Current 400 amps; Branch Circuit Protection As Required; Nominal Continuous Power 160 kW dc.

off-board charger. A charger with the intelligence and control in the charger stand, not on the vehicle.

on-board charger. A charger with the intelligence and control on the vehicle, not in the charger stand.

range. The maximum distance that an electric vehicle can travel on a single battery charge over a specified driving cycle to the battery manufacturer's recommended maximum discharge level. Alternatively, the distance reached when a specified minimum level of performance or other characteristic (such as battery depth of discharge) is attained.

time-of-use (TOU) rates. Discounted electricity rates established by utilities to encourage use of electricity during off-peak hours.

vehicle inlet. The device on the electric vehicle into which the connector is inserted for energy transfer and information exchange. This is part of the charge coupling.