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## Vehicle Electrification System Standards

### I. Vehicle Level Vehicle Electrification High Voltage System Architectures

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#### I.a Acronyms and Definitions

##### Description:

For a technician to navigate the technologies within vehicle electrification, it is imperative that they accurately identify and communicate information about a vehicle repair or diagnostic by using correct acronyms and definitions within their communications.

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##### Outcome (Goal):

Students will be able to properly articulate, through verbal and written communication, what constitutes each of the different vehicle electrification categories.

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##### Objective:

When provided a diagram of a vehicle, with its component ratings (i.e. hp, kW, A-h, engine, on-board charger, etc.) students will identify and articulate the correct vehicle type.

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##### Task:

When provided an electrified vehicle, students will use OEM service information and their visual recognition ability to correctly identify the category or type of vehicle electrification system.

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Type	Acronym	Definition
Hybrid Electric Vehicle	HEV	A road vehicle that can draw propulsion energy from both of the following sources of stored energy: <ol style="list-style-type: none"> <li>1. A consumable fuel</li> <li>2. An RESS that is recharged by an electric motor-generator system, an external electric energy source, or both</li> </ol>
Plug-In Hybrid Electric Vehicle	PHEV (PHV)	An electric vehicle that can be recharged with an off-board source of electricity, it includes both battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV)
Range Extender Extended Range Electric Vehicle	LD/MD/HD EREV	A small engine-powered generator or auxiliary power unit (APU) added to a battery electric vehicle to produce a plug-in electric vehicle (PEV). This generator sustains vehicle operation beyond the range provided by the batteries alone.
Battery Electric Vehicle	BEV	A vehicle that receives its on-board propulsion power solely from batteries, unlike a hybrid vehicle that may receive a portion of its power from a separately fueled power source, such as an internal combustion engine.
Fuel Cell Electric Vehicle	FCEV	A vehicle that receives propulsion energy from an onboard fuel cell power system (hydrogen). It is assumed that the fuel cell system is using a small battery pack (1.3 – 1.6 kw-h) for acceleration.

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**Governing Standards (Safety, Testing, Diagnostics or Repair):**

J1715 - HEV & EV Terminology

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**Industry Resource Organization:**

- √ Society of Automotive Engineers (SAE)
  - Institute of Electrical & Electronic Engineers (IEEE)
  - International Electrotechnical Commission (IEC)
  - American Society for Testing and Materials (ASTM)
  - Occupational Safety & Health Administration (OSHA)
  - National Fire Protection Association (NFPA)
  - Underwriters Laboratories (UL)
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