UNIT 2: Charging Infrastructure and IT Equipment

VOCABULARY

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Term	Description	
Battery Electric Vehicles (BEVs) and Electric Vehicles (EVs).	The terms EV and BEV refer exclusively to pure electric vehicles driven by an electric motor and powered by electricity generated by lithium-ion batteries.	
Plug-in hybrid electric vehicle (PHEV)	A car that combines a traditional internal combustion engine and a rechargeable battery. This allows for purely electric driving, extended travel with a gasoline engine, or a combination of gasoline and electric motors).	
Fuel cell electric vehicle (FCEV)	A fuel cell electric vehicle (FCEV), such as the Honda Fuel Cell Clarity, does not need to be recharged. It generates electricity to power the engine using oxygen and compressed hydrogen instead of using a battery. Honda Clarity is a zero-emission car; the electricity is generated from hydrogen.	
Charging cable connectors	Type 1: A five-pin socket that also features a clip. Type 2: A seven-pin socket with a flat side, this connector is typically found on EVs manufactured by European brands. Type CHAdeMO is a four-pin round socket, this connector is used only for quick charging points and is generally compatible with EVs manufactured by Asian brands..	
Combined Charging System (CCS)	Standardized by the EU, this connector is used only for fast charging points and is compatible with electric vehicles manufactured by European brands. This is the same socket as a regular electric outlet and can be used to charge some electric vehicles, but it lacks the safety, speed, and security features of dedicated systems.	
Supplemental charging	Such charging involves recharging the electric vehicle wherever you park it, recharging it when you are out and about. Public charging points can be located using the Internet or by downloading appropriate apps.	
Single-phase and three-phase power supply	Available in many homes and businesses, this is the power supplied by all standard outlets. Single-phase electricity can power up to 7kW for up to 50 km of range, per hour of charging. Three-phase is often found in commercial and industrial premises; this provides three alternating currents of the same voltage and is needed for safer charging with quick and fast chargers.	

Slow charging	A better and safer option for home charging, allowing both supplemental and overnight charging through a dedicated charging point. The 3.7 kW POD Point Solo is a good example of this type of power station and provides faster charging than a 3-prong outlet.	
Fast charging	Ideal for supplemental charging, it can provide up to 50 kilometers of range per hour of charging or a full charge in a few hours. Fast chargers are ideal for continuing the journey while you're out and about. You'll find them in public parking lots via the Open Charge app.	
Fast Chargers.	You'll find these charging points at highway gas stations. Rapid chargers allow you to charge about 80 percent in just 20 minutes. Useful to know for long trips and travel outside your area.	
Range anxiety	The term refers to the fear of running out of charge while driving an EV. It is common and natural, but can be avoided by charging batteries whenever you can, wherever you park during the day.	
DoD: Depth of Discharge	Degree of Discharge. Alternative method of determining state of charge. Indicates how much energy has been drawn from the battery. It is used less frequently than State of Charge (SoC).	
SoH: State of Health.	State of health (of the battery). Primarily describes the aging process of the battery, which reduces its efficiency. This value is expressed as a percentage of the value when new. It usually indicates the battery's loss of capacity compared to its initial capacity.	
2nd life: second life.	If the state of health (SoH) no longer allows the battery to be used uodaily, it is possible to continue to use it for years outdoors as a stationary electric energy storage. In this so-called “second life,” accumulators can store excess energy from a photovoltaic system or be used as a power reserve in fast-charging stations	
Recycling (of a battery):	Recycling the material of batteries to recover the elements they contain. Through modern recycling processes, about 90 percent of the materials used in batteries remain in circulation.	
Range	Distance in kilometers that can be traveled on one (full) charge. Range depends primarily on driving, elevation profile, and weather conditions. Manufacturer-specific directions often refer to standards, which provide better conditions than practical. When the vehicle is running, the on-board computer calculates a predictive value for the remaining range.	

Regenerative braking:	Indicates the energy recovered during braking. When braking (with the mechanical brake or engine brake), the electric motor turns into a power generator that feeds energy back into the battery. In addition to reducing wear and tear on mechanical brakes, range is increase	
One-Pedal-Driving.	One-Pedal-Driving. The “one-pedal” model identifies a type of driving in which only the accelerator pedal is used. When it is released (such as at a traffic light), a braking action is exerted. This regenerates (recovers) energy through the motor, which functions as a power generator. The mechanical brake is used only during heavy braking. This function can be engaged depending on the type of vehicle.	
Release phase or “freewheel mode”:	Unlike the “one-pedal” driving pattern, by releasing the accelerator pedal the vehicle does not recover energy but continues by inertia, using available kinetic energy. Inertia on release is also present in vehicles with internal combustion engines. In this case, the engine is brought to idle or turned off.	
Volt:	The volt indicates the electrical voltage. Multiplied by the current, it gives the charging power.	
A: Amper	Ampere is the unit of measurement of electric current. Multiplied by voltage, it gives the charging power.	
kW: Kilowatt.	The kilowatt is the unit of measurement of electrical power. It defines the power delivered by a charging station. In kW we express both the power of the vehicle corresponding to horsepower - 100 kW corresponds to 136 hp) and that of the charging station or electrical outlet.	
kWh: Kilowatt-hour	The (kilo)watt-hour is the unit of measurement of the work or amount of energy. It defines the amount of energy delivered by a charging station or received by a vehicle during one hour. Both the consumption of the electric car (per 100 km) and the energy drawn at the charging station are measured in kWh. In public charging, energy is usually counted in kWh.	
Energy density:	Amount of energy stored per unit mass or volume. Energy density expresses the amount of energy that can be stored per kilogram or liter of battery (Wh/kg, Wh/l).	
Phase (also called outer conductor):	A conductor (electrical wire) that is energized during normal operation and contributes to the transmission or distribution of electricity. Three-phase current is alternating current with three phases (live wires).	