



Electric Vehicle Expert Certification Program

Sample Material



Curriculum Sample

INTRODUCTIO

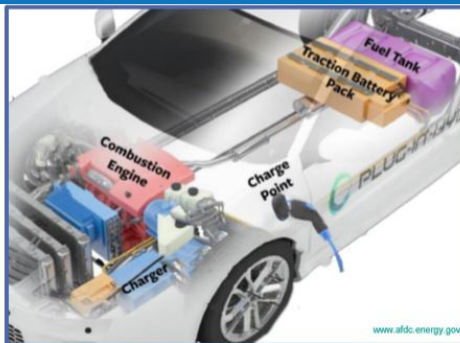
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Local EV Commitments and Accomplishments

- New Orleans Regional Transit Authority (RTA)**
 - Operates hybrid-electric buses and streetcars.
 - Plans to purchase all electric buses.
- Jefferson Transit (JeT)**
 - Pursuing EVs and electric buses.
- Louisiana Department of Environmental Quality (LDEQ)**
 - Implementing public charging station projects statewide via Volkswagen Settlement funding.
 - Operates hybrid-electric vehicles.
 - Pursuing all-electric fleet vehicles.
- Port of New Orleans**
 - Operates two all-electric Nissan LEAFs and two plug-in hybrid electric Ford F-150 trucks.
- Coca Cola Bottling Company United (Harahan)**
 - Operates 10 hybrid-electric trucks.
- Sewerage & Water Board of New Orleans**
 - Operates 6 plug-in hybrid electric trucks.
 - Plans to convert their remaining fleet.
- Municipalities**
 - City of Ponchatoula installed a public charging station for the community.
 - City of New Orleans is working to install publicly available charging stations and acquire EVs.
 - Jefferson Parish operates 5 hybrid EVs.
 - St. Bernard Parish operates 1 all-electric vehicle.
 - Town of Abita Springs is pursuing an EV for their fleet and installed public charging stations for the community.



Plug-in Hybrid Electric Vehicle (HEV)

Fast Facts

REFUELING BENEFITS

Minimal trips to gas station. Batteries charged at home, work, or other.

ENERGY STORAGE

Fuel is stored as electricity in batteries and a back-up gas tank.

PROPULSION

Drives on electric power until batteries are depleted then the vehicle switches to gas.

RANGE

The range varies between 14-126 mile all-electric range depending on the vehicle model.

CHARGING METHODS

- External electrical outlet
- Regenerative braking
- Internal combustion engine

The PHEV can operate as a fully electric vehicle with power coming exclusively from the traction battery pack. When the energy in the battery packs is drained, the gasoline-powered internal combustion engine automatically starts and the vehicle will run like a hybrid vehicle until the battery pack is recharged.

In a PHEV, the electric battery pack is larger than the battery pack of a hybrid vehicle. If PHEV owners have short daily commutes, they can run their vehicle solely as an EV by simply charging the car daily.

PHEV Manufacturers Examples:¹⁹
(A comprehensive list available at the AFDC website)

- | | | | | |
|------------|-------------|-----------|--------------|----------|
| - Audi | - Chevrolet | - Honda | - Lincoln | - Subaru |
| - BMW | - Chrysler | - Hyundai | - Mercedes | - Toyota |
| - Cadillac | - Ford | - Kia | - Mitsubishi | - Volvo |



Example: Toyota Prius Prime PHEV

Types of Chargers



CHAdeMO

Level: 3

Compatibility:
Nissan Mitsubishi, Kia

Power Supply:
62.5 kW by 500 V, at 125A



SAE Combo (CCS)

Level: 3

Compatibility:
GM, VW, BMW, and etc.

Power Supply:
62.5 kW by 500 V, at 125A



Tesla HPWC

Level: 2

Compatibility:
Only Tesla Vehicles

Power Supply:
11.5 kW by 240 V, at 48A



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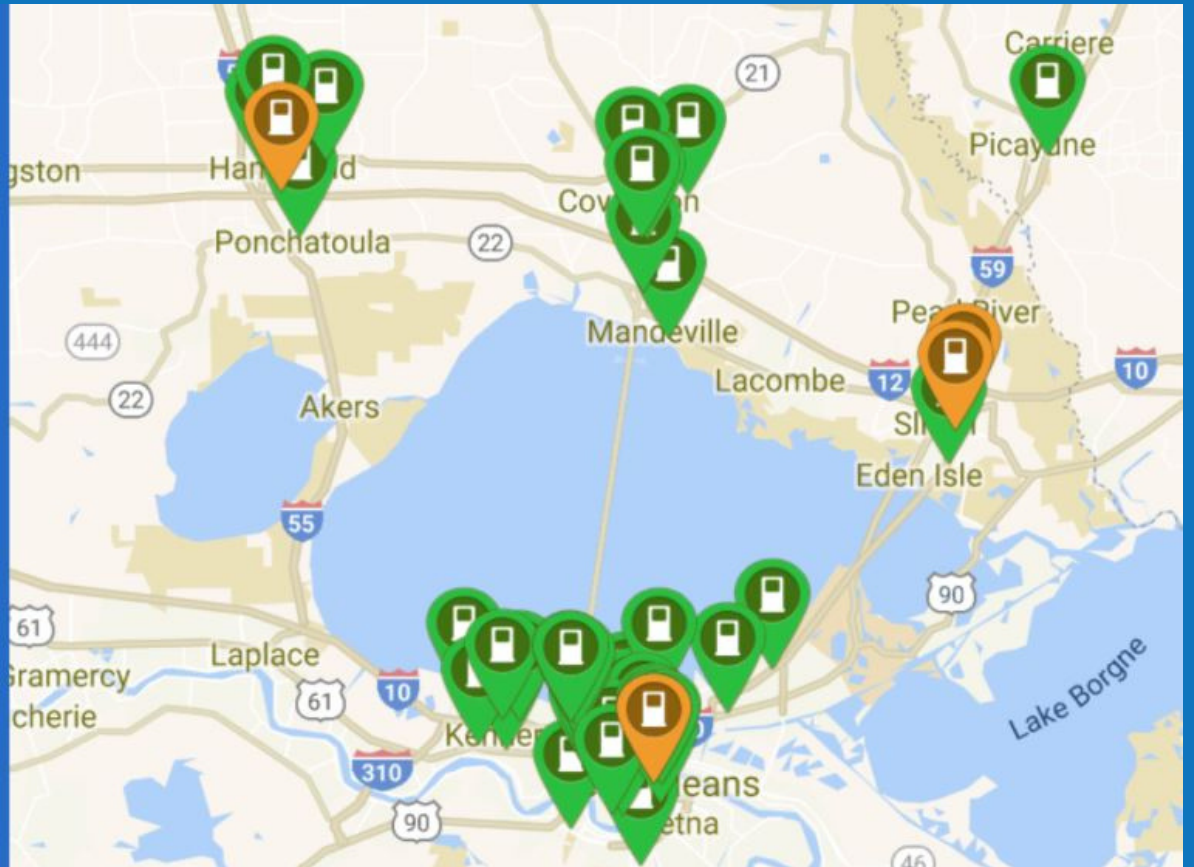
Level: 2

Compatibility:
Any model PHEV or EV

Power Supply:
611.5 kW by 240 V, at 48A

Video Content Sample

Local Charging Stations



Level 1

Lowest power output & the longest charging time

Power Supply: 120 VAC

Miles/Range per HR:
Approx: 3-4 miles

Charge Time:

EV: 17 hrs
PHEV: 7 hrs

Avg. Equipment Cost:
\$300-\$1,500



Level 2

The most popular EVSE equipment

Power Supply: 208-240 VAC

Miles/Range per HR:
Approx: 10-20 miles

Charge Time:

EV: 3.5-7 hrs
PHEV: 1.5-3 hrs

Avg. Equipment Cost:
\$400-\$6,500



Level 3

Highest power output, a.k.a. "DC Fast Charging"

Power Supply: 208-240 VAC

Miles/Range per HR:
Approx: 50-60 miles

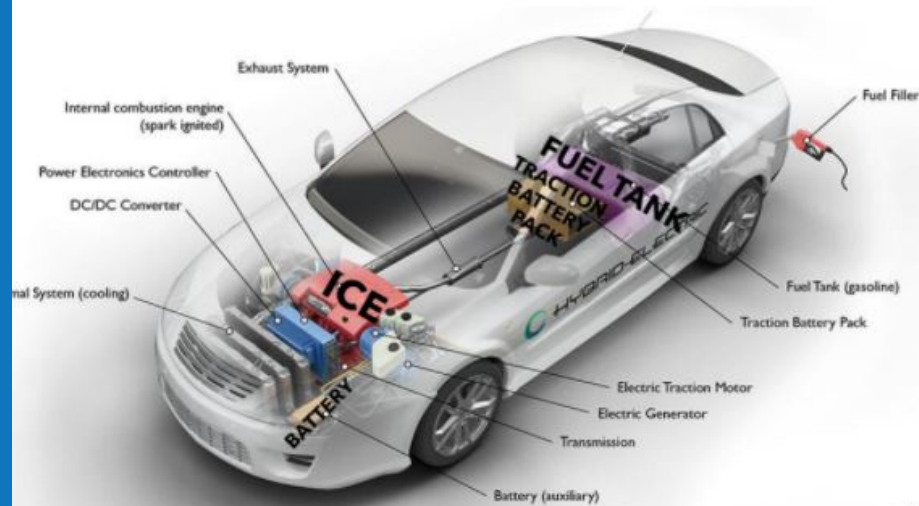
Charge Time:

EV: 30-45 mins
PHEV: 10 mins

Avg. Equipment Cost:
\$10,000-\$40,000

Video Content Sample

Hybrid Electric Vehicle (HEV)



CHARGING

1. Regenerative braking
2. Internal combustion engine

REFUELING

Fewer trips to the gas station because of the regenerative braking.

ENERGY STORAGE

Fuel is stored in the gas tank and the traction battery pack.

PROPULSION

Powered by an internal combustion engine and an electric motor.

RANGE

The range varies between vehicle models

afdc.energy.gov

Question 4:

Which miles of range per hour matches the level of charger?



Level 1

10-20



Level 2

50-60



Level 3

3-4

Test Sample

Final Exam - Electric Vehicle Expert Certification Program

* Required

It is important to be prepared for an EV sale because *

1 point

- Potential EV buyers may know nothing about EVs
- Potential EV buyers may be well prepared and may ask a lot of questions
- All of the above
- Your expertise can increase EV customer referrals

How much does Volkswagen plan to invest into EVs by 2025? *

1 point

- \$4.5 billion
- \$30 billion
- \$60 billion
- \$84 billion

A Level 2 charger takes approximately how long to charge a PHEV from a depleted battery? *

1 point

- 8-15 hours
- 20 minutes to 1 hour
- 3-8 hours