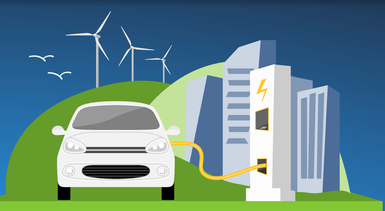
RISKY BUSINESS

What You Need To Know About...



Electric Vehicle Charging

Electric vehicles (EV) use electric motors exclusively for propulsion, while hybrid electric vehicles use electric motors with a traditional internal combustion engine to increase range and reduce emissions. Regardless of type, each vehicle stores electrical energy onboard using batteries. EV, and now many hybrid vehicles, require charging to keep batteries full and the car moving.

TYPES OF EV CHARGERS[1]:

LEVEL 1 CHARGERS

Utilize 120-volt, single-phase power supplies and can provide 3-5 miles of range per charging hour.

LEVEL 2 CHARGERS

Utilize 208-volt or 240-volt, single-phase power supplies and can provide 10-20 miles of range per charging hour.

LEVEL 3 CHARGERS

Utilize 480-volt, three-phase power supplies and supplies DC power to the car batteries. These chargers can provide 80 percent charge within 20–30 minutes.

EMERGING TRENDS:

The compound annual growth rate for EV is expected to be 24.3 percent between 2021 and 2028.[2]

EV will see growth in underwater vessels, aircraft, two and three wheelers.[3]

Vehicle-to-grid charging is expected to see a huge boost where vehicles will supply power to the electric grid during times of peak demand when electric production costs are at their highest, and then recharge their batteries during hours where demand is less, and the cost of production is much cheaper.[4]

MAINTENANCE TIPS:

- Install a new, dedicated circuit for your EV charging device because older homes and businesses may have wiring that may not be suitable for EV equipment. Circuits should be installed by a qualified electrician.
- All Level 2 and Level 3 charging devices should be installed by a qualified electrician as these devices have more complex electrical demands.
- Electrical studies should be performed when multiple chargers are going to be installed to ensure the power system can handle this larger draw.
- Follow manufacturer's guidelines when charging vehicles.
- Only use charging equipment that has been certified by nationally recognized testing laboratories.
- Never use a multi plug adapter or extension cords when charging vehicles.
- Install a residual current device with the charging unit. This will interrupt power to the unit if a fault is detected and will help prevent a fire.
- Maintain all components of the charging equipment in accordance with the manufacturer's requirements. Never use equipment that has signs of damage.

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References

[1] https://www.duke-energy.com/energy-education/energy-savings-and-efficiency/electric-vehicles/charging-your-ev/types-of-chargers
[2] https://www.fortunebusinessinsights.com/industry-reports/electric-vehicle-market-101678
[3] https://www.idtechex.com/en/research-report/electric-vehicles-land-sea-and-air-2021-2041/779
[4] https://innovationatwork.ieee.org/vehicle-to-grid-v2g-technology/