

Basics of Owning Electric Vehicle

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Electric Vehicles (EV)

What Impacts EV Ownership

- 1. Infrastructure*
- 2. Speed & Acceleration*
- 3. Temperature*
- 4. Elevation Changes*
- 5. Wind*

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Infrastructure

- 1 *Recharging*
2. *Vehicle Service*

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Speed and Acceleration

1. *The faster you drive - less range*
2. *Heavy acceleration - less range*

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Temperature

Most EV Battery packs optimal temperature range 50 to 80 degrees

To Hot: Batteries will not charge and degrades faster

To Cold : Slow to charge and degrades output

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Elevation Changes

Elevation (up hill) requires more energy than going down hill

Heavy EV's with smaller battery packs are impacted more by elevation changes

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Wind

Head and Cross Wind slow the vehicle and more energy is need to maintain speed

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Trip Computers

ALL EV Car Trip Computer can not compute for all these environments. Most can calculate battery pack temperature speed and distances, not elevation, wind or acceleration to determine range

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Understanding common terminology

State Charge : Percentage of charge - example 70% used or remaining

Kilowatts per mile: The number of miles per kilowatts driven

Example : 2.9 miles per kilowatt. (same as - miles per gallon)

Regenerative braking: Recovered energy (vehicle slowing down) and stored

Range Anxiety: The Drivers fears the vehicle does not have enough battery to reach their destination.

Recharge Anxiety: The Drivers fear that recharging stations are out of service or limited to level 2 charging.

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Understanding common terminology

Charging Levels

Level 1 : 120 volts - 1 to 1.8 kw or 3 to 7 miles of range per hour

Level 2 : 240 volts - 20 kw or 35 to 70 miles of range per hour

Level 3 : 480 volts - 480 ac volts changed to dc voltage(DC Fast Charging) - 20% to 80% in 20 minutes on average

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Usage

Around Town, I charge to 80% and recharge at 20%

Road trips, I charge to 90 to 100% at the start of the trip and recharge at 30% and top off at 80%

Pricing: On the road .35 cents to .48 cents per kilowatt, at home .7 cents per kilowatt.