



Plug In America

WE DRIVE ELECTRIC. YOU CAN TOO.

EV Battery Technology Impacts
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HOW TO MAXIMIZE YOUR EV BATTERY PACK LIFE

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- Keep tires at factory recommended pressures, check regularly (monthly) with gauge
- Gauge your trips, conditions; when relying on instrumentation, pad your estimates
- Use trip planner software (e.g., <http://abetterroutepanner.com/> is good general-purpose freeware suggestion)

- Rechargeable battery State of Charge (SoC): full is 100%, empty is less than 1%
- Use SoC 'windows' – brackets within the range
 - Upper / lower limits: 90/10, 80,20, 90-15, 100-<5
- Protection mechanisms notwithstanding, stay away from extremes
- Behaviors to avoid:
 - fill and sit in heat;
 - deep discharge and abandon;
 - long sitting (vampires)

Opportunity charging

- When possible, boost the battery (no need to fill entirely, a little here / there)
- Depending on driving habits - try to plan with contingencies
- Level 1, Level 2, DC Fast Charging
 - US power limit at home (1.4 kW, in public ~7 kW)
 - SAE reference – 2010 version of the standard (purchase)

- Avoid transients - jack rabbit starts stress entire system: tires wear out, fuses stressed
- Hard throttle at low SoC - particularly bad
- Energy consumption proportional to speed
 - Directly affects the “Will I make it?”
 - Not linear relationship: 35 mph vs 70 mph
 - Square law: double speed quadruple energy consumption

- Headwinds: fighting headwinds adds to your effective ground speed energy consumption
- Wet: rain reduces traction on road increasing energy to go the same distance as dry condx
- Cold: air is more dense (thicker) when cold, increasing energy to go same distance (nighttime, winter)

- HVAC load is 2nd biggest drain from battery. Lighten where possible to save energy (use set point)
- Even with a heat pump (better than resistive heater) energy usage is considerable
- Keeping battery at moderate temps: air versus liquid-based actively cooling



- keep interior temperature low, limit temperature buildup
- in shade, ventilated area
- plastic outgassing of VOCs forming film on glass, new car smell; hard to clean (elbow grease)
- crack windows, use foldable windshield sun shade (foil backed roll-up, circular light colored)

- capture daytime warmth limit energy expenditures for comfort
- park in sun, out of wind (especially overnight)
- optional heated seats / steering wheel
- bundle up, wear gloves
- moisture control – run A/C