

Advantages of EVs over ICE

Better handling

- Wider wheelbase

- Reduced front overhang and turning radius

- Lower center of gravity due to battery

- 50:50 weight distribution

- One-pedal driving for long-term brake health, capture of braking energy

- Instant continuous torque with no gear shifting, no adolescent noise

- No waiting for ICE to rev up to gain power

More comfortable

- Quieter interior, flat floor

- Stiffer, more rigid body

- Expanded front and rear legroom

- Quick heater turn-on, no engine block heater required

- Quieter, no engine noise

- Increased interior space for external size

More maintainable

- No gas stations

- No scheduled maintenance, smog checks, or tuneups

- No radiator, fan belts, water pump, muffler, catalytic converter

- No transmission, filters, oil changes, alternator, water pump, fuel pump

Safer

- No highly volatile explosive liquids

- Historical record of far fewer fires

More environmentally friendly

- Including manufacturing, recycling, and electricity/petroleum production

- Will see continued improvement in future unlike ICE and petroleum

Challenges of EVs over ICE

Charging infrastructure has a way to go – number of stations, repair level, charging rate

- Heavy funding of future charging infrastructure from IRA and manufacturers

- Free charging uses up charging stations

- Optimum for home charging convenience, solar is added advantage

Range anxiety

- 200 mile range with charging at home is adequate for all but long trips

- 30-40 minute charging stops are required for long trips anyway for lunch, restroom

Plugin Hybrids remove range anxiety but they're just ICE cars with electric motor help

- Require all the maintenance costs and inconvenience of ICE cars

- Heavy polluters after short battery range is exceeded

- Extra complication in managing gas vs electric while driving

Battery longevity

- Batteries typically guaranteed for 100K miles, 8 years

- Battery replacement costs are rapidly declining

- Batteries don't quit operating; they lose capacity but are still adequate

- Many stories on web of EVs with well over 100K miles

Fire safety

- Government testing shows EVs have negligible fires per 100K vehicles

- ICE cars have 100 times more fires per 100K vehicles, hybrids are worse

Initial Cost

- Most current EVs are aimed at luxury market, trending downward

- There are excellent EVs at lower prices (e.g., Chevrolet Bolt)

- EVs have no maintenance costs and substantially lower operating cost

EV weight due to battery

- Not a significant factor compared to type of car (Bolt << most SUVs)

Lack of spare tire

Gives more storage space

Tires are available that are self-sealing, warranties include flat repair

Many newer ICE cars have no spare

Cold weather performance

Modern EVs have thermal management of batteries

Charging at home avoids the frustration of public chargers

ICE cars are unreliable and hard to start in cold, heaters take a long time to warm up