## EV Advocates “Propaganda”

## 1. Electric vehicles save you money

No matter where you plug in across the country, electric vehicles are cheaper to fuel than their gasoline-powered counterparts. Every electricity provider in the 50 largest US cities offers a rate plan that makes filling up on electricity cheaper than gasoline, adding up to a median yearly savings of over $770.

Electric vehicles can also save you on maintenance costs. Battery EVs have no gasoline engine, they do not need oil changes, spark plugs, or timing belts, and unlike gasoline motors, electric motors required no routine maintenance. These reduced maintenance costs can save an EV owner over $1,500 over the life of the vehicle, compared to a gasoline-powered version of their vehicle.

## 2. Electric vehicles cut your emissions

Even when the electricity used to fuel an EV comes from the dirtiest coal-dominated grid in the US, EVs still produce less global warming pollution than their conventional counterparts. The average EV in the US today produces the emissions equivalent of a gasoline car that gets 73 miles per gallon. The emissions performance of EVs is set to only improve as wind and solar power displace coal-fired electricity generation. Many EV owners are also choosing to pair their EV with rooftop solar panels and home energy storage units. When powered exclusively by renewable energy, an EV can operate nearly emissions free.

## 3. Electric vehicles offer you a better driving experience

An electric engine generates instant torque, which means that electric vehicles zoom off starting lines and provide smooth, responsive acceleration and deceleration. Electric vehicles also have a low center of gravity, which improves handling, responsiveness, and ride comfort.

## 4. Electric vehicles cut your oil use

Electric vehicles are an essential part of the UCS plan to cut the nation's oil use in half in twenty years. Using oil causes an array of problems, and transportation remains reliant on oil as the dominant energy source. Electric vehicles offer the potential to disrupt this status quo relationship between transportation and oil, and offer a cleaner, better way to fuel transportation for everyone. Overall, electric vehicles can cut US oil use by 1.5 million barrels a day by 2035.

## 5. Electric vehicles are convenient

Instead of searching for a gasoline station with the cheapest prices, you can charge at home at a cheaper and much more predictable cost. And plugging in at home takes only a few seconds and lets you wake up with a “full tank” every morning. EVs also have other convenient advantages. Battery electric vehicles are mechanically much simpler than a conventional gasoline car, so the maintenance requirements are often much simpler and, for this reason, cheaper to maintain. Drivers of electric cars do not have to change their car’s motor oil every 5,000 to 10,000 miles, and they never have to schedule spark plug changes, timing belt replacements, or other engine tune up items. Depending on your location, EVs have additional benefits, like access to restricted express lanes on highways and bridges, special parking spots, and reduced or free tolls.

### Advantages of Electric Vehicles

### **Electric cars are energy-efficient**

Energy efficiency refers to the amount of energy from the fuel source that is converted into actual energy for powering the wheels of a vehicle. AEVs, like offerings from Tesla are far more efficient than conventional gas-powered vehicles: AEV batteries convert 59 to 62 percent of energy into vehicle movement, while gas-powered cars only convert between 17 and 21 percent. This means charging an AEV's battery puts more towards powering the vehicle than filling a gas tank.

### **Electric cars reduce emissions**

Emissions and carbon footprint reduction, including reduced fuel usage, is another pro for all-electric vehicles. Because they rely on a rechargeable battery, driving an electric car does not create any tailpipe emissions, a significant source of pollution in the United States. In addition, the rechargeable battery means much less money spent on fuel, meaning all energy can be sourced domestically (and often through renewable energy resources such as solar panel systems).

Improving battery technology in today's light-duty AEVs means they can drive 100 miles while consuming only 25 to 40 kilowatt-hours (kWh) of electricity. Assuming that your electric car can travel three miles per kWh, the electric vehicle can travel about 43 miles for $1.00. By comparison, if we believe that gas costs $2.50 per gallon, an average gasoline vehicle with a fuel efficiency of 22 miles per gallon can only travel 10 miles for the same price. The distance traveled for a fuel cost of $1.00 is nearly four times as far as an electric vehicle.

### **Electric cars perform well and don't need much maintenance**

All-electric vehicles are high-performance vehicles with quiet and smooth motors and require less maintenance than internal combustion engines, such as an oil change. The driving experience can also be fun because AEV motors react quickly, making them responsive with good torque. AEVs are newer than their gas-powered counterparts and are often more digitally connected with charging stations, providing options such as controlling charging from an app.

Disadvantages of Electric Vehicles

## **1. Range Anxiety**

The average range of an electric vehicle in the USA is nearly 300 miles, much higher than the global average of roughly 200 miles. But this average is not fully representative because the average price of an EV is also much higher in the USA.

Most models range between 60 and 120 miles per charge, and some luxury models reach 300 miles per charge. For comparison, gas-powered vehicles will average around 300 miles on a full gas tank, and more fuel-efficient cars get much higher driving ranges. This may be an issue when looking at AEVs if you frequently take long trips. The availability of charging stations can make AEVs less suitable for activities like road trips.

## **2. Charging Problems**

To understand charging problems, we first need to explore the ideal setup. In a perfect world, you'd have a home with a Level 2 charger where you can charge an EV overnight. You'd use your electric car like you use a phone. You never let it run down to zero, and you charge it at times when electricity is at its cheapest, so it has less of an impact on your electricity bill.

But, as we said, this is the perfect setup.

The reality is that one of the main cons of electric cars is that a large chunk of the population doesn't have a garage, especially those who live in cities. You're limited to the existing charging network if you park on the street. While fast chargers will top a modern EV up in 30 minutes or less, you lose out on some of the leading EV benefits, like cheaper electricity rates during off-peak hours.

You also do more damage to the car's battery by only using quick charging, and the car will never be charged to the complete 100%. If you've ever wondered why manufacturers quote charging times from 20%-80%, that's the main reason. Most manufacturers recommend keeping a car between 30%-80% as that's the optimal range for the battery's health. It's no secret that batteries degrade over time, and only using fast charging will affect the battery's health.

Fueling an all-electric car can also be an issue. Fully recharging the battery pack with a Level 1 or Level 2 charger can take up to eight hours, and even fast charging stations take 30 minutes to charge to 80 percent capacity. Electric car drivers must plan more carefully because running out of power can't be solved by a quick stop at the gas pump.

## **3. The Environmental Impact May be Greater**

The zero-emission life is likely the main reason why EVs are bad. The zero-tailpipe emissions claim is valid, but you must also account for the other damage an electric vehicle does. And we're not talking on a macro level. An electric car uses regular tires, and tires are a big polluter, especially for heavy cars that wear out their rubber more quickly.

On a much larger level, we have to look at electricity generation. Unless your EV connects directly to a solar, wind, or hydro-powered station, it's having an environmental impact.

Most of America's electricity comes from natural gas, nuclear, and coal. An EV's environmental credentials mean nothing when you still have to burn coal to run it. Charging stations receive electricity through transmission mostly from fossil fuel burning power plants.

Manufacturers are using more renewable energy sources when producing cars, but several studies have shown that the EV production process emits more greenhouse gas than an equivalent ICE car.

You all know what's coming next. A manufacturer requires lithium, nickel, cobalt, and several other metals to make EV batteries. Mining is a filthy and dangerous business, and it's unequivocally connected to battery production. You also need these metals to build charging stations.

## **4. The Burning Issue**

EVs are not a bigger fire risk than gasoline-powered cars. It has been disproved many times over, even if you factor in the smaller pool of electric vehicles.

The main issue is fighting an EV fire. The known and readily available methods for fighting fire don't work. You literally have to drown an EV to stop it from burning, and even that doesn't always work. In most cases, the fire department will douse an EV and keep it separated from other cars for a few days after the fire.

EVs burn so fiercely because of thermal runaway. One cell catches fire, and then there's no stopping the blazes until the entire thing burns out. The most basic method for fighting fire is to cut oxygen, but since a car's battery is a self-sufficient source of oxygen, it doesn't work.

## **5. Price & Longevity**

The average price of a new EV is currently around $64,000. The average purchase price of a new car (all cars, including electric vehicles) is $48,000. As you can see, there's a massive gap, and not even the Inflation Reduction Act's contribution helps.

With $20,000 new cars no longer being a thing, the new affordable mark is roughly $25,000. At that price, there aren't many EVs to choose from. If you live in the right state, you could get a Tesla Model 3 at that price. Your other options are the Chevrolet Bolt or Nissan Leaf.

Pro EV sources claim that batteries can last 10-20 years while opponents claim 4-6 years. It’s difficult to get to the truth of the matter.

Electric vehicles (EVs) usually have a higher price tag upfront, though you can save money owning an EV over time since there is generally less maintenance on an EV, and it's less expensive to charge than fuel with gas. Also, while battery packs are more costly in EVs than conventional vehicles, they last much longer than the components of most combustion engines, and they come with 8–10-year warranties, so you're not likely to pay out of pocket for a replacement. EVs also have federal and sometimes state-specific incentives available to help reduce the initial purchase price. More and more automakers than ever are offering EVs, including BMW, Hyundai and Chevrolet.

## **6. Charging Time**

In high-density areas, Supercharger stations are often flooded during peak hours. The average time spent at a charging station is also much higher than the average gas station, where you pull up, fill up, and bail.

And while this may seem like a stupid point to make, we have to consider future service station costs. If you own a gas-powered car, you're in and out within minutes. But in a best-case scenario, you'll spend 15 minutes at a charging station. We think 30 minutes is more accurate, as not all stations can access a car's full charging potential.

**Will you buy an EV? Explain your reasoning.**

**Additional Information you found, questions you want to ask, or comments you want to make:**