Are Electric Cars Environmentally Friendly?

Class Debate

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An electric vehicle (EV) is a complex machine that is the product of many years of research and development. The largest car companies in the world are continuing to create new technology to further enhance the features of electric cars to improve energy efficiency, range, comfort, and to reduce weight. In recent years, the main obstacle for EV development has been creating a battery that is compact while also providing a similar driving range of petrol-driven cars, which is around 400 miles.

A petrol-powered car gives off around two tonnes of CO2 per year on average, some argue that electric vehicles are more environmentally friendly than "fossil fuel cars", do you believe this is true? There is an assumption that electric vehicles run from clean, renewable sources and so emit no greenhouse gases. This is true as the car does not directly create any greenhouse gases or fumes from burning petrol in traditional combustion engines.

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What is often ignored is that in some countries, like the UK, electric power for the grid is mostly generated from gas power stations, which is a fossil fuel. By charging our electric cars, we are therefore using fossil fuels to charge the car's battery. Does this make having an electric car, overall, beneficial for the environment? Again, it depends. In most cases, for long motorway journeys where there are fewer turns and the petrol engine is running for long periods of time, the efficiency of a traditional car is clear as it produces less CO2 per Km.

But, in city driving conditions, where vehicles frequently start and stop for traffic lights, they tend to drive at lower speeds, and journeys are much shorter, the electric car outperforms a petrol-driven car.

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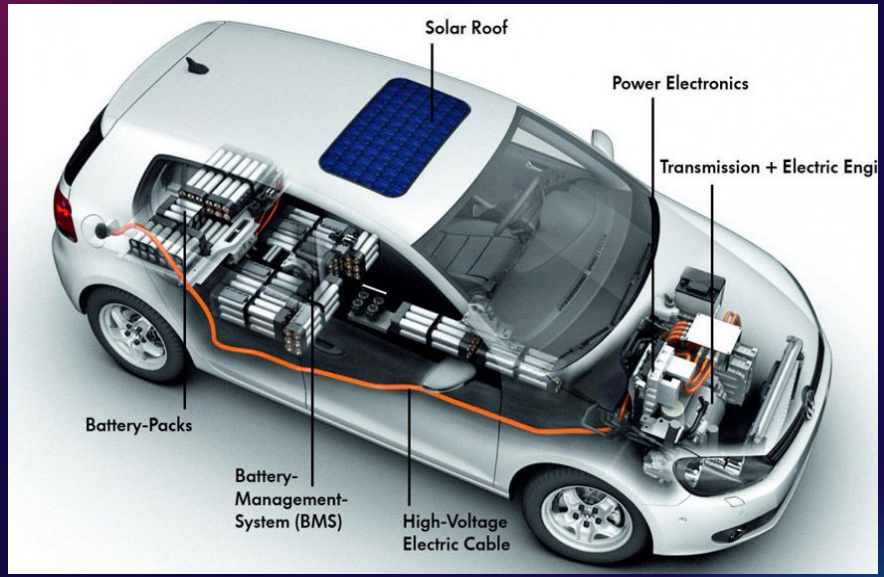
Car battery production is a manufacturing process that is gradually scaling up in size and speed across the world. Each battery is of significant size and weight (around 80 kg) which means there is a requirement to find an efficient supply chain to process and build the batteries needed. Finding a way to save money on using less energy to make, transport, or use cheaper labour can result in millions of dollars saved in the total cost.



"...the energy used to produce the batteries themselves is also responsible for nearly half of their environmental impact since most of this energy doesn't come from low carbon sources."

– Source, YouMatter

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Countries rich in minerals often mine the raw resources and then transport them to the nearest port in their country. From there, it is usually shipped to China as the country has the largest battery factories in the world. The materials are processed and sometimes then moves again to a 3rd country, like Australia, or Germany, for further manufacturing work.

They can even be sent back to China for additional manufacturing steps. Other components are also shipped to China to finalise the product. Once the battery is complete they are shipped across the world. This does not include other components to make a complete car.

So, because the world has a global, yet integrated supply chain, it is easy to see how for every piece needed to make an EV car, trains, ships, and planes are needed to transport materials.

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So, because the world has a global, yet integrated global supply chain, it is easy to see how for every piece needed to make an EV car, trains, ships, and planes are needed to transport materials, but then many countries are also used.

That said, EV cars are still relatively better for the environment. Though the total carbon footprint of these cars is high, over the course of a car's lifetime (which is around 15 - 20 years) the total environmental impact is lower than a traditional car. The next challenge is to find sustainable methods to power these factories (and the wider global transportation system) to use low-carbon alternatives.

Pros and Cons of Electric Vehicles

EV batteries can not be recycled

Agree

They indeed are non-recyclable. These batteries contain very toxic chemicals and metals which, when released into the environment, will cause severe long-term harm to plants and animals. Metals like cobalt and lithium, though vital to the production of batteries, will not degrade in the environment. They will eventually seep into groundwater supplies and then onto rivers and oceans, and so poisoning our water supply.

The batteries are rechargeable but little care and thought have been taken into consideration in how we are going to sustainably reuse them.

It is irresponsible to even think about using EV batteries. We should just stop!

EV batteries can not be recycled

Disagree

This is absolutely false and misleading. Firstly, the resources used in each battery are highly valuable and so they will never just be “thrown away”. If the whole world is using these batteries, then there is global demand for these products. So, it will make sense that someone, anywhere in the world, will be happy to take them and use them again.

Also, once they reach the end of their life, these battery packs will be recycled and key materials recovered to be used in new batteries. Car companies like Tesla are actively supporting this initiative.

Battery materials are refined and put into a cell, and will still remain in the cell at the end of their life, when they can be recycled to recover its valuable materials for reuse over and over again. - **Tesla**

If everyone uses electric cars, then no one is going to use public transport

Agree

Why are we encouraging people to use cars when we can use public transport. In many countries, there is already a severe underfunding of critical infrastructure with a preference for private cars. In the UK and USA, they do not have high-speed railway lines. If they were to build these rail lines, then more people can access fast, cheap, and low-carbon transport.

If we had better bus and train services then we can have more of the population using them. It is proven that train travel is the most carbon-efficient form of travel. We just need to encourage our governments to spend more in this area and change our lives and habits. The car is not central to the economy or our lives.

If everyone uses electric cars, then no one is going to use public transport

Disagree

I'm not sure about this, but it's evident that having access to bus lanes and lower tolls like we do in Norway, can make electric cars more appealing. Such advantages will go away over time, and more people will return to using public transportation.

There is an assumption that EV is a solution to all transport. What about people living in Tokyo, London, and New York, they will all have a need to use buses and trains, the demand will never decline.

We are also ignoring people who live in rural areas, what will they use to get to school, work, or during an emergency?

Electric cars are expensive

Agree

It's impossible to ignore the fact that electric automobiles are more expensive to purchase than regular gasoline and diesel vehicles. The price of a brand new Peugeot 208 GT Spec with a 100hp 1.2-liter petrol engine starts at £22,210. A similar-spec e-208 GT with a 50 kWh battery costs £30,475 (with a £2,500 government incentive). It's a significant price difference, and it puts the fuel-saving claim into perspective. It will take a long time to recoup that investment.

Electric cars are expensive

Disagree

One of the most appealing aspects of owning an electric car is not having to worry about running out of gas. At the time of writing, the national average price of a liter of fuel or diesel in the UK was at an all-time high. Taking into account the average fuel economy of combustion-powered cars, switching to electricity can save you roughly £1000 over the course of a year if you drive 8,000 miles.

Moving away from using the pumps also saves time (as long as you can charge from home).

Did you know that some of the money that buyers spend on cars, companies like Tesla invest in building charging stations across the world? So, every buyer is also contributing to making infrastructure to help everyone else to use and charge their electric vehicles.

EVs don't have the same features as regular cars

Agree

Electric vehicles are boring in every way. Their design and styling are really plain, the interiors are always grey or black, the driving experience is soulless. These machines don't have any character. When you drive a BMW or Ferrari you can see the shape of the car and know what model and make it is. When you're driving them you can hear the engine and feel the power of the car.

They are also able to go much faster. In countries like Germany, it is possible to drive at higher speeds and actually use the car as fast as possible. It's a real driving experience.

EVs don't have the same features as regular cars

Disagree

Electric vehicles are exceptionally quiet, which might be frightening the first time you get behind the wheel. There are no obnoxious motor notes or monotonous droning. However, it is not completely silent. Because there is no engine to block out the wind and tire noise, the motors often generate a 'whoosh' sound. However, getting used to it shouldn't take long.

Enthusiasts may tell you that a car's noise is one of its better features, and although this may be true for sports cars, most people would choose a tranquil drive over a noisy one every time.