



What are The Environmental Benefits of an E-bike vs. a Car



People often wonder if riding a commuter bike to work, or even completely replacing their gas-powered vehicle with an electric bike, will help the environment in a meaningful way. We set out to answer this question and provide you with an environmental comparison.

Ebikes and cars are obviously very different types of vehicles. Ebikes, or pedal-assist bikes, are active vehicles that require energy from you to work. Electric bikes, while they do use electric batteries, are mostly powered by energy from your own body. The vast majority of cars (or trucks) on the other hand, get their energy from fossil fuels.

So, let's dig in and find out how an electric bike is more environmentally-friendly than a car.

Ebike manufacturing has a much smaller carbon footprint

The environmental impact of manufacturing every new car, even electric cars, is huge. Depending on the brand, size, weight, and factory processes, the carbon footprint of building a new car is between 6 metric tons to 35 metric tons.

The Guardian offers a guideline for figuring out how much CO₂ results from manufacturing your vehicle: approximately 720kg of CO₂ per \$1,250 spent on the vehicle. This figure includes the entire process of vehicle assembly, metal extraction, rubber manufacturing, tools and machine creation, business travel, and car sales.

While we don't have hard data on what the carbon footprint is to manufacture an ebike, we can assume by the weight difference between a car or light truck, and an electric bike, that the carbon savings is huge.

Ebikes save emissions from gas production

Electric bike batteries offer the equivalent of 1,000MPG! Even the most efficient hybrid and electric cars can't compete: the Hyundai Ioniq hybrid gets 58MPG and Tesla's Model X has an MPG range of 90-96.

On the other hand, the environmental cost of fuel for a traditional car or truck is huge. Automotive companies say they are improving gas mileage, but unless you jump to an all-electric vehicle, mileage improvements aren't happening quickly enough. In fact, despite the small MPG improvements, Americans are still using 130 billion gallons of fuel per year.

How many tons of carbon dioxide is emitted just manufacturing those billions of gallons of gas? Estimates show that 59,000 tons to 328,000 tons of CO₂ is produced for every 1 million tons of gas produced. If we take those estimates and multiply them by the 130 billion gallons of fuel Americans use each year, it will give us the amount of CO₂ that is emitted just to produce the gas: 240 million to 1.3 trillion tons of CO₂. That's before you even fill up your gas tank!

Ebikes reduce emissions from fuel combustion

Carbon dioxide that is emitted while driving a car is another issue to consider when analyzing the environmental benefits of an ebike. Globally, 23% of CO₂ emissions are from fuel combustion due to urban commuting.

A recent study recently showed the enormous difference between the amount of emissions that an ebike would be responsible for versus that of a car if both traveled 40 miles per day, or 15,000 miles per year. Unsurprisingly, the numbers aren't even close.

At 15,000 miles, an electric bike is responsible for 300kg of CO₂, while a car emits a whopping 7,000kg! Keep in mind that the CO₂ from an ebike includes the estimated amount that would be produced by charging the battery, not active emissions from the bike.

Some people consider buying an electric vehicle for commuting, but an electric bike is still a clear winner. While experts in the UK estimate that if everyone drove an electric car carbon emissions could be cut by up to 12%, they estimate that by switching

to an ebike, carbon emissions could be cut by up to 50%!

Ebikes reduce consumption and waste

Disposal is yet another issue to consider when you are comparing the environmental impacts of a vehicle. While neither a bicycle nor car will last forever, cars and trucks are more difficult to decontaminate and dispose of. When you consider that the average American owns over 9 cars in their lifetime, and there are almost 330,000,000 Americans, disposal of these vehicles is a huge environmental issue.

Replacing parts on a vehicle, like tires is also an issue. Did you know that over 200 million tires are purchased each year? In addition to the environmental cost of manufacturing all these tires, there is also the issue of disposing of the old tires – an estimated 2.6 million tons per year.

Sure, many tires are recycled into new products, but that still costs the environment – the tires have to be transported, a processing plant uses fossil fuels to chip them into pieces, then the pieces have to be transported to the next plant that will use fossil fuels to process them into the new product. What comes after that? You guessed it; the new product has to be transported to distributors, stores, and consumers. While recycling is great, this particular cycle is extremely wasteful.

You'll need to replace your electric bike tires as well, but if you ride on good-quality touring tires, you won't have to replace them for up to 4,000 miles. Plus, since bicycle tires are smaller, they take fewer resources to manufacture and recycle.

Ebikes reduce noise pollution

Unless you have an all-electric car, you can't get quieter transportation than riding an electric bike. According to Purdue University, just one passenger car going 65mph produces 70 decibels at 25 feet away (the same as a vacuum cleaner,) while one diesel truck traveling at 40mph produces 84 decibels at 50 feet away.

Noise from one car may not seem bad, but the noise level from a busy road can really add up. Researchers in London found that even moderately loud traffic levels, over a long period of time, can raise your stress hormone levels and blood pressure. They estimate that this increase in stress can raise your risk of death by 4% over those in quiet areas.

Ebikes reduce wildlife deaths (and pets!)

The number of animals killed each year by vehicles is staggering. Some estimate at least 1 million animals are struck by a vehicle each day, but some say that's a conservative guess. It's difficult to get an accurate figure because state agencies only track large animal deaths such as deer, elk, foxes, and cougars. Most state agencies don't track animal collisions that involve smaller animals like turtles, hawks, rabbits, squirrels, or even pets.

Ebike vs. Car Conclusion

Using an electric bike for transportation, even part-time, instead of a car can reduce this alarming trend and benefit the environment in big ways:

- Significantly reduce your carbon footprint
- Reduce air pollution in your area and other parts of the world
- Reduce the noise pollution that you contribute
- Protect your local wildlife and pets

These positive impacts are only part of the benefits of having an ebike. In the next couple of articles, we'll show you the financial and health benefits of choosing an electric bike over a traditional vehicle. In the meantime, if you have any questions about ebikes, feel free to get in touch!