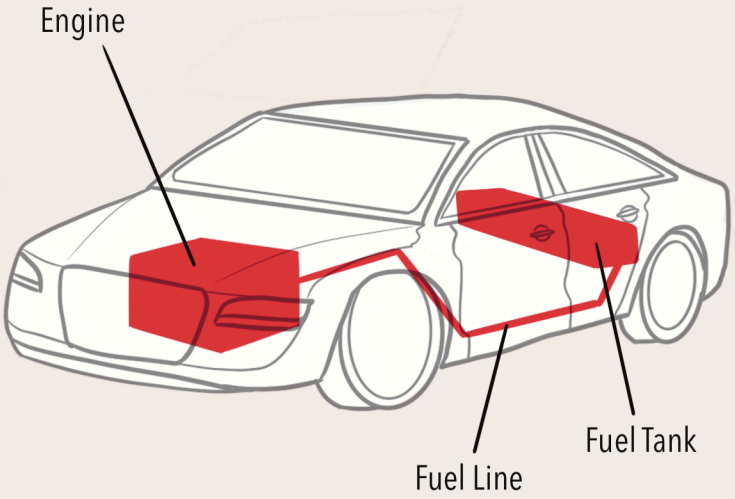
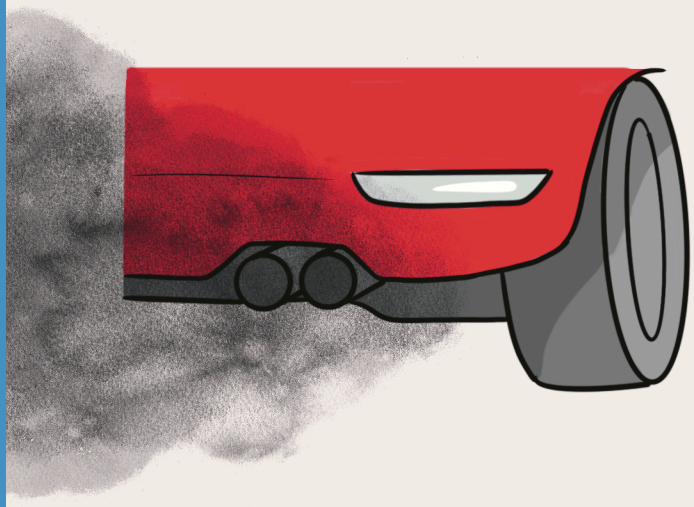
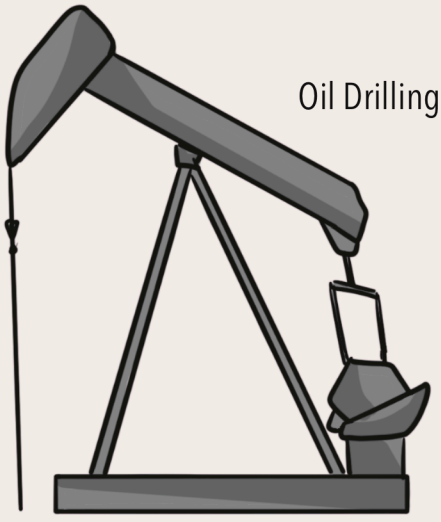
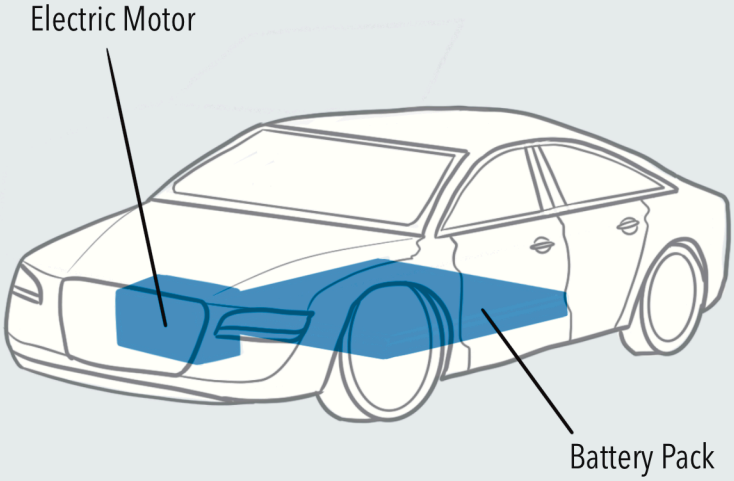
GAS POWERED CARS

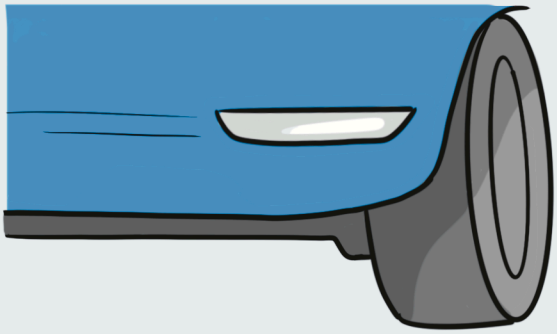


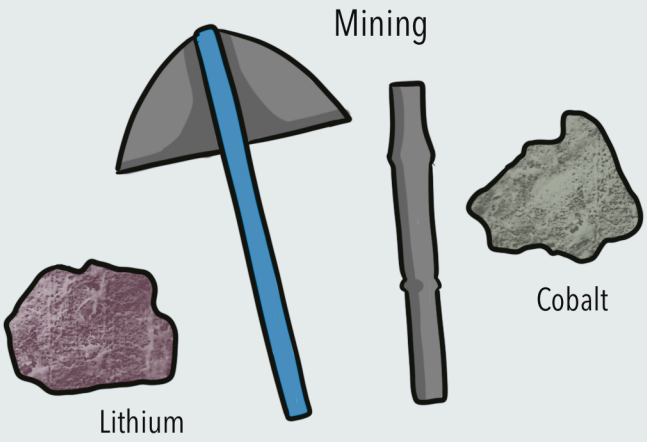




ELECTRIC VEHICLES







Slow the Roll on EV's

Why We Should Be Hesitant When Replacing Gas

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Gas-powered vehicles often come up as one of the chief problems regarding the environmental crisis. When thinking about the harmful effects of gas vehicles, images of hazy sun and cars jammed on a highway come to mind, and rightly so. As of 2020, gas-powered cars accounted for 27 percent of greenhouse gas emissions. According to the Environmental Protection Agency (EPA), a typical passenger vehicle emits about 4.6 metric tons of carbon dioxide annually. The most prominent threat from these gas-powered vehicles is tailpipe emissions from the exhaust, which puts CO2 directly into the atmosphere, furthering global warming.

One alternative to these direct emissions from the exhaust is electric vehicles (EVs), which are rising. In 2020, the global electric car stock reached ten million, a 43 percent increase from 2019. Besides business, EVs are tied to the green energy movement, as they seem to be a much better alternative to gas-powered cars. Most EVs are considered battery electric vehicles (BEVs), which run off of pure electricity and are plugged into a power source to charge. They have zero tailpipe emissions, meaning they do not directly pump CO2 into the air. However, with this mass production of EV cars underway, people are still determining whether these EVs genuinely live up to their green imageAre they much better ethically and environmentally than alternative forms of transportation? The short answer is yes. EVs are certainly a better alternative to gas-powered vehicles, both environmentally and ethically. However, we should be cautious when considering the ethical and environmental impact of replacing gas-powered cars with EVs.

BEVs are not 100 percent carbon-free, which can detract from their green image. The carbon impact is due to various things, but the most substantial is the electrical grids that power the BEVs. So where exactly are these cars getting their electricity? In the United States, most electric grids are powered by nuclear power plants, which have their host of environmental worries but a small global warming potential (GWP). But in many other countries, in Europe especially, grids are powered by non-renewable sources, such as coal or oil.

Using fossil fuels to power electrical grids creates indirect emissions, blurring the line on whether BEVs are superior to their gas-powered alternatives. A Polish study compared the indirect carbon emissions of EVs to the direct emissions of gas-powered vehicles and internal combustion engine vehicles (ICEVs). Researchers found that the overall indirect carbon emissions associated with EVs ranged from 2.49 kilograms to 3.28 kilograms of CO2 a day. In comparison, the direct emissions associated with ICEV were 2.55 kilograms to 5.64 kilograms of CO2 a day. Based on these results, indirect emissions from the grids that power EVs can be just as bad as the direct emissions from burning gas.

The concern about emission levels also applies to the production of EVs and ICEVs. Another study performed in Europe used a Life Cycle Assessment (LCA) to compare the two. An LCA considers a product's various environmental impacts regarding its production, use, and life. Overall the researchers found that EVs powered by the European electricity grid had a 10 percent to 24 percent decrease in GWP relative to the ICEVs. However, they also found that these EVs can potentially increase human toxicity, freshwater ecotoxicity, and freshwater eutrophication. Due to the electric powertrains, traction batteries, and lithium/cobalt mining that go into EV production, it is much more environmentally costly than ICEV production.

BEV's are not 100 percent carbon free, which can detract from their carbon free image.

Cobalt and lithium mining practices are also highly ethically concerning. More than 60 percent of the world's cobalt supply comes from cobalt mining in the Democratic Republic of the Congo, where cobalt mines have been reported for using child labor. Due to increased EV production, children as young as nine are mining cobalt in dangerous conditions. Lithium mining carries other ethical concerns; though most lithium mining occurs in Australia, a significant portion is still mined from the Salar Brines of Chile and Argentina. One lithium extraction point in Chile is in the Atacama Desert, home to the indigenous Lickanantay, who consider the water and brine sacred parts of their territory. As lithium and cobalt mining has increased, the ecological pressure on the Atacama and the surrounding community has grown. Scientists and indigenous communities have been protesting the mining for years, saying that the increase in lithium mining will kill the desert.

In short, EVs are still a good alternative to gas-powered vehicles. However, ethically and environmentally, we should be cautious about fully replacing gas-powered cars with EVs, as we might just replace one flawed system with another. A better, more holistic approach that maintains the benefits of EVs but switches them to renewable electric grids might prove better in the long run — for both EVs and our earth. • • •