Driving on "Green" Electrons

Energy Savers Blog

So you've decided you want to drive on electricity. You've considered your commute, how often you could plug in your car, and whether you want a plug-in hybrid electric (PHEV) or all-electric vehicle (EV) [1]. But you have one more decision to make – your electricity source. Although electricity is cleaner than petroleum once it gets to your car, not all electricity is created equal.

Greenhouse gases that contribute to climate change and smog-forming emissions can come from two different sources in cars – the vehicle's tailpipe and the production of the fuel. The total of these sources is the "lifecycle" or "well-to-wheels" emissions. When PHEVs and EVs are running on electricity, they produce no tailpipe emissions, reducing local air pollution. This benefit is particularly important in cities, which often have poor air quality and dense populations affected by pollution.

However, generating electricity also produces emissions. Fossil fuel sources, such as coal, produce more smog-forming and greenhouse gas emissions than renewable sources, which include hydropower, wind, solar, geothermal, and biomass. On average, the American electricity mix is almost 50% coal, 19% nuclear, 19% natural gas, 6.5% hydropower, and 5.3% from other sources. This mix varies greatly from region to region. While some areas like the Northwest U.S. have a significant amount of renewable sources, other regions rely heavily on coal. A few places even use diesel fuel to power generators! You can find out your local mix by using the Electric Emissions calculator [2] on the Alternative Fuel and Advanced Technology Vehicle Data Center. Based on that mix, the tool calculates the lifecycle greenhouse gas emissions of a PHEV or EV in your area.

No matter what your mix, it's important to know that just by choosing a PHEV or EV, you've already chosen a more sustainable fuel than petroleum. EVs and PHEVs running on electricity produce lower amounts of many pollutants over their lifecycle, including carbon monoxide and volatile organic compounds. Similarly, while the average gasoline-powered vehicle produces 87 pounds of greenhouse gases during a 100 mile trip, PHEVs produce only 62 pounds and EVs only 54. Running vehicles on domestic electricity also reduces our reliance on imported oil, which improves our economic and national security.

But what if you want to drive as clean and green as possible? If you use renewable energy, such as solar or wind, to recharge your PHEV or EV, you can bring your lifecycle emissions down to nearly zero. If you live in a house with a good orientation and location, you may be able to install a small solar system [3]. Some vehicle manufacturers have even partnered with solar panel companies to offer discounts on arrays. If producing your own power isn't feasible, buying clean electricity may be a viable option. At least 50% of customers have the option to purchase renewable electricity [4] from their power supplier. I do this myself and

am paying nearly the same price for 100% wind power as I would for my region's regular mix with 73% coal.

Although no vehicle fuel is truly emissions-free, PHEVs and EVs bring us one step closer to that goal. Combining these new vehicle technologies with renewable energy is a great way to get the best of both worlds.

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SOURCE [7]

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