New American

Written by **Selwyn Duke** on May 20, 2016

Study: Electric Vehicles Pollute More Than Gas-powered Cars

Are electric cars more environmentally mean than green? This may be the case, as a new study indicates that electric vehicles actually emit more harmful pollutants than internal-combustion cars do. How could this be? Citing the study, conducted by Peter Achten and co-author Victor Timmers at the University of Edinburgh, the *Daily Caller* explains that electric cars' "zero tailpipe emissions" selling point is deceptive:

> Electric vehicles tend to produce more pollutants from tire and brake wear, due in large part to their batteries, as well as the other parts needed to propel them, making them heavier.
>
> These pollutants are emitted when electric vehicle tires and brakes deteriorate as they accelerate or slow down while driving. Timmers and Achten's research suggests exhaust from traditional vehicles is only about one-third of the total emissions.

In other words, while people understandably focus on what's released from exhaust pipes, the research indicates that *two-thirds of total emissions come from other sources*. And these particulates may be especially problematic. As the *Caller* further relates:

> "We found that non-exhaust emissions, from brakes, tires and the road, are far larger than exhaust emissions in all modern cars," Achten wrote in the study.
>
> He continued: "These are more toxic than emissions from modern engines so they are likely to be key factors in the extra heart attacks, strokes and asthma attacks seen when air pollution levels surge."

That conventional vehicles pollute less isn't quite as shocking when you consider, as *American Thinker's* Thomas Lifson points out, "that internal combustion engine performance has improved so radically over the past several decades that they actually emit very few pollutants compared to engines of the past. The internal combustion engine is the most highly engineered product on the planet, having been worked on for well over a century by hundreds of thousands of engineers all over the planet."

The proof is in the pudding. Consider the evolution of popular sports car the Chevrolet Camaro: While the 2017 version is actually about 300 pounds heavier and has horsepower approximately equal to or greater than the 1970 version, it also goes fairly close to twice as many miles on a gallon of gas.

But electric vehicles have gone 10 times as far on a gallon of hype. Just consider the findings of former plug-in advocate and General Motors engineer Ozzie Zehner. Author of the book *Green Illusions*, Zehner once built his own hybrid car that could run on electricity or natural gas. And as he wrote in a 2013 article entitled "Unclean at Any Speed," he was convinced cars such as his "would help reduce both pollution and fossil-fuel dependence."

But he now says, "I was wrong."

Zehner begins with the simple matter of powering electric cars. He writes that while it's "relatively easy to calculate the amount of energy required to charge a vehicle's battery," even the cleaner options for generating electricity (as opposed to oil or coal) have effects that are both real and hard to assess. He elaborates, "Natural gas requires burning, it produces CO2, and it often demands environmentally problematic methods to release it from the ground. Nuclear power yields hard-to-store wastes as well as proliferation and fallout risks. There's no clear-cut way to compare those impacts. Focusing only on greenhouse gases, however important, misses much of the picture."

And the picture only gets more complex from there. Zehner makes the following basic points (all quotations are his unless otherwise indicated):

• Electric cars cannot currently be charged on a wide scale with renewable resources such as solar. Even if they could, however:

> Solar cells contain heavy metals, and their manufacturing releases greenhouse gases such as sulfur hexafluoride, which has 23,000 times as much global warming potential as CO_2, according to the Intergovernmental Panel on Climate Change. What's more, fossil fuels are burned in the extraction of the raw materials needed to make solar cells and wind turbines — and for their fabrication, assembly, and maintenance. The same is true for the redundant backup power plants they require. And even more fossil fuel is burned when all this equipment is decommissioned.

• A more responsible electric-car analysis would consider not just charging the vehicle, but also "the environmental impacts over the vehicle's entire life cycle, from its construction through its operation and on to its eventual retirement at the junkyard."

• An electric car's battery pack is extremely heavy, which causes the manufacturer to compensate by constructing the remainder of the vehicle with "lightweight materials that are energy intensive to produce and process — carbon composites and aluminum in particular. Electric motors and batteries add to the energy of electric-car manufacture."

• The rare earth metals used in many magnets in electric cars are expensive and uneconomical to extract on a wide scale. And the "global mining of two rare earth metals, neodymium and dysprosium, would need to increase 700 percent and 2600 percent, respectively, over the next 25 years to keep pace with various green-tech plans." Alternatives do exist, but exploiting them would involve efficiency-and-cost trade-offs.

• The extraction and processing of materials found in batteries — such as lithium, copper, and nickel — "demand energy and can release toxic wastes." In addition, extracting them in poorly regulated areas imperils not only workers, but also "surrounding populations through air and groundwater contamination."

• A National Academies' study considered multiple dimensions of electric vehicles' associated effects — such as "vehicle construction, fuel extraction, refining, emissions, and other factors" — and "concluded that the vehicles' lifetime health and environmental damages (excluding long-term climatic effects) are actually greater than those of gasoline-powered cars"; in fact, "the study found that an electric car is likely worse than a car fueled exclusively by gasoline derived from Canadian tar sands."

• When electric cars' total effects are considered, the level of "greenhouse-gas" emissions associated with them is only marginally lower than that associated with gas or diesel vehicles. A Norwegian study and a University of Tennessee study of electric vehicles in China drew similar conclusions

• Combustion vehicles' emissions are concentrated in wealthier urban areas whereas the activities necessary to obtain the substances for the creation and operation of electric vehicles — such as nuclear-fuel, heavy-metal and mineral extraction, and energy generation — occur mainly in more depressed rural regions. This means that electric technology may just shift the pollution burden from the rich to the poor.

• Even when projecting technological advancements out to 2030, there still appears to be no advantage to embracing electric-vehicle technology.

Having said all this, it's not really fair to conclude that there's no "green" aspect whatsoever to electric vehicles. After all, some companies do make quite a bit of money off them.