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The Electric Car Thought It Could but Failed

By Bjorn Lomborg

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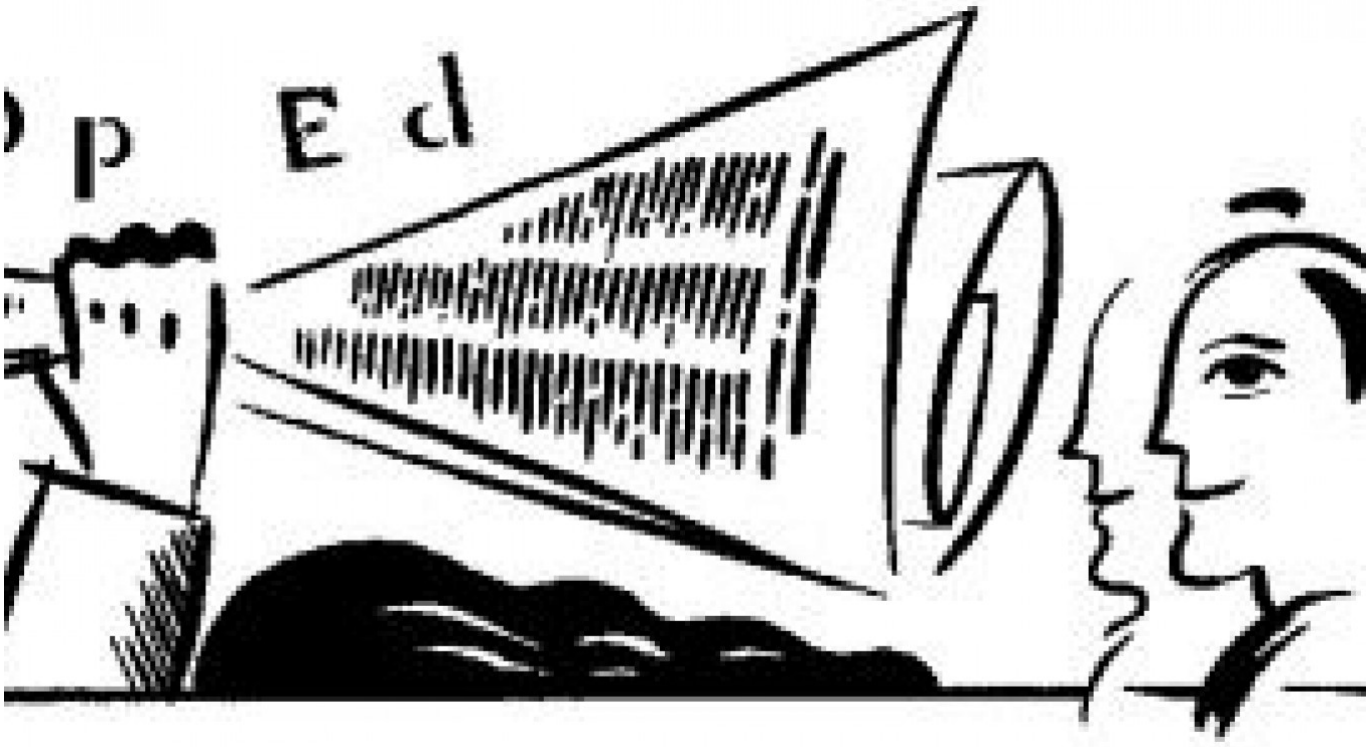

For decades, the idea of the electric car has captured the imaginations of innovators, including Henry Ford and Thomas Edison more than a century ago. Celebrities, pundits and political leaders alike have cast these vehicles as the apotheosis of an environmentally responsible future. German Chancellor Angela Merkel has proclaimed that there will be 1 million electric cars on the Autobahn by 2020. U.S. President Barack Obama has likewise promised 1 million electric cars in the United States five years sooner.

Someday, the electric car will, indeed, be a great product — just not now. It costs too much, it is inconvenient, and its environmental benefits are negligible and, in some cases, nonexistent.

Many developed countries provide lavish subsidies for electric cars: amounts up to $7,500 in the U.S., $8,500 in Canada, and 9,000 euros ($11,700) in Belgium. Even cash-strapped and austerity-stricken Spain is offering 6,000 euros to subsidize electric cars. Denmark offers the most lavish subsidy of all, exempting electric cars from the country's marginal 180

percent registration tax on all other vehicles. For the world's most popular electric car, the Nissan Leaf, this exemption is worth 63,000 euros ($83,000).

Yet this is clearly not enough. In Denmark, there are still only 1,224 electric cars. In Germany, car sales totaled 3.2 million in 2011, but only 2,154 were electric.

The numbers have forced Obama and Merkel to reconcile their projections with reality. The U.S. Energy Department now expects only about 250,000 electric cars by 2015 — 0.1 percent of all cars on U.S. roads. Merkel recently admitted that Germany will not get anywhere near 1 million electric cars by 2020.

No one should be surprised. According to an analysis by the U.S. Congressional Budget Office, a typical electric car's lifetime cost is roughly $12,000 higher than a gasoline-powered car. Recent research indicates that electric cars may reach break-even price with hybrids only in 2026 and with conventional cars in 2032, after governments spend from 100 billion euros to 150 billion euros ($132 billion to $198 billion) in subsidies.

Costs and subsidies aside, electric cars have so far proven to be incredibly inconvenient. A BBC reporter drove the 778 kilometers from London to Edinburgh in an electric Mini and had to stop eight times to recharge, often waiting six hours. In total, he spent 80 hours waiting or driving, averaging just 10 kilometers per hour, an unenviable pace even before the advent of the steam engine.

Electric cars also fail to live up to their environmental billing. They are often sold as "zero emissions" vehicles, but that is true only when they are moving.

For starters, the manufacturing process that produces electric cars, especially their batteries, requires an enormous amount of energy, most of it generated with fossil fuels. A life-cycle analysis shows that almost half of an electric car's entire CO2 emissions result from its production, more than double the emissions resulting from the production of a gasoline-powered car.

Moreover, the electricity required to charge an electric car is overwhelmingly produced with fossil fuels. Yes, it then emits about half the CO2 of a conventional car for every kilometer driven, using European electricity. But given its high CO2 emissions at the outset, it needs to be driven a lot to come out ahead.

Proponents proudly proclaim that if an electric car is driven about 300,000 kilometers, it will have emitted less than half the CO2 of a gasoline-powered car. But its battery will likely need to be replaced long before it reaches this target, implying many more tons of CO2 emissions.

In fact, such distances seem implausible, given electric cars' poor range. The Nissan Leaf, for example, can go only 117 kilometers on a charge. That is why most people buy an electric car as their second car, for short commutes. If the car is driven less than 50,000 kilometers on European electricity, it will have emitted more CO2 overall than a conventional car.

Even if driven much farther, 150,000 kilometers, an electric car's CO2 emissions will be only 28 percent less than those of a gasoline-powered car. During the car's lifetime, this will prevent 11 tons of CO2 emissions.

Given the size of the subsidies on offer, this is extremely poor value. Denmark's subsidies, for example, pay almost 6,000 euros to avoid one ton of CO2 emissions. Purchasing a similar amount in the European Emissions Trading System would cost about 5 euros. For the same money, Denmark could have reduced CO2 emissions more than a thousand-fold.

Worse, electric cars bought in the European Union will actually increase global CO2 emissions. Since the EU has a fixed emission target for 2020, it will offset emissions elsewhere (perhaps with more wind power), regardless of the type of car purchased: 39 tons of CO2 from a gasoline car and 16 tons from the electricity produced for an electric car. But while EU emissions stay the same, most electric batteries come from Asia, so an extra 11.5 tons of emissions will not be offset.

The electric car's environmental transgressions are even worse in China, where most electricity is produced with coal. An electric car powered with that electricity will emit 21 percent more CO2 than a gasoline-powered car. What's more, since China's coal-fired power plants are so dirty, electric cars make the local air worse. In Shanghai, air pollution from an additional million gasoline-powered cars would kill an estimated nine people each year. But an additional million electric cars would kill 26 people annually, owing to the increase in coal pollution.

The electric-car mantra diverts attention from what really matters: a cost-effective transition from fossil fuels to cheaper green energy, which requires research and innovation. Electric cars might be a great advance for that purpose in a couple of decades. But lavish subsidies today simply enable an expensive, inconvenient and often environmentally deficient technology.

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