



Obama promotes electric cars, but they still fall short

By Steve Goreham

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Last Friday, President Obama once again [pitched](#) electric cars during his presentation at Argonne National Laboratory in Illinois. At one point, he called for an end to gasoline-powered vehicles, "...but the only way to really break this cycle of spiking gas prices...is to shift our cars entirely—our cars and trucks—off oil." The President has a remarkable faith in the value of electric cars, but this trust is not well supported by science or economics.

The very same day, Henrik Fisker, the chairman and co-founder of Fisker Automotive, [announced](#) he would be leaving his company over issues regarding "business strategy." In 2011, Fisker Automotive introduced the Karma, a luxury plug-in electric car with a \$100,000 price tag. The Karma was [named](#) "Luxury Car of the Year" in 2011 by *BBC Top Gear* magazine.

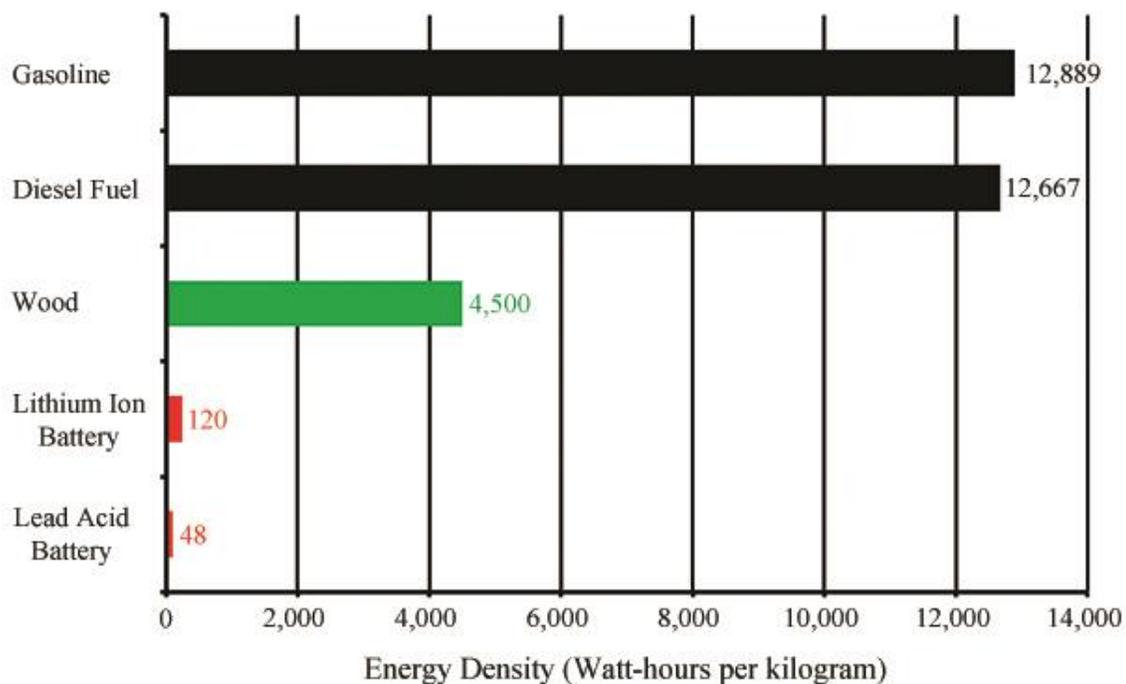
In 2010, the US Department of Energy (DOE) awarded a \$529 million loan to Fisker Automotive for the development and production of hybrid electric cars. Former Energy Secretary Stephen Chu [praised](#) Fisker, "Not only will the Fisker projects contribute to cleaner air and reduced carbon emissions, these plug-in hybrid cars will help put American ingenuity at the forefront of automotive design and production."

But lately things have not been so rosy for Fisker Automotive. Last year the DOE [froze](#) the loan after Fisker had received \$193 million. The firm's battery supplier, A123 Systems, declared bankruptcy in October of last year, after also receiving a DOE loan of \$249 million. The Karma was recalled several times and Fisker has not manufactured a car in six months.

Plug-in electric vehicle (EV) sales are growing, boosted by government incentives and a consumer desire to purchase environmentally-friendly vehicles. EV purchasers receive a \$7,500 tax credit from the US government and ability to drive in the High Occupancy Vehicle lane of most freeways. Charging stations are being installed in California, Nevada, Texas, and other states, courtesy of the U.S. taxpayer.

Global EV sales are still a tiny part of the market. President Obama [set](#) a goal in 2008 to “put a million plug-in hybrid cars...on the road by 2015.” But US electric [sales](#) last year were only about 53,000 units. About 120,000 EVs were [sold](#) worldwide in 2012, only 0.15 percent of the 82-million global car [market](#).

While President Obama would like to eliminate gasoline-powered vehicles, such vehicles still provide major advantages for consumers. Pound-for-pound, the energy stored in the chemical bonds of gasoline is about 100 times the energy [stored](#) in today’s Lithium-ion batteries. This translates into about a ten-to-one advantage in driving range for gasoline vehicles.



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If electric cars succeed, look for magazine lounges at charging stations. Gasoline fill-ups require two to three minutes for small cars and four to five minutes for SUVs. The best 440-volt commercial charging stations [require](#) a driver to charge an EV for 30 minutes or more.

Electric car owners who drive every day are in for a surprise. Their battery pack will need to be replaced. Batteries are based on a chemical imbalance, a separation of charge that produces the electrical potential. The day an electric leaves the showroom, chemical reactions are at work to remove the charge from your lithium-ion battery. Faster charging, frequent charging, warmer temperatures, and storage at full charge degrade the battery more quickly. Either the owner or the manufacturer will need to [pay](#)

\$10,000 for a battery replacement about year four or five.

But can't an EV purchaser take pride that his car reduces global warming? Well, not really. A study last year by the Norwegian University of Science and Technology [found](#) that, for a vehicle with a 100,000 kilometer lifetime (when batteries would need replacement), EV environmental impacts were "indistinguishable from those of a diesel vehicle." The reason is that manufacture of an EV emits about double the carbon dioxide required to manufacture a diesel or gasoline car, primarily to build the metal batteries of the electric.

The study also found that "EVs exhibit the potential for significant increases in human toxicity, freshwater eco-toxicity, freshwater eutrophication, and metal depletion impacts, largely emanating from the vehicle supply chain." In other words, production of electric car batteries may become a major source of pollution. Suppose we go slowly on promoting electric cars, Mr. President?

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