



UC BERKELEY STUDY SEES MASS-MARKET ADOPTION OF ELECTRIC CARS

July 13th, 2009

From Green Right Now Reports

A [study](#) released today by the [University of California-Berkeley's Center for Entrepreneurship & Technology](#) predicts there would be rapid adoption of electric vehicles, assuming the ownership of the battery is separated from the vehicle. Overall, the study finds that electric cars with separate battery ownership are not only more affordable than gasoline-powered cars, but that incorporating their financing into a network service contract will overcome the range limitations inherent to fixed-battery electric vehicles.

The new study predicts that electric vehicles with this type of pricing will account for 64 percent of light vehicle sales and comprise 24 percent of the U.S. light-vehicle fleet by 2030. This level of adoption is made possible by the lower purchase price and reduced per-mile driving cost of electric cars with switchable batteries as compared to gasoline-powered cars.

The report, "Electric Cars in the United States: A New Model with Forecasts to 2030," was authored by Thomas Becker, a Berkeley economist who specializes in international and environmental economics.

"This most recent study is fundamental because it shows that the economics of electric cars with today's technology favor a paradigm shift in the automotive industry." Ikhlaz Sidhu, Director of Berkeley's Center for Entrepreneurship & Technology and a professor in the Industrial Engineering and Operations Research Department, said in a statement.

"A wide range of economic benefits come with price-competitive electric cars," said Becker. "These vehicles make eliminating the U.S. dependence on foreign oil an achievable goal. Transitioning to electric cars will also create jobs, lower health care costs, and significantly lower greenhouse gas emissions."

The study also predicts:

- A net gain of up to 350,000 new jobs by 2030 through electric vehicle adoption
- Reduced emissions by as much as 62 percent from 2005 levels when electric vehicles are powered by clean sources of electricity, even over a scenario of improved fuel economy for gasoline-powered cars
- Savings of up to \$205 billion on health care costs associated with emissions from combustion engine vehicles
- A decline in oil imports of up to 3.7 million barrels per day, equivalent to the amount currently imported daily from the Persian Gulf region and Venezuela

The University of California study shows that the mass adoption of electric cars is a reachable goal. For electric cars to achieve this wide-scale adoption in the United States, these vehicles must be able to compete with the existing gasoline fueling infrastructure in terms of price, range, and reliability. Becker finds separating the purchase of the battery from the car is the most practical and cost-effective means of addressing these concerns.

First, not having to pay for the battery upfront makes the purchase price of an electric car competitive with that of an internal combustion vehicle. Given current battery prices and the federal tax incentives for the purchase of electric cars, switchable battery vehicles are expected to be \$7,500 less expensive than a similar gasoline-powered car when introduced to the market in 2012. The total cost of ownership of these vehicles is expected to be between \$0.10 and \$0.13 lower on a per-mile basis than gasoline-powered cars, depending on the future price of oil.

Second, electric vehicles with switchable batteries can have a driving range comparable to gasoline-powered vehicles. Just as there is a network of gas stations, the study incorporates the cost of a network of public battery charging spots augmented by battery switching stations into the per-mile service contract price offered by electric car network operators. This business model innovation will ensure that a sufficient density of electric car infrastructure is deployed to extend the range of these vehicles. Through this system, Becker argues that "the overall range of electric cars will eventually rival that of gasoline-powered vehicles."

Last, consumers must perceive electric cars to be as reliable as gasoline-powered vehicles. To achieve this, Becker again finds that the best solution lies in separating the ownership of the vehicle from the battery. By placing ownership of the battery in the hands of an electric car network operator, consumer concerns over the lifetime or durability of the battery are eliminated. Switchable batteries also allow the newest innovations in battery technology to reach drivers more quickly.

<http://www.greenrightnow.com/kabc/2009/07/13/uc-berkeley-study-sees-mass-market-adoption-of-electric-cars/>