

Electric vehicle consumers better off with electric range under 100 miles, study says

August 18 2014

Until battery cost is cut down to \$100 per kilowatt hour, the majority of U.S. consumers for battery electric vehicles (BEV) will be better off by choosing an electric vehicle with a range below 100 miles, according to a new study in the Articles in Advance section of *Transportation Science*, a journal of the Institute for Operations Research and the Management Sciences.

The research suggests reconsideration of the R&D goal that battery <u>electric vehicles</u> should have a <u>driving range</u> similar to that of conventional vehicles. It also implies that the focus of policy and R&D should be on continued reduction of battery costs to make short-range BEVs more price-competitive. The focus should remain on deployment of charging infrastructure to improve usability of short-range BEVs that attract more potential buyers, as well.

The study Optimizing and Diversifying Electric Vehicle Driving Range for U.S. Drivers is by Zhenhong Lin, a senior R&D staff member at the Oak Ridge National Laboratory in Knoxville, Tennessee.

The electric driving range of a BEV is optimized separately for each of the 36,664 sample drivers who represent U.S. new car drivers. It is based on their individual driving pattern and household vehicle flexibility. Key results are the distribution of optimized BEV range among US consumers and the change of such a distribution in response to <u>battery</u> cost reduction and charging infrastructure improvement.



The results of the study explain the dominance in the BEV market of products with an electric range below 100 miles, the author says.

Before the introduction of the Nissan Leaf (certified with a 73 mile electric range) in December 2010, BEV ranges were often assumed to be between 150 and 200 miles. Now, eight out of the ten BEV products on the US market are equipped with an electric range below 100 miles.

The paper extensively discusses the policy and R&D implications of the found distributions of optimal BEV range, providing insights for BEV-related policies and market strategies. The paper also includes sensitivity analysis and quantifies the significance of the optimization approach.

More information: *Transportation Science*, <u>pubsonline.informs.org/doi/abs1287/trsc.2013.0516</u>

Provided by Institute for Operations Research and the Management Sciences

Citation: Electric vehicle consumers better off with electric range under 100 miles, study says (2014, August 18) retrieved 28 April 2024 from <u>https://phys.org/news/2014-08-electric-vehicle-consumers-range-miles.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.