

Total Cost of Ownership of Plug-in Electric Vehicles Calculations Data sheet

Dataset available at: <https://doi.org/10.25338/B80D10>

(This dataset supports report **Cost of Plug-In Electric Vehicle Ownership: The Cost of Transitioning to Five Million Plug-In Vehicles in California**, <https://doi.org/10.7922/G257199D>)

This U.S. Department of Transportation-funded dataset is preserved by the University of California in the digital repository Dryad (<https://datadryad.org>), and is available at <https://doi.org/10.25338/B80D10>.

The related final report **Cost of Plug-In Electric Vehicle Ownership: The Cost of Transitioning to Five Million Plug-In Vehicles in California**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/56474>.

Metadata from the Dryad Repository record:

Publication Date: July 12, 2021

Abstract:

Total cost of ownership (TCO) studies are generally used as a tool to understand how and when the plug-in electric vehicle (PEV) technology will reach cost parity with conventional fuel vehicles. Post cost-parity, the PEV market should be able to sustain without government intervention. We present here a detailed analysis of vehicle manufacturing costs and market-level TCO accounting for technology uncertainties, behavioral heterogeneity, and key decision parameters of automakers. Using the estimates of the vehicle manufacturing costs, we estimate the cost of electrification of California's LDV fleet to achieve the state's net-zero emission goal by 2045. The results suggest that PEVs may not be cost-competitive even in 2030 without stronger policy support and automakers' initiative. Moreover, TCO is not a single number and the cost of electrification will vary across the population based on the cost of vehicles available in the market, their charging capabilities at home and public, and energy costs. The TCO estimates and the cost of fleet electrification analysis not only has important implications for policymakers but can also offer a foundation for understanding the effect of market dynamics on the cost-competitiveness of the PEV technology.

Methods:

The data for Total cost of ownership was collected from academic research on the topic, technical reports from the industry, and data on vehicle technology maintained by the Environmental Protection Agency (EPA) and the Alternative Fuel Data Center. The household-level data used for market segmentation is obtained from the 2019 California Vehicle Survey hosted by NREL.

Funding: California Department of Transportation

Recommended citation:

Chakraborty, Debapriya; Tal, Gil; Buch, Koral (2021), Total Cost of Ownership of Plug-in Electric Vehicles Calculations Data sheet, Dryad, Dataset, <https://doi.org/10.25338/B80D10>

Dataset description:

This dataset contains 1 .zip file collection described below.

doi_10.25338_B82K67_v2.zip:

This collection contains 2 .xlsx files and 1 .txt file listed below.

- TCOCalcSheet_Standard.xlsx
- TCO_Calculation_based_on_5_million_Goal_DRYAD.xlsx
- DRYAD_TCO.Calculation_based_on_5_million_goal.txt

The .xlsx file type is a Microsoft Excel file, which can be opened with Excel, and other free available software, such as OpenRefine.

.txt: The .txt file type is a common text file, which can be opened with a basic text editor. The most common software used to open .txt files are Microsoft Windows Notepad, Sublime Text, Atom, and TextEdit (for more information on .txt files and software, please visit <https://www.file-extensions.org/txt-file-extension>).

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://doi.org/10.21949/1503647>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset.

NTL staff last accessed this dataset at <https://doi.org/10.25338/B80D10>. on 2021-07-12

If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.