

California grid electrical energy storage requirements for select renewables integration and fleet electrification scenarios Dataset

Dataset available at: <https://doi.org/10.6086/D1667N>

(This dataset supports report **Electric Fleet Adoption Strategies – Addressing Storage and Infrastructure Needs**, <https://doi.org/10.7922/G2V40SG7>)

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/10.6086/D1667N>.

The related final report **Electric Fleet Adoption Strategies – Addressing Storage and Infrastructure Needs**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/56108>.

Metadata from the Dryad Repository record:

Publication Date: July 9, 2020

Abstract:

Significant electrification of the transportation sector is necessary for the State to achieve several important greenhouse gas (GHG) reduction and renewable energy targets. The State's electricity generation and transmission capabilities must increase in order to meet the demand generated by increasing levels of fleet electrification. The increased demand, combined with the Renewables Portfolio Standard (RPS) targets will require significantly increased energy storage capabilities that can accommodate demand while integrating renewable power sources into the grid. This project evaluated the mid to long-term energy storage needs of the electric grid for select fleet electrification scenarios. The analysis was conducted using Resolve, a power systems planning model, for RPS targets of 60% and 80% by 2030 and 2042 respectively. The results show that Electrical Energy Storage (EES) capacity requirements depend on a number of parameters, including Demand Response (DR), Electric Vehicle (EV) charging flexibility, and total EV population. The EES requirements for the 60% RPS scenarios range from 3.9 to 4.3 GW while for the 80% RPS scenarios, the range is from 18.5 to 20.4 GW.

- **Methods:** The dataset was collected from the results of simulations performed using the Resolve model (<https://www.cpuc.ca.gov/General.aspx?id=6442462824>) to assess the Electrical Energy Storage requirements of California's electricity grid under select scenarios. The Resolve model results have been processed to create the dataset.
- **Usage Notes:** The datasets are self explanatory within the context of the main report. Each individual tab in the Excel spreadsheets are assigned a descriptive name and the Tables and Figures have descriptive title columns.
- **Funding:** National Center for Sustainable Transportation (NCST), Award: USDOT Grant 69A3551747114

Recommended citation:

Raju, Arun S.K.; Vu, Alexander (2020), California grid electrical energy storage requirements for select renewables integration and fleet electrification scenarios, Dryad, Dataset, <https://doi.org/10.6086/D1667N>

Dataset description:

This dataset contains 1 .zip file collection described below.

doi_10.6086_D1667N_v3.zip:

This collection contains 2 .xlsx files listed below.

- Energy_Storage_Needs_Assessment_Data.xlsx
- Electrification_EES_Assessment_Data.xlsx

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

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/10.6086/D1667N>. 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.