EVI-Pro: Electric Vehicle Infrastructure – Projection Tool

NREL's Electric Vehicle Infrastructure – Projection (EVI-Pro) tool estimates how much electric vehicle (EV) charging infrastructure is needed in a designated area to meet a given demand.

Developed in collaboration with the California Energy Commission, EVI-Pro draws on detailed data about personal vehicle travel patterns, EV attributes, and charging station characteristics to estimate the required quantity and type of charging infrastructure.

Capabilities and Uses

A key player in NREL's world-class EV charging infrastructure analysis capabilities, EVI-Pro is a part of the EVI-X modeling suite for charging network planning, site design, and financial analyses.

Researchers use EVI-Pro to:

- Analyze the typical daily travel patterns of light-duty vehicles, estimate related charging demand, and design infrastructure capable of meeting the demand
- Account for variations and uncertainty in vehicle and charger technologies, user demographics, market adoption conditions, the shared use of chargers, and EV travel and charging preferences.

A simplified, web-based version of the tool—EVI-Pro Lite—is geared for use by U.S. cities and states to estimate their charging infrastructure needs and the associated power demands on the grid.

Case Study: National Charging Infrastructure Analysis

Ambitious federal clean energy goals, including efforts to see EVs represent the majority of light-duty vehicle sales by 2030, could lead to 30 million–42 million EVs on the road by 2030. An NREL study, detailed in the The 2030 National Charging Network report, has estimated the number, type, and location of infrastructure needed to support these vehicles. That infrastructure will form the backbone of the country's next great public works project: nationwide access to EV charging. For more information, refer to the Building the 2030 National Charging Network news article.

Publications

The following publications provide detailed information about NREL's EV infrastructure analyses. For NREL's full collection of documents, visit the Publications Database.

The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure, NREL Technical Report (2023)

EV Charging Infrastructure Assessment—Analyzing Charging Needs To Support ZEVs in 2030, California Energy Commission Report (2021)

Meeting 2025 Zero Emission Vehicle Goals: An Assessment of Electric Vehicle Charging Infrastructure in Maryland, NREL Technical Report (2019)

Charging Electric Vehicles in Smart Cities: An EVI-Pro Analysis of Columbus, Ohio, NREL Technical Report (2018)

Regional Charging Infrastructure for Plug-In Electric Vehicles: A Case Study of Massachusetts, NREL Technical Report (2017)

Contact

Contact us at evi-x@nrel.gov to discuss your partnership interests or learn about our custom infrastructure analyses.

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