

Stationary Fuel Cell Systems Analysis Project: Partnership Opportunities

The U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL) is seeking partners to participate in an objective and credible analysis of stationary fuel cell systems to benchmark the current state of the technology and support industry growth. Interested stationary fuel cell developers and end users should contact NREL's Technology Validation Team at techval@nrel.gov.

How does it work?

Participating stationary fuel cell developers and end users share raw fuel cell system data related to operations, maintenance, safety, and cost with NREL via the National Fuel Cell Technology Evaluation Center (NFCTEC). The limited-access, off-network NFCTEC houses the data and analysis tools to protect proprietary information.

What type of data?

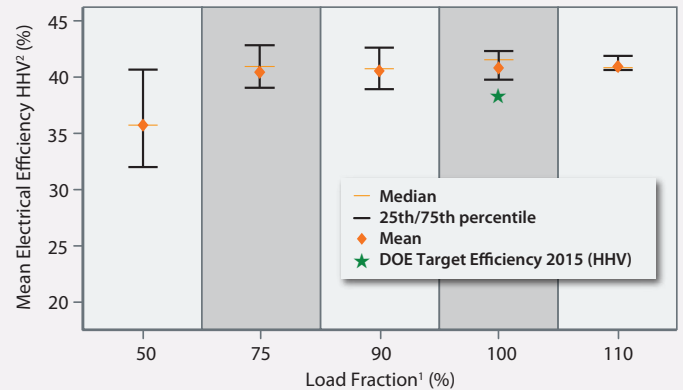
- Hourly operation data, including hours of operation, power, voltage, current, heat flows, fuel flows, and building demand loads
- Monthly maintenance and safety data
- Cost data (system and/or maintenance)
- System description, including type, size, location, and start date
- Flexible data format (e.g., .xls, .csv, .txt)
- Not restricted to DOE-funded systems

Partial data sets are acceptable—partners do not need to provide every type of data to participate in the project.

More information

Visit www.nrel.gov/hydrogen/proj_fc_systems_analysis.html to learn more about this project and to see the composite data products (CDPs) published to date. Contact NREL's Technology Validation Team at techval@nrel.gov for more information about partnership opportunities.

Electrical Efficiency by Load Fraction for Units > 100 kW



1. Load fraction is the ratio of electrical output per rated capacity of the fuel cell unit. Efficiency data points for each load fraction are +/- 2% of the target load fraction.
2. Electrical efficiencies by unit are calculated as the percentage of electrical power output to higher heating value (HHV) of fuel input. The natural gas HHV used is 48.956 MJ/kg, and the lower heating value used is 44.294 MJ/kg.

This CDP shows the electrical efficiency by load fraction based on voluntarily supplied data for units larger than 100 kW.

Project features and benefits

Industry support – NREL supports continued industry growth by providing independent, credible, and consistent assessments.

Uniform analysis – Analyses are applied uniformly to the supplied data sets.

Detailed data products – NREL shares individualized data analysis results as detailed data products with the partners who supplied the data.

Composite data products – Aggregated results are published as CDPs, which show the technology status without identifying individual companies.

Technology status – The CDPs are a primary benchmarking tool for DOE and other stakeholders interested in tracking the status of fuel cell technologies.

Experience – This project leverages NREL's technology validation experience analyzing proprietary hydrogen and fuel cell systems and components since 2004.