

## More Than 410,000 Hours of Real-World Fuel Cell System Operation Have Been Analyzed by NREL's Technology Validation Team

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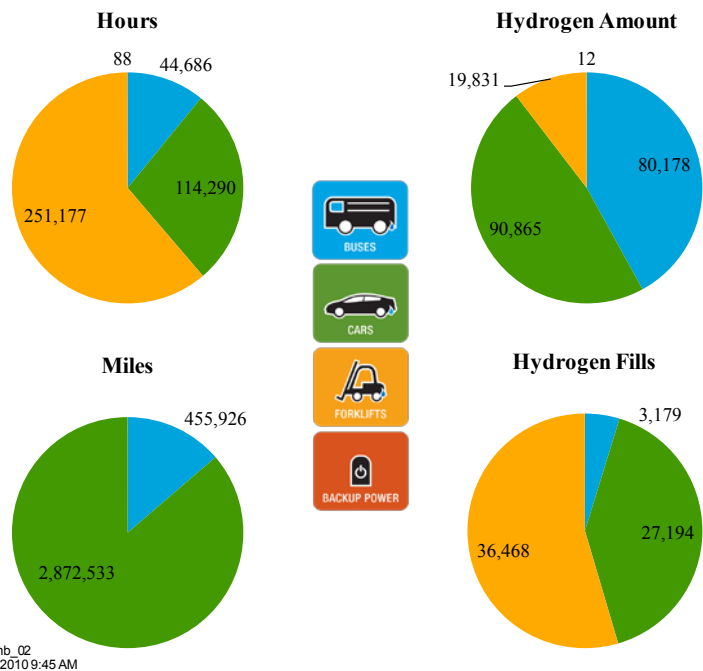
**Accomplishment:** NREL analyzed more than 410,000 hours of real-world fuel cell operation from more than 470 government-funded demonstrations in light-duty vehicle, bus, material handling, and backup power markets.

**Context:** NREL's analyses validates the technology in real-world applications, reports on the technology status, and facilitates the development of fuel cell technologies, manufacturing, and operations in strategic markets—material handling equipment, backup power, and stationary power—where fuel cells can compete with conventional technologies.

### Fuel Cell and Infrastructure Analysis:

NREL is validating hydrogen and fuel cell systems in real-world settings through data collection, analysis and reporting. The fuel cell and infrastructure analysis provides an independent, third-party assessment that focuses on fuel cell system and hydrogen infrastructure performance, operation, maintenance, use, and safety.

**Significance of Accomplishment:** More than 470 fuel cell systems and 40 hydrogen production or dispensing locations have been analyzed in many U.S. locations; approximately 800 more systems will come on line in the next two years. As of June 2010, more than 410,000 hours have been accumulated, 3.3 million miles traveled, 66,000 hydrogen tank fills completed, and 190,000 kg of hydrogen produced or dispensed, or both.



**Figure 1: Cross Application Summary of Hours, Hydrogen Amount (kg), Hydrogen Fills, and Miles Analyzed by NREL**

The fuel cell electric vehicles and fuel cell buses have been operating since before 2006; the fuel cell material handling equipment units since 2009. These material handling equipment units have already accumulated more than 251,000 hours with less than 10% of the total hydrogen kilograms produced or dispensed, or both. The fuel cell buses have the fewest systems, but still comprise a significant piece of the accumulated hours, hydrogen amount, and miles traveled, because of the lengthy driving profiles in transit revenue service. The fuel cell backup units comprise a small percentage of the combined values, because they do not regularly operate for long periods.

For more information about NREL's fuel cell and infrastructure projects, visit the [Hydrogen Technology Validation Web site](http://www.nrel.gov/hydrogen/proj_tech_validation.html) at [www.nrel.gov/hydrogen/proj\\_tech\\_validation.html](http://www.nrel.gov/hydrogen/proj_tech_validation.html).