



SOUTHWEST RESEARCH INSTITUTE



Hydrogen Fuel Cell Powertrain Testing & Research

Leading the charge in decarbonization

Hydrogen fuel cells are a vital part of the decarbonization strategy to mitigate climate change. The Low Carbon Technologies section at Southwest Research Institute® (SwRI®) provides independent, world-class fuel cell electric vehicle R&D services to government and industry clients to solve the most challenging sustainability and decarbonization problems in the automotive and energy sectors.

Applications

- Aerospace
- Automotive
- Auxiliary power
- Energy storage
- Off-highway vehicles
- Marine and rail transport
- Material handling

Resources

- NHR 9300 high-voltage battery test systems
- Liquid hydrogen supply
- Environmental chambers (-40°C to 60°C)
- Scanning and transmission electron microscopy
- Cyclic/linear sweep voltammetry
- Electrochemical impedance spectroscopy
- Galvanostatic charge method

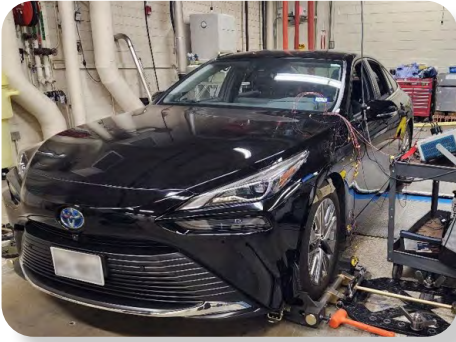
Services & Capabilities

- Fuel cell stack performance benchmarking
- Fuel cell system component test
- Stack and system performance and diagnostics
- Dynamic/transient response testing
- Cold startup test / Durability test
- Accelerated stress test
- Cycling tests (temperature, humidity, pressure and load)
- Compound angle tilt table / Cell flooding test
- Altitude simulation test
- Pressure proofing
- Vibration and shock test
- Surface damage test
- Chemical exposure / Contamination test
- Membrane and catalyst development
- Coating technology development
- Controls development
- CFD model simulations

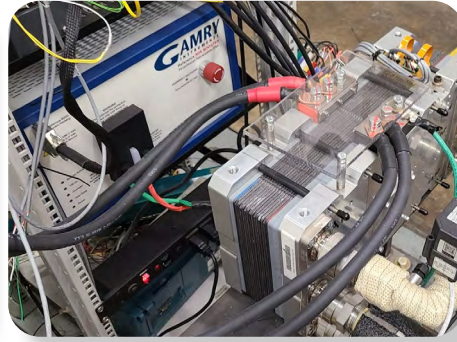


SwRI's liquid hydrogen tank facility holds a nominal 4,000 kg (17,500 net gallons) and can deliver 150 kg/hr at 350 bar.

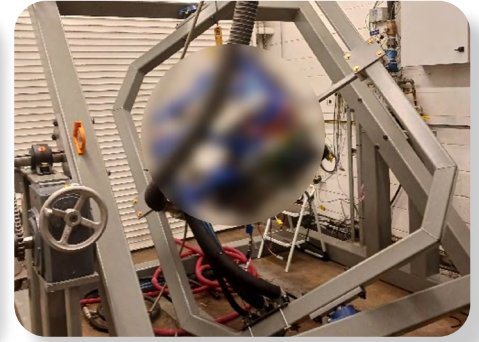
Examples of Past Projects



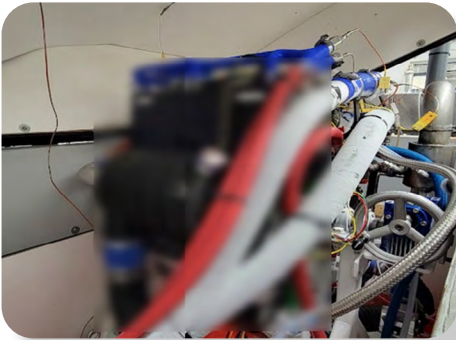
FCEV Benchmarking Test



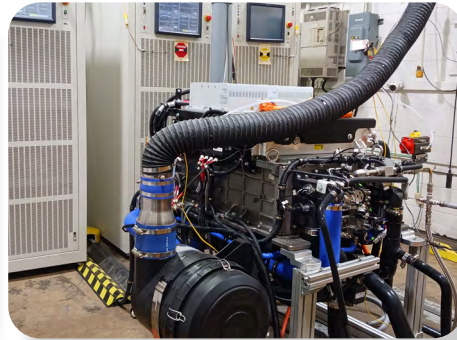
Short-Stack Durability Test



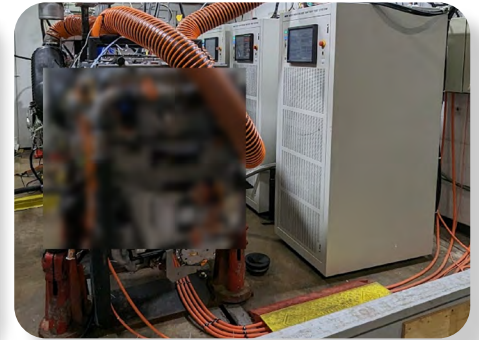
Compound Angle Tilt Test



Environmental Chamber Cold-Start Test



HD FC System Durability Test



SuperTruck 3 Development & Validation Test

**We welcome your inquiries.
For additional information,
please contact:**

LCT@swri.org

**Low Carbon Technologies
Powertrain Engineering Division**



LCT.swri.org

SOUTHWEST RESEARCH INSTITUTE

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