



Fuel Cell Science and Technology

Importance of Our Work

Development of advanced technologies is required to achieve breakthrough fuel cell designs and materials for that will result in wide-spread use of fuel cell power generation for stationary, as well as transportation applications. This will provide an efficient and more environmentally sustainable energy future, at competitive power costs.

Benefits

- Efficient electrical energy production
- Stationary and transportation applications from portable auxiliary power units to vehicle propulsion and city power grids.
- Ultra-low pollutant emission energy source
- Sustainable energy future

Project Participants

Industry – Delphi Automotive Systems

National Labs – Pacific Northwest National Laboratory
National Energy Technology Laboratory



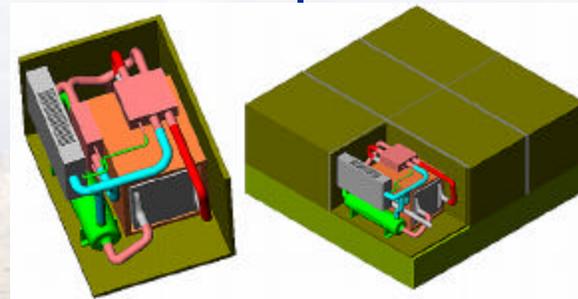
Transportation



Stationary Fossil Energy Vision 21



National Security

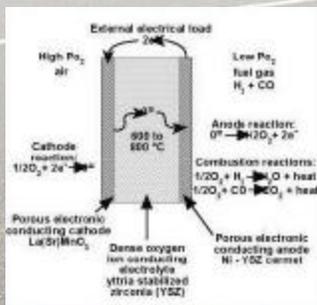


5 kW Modular Fuel Cell System

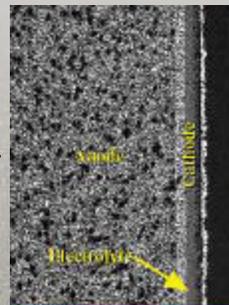
Building the Science Foundation to Accelerate Fuel Cell Technologies

Critical R&D Focus Areas

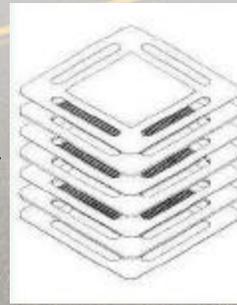
Fuel Reformation * Thermal Management * Modeling & Simulation * Power Electronics * Materials & Manufacturing



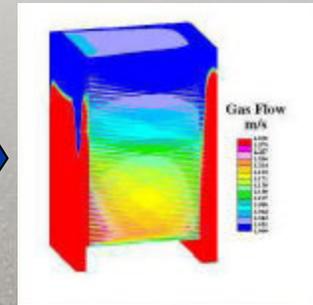
Electrochemistry



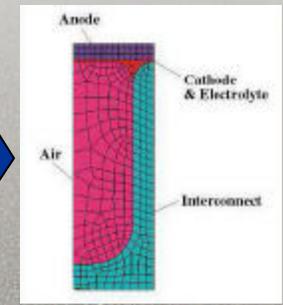
Bulk and Interfacial Material Properties



Cell/Stack Material Optimization



Stack Flow/Thermal Distributions Simulations



Cell/Stack Stress Modeling