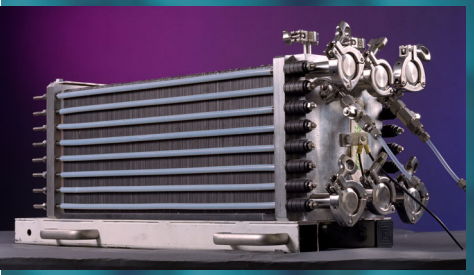
Argonne National Laboratory

Hydrogen-Powered Fuel Cells for a Cleaner, More Secure Energy Future

Emission-Free, Petroleum-Free Energy



The Department of Energy's Office of Advanced Automotive Technologies established the Fuel Cell Test Facility at Argonne to provide independent, standardized testing and evaluation for developers of fuel cells.

Fuel cells powered by hydrogen produce clean, emission-free energy, but hydrogen must be manufactured and is not yet available to consumers.

"America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment."

— President George W. Bush

How Will Hydrogen Be Provided?

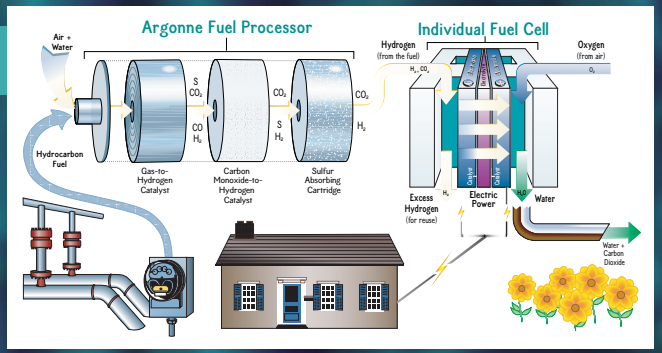
Near Term: Argonne National Laboratory's fuel processor (at right) could serve as a transition technology until hydrogen is readily available, allowing the use of fuel cells for transportation and residential electric power.

Mid Term: Hydrogen can be made locally from water, without greenhouse gases, using electricity distributed on the electrical grid from nuclear power plants.

Long Term: Hydrogen can be produced from water at a central plant using more efficient chemical processes and nuclear energy, and could be distributed by pipeline.

Generating Hydrogen for Fuel Cells in Vehicles and Homes

Secretary of Energy Spencer Abraham views an Argonne invention that could meet the near-term need for hydrogen. The compact, efficient device "processes" commonly available fuels to produce hydrogen to power fuel cells, with near-zero pollutant emissions. The R&D 100 award-winning catalyst that is key to this technology has been licensed by Süd-Chemie, Inc., and the processor design (diagram at right) is the basis for a hydrogen-powered residential fuel cell that is now entering the market. A processor this size could provide hydrogen for a fuel cell power system that would meet the electrical and hot water needs of a typical four-person household.



"The President's Plan directs us to explore the possibility of a hydrogen economy."

— Spencer Abraham, Secretary of Energy

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