

Congressional Notification Profile
DE-FOA-0000215
Engineering Design of Advanced H₂-CO₂ Membrane Separations
Phase 2 Down-selection

Background Information

The Department of Energy (DOE) issued this funding opportunity announcement to solicit research that will focus on hydrogen separations technology, including advanced separation membranes (inorganic, metallic and both materials), that provide high purity hydrogen and/or offer a combination of hydrogen separation with low-cost removal of carbon dioxide (CO₂) and other trace impurities from hydrogen-CO₂ mixtures. The latter may involve improved membrane or adsorption systems that build upon and improve current separation efficiencies or development of new separation strategies.

The primary purpose of this research effort is to demonstrate the separation of hydrogen from coal (or coal-biomass) derived syngas via membranes at the pre-engineering/pilot scale. The DOE's National Energy Technology Laboratory has sponsored a number of laboratory- and bench-scale membrane development efforts over the past years, and scale-up and testing at the pre-engineering/pilot scale is a logical extension of this work.

The selected projects will conduct research, development and demonstration (RD&D) at the pre-engineering/pilot scale for innovative membrane materials, concepts and strategies which separate hydrogen from a coal (coal-biomass)-based syngas with performance that is sufficient to meet the DOE 2015 targets of flux, selectivity, cost and chemical and mechanical robustness.

Applications selected under this announcement resulted in four Phase 1 awards. Based on technical merit during Phase 1 and availability of funds, two of the Phase 1 recipients were selected to advance to Phase 2 of membrane research and development.

Project Information

Project Title: *Advanced Hydrogen Transport Membranes for Coal Gasification*

Praxair will partner with the Colorado School of Mines, Golden, Colo., and the University of North Dakota Engineering and Environmental Research Center (EERC), Grand Forks, N.D., to demonstrate palladium (Pd) and Pd alloy membranes on ceramic supports for hydrogen separation from coal-derived syngas. Praxair facilities available for the project include the research and development center in Tonawanda, N.Y., the Surface Technologies Center in Indianapolis, Ind., and the Specialty Ceramics Center in Seattle, Wash. Gasification testing under this project will be conducted at EERC in Grand Forks, N.D.

Contractor Information

Recipient: Praxair, Inc.
39 Old Ridgebury Road
Danbury, CT 06810-5103

Business/Technical

Contact: Dr. Joseph Schwartz
716-879-7455
joseph_schwartz@praxair.com

Congressional District: CT-005

Financial Information

Length of Contract: 36 months

| | |
|---------------------------------|--------------------|
| Government Share: | \$4,000,000 |
| Contractor Share: | <u>\$1,714,286</u> |
| Total Value of Contract: | \$5,714,286 |