



the **ENERGY** lab

PROJECT FACTS

Gasification Technologies

Feasibility Studies to Improve Plant Availability and Reduce Total Installed Cost in Integrated Gasification Combined Cycle Plants

Background

Gasification provides the means to turn coal and other carbonaceous solid, liquid and gaseous feedstocks as diverse as refinery residues, biomass, and black liquor into synthesis gas and valuable byproducts that can be used to produce low-emissions power, clean-burning fuels and a wide range of commercial products to support the U.S. economy. Coal gasification can decrease our dependence on oil imports while meeting current and future environmental emission standards. The major challenge in the use of gasification technology is cost; current integrated gasification combined cycle (IGCC) technology is estimated to produce power at a cost higher than that of pulverized coal combustion based on the same coal and site conditions. However, the Department of Energy (DOE) National Energy Technology Laboratory (NETL) Gasification Program supports the development of technologies with the potential to produce electric power with more than 90 percent carbon capture at a cost of electricity (COE) that is lower than the COE for any other coal-fueled power generation technology with carbon capture. The public benefits of the Gasification Program for the U.S. are significant—lower cost power, cleaner environment, lower carbon footprint, less water use, reduced dependence on imports, and additional jobs. Toward this end, NETL is partnering with General Electric Energy (GE Energy) to study the feasibility of improving plant availability and reducing total installed cost in IGCC power plants.

Project Description

The project team will complete five techno-economic studies focused on various aspects of IGCC plants where it is anticipated that technological improvements will substantially improve cost-effectiveness and availability of the plants. For power plants and their components, availability is the percentage of time a plant or unit is capable of operating. Availability is reduced by planned and unplanned maintenance and forced outages. For each study area or technology concept, the team will identify system and component-level requirements; develop designs and materials as required for technical evaluation of the concept; validate and test components/sub-systems; and develop appropriate operating methodologies, simulations, and control philosophies where applicable. Eastman Chemical Company will be

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PROJECT DURATION

Start Date

10/01/2011

End Date

09/30/2014

COST

Total Project Value

\$4,937,219

DOE/Non-DOE Share

\$3,949,773 / \$987,446

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