

Evaluation of the Benefits of Advanced Dry Feed System for Low Rank Coal

Performer: General Electric Company

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Cost: \$868,992

General Electric (GE) Energy has partnered with NETL to evaluate the benefits of an advanced dry feed system on the use of low rank coal in IGCC technologies. This project will complete comparative techno-economic studies of two IGCC power plant cases, one without and one with advanced dry feed technologies. A common basis of design will be developed so that overall assumptions and methodologies are common to the two cases for both technical and economic areas. The baseline case, without advanced dry feed technologies, will use operational data from the Eastman Chemical Company Kingsport gasification facility in combination with the DOE case study for IGCC using a low-rank coal with 90 percent carbon capture for both cost and performance comparisons.

The overall objective of this project is to evaluate and demonstrate the benefits of novel dry feed technologies to effectively, reliably, and economically provide feeding of low-cost low-rank coals into commercial IGCC systems. This study will focus on IGCC systems with 90 percent CCS, but the dry feed system will be applicable to all IGCC power generating plants and other industries that require pressurized syngas. A feed system based around the Posimetric® pump has the potential to provide a simpler, lower cost system with improved control and reliability. Successful demonstration of this advanced dry feed technology will allow utilization of vast reserves of low rank coal in the United States for power production and other applications.