# Advanced $CO_2$ Capture Technology for Low Rank Coal IGCC Systems

**Performer:** TDA Research, Inc.
**Date:** 9/30/2011 – 9/30/2012
**Cost:** $625,000

TDA Research, Inc (TDA), partnered with NETL, will demonstrate the technical and economic viability of a new IGCC power plant designed to efficiently process low rank coals. The plant uses an integrated $CO_2$ scrubber/Water Gas Shift (WGS) catalyst to capture over 90 percent capture of the $CO_2$ emissions, while increasing the COE by less than 10 percent compared to a plant with no carbon capture.

TDA's goal is to optimize the sorbent/catalyst and process design, and assess the efficacy of the integrated WGS/$CO_2$ capture system, first in bench-scale experiments and then in a slipstream field demonstration using actual coal-derived syngas (to date the sorbent and catalyst have only been tested separately). Project results will feed into a techno-economic analysis using Aspen Plus™ software to estimate the impact of the contaminant tolerant WGS catalyst/$CO_2$ capture system on the thermal efficiency of the plant and COE.