

ILLINOIS INDUSTRIAL CARBON CAPTURE AND STORAGE PROJECT

Project Overview, Lessons, & Future Plans



Carbon Sequestration Leadership Forum

June 11-14, 2012

Scott McDonald

Biofuels Development Director

scott.mcdonald@adm.com

Acknowledgements

- **The Industrial Carbon Capture and Storage (ICCS) project is administered by the U.S. Department of Energy's Office of Fossil Energy and managed by the National Energy Technology Laboratory (award number DE-FE-0001547) and by a cost share agreement with the Archer Daniels Midland Company, University of Illinois through the Illinois State Geological Survey, Schlumberger Carbon Services, and Richland Community College. This ICCS project received DOE funding from the American Recovery and Reinvestment Act of 2009 (\$141.4 million).**
- **The Midwest Geological Sequestration Consortium is funded by the U.S. Department of Energy through the National Energy Technology Laboratory via the Regional Carbon Sequestration Partnership Program (contract number DE-FC26-05NT42588) and by a cost share agreement with the Illinois Department of Commerce and Economic Opportunity, Office of Coal Development through the Illinois Clean Coal Institute.**
- **The Midwest Geological Sequestration Consortium (MGSC) is a collaboration led by the geological surveys of Illinois, Indiana, and Kentucky**



Illinois Industrial CCS Project (IL-ICCS)

Project Overview

DOE - Large-Scale CCS from Industrial Sources (Area 1)

Program Objectives

- Target & Demonstrate Advanced CCS Technologies at Industrial Scale Facilities
- Inject and Store One Million Tons of CO₂ Annually (3,000 tons/day)

Project Team Members



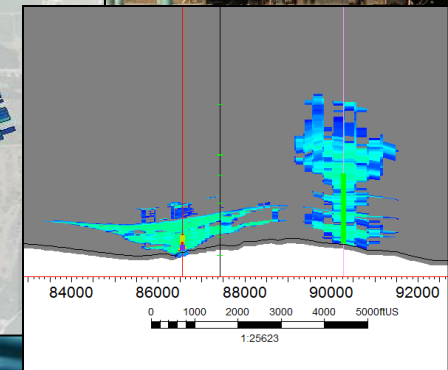
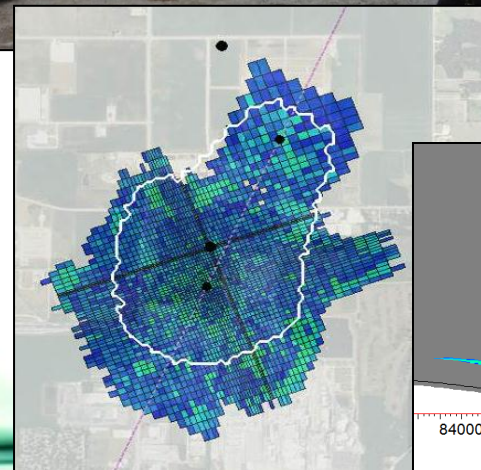
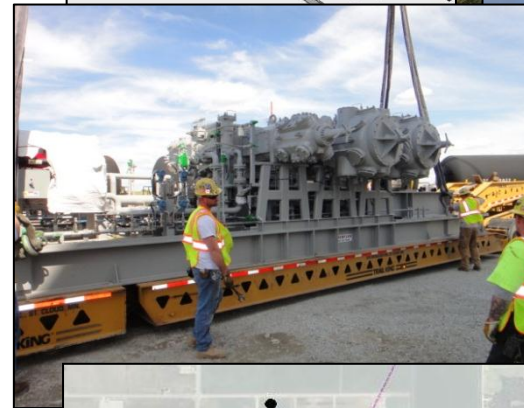
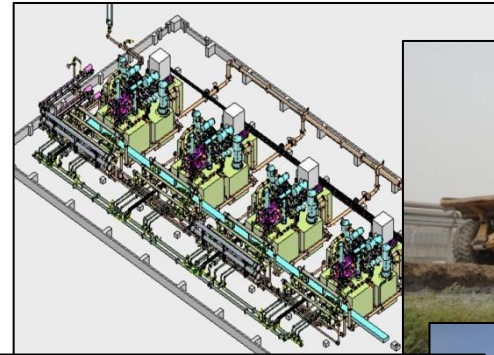
Schedule of Activities

- Engineering Q3 2010 – Q1 2012
- Permitting Q3 2011 – Q1 2013
- Construction Q2 2011 – Q2 2013
- Operation Q3 2013 – Q3 2015

Knowledge Base

- Site Geological Characterization
- Risk Assessment & Reservoir Modeling
- Engineering Design & MVA
- Education and Public Outreach

Study the interaction between the CO₂ plumes from two injection wells within the same formation.

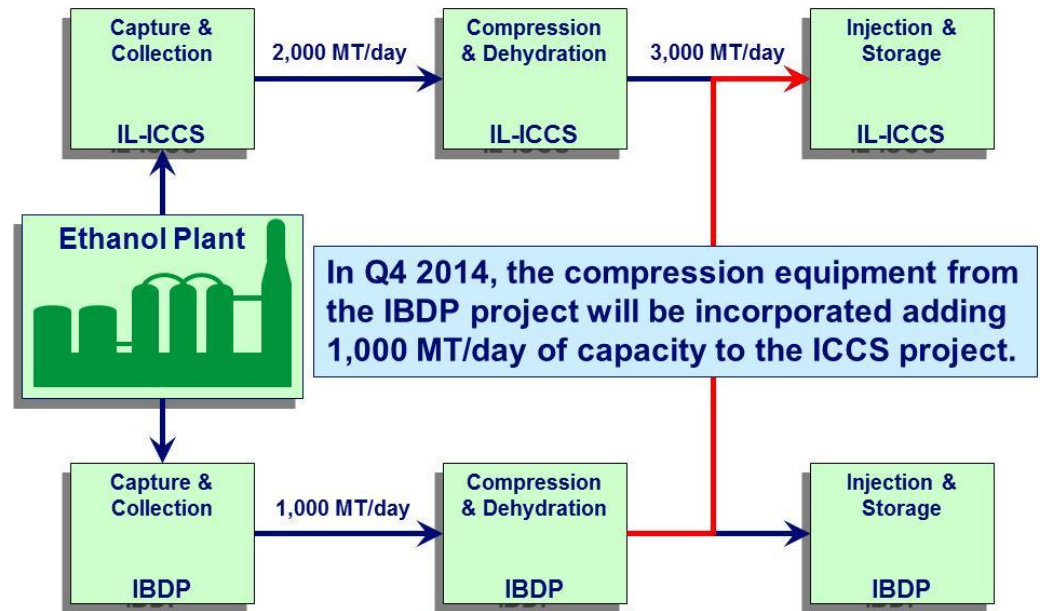


Illinois Industrial CCS Project (IL-ICCS)

Project Objectives

Project Objectives

- Design, construct, and operate a new CO₂ collection, compression, and dehydration facility capable of delivering up to 2,000 metric tons of CO₂ per day to the injection site.
- Integrate the new facility with an existing 1,000 metric tons of CO₂ per day compression and dehydration facility to achieve a total CO₂ injection capacity of 3,000 metric tons per day or one million tons annually.
- Implement deep subsurface and near-surface MVA of the stored CO₂.
- Develop and conduct an integrated community outreach, training, and education initiative.



Illinois Industrial CCS Project (IL-ICCS)

Project Team Members

Archer Daniels Midland Company

- Project Leader
- Overall Project Execution
- Facility Owner and Operator
- Design & Construction of Surface Facilities
- UIC Class VI Permit Holder



Schlumberger Carbon Services

- Seismic Acquisition & Data Processing
- Reservoir Modeling
- Design & Construction of Storage Facility
- Subsurface Operations
- Deep MVA CO₂ Monitoring



Illinois State Geological Survey

- Site Characterization
- MVA Development
- USDW Monitoring
- Near-Surface CO₂ Monitoring
- Outreach and Communication



Richland Community College

- National Sequestration Education Center
- Community Outreach & CCUS Training
- New Associate Degree Programs in CCUS



Leveraging Knowledge and Experience



National Sequestration Education Center

- Innovative Educational Spaces
- Academic Curricula
- Community & Industry Workshops
- Workforce Training Activities
- Visitor Center
- K-12, Community & Regional Outreach
- Sequestration Training & Learning Array (STELA)



Project Groundbreaking Ceremony: August 24, 2011

IL-ICCS: Project Benefits Review

Public Benefits

- Recovery Act funding creating jobs for economic recovery
- Mitigating risks for the industry to demonstrate the largest integrated, saline storage project in the U.S.
- Community Outreach - CCUS technologies
- Collected CO₂ is produced from biologic fermentation, a significant feature of the Illinois ICCS project is its “negative carbon footprint.”
- Validate the Mt. Simon Sandstone saline reservoir site for commercial-scale, long-term geologic storage of CO₂. Collect crucial scientific and engineering data in advance of carbon capture requirements

Project Outcomes

- Demonstrates cost advantages/economic viability of CCS at ethanol plants
- Facilitates exploration of long-term CO₂ utilization options- EOR Illinois Basin Develops a market for utilization of U.S. geologic saline storage capacity that ranges from 1,700 to 20,000 billion metric tons (2010 Carbon Sequestration Atlas, NETL)



Thank You!

Industrial Carbon Capture and Storage Project:

- U.S. Department of Energy Award No. DE-FE-0001547
- Administered by the DOE's Office of Fossil Energy
- Managed by the National Energy Technology Laboratory
- DOE cost share from American Recovery and Reinvestment Act of 2009

Cost Share Agreements:

- Archer Daniels Midland Company
- University of Illinois through the Illinois State Geological Survey
- Schlumberger Carbon Services
- Richland Community College

Project Team Members Contacts:

- Dr. Sai Gollakota (NETL-DoE) Sai.Gollakota@NETL.DOE.GOV
- Dr. Robert Finley, (ISGS) finley@isgs.illinois.edu
- Eric Berlin, (Schlumberger Carbon Services) berlin1@slb.com
- Dr. Douglas Brauer (RCC) dbrauer@richland.edu

(Disclaimer: Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.)