FutureGen 2.0

CO₂ Pipeline and CO₂ Storage Site

DOE EIS Scoping Meetings
Tuscola, Illinois
June 8, 2011
FutureGen Alliance
International Non-Profit Consortia

- Alpha Natural Resources
- AngloAmerican
- CATERPILLAR®
- Exelon® (Intent announced)
- LG&E KU (PPL companies)
- Rio Tinto
- Consol Energy
- JOY
- Peabody
- Xstrata
Project Description

Project Concept
Project Description

Project Goals

• Demonstrate an approach for siting, permitting, insuring, and operating CO\textsubscript{2} storage sites that are fully integrated with an upstream power plant

• Store 39-million metric tonnes of CO\textsubscript{2} that would otherwise be emitted to the atmosphere

• Demonstrate a suite of comprehensive monitoring technologies, verification techniques, and accounting protocols for stored CO\textsubscript{2}

• Establish visitor, research, and training facilities that advance carbon capture and storage technologies

• Provide a pathway to the future siting of commercial CO\textsubscript{2} storage sites in other locations across the country and around the world
Project Description

CO₂ Pipeline and Wells

• CO₂ pipeline
  – 12-inch diameter
  – >4 feet deep; greater in agricultural areas and under roads/streams
  – At least 150 feet away from residences and businesses
  – Sensitive environmental features will be avoided

• CO₂ wells
  – Monitoring and injection wells
  – Compatibility with surface uses is critical
Project Description

CO₂ Storage Site Selection

• The FutureGen Alliance has selected Morgan County (near Jacksonville) as its preferred site for the CO₂ storage facility.

• There are two alternate sites:
  – Taylorville/Christian County
  – Arcola/Douglas County

• All three sites will be analyzed in DOE’s EIS.
Project Description

Douglas County CO₂ Storage

- CO₂ storage almost 1 mile underground
  - Far below groundwater
  - Below 3 geologic seals
  - Deep in the Mt. Simon formation; known to be a high-quality CO₂ storage formation

Well Water
Geologic Seal
Geologic Seal
Geologic Seal
CO₂
Project Description

CO₂ Monitoring Activities
Summary

• FutureGen 2.0:
  – Is the world’s first near-zero emission power plant
    • High rate of carbon dioxide capture (i.e., >90%)
    • Near-zero levels of other traditional emissions
    • Full integration with a CO₂ pipeline and geologic storage
  – Enables the cleaner use of Illinois basin coal
  – Creates construction and permanent jobs
  – Provides additional revenue for those landowners whose deep underground pore space is used for CO₂ storage
  – Increases county tax revenue
  – Constructs $25M to $50M in local research and training facilities
    • Increases county tourism/visitors
    • Creates expanded educational opportunities