

Midwest Geological Sequestration Consortium (MGSC)

Assessment of Geological Carbon Sequestration Options in the Illinois Basin

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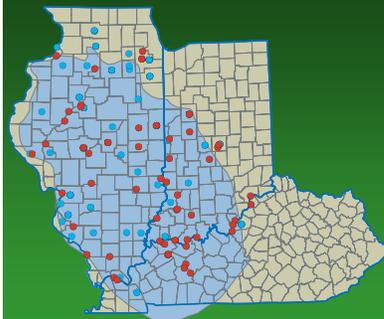
Midwest Geological Sequestration Consortium (MGSC) A DOE Regional Partnership

- Led by Illinois State Geological Survey in collaboration with the Indiana and Kentucky Geological Surveys
- Subcontractors at BYU (geophysics), SIU (coal adsorption), D.J. Nyman & Assoc. (transportation [Houston]) and Dr. Dave Thomas (advisor [Chicago])

Midwest Geological Sequestration Consortium (cont'd)

- Three utility partners: Ameren, Louisville Gas and Electric, and Cinergy
- Four industry partners: Peabody Energy, Aventine Renewable Energy, Air Liquide and Roxar
- Trade groups and consortia: IL, IN, and KY Oil & Gas Associations, ICGA, EPRI, IOGCC
- Illinois Office of Coal Development, DCEO
- Illinois Department of Natural Resources

Illinois Basin



- 123 power plants emit 260.1 Mt CO₂ annually*

State CO₂ Plants

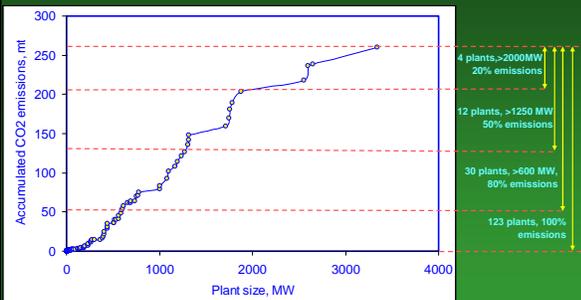
IL / 87.4 /75

IN /109.5/31

KY / 63.2/17

*US EPA E-Grid, 2000

Annual CO₂ Emissions vs. Power Plant Size in the Illinois Basin



Sequestration in Coals



- Completed compilation of coal availability data
- Maps of extent, thickness, depth, and structure completed for the major coals (on NATCARB)
- Criteria set for determination of uneconomic coalbeds
- Gas desorption values have been compiled
- Gas adsorption data have been compiled and additional new data have been acquired for IN
- Data on coal quality are being compiled for generation of basin-scale maps using GIS

MGSC Progress to Date

- All geological (coalbed, mature oil reservoirs, and saline reservoirs) sinks under intensive study
- Deep-basin framework and seismic analysis underway
- Techno-economic CO₂ capture analysis is underway for potential power generation technologies
- Pipeline transportation analysis being initiated
- All major tasks and subtasks on track

