



Battelle

The Business of Innovation

“Managing Climate Change and Securing a Future for the Midwest’s Industrial Base”



MRCSP

MIDWEST REGIONAL
CARBON SEQUESTRATION
PARTNERSHIP

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Alexandria, Virginia

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DOE Cooperative Agreement No. DE-FC26-03NT41981

MRCSP Mission

be the premier resource in its Region for identifying the technical, economic, and social considerations associated with CO₂ sequestration and creating viable pathways for its deployment.

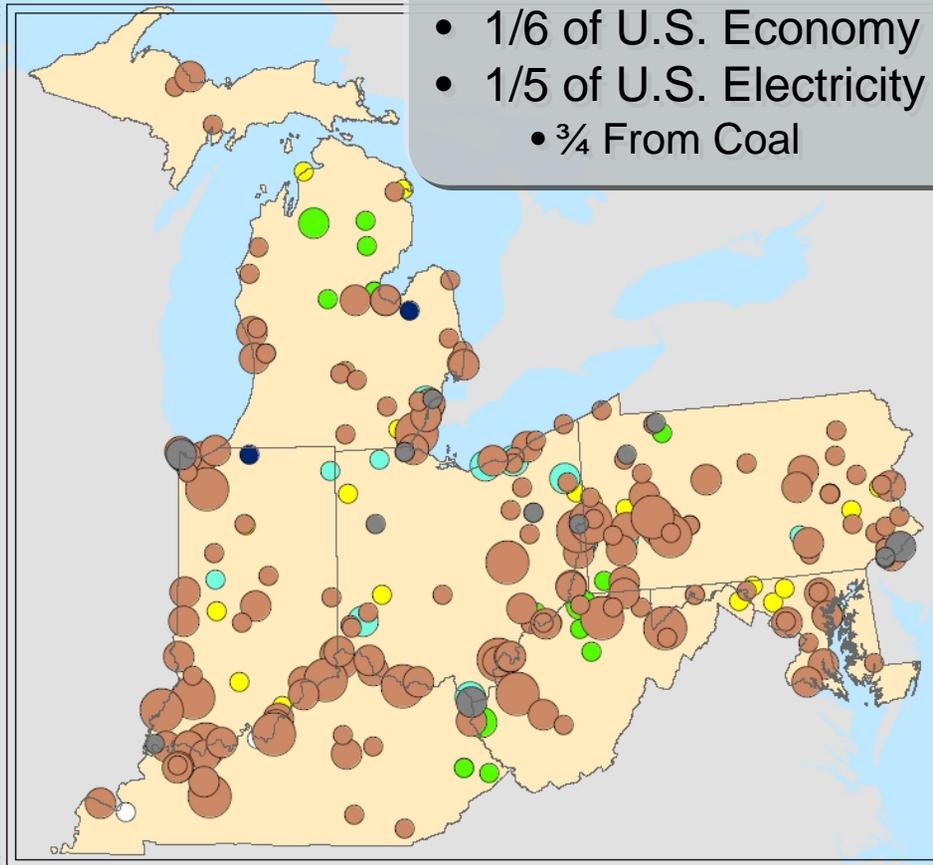
The MRCSP Region: The Nation's Engine Room

MRCSP Large CO₂ Point Sources (100+ kt CO₂/yr)

- Cement
- Ethanol
- Ethylene
- Gas processing
- Hydrogen
- Iron & steel
- Power
- Refineries

ktCO₂/yr

- 100 - 2,000
- 2,000 - 10,000
- 10,000 - 20,000

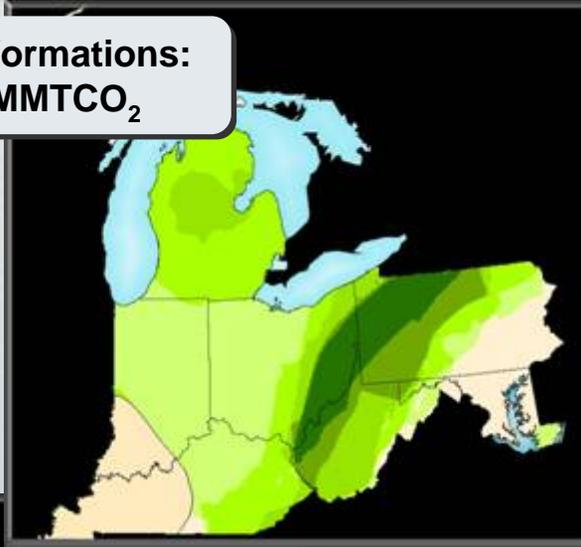


- One in six Americans
- 1/6 of U.S. Economy
- 1/5 of U.S. Electricity Generated
 - $\frac{3}{4}$ From Coal

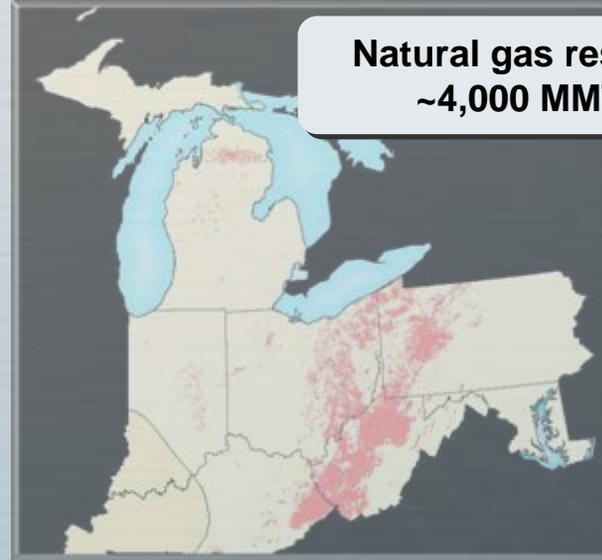
- 274 Large Point Source Locations
- Over 750 MMtCO₂/year

Geologic Sequestration Potential*

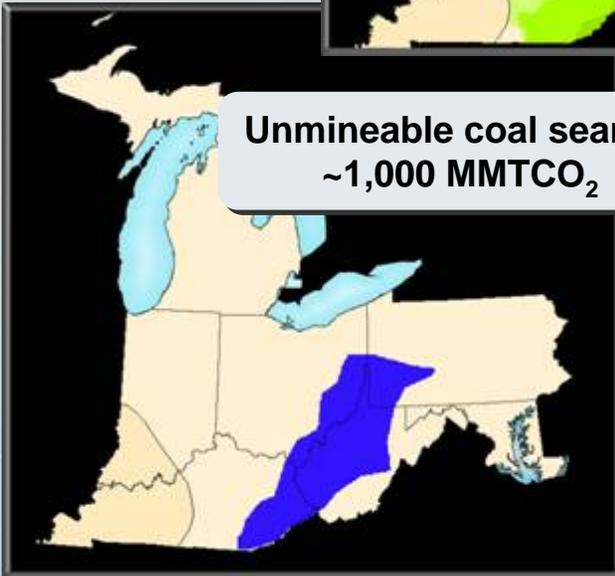
Deep saline formations:
~160,000 MMTCO₂



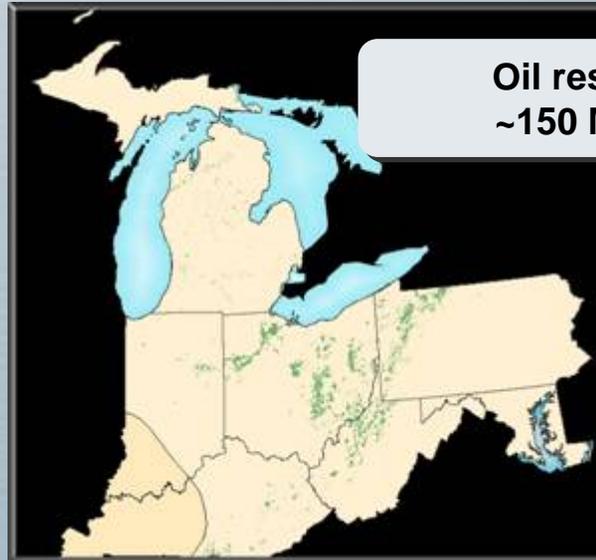
Natural gas reservoirs:
~4,000 MMTCO₂



Unmineable coal seams:
~1,000 MMTCO₂

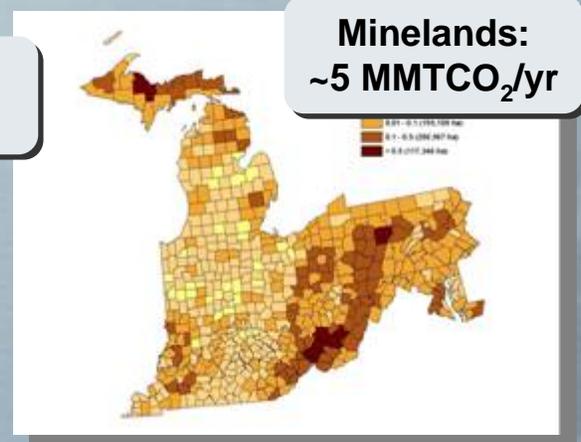
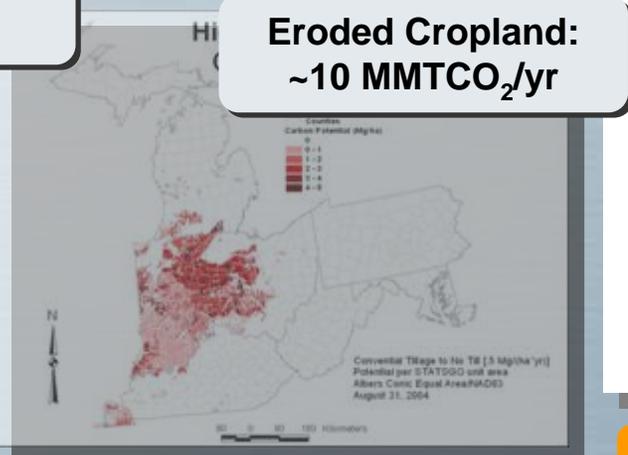
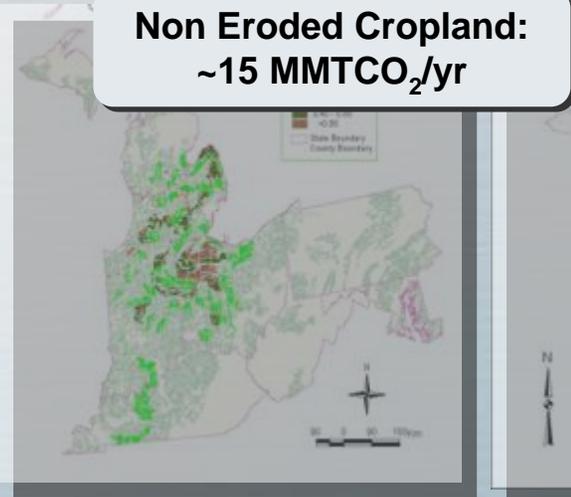
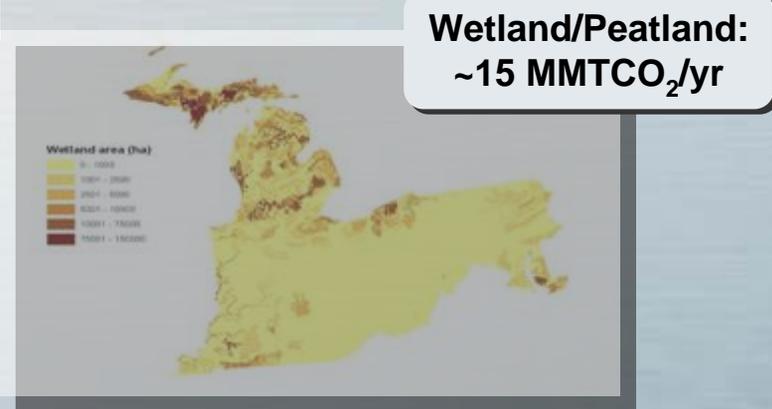
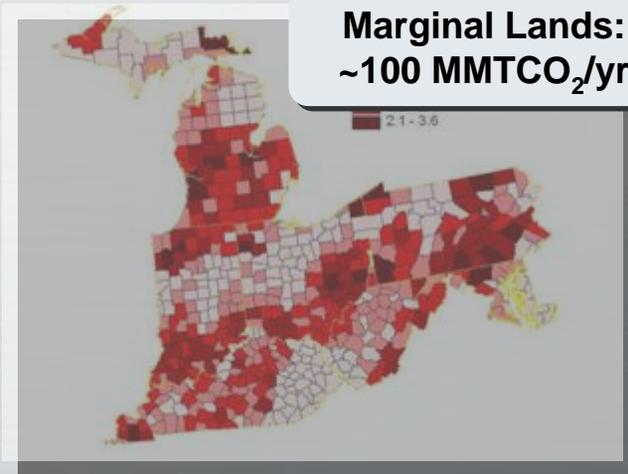


Oil reservoirs:
~150 MMTCO₂



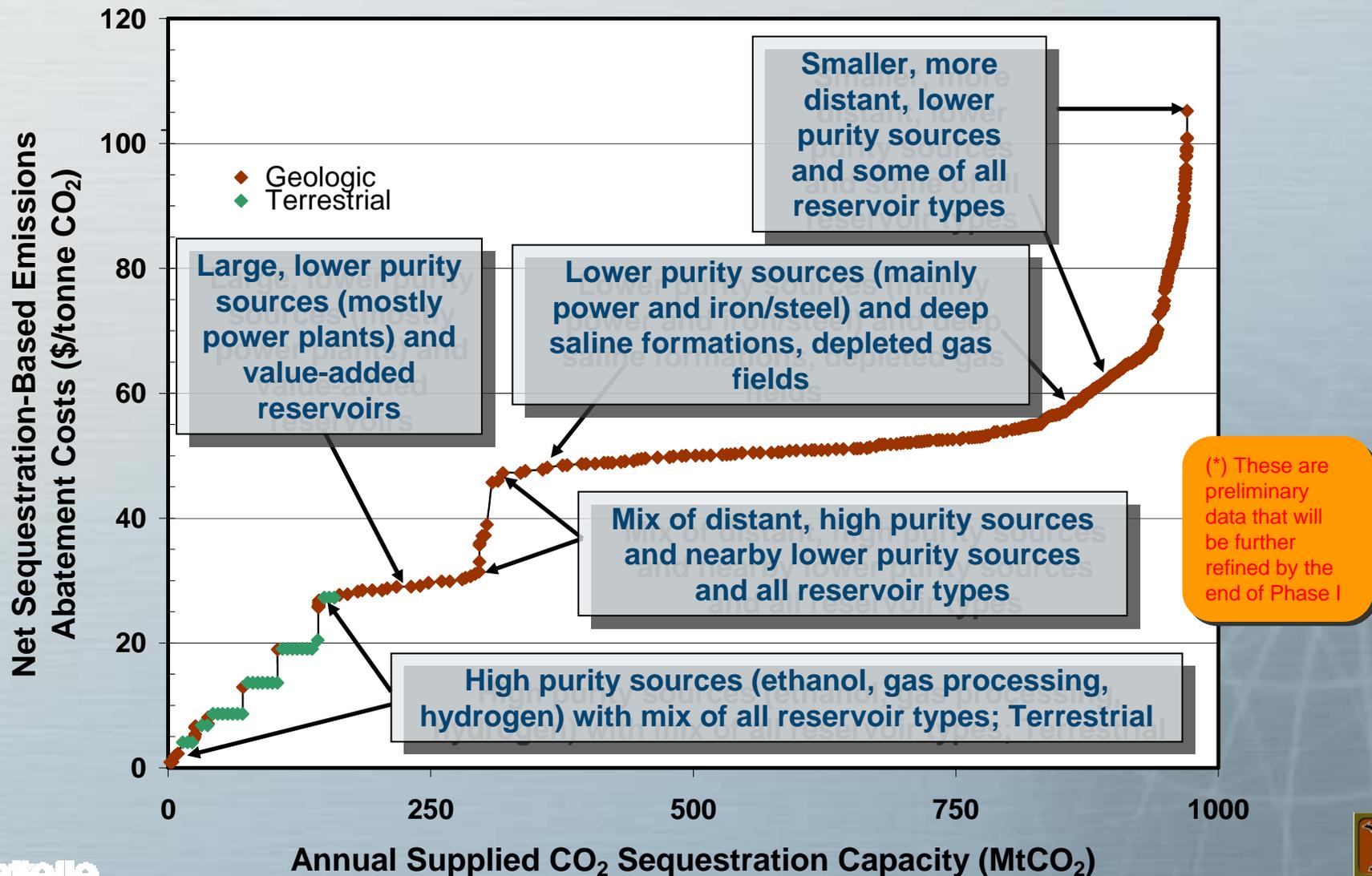
(*) These are preliminary estimates that will be further refined by the end of Phase I

Terrestrial Sequestration Potential*



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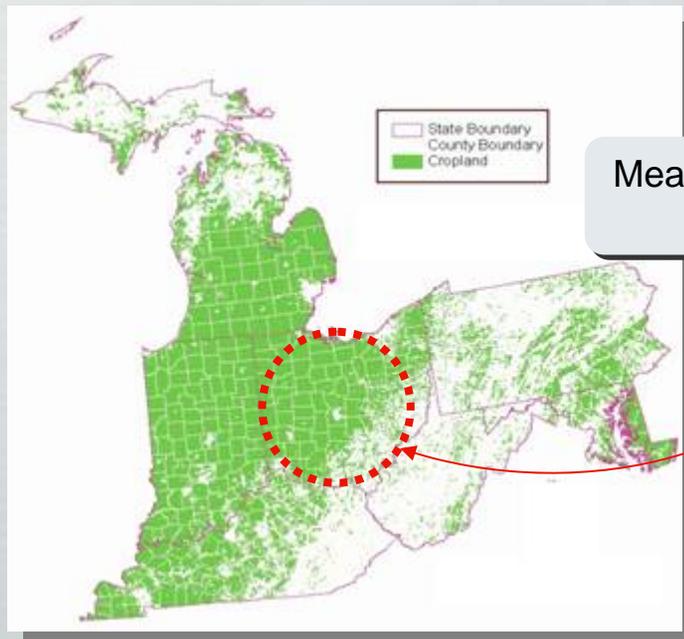
Understanding the Costs of Exploiting Sequestration*



Our Proposed Phase II Program

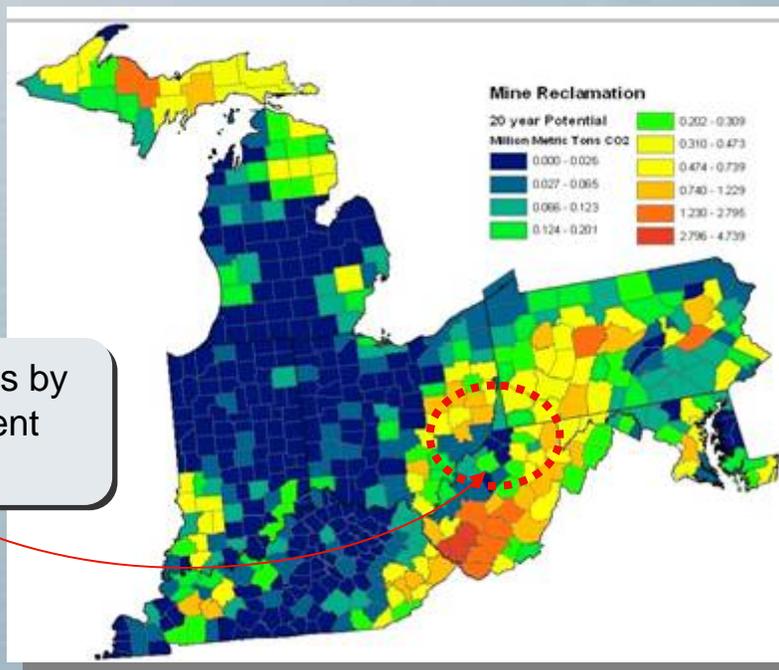
- We have proposed to carry out multiple small-scale field demonstrations throughout a broad area of our region
 - Both geologic and terrestrial projects
- In our proposal we are fortunate to have strong support from a number of our industry partners
 - Both financial support and willingness to host demos
- We also propose a robust research effort to refine and expand on our characterization of our region
- We propose an outreach effort that will build upon our Phase I contacts and web based interactions to also include supporting our host partners' site-specific outreach efforts around our demo sites.

Phase II Terrestrial Field Validation Tests

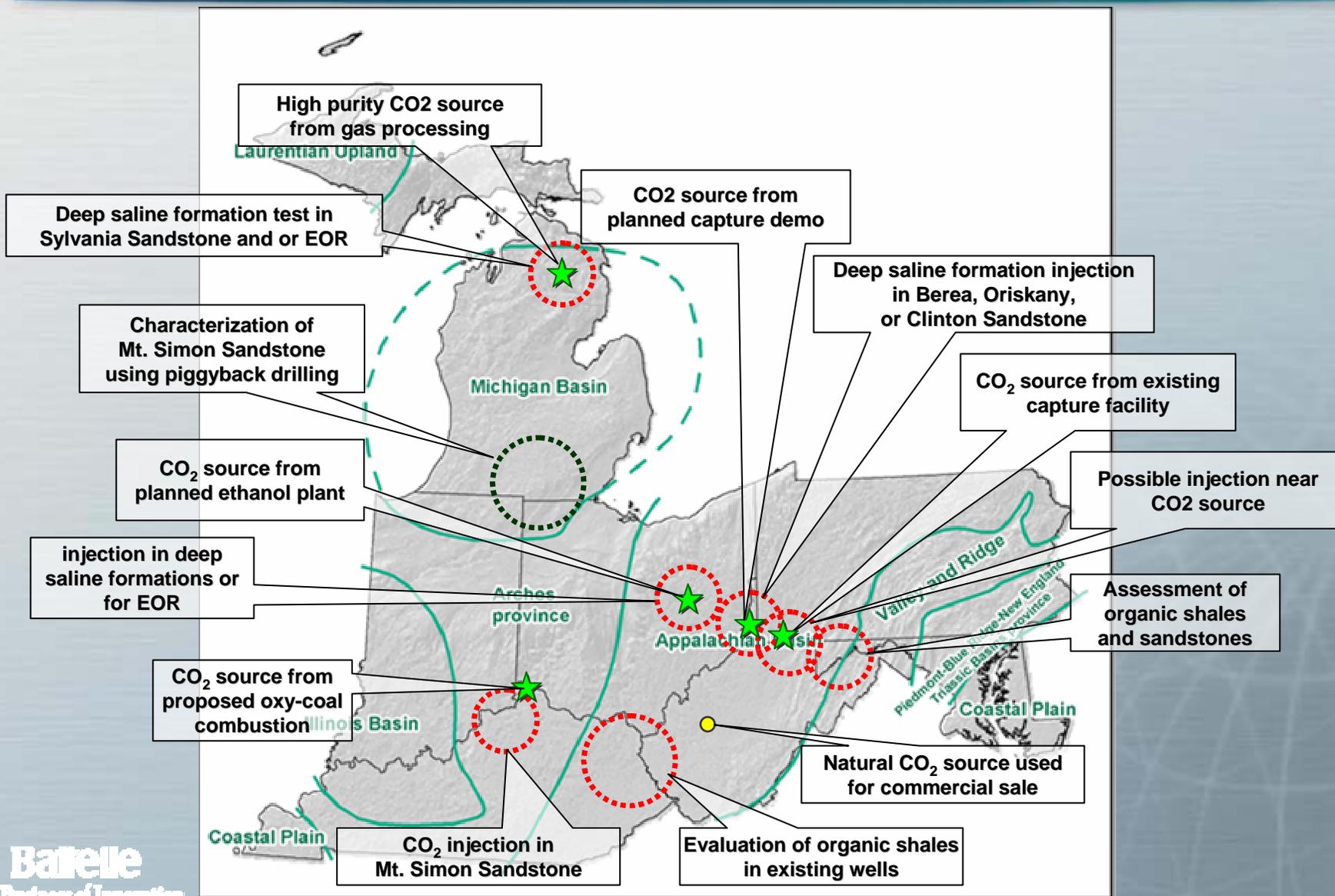


Measure sequestration on croplands under different conditions.

Characterize sequestration for minelands by comparing carbon uptake under different reclamation practices.

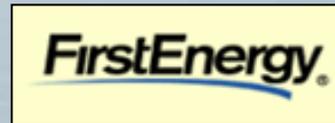
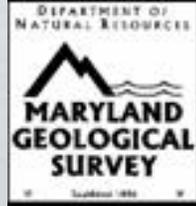


Phase II Geologic Field Validation Tests



The Midwest Regional Carbon Sequestration Partnership

A diverse group including many of the region's major energy companies, agricultural entities, research organizations, government agencies, and NGOs.



U.S. Department of Energy/NETL



Summary:

Our Goal is to Deliver Robust Carbon Management Strategies

- Define the real world potential for carbon sequestration
- Help the region take a first step towards implementation
- Position the Region as a leader in developing robust carbon management solutions

Sequestration technologies are needed to protect core economic assets in the region in a greenhouse gas constrained world



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