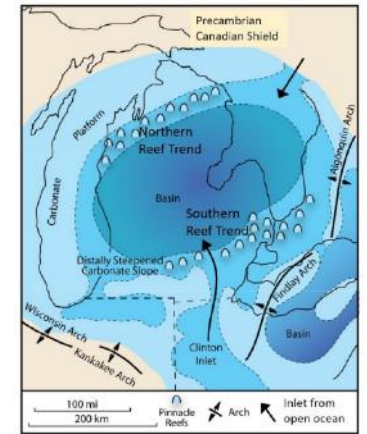


# Carbon Storage Complex Feasibility for Commercial Development in Southeastern Michigan- CarbonSAFE Phase II

(SE Michigan CarbonSAFE) DE-FE0032312

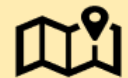
**Objective:** Develop an integrated commercial-scale storage complex ~63-million tonnes CO<sub>2</sub> in saline formations within 30-years in the Southeastern region of the Michigan Basin.

- Technical approach is designed to ensure a safe, long-term, economic, & publicly accepted commercial CO<sub>2</sub> storage complex.
- The selected site has promising storage capacity, confining systems, opportunities to develop required infrastructure, & the foundations needed to ensure public acceptability.
- Project just started 9/21/2023.



**BATTELLE**

**DTE**

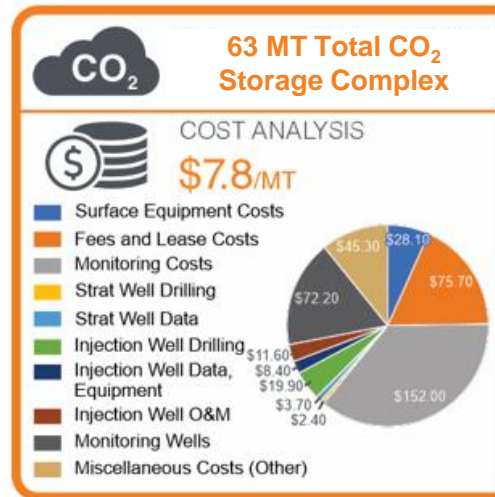
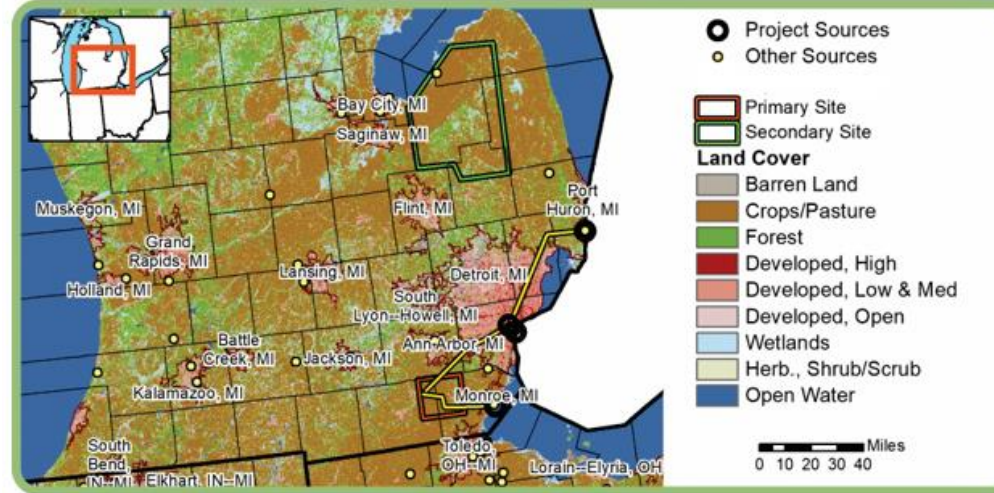


- **Storage Hub** – Southeastern MI
- **Storage Site** – SE Michigan site, or alt. northern SE Michigan site
- **CO<sub>2</sub> Sources** – Blue Water Energy Complex (BWEC), St. Clair County, 3 MT/yr, potential future CCGT w/CCS ~3 MT/yr
- **Additional Sources** – numerous sources along I-75 corridor 5MT/yr

**BATTELLE**

# SE Michigan CarbonSAFE

Battelle & DTE are teaming to develop a CO<sub>2</sub> storage hub for power generation sources & other emitters in SE Michigan.

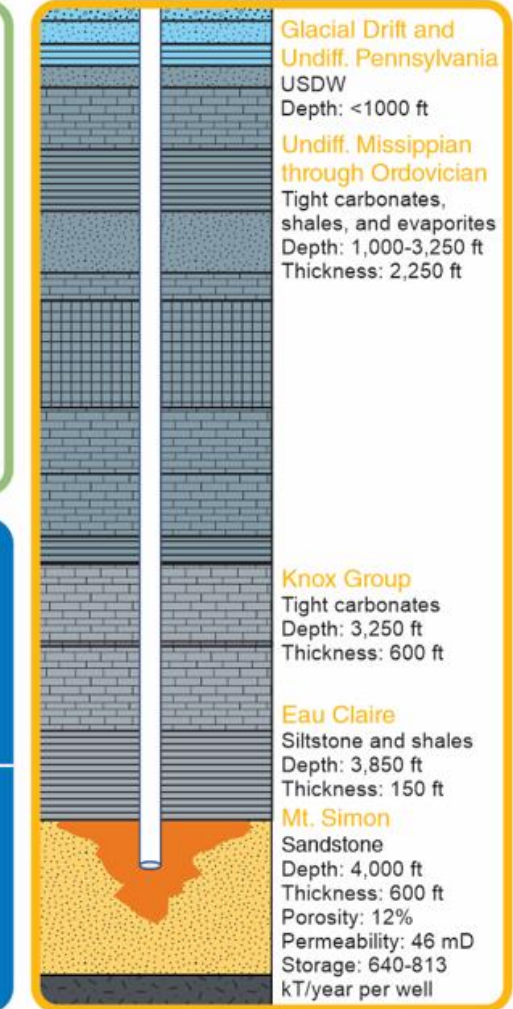


**COMMUNITY BENEFITS**

- Clean Air
- Jobs
- Education and Training
- Community Investments and Improvements

**LOW RISK**

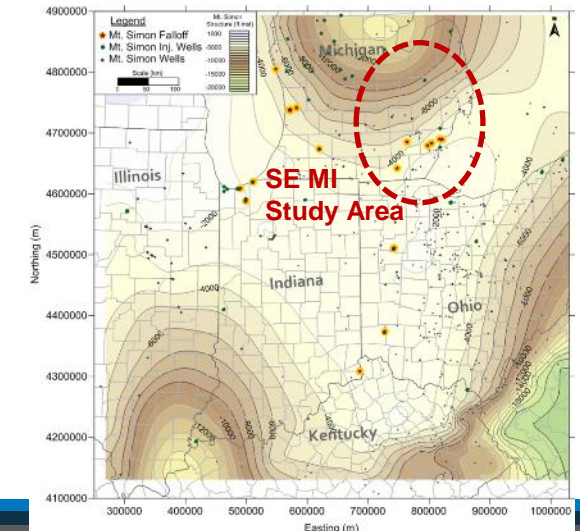
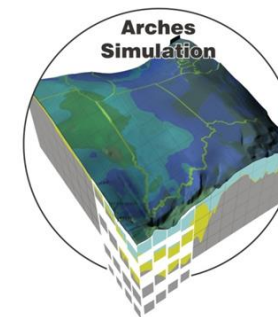
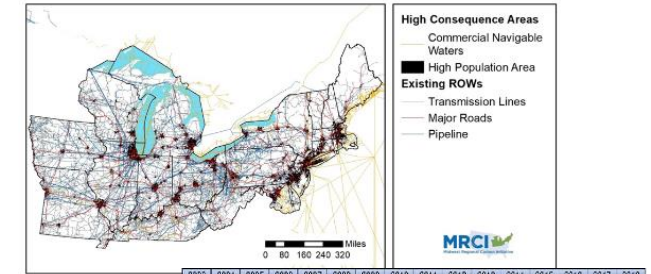
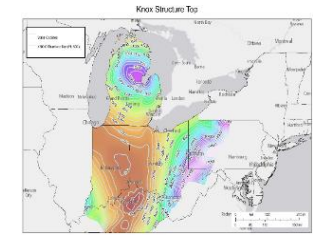
- No Seismicity or Induced Seismicity
- Few Well Penetrations
- Few Geohazards
- Experienced Project Team



Reducing Risk, Advancing Technology, and Supporting Growth

# SE Michigan CarbonSAFE

- The project builds on collaborations between Battelle, Midwestern Regional Carbon Sequestration Partnership (MRCSP), Midwest Regional Carbon Initiative (MRCI), & a previous CarbonSAFE Northern Michigan Basin Phase I project.
- A previous evaluation was also completed by Battelle Carbon Services for DTE to determine the feasibility of commercial-scale storage in Southeastern Michigan.



Sminchak, et al., 2012. SPE Paper CMTC 150460-PP

# Technology Background

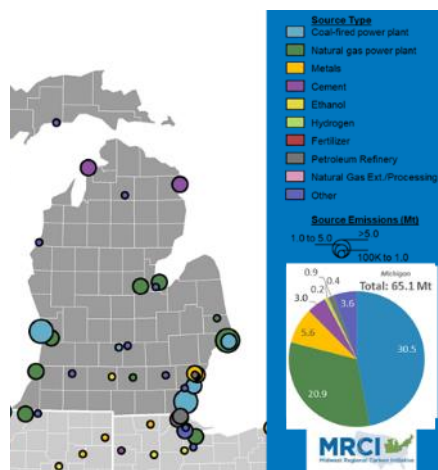
Technology/Site Selection - Previous geological analyses delineated several GT of storage in SE MI in the Mount Simon sandstone with additional storage options in overlying saline formations. The area is estimated to have 1.3-2.9 MT/mi<sup>2</sup> in the Mount Simon sandstone<sup>1</sup>.

## Two anchor CO<sub>2</sub> Sources & additional sources >10 MT/yr in SE MI.

- The Blue Water Energy Complex (BWEC), located in St. Clair Co., emits approximately 3 MT/yr. BWEC is a 1,150-megawatt (MW) NGCC power plant, which powers approximately 850,000 homes.
- Potential future NGCC plant supporting clean energy transition in Southeastern Michigan that could support the transition from coal to cleaner energy resources.

CO<sub>2</sub> Sources in SE Michigan

Emission Source	Industry	Michigan County	Est. Annual Emissions (MTCO <sub>2</sub> )
- Blue Water Energy Center	Generation	St. Clair	2,700,000
- Future Potential NGCC	Generation	TBD	2,700,000
CMS Energy - Dearborn Industrial Gen.	Generation	Wayne	3,100,000
Cleveland Cliffs - Dearborn Works	Steel	Wayne	800,000
Marathon - Detroit Refinery	Refinery	Wayne	800,000
Air Products - Detroit Hydrogen	Hydrogen	Wayne	400,000
Carmeuse - River Rouge	Steel	Wayne	200,000
DTE Sub-Total			5,400,000
Third-Party Sub-Total			5,300,000
<b>Total</b>			<b>5,300,000</b>
<b>Grand Total</b>			<b>10,700,000</b>



Blue Water Energy Complex NGCC Plant



***BATTELLE***

**It can be done**