



Regional Sources and Projects

Carbon Management Applicant Education Workshop

Ben Wernette

Geologist and Project Manager

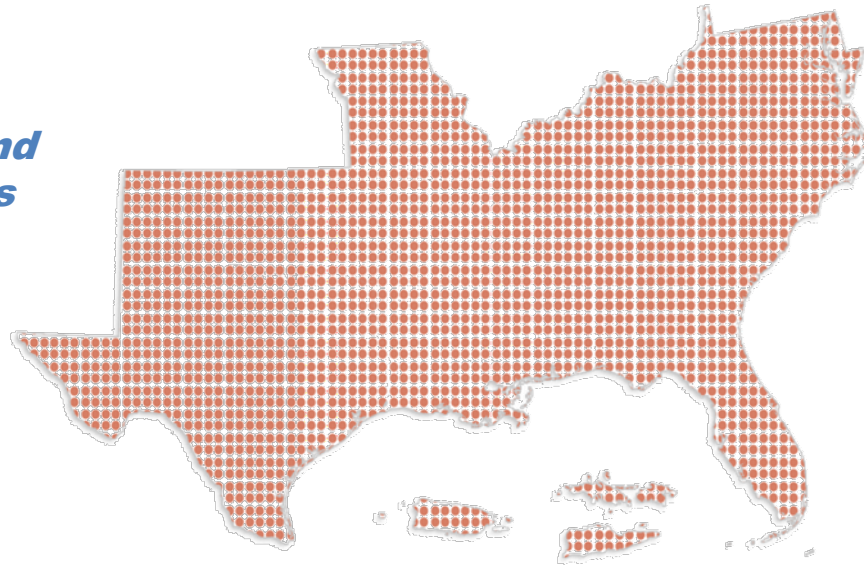
Southern States Energy Board

April 19, 2022

Southern States Energy Board

- Interstate Compact Organization, created by state law and consented to by Congress (PL 87-563, PL 92-440)
- 16 U.S. States and Two Territories
- Each jurisdiction represented by the governor, a legislator from the House and Senate, and a governor's alternate
- Federal Representative appointed by U.S. President
- Secretary, who serves as Executive Director

“Through innovations in energy and environmental policies, programs and technologies, the Southern States Energy Board enhances economic development and the quality of life in the South.”
SSEB Mission Statement



Transcending Boundaries

2021-2022 Executive Committee



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South Carolina



Vice Chair
Rep. Lynn Smith
Georgia



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Sen. Brandon Smith
Kentucky



Sen. Ken Yager
Tennessee



SLC E&E Chair
Rep. Jim Gooch, Jr.
Kentucky



Federal Representative
Jim Powell



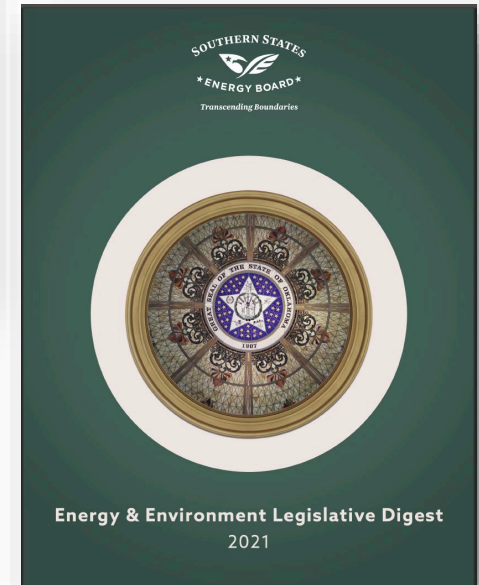
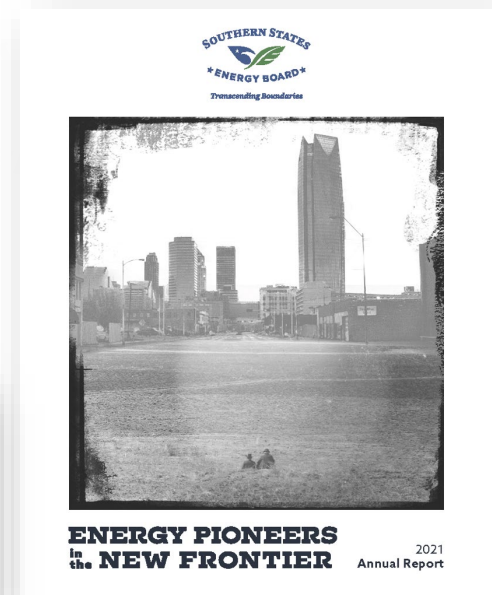
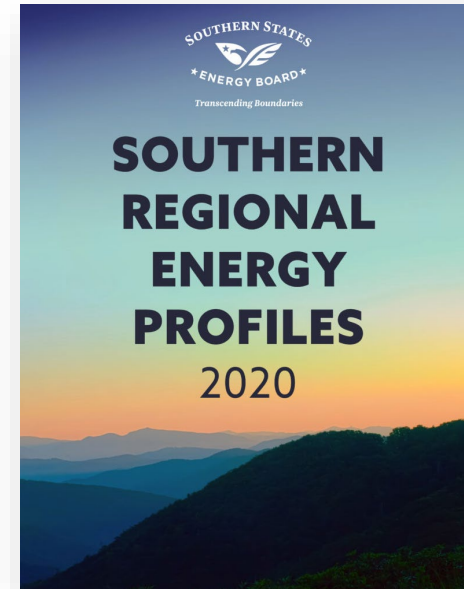
Secretary
Kenneth Nemeth

Associate Membership



Knowledge Sharing

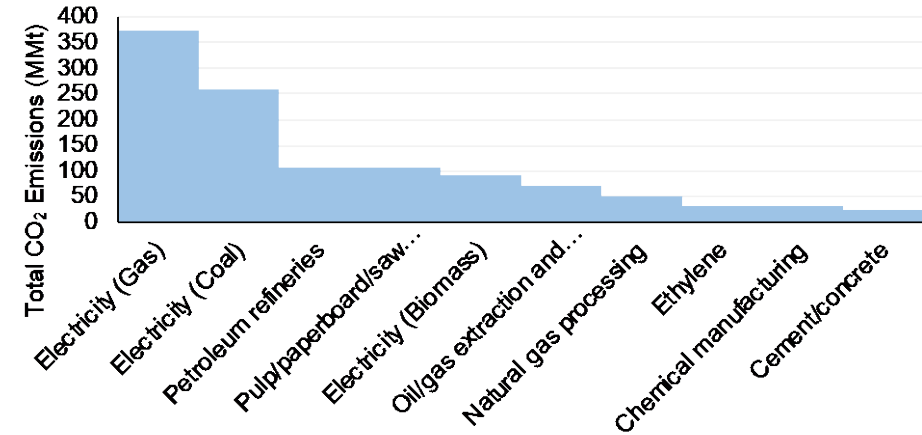
- **Liaison with Congress and state legislatures**
 - Tracks the progress of state and federal legislation related to energy and environmental issues
- **Southern Regional Energy Profiles**
- **Energy & Environment Legislative Digest**
 - Over 540 energy & environmental measures
 - Trends - Energy discrimination, Broadband deployment, Electric vehicle infrastructure, Renewable energy
- **FECM Digest**
 - Covers notable FECM bills across all 50 states
- **Best Practice Manuals (CCUS, engagement)**
- Visit www.sseb.org for more information



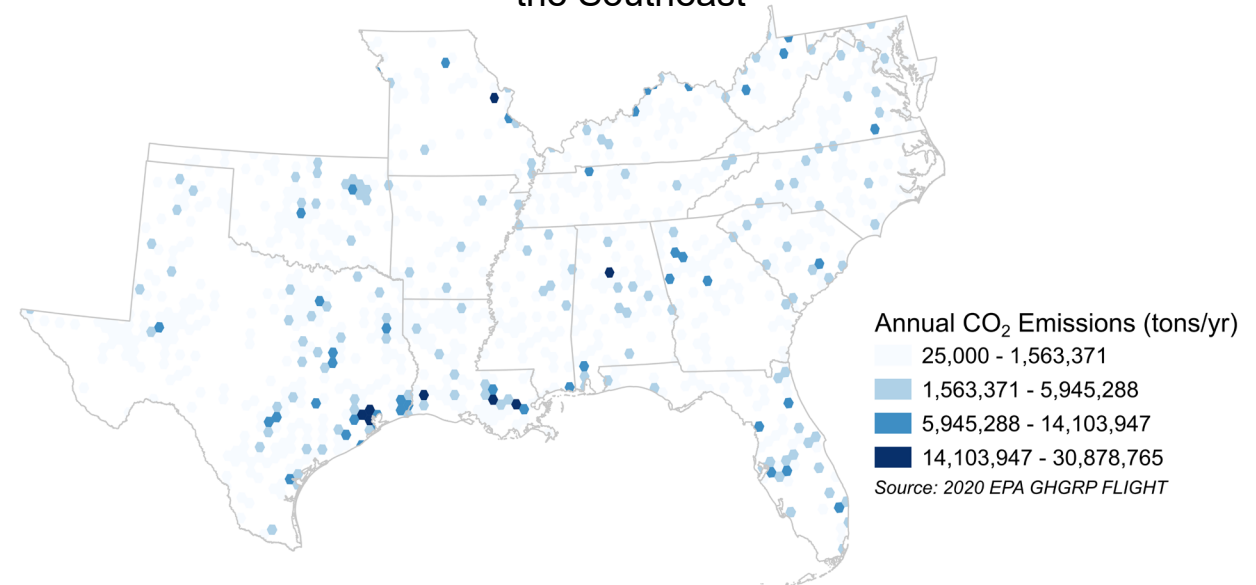
CCS - Motivation

- Region accounts for over 1.2 billion metric tons of annual CO₂ emissions, or ~ 30% of U.S. annual emissions
 - Utility-scale electric generation
 - Industrial activities
- Over 5 trillion metric tons of estimated subsurface storage capacity in the region's saline reservoirs (P₅₀, NATCARB)

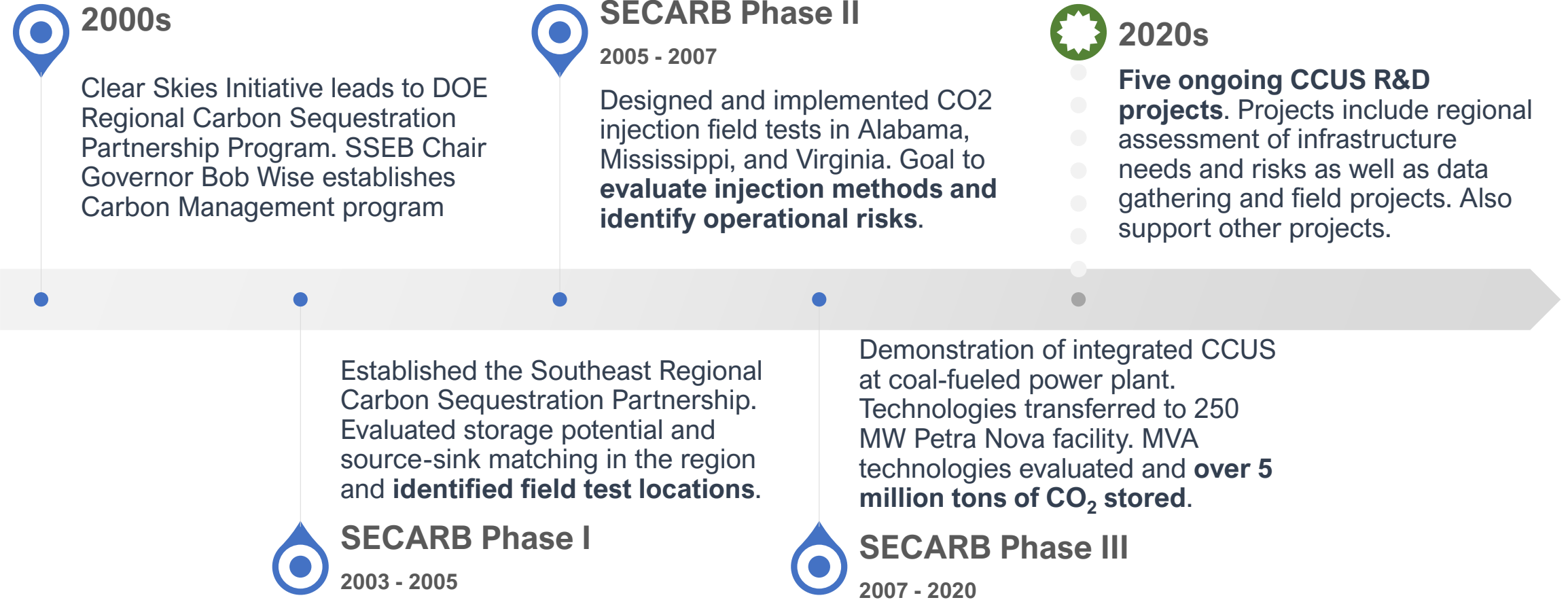
Top 10 CO₂ Emitting Industries in the SECARB-USA Region



High Density Areas of CO₂ Emissions in the Southeast

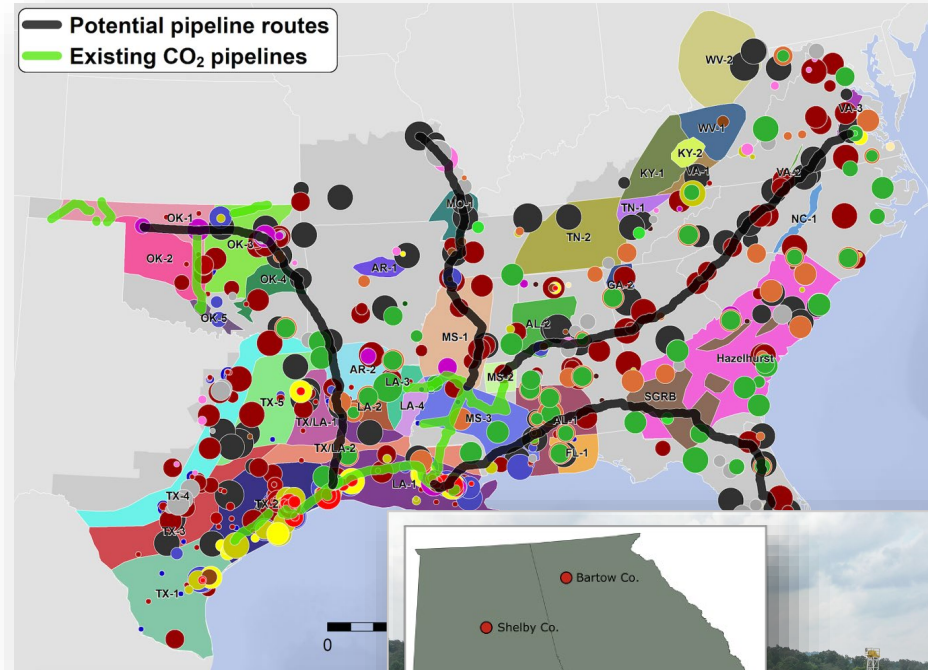


CCS – SSEB Timeline



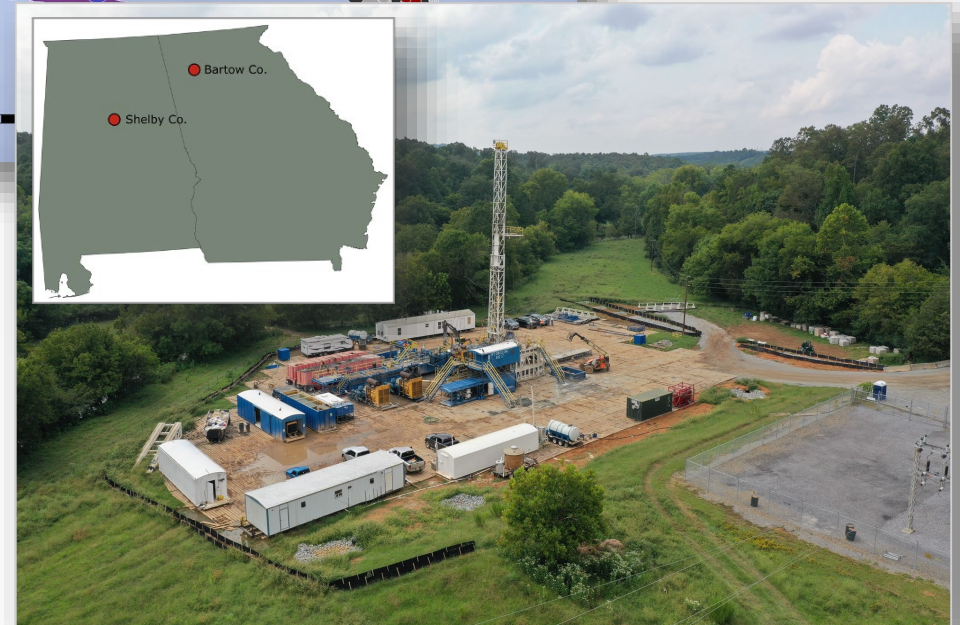
SECARB-USA: Ongoing Activities

- One of four DOE Regional Initiatives tasked with identifying and removing barriers to the commercial deployment of CCUS
- Evaluated regional infrastructure buildout scenarios, subsurface data density, etc.
- Identify data gaps and risks in the region – well drilling in AL and GA
- Better approximate spatial variability of sinks
- Evaluate commercialization scenarios, continue to engage with industry



Prospective Sub-Basins, existing CO₂ pipelines, proposed CO₂ pipeline routing and 45Q eligible sources. Data collected by the SECARB-USA project team. Figure authored by Richard Middleton.

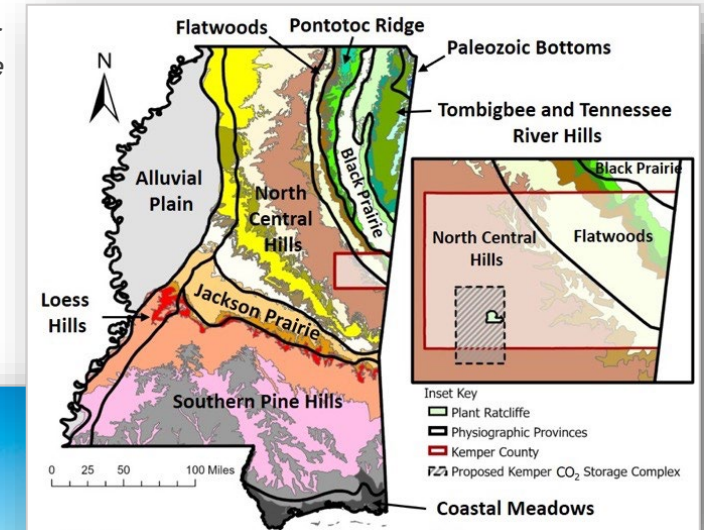
Aerial photograph of the Cassville stratigraphic test well located in Bartow County, GA. Image courtesy of Dr. Randy Kath (University of West Georgia).



CarbonSAFE - Project ECO₂S Phase III (MS)

- Identify a storage complex capable of storing 50 million metric tons over 30 years
- **Estimated storage capacity of almost 1 billion metric tons (P₅₀)**
- Three new characterization wells drilled and 92 linear miles of 2D seismic acquired
- Drafting EPA UIC Class VI permit

Location of Kemper County, MS and the state's physiographic provinces. Also indicated is the ECO₂S area of interest. Figure courtesy of ARI.



Stratigraphic test well drilling activities in Kemper County, MS. Image courtesy of Spectrum Environmental.

Research Partners



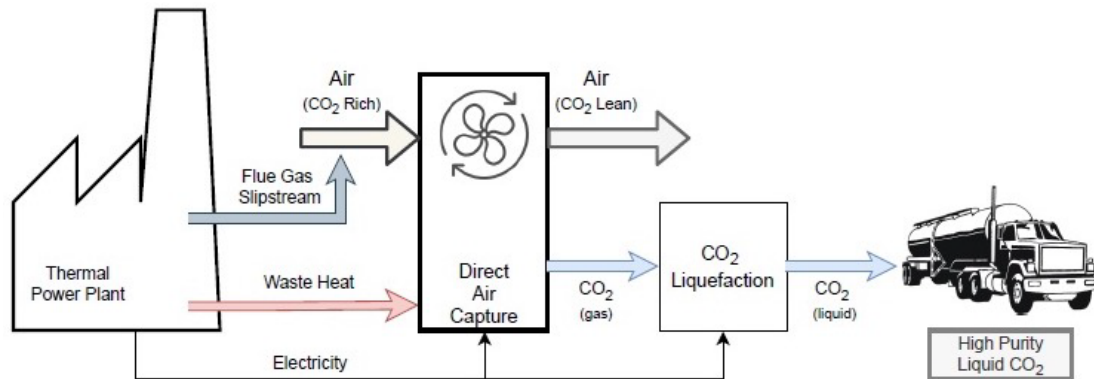
Specialized Partners & Vendors



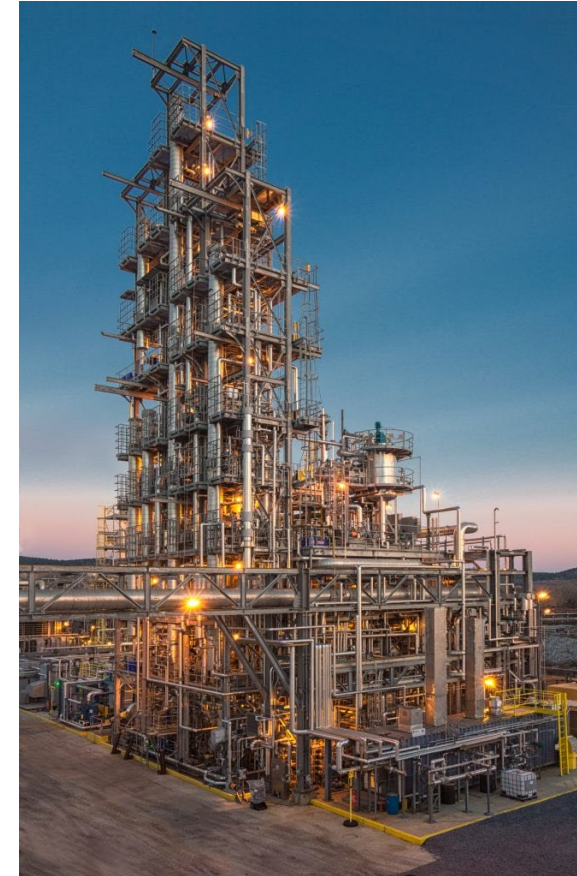
PROJECT ECO₂S

Direct Air Capture of CO₂ (Wilsonville, Alabama)

- Decreasing CO₂ capture costs through testing in integrated field units that produce a concentrated CO₂ stream of at least 95% purity
- Completed engineering and design of test skid
- Procuring materials required for test skid construction
- Testing in 2023



Schematic illustration of direct air capture (DAC) technology value chain.



Photographic of the National Carbon Capture Center (left, NCCC). List of DAC RECO₂UP Stakeholder Network (left). For more about the NCCC visit: <https://www.nationalcarboncapturecenter.com>.

DAC RECO₂UP Stakeholder Network

BP

Clean Air Task Force

Carbon Utilization Research Council

Georgia Tech Agricultural Technology Research Institute

Good People Brewing

Marathon Petroleum

Pilgrim's Pride

Shell

Southern Company Services

TVA

University of Georgia College of Engineering

VCCER at Virginia Polytechnic Institute and State University

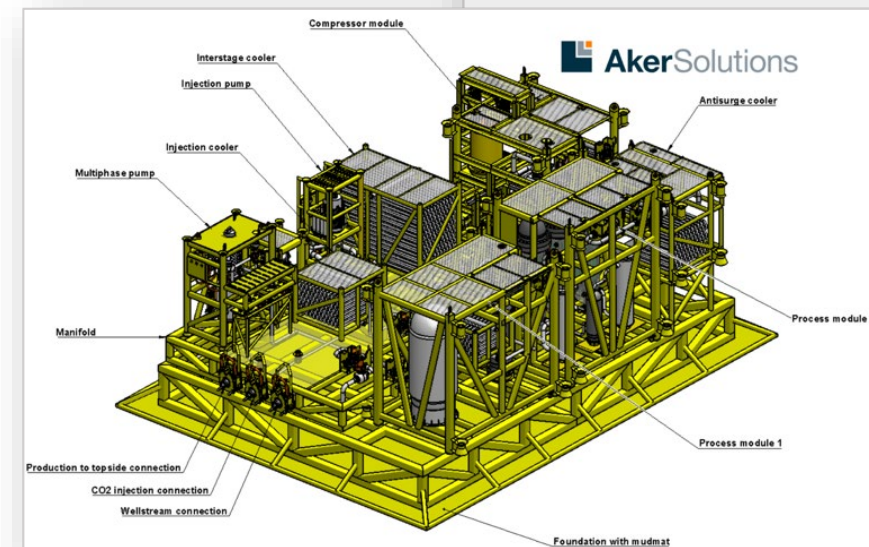
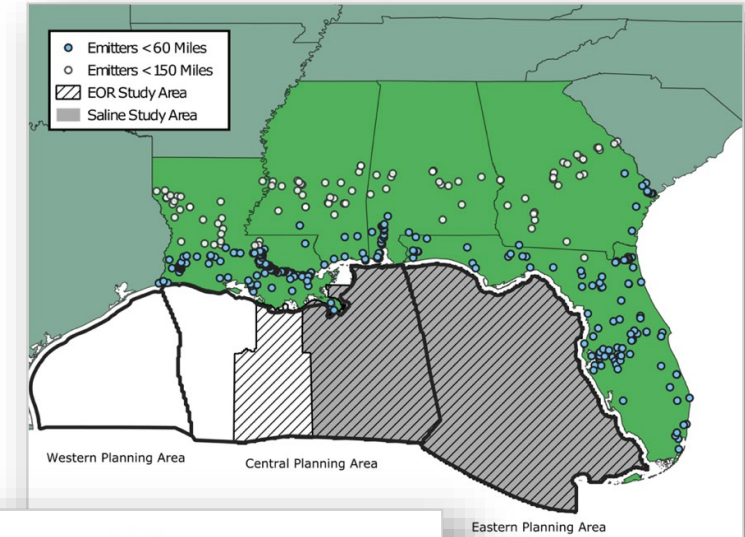
SECARB Offshore Partnership: Gulf of Mexico

- CO₂ storage and Enhanced Recovery Assessment for eastern GOM, including the analysis of existing and required legal and regulatory frameworks in anticipation of commercial deployment
- Assess CO₂ storage opportunities, evaluate infrastructure options, and identify risks associated with legacy infrastructure and geology
- Actively engaged with state regulators from Alabama, Arkansas, Louisiana, Texas and federal regulators at EPA and BOEM



SECARB Offshore organization chart and project team members.

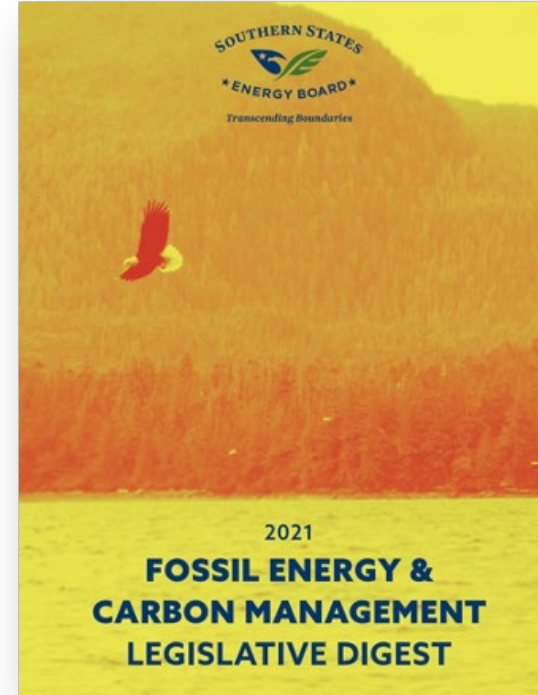
Onshore CO₂ sources within 150 miles of the coast. Also shown are the Gulf Planning Areas and the SECARB-Offshore study area.



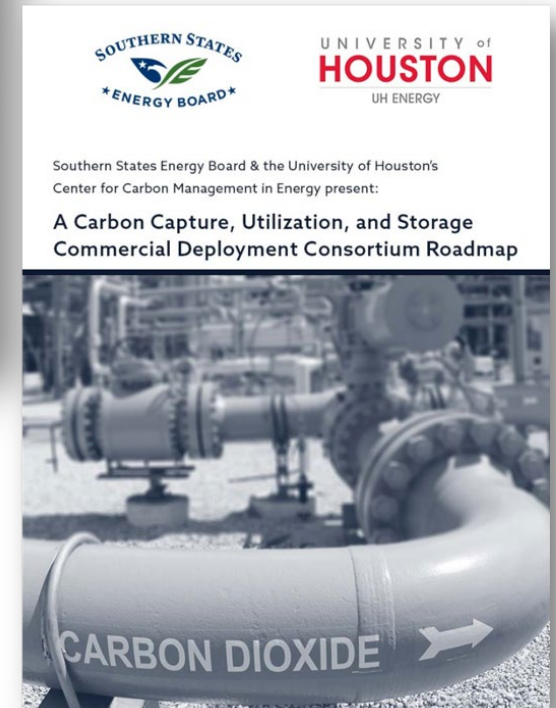
Example of modular subsea completion for subsea processing of CO₂. Prepared by Aker Solutions.

Fossil Energy and Carbon Management

- Supports DOE-FECM mission of helping the U.S. meet its need for secure, reasonably priced, and environmentally sound fossil energy supplies
- Objective 1: facilitate communication, education, and outreach
- Objective 2: brief regional state policy-makers and regulators
 - Stands up Consortium's activities and Roadmap Development
 - Provides for CCUS Facility Design Support to Industry
 - Supports Stakeholder Engagement and Workforce Development
- Objective 3: promote adoption of U.S. technologies abroad

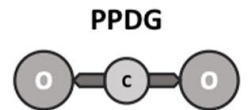


SSEB publishes an annual compendium of state-level legislation related to fossil energy and carbon management.



SSEB is working with UH-CCME to deploy a CCUS Roadmap to achieve broad commercialization of these technologies.

Consortium – Leadership Team Membership



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