

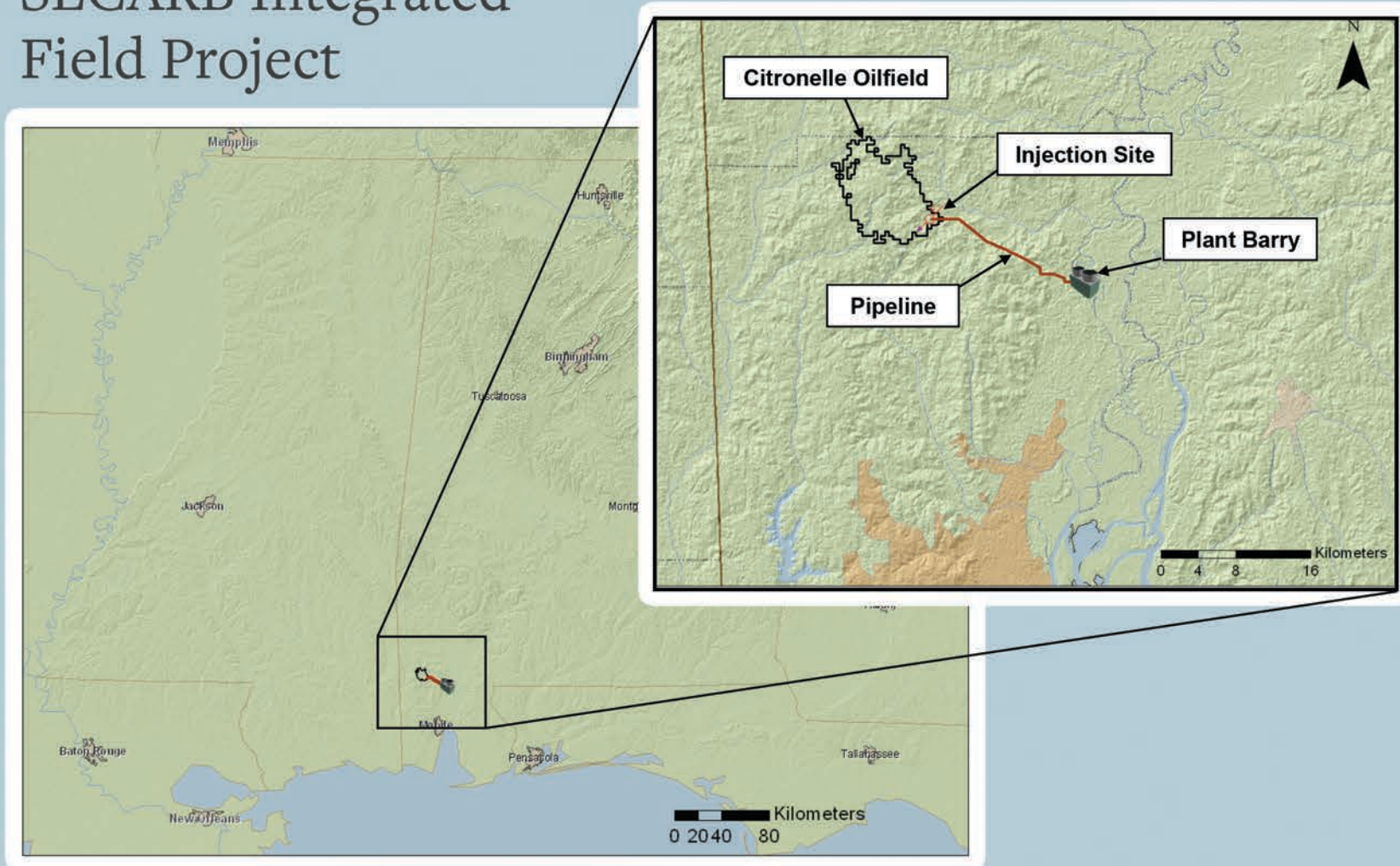
SECARB

Southeast Regional Carbon Sequestration Partnership

The Southeast Regional Carbon Sequestration Partnership is a program underway at the Southern States Energy Board to balance the environmental effects of existing and prospective fossil fuel-powered, electric-generating facilities. SECARB is one of seven Regional Carbon Sequestration Partnerships (RCSPs) nationwide funded by the U.S. Department of Energy's National Energy Technology Laboratory and cost-sharing partners. The primary goal of the SECARB Partnership is to promote development of a framework and infrastructure necessary for the validation and deployment of carbon dioxide capture and storage (CCS) technologies.

SECARB continues to characterize the region's onshore and offshore geologic storage options, monitor federal and state regulatory and legislative activities, and support education and outreach efforts related to the program. Please visit the SECARB website at www.secarbon.org for the current status of all projects and related activities, upcoming meetings and workshops, social media subscriptions, and more.

SECARB Integrated Field Project



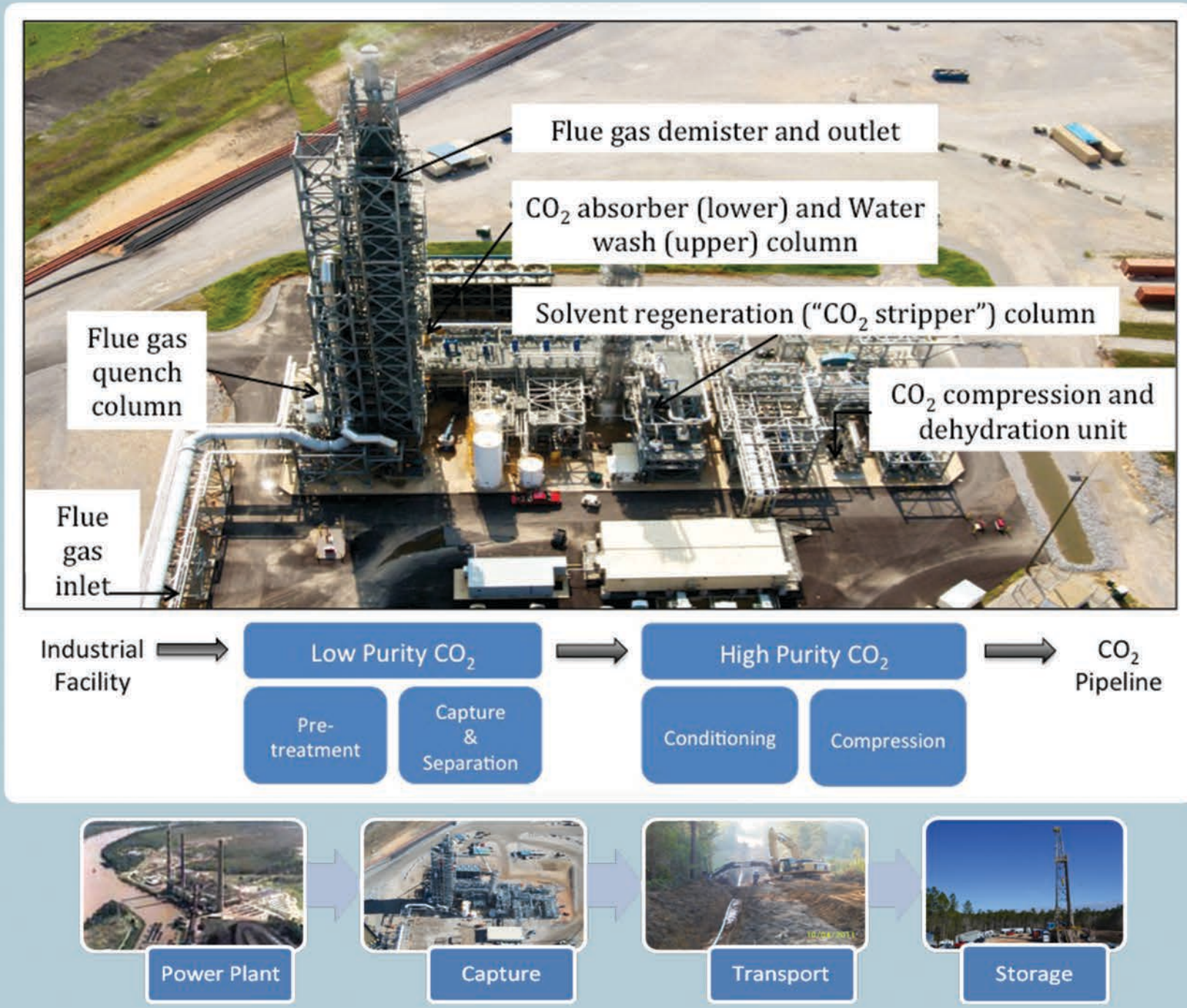
- Carbon capture from Plant Barry (equivalent to 25 MW of electricity).
- 12 mile CO₂ pipeline constructed by Denbury Resources.
- CO₂ injection into ~9,400 ft. deep saline formation (Paluxy) above Citronelle Field.
- Monitoring of CO₂ storage during injection and three years post-injection.

WA Parish – Petra Nova Project



Source: <http://www.nrg.com/> and MIT CCS Project Data Base

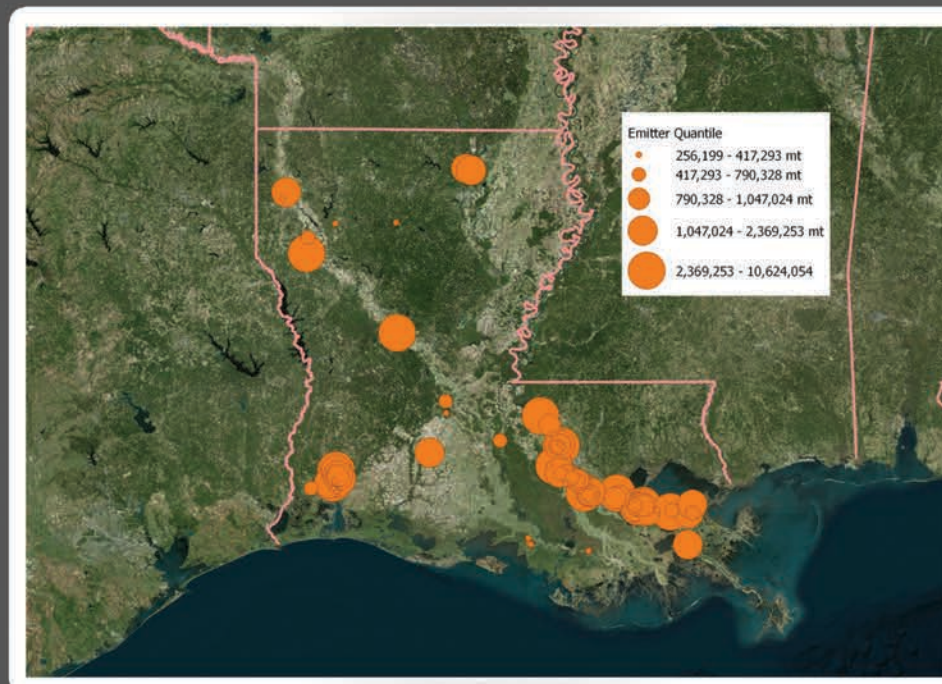
- 10X commercial scale up of Plant Barry Project
- Project expanded from 375,000 tons per annum CO₂ to 1.4 million tons per annum
- First EOR field: CO₂ transported 82 miles to Hilcorp's West Ranch Oil Field
- Oil production projected to increase from 500 barrels per day to 15,000 barrels per day



CO₂-Utilization and Storage Acceleration (CO₂-USA) – Central Gulf Coast Initiative

The CO₂-Utilization and Storage Acceleration (CO₂-USA) – Central Gulf Coast Initiative is a market driven undertaking to accelerate the commercialization of carbon capture, utilization and storage technologies within the industrial sector. In cooperation with the U.S. Department of Energy's Office of Fossil Energy, the Southern States Energy Board is developing a roadmap to rapidly implement industrial CCUS applications that value CO₂ as a commodity. The Central Gulf Coast Region provides an ideal setting for industrial carbon capture due to the large number of facilities that produce and vent CO₂.

All Stationary Emitters in Louisiana - 2014

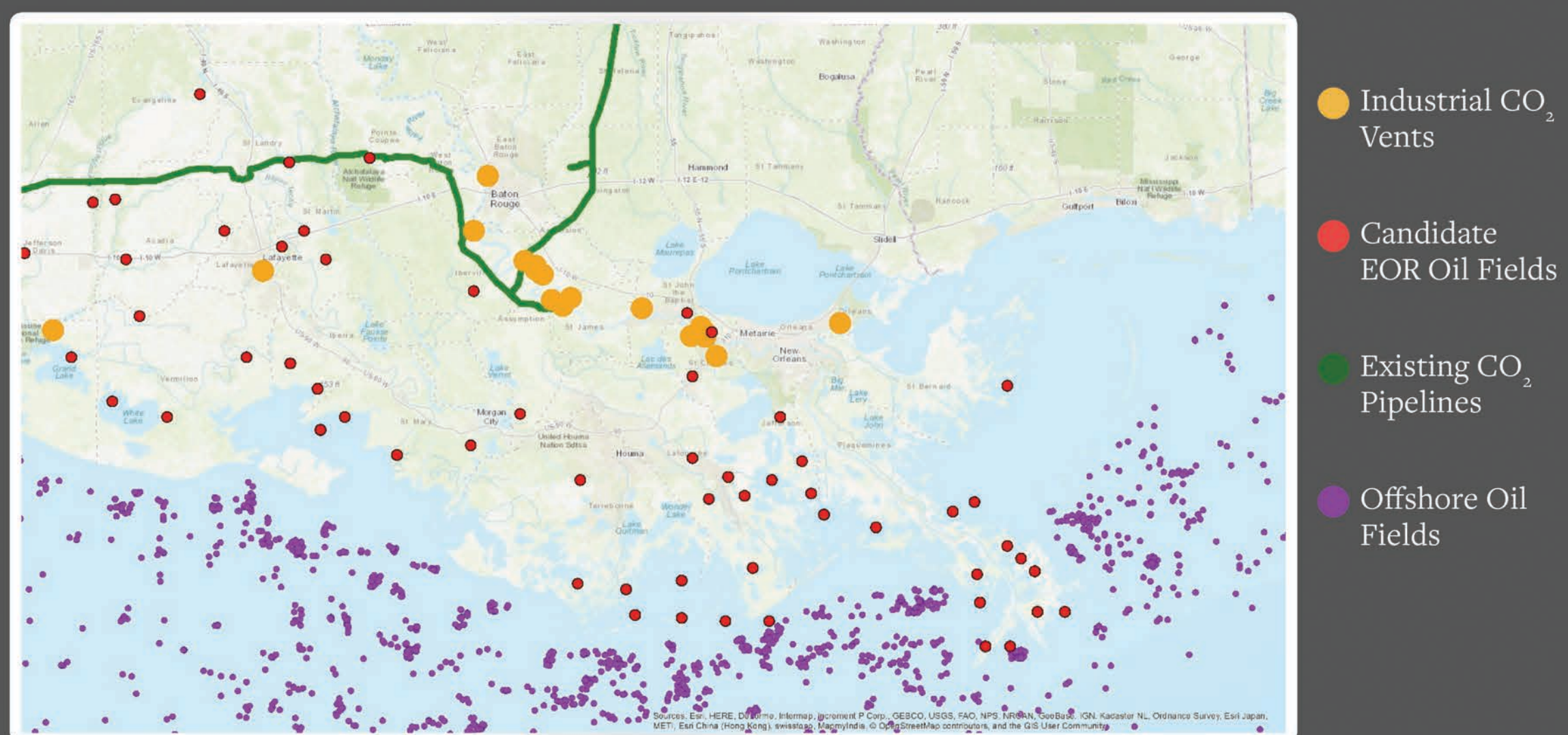


Source: LSU Center for Energy Studies

Within the Central Gulf Coast Region, the Industrial Corridor between Baton Rouge and New Orleans was identified as a focus for CO₂-EOR. The area has significant CO₂ vents as well as miscible CO₂-EOR fields and existing CO₂ pipeline infrastructure. Activities in the CO₂-USA Central Gulf Coast Initiative were driven by a guiding principle to focus on what is necessary to finance a CCUS project.

Guiding Principle: "Absent any government regulations on CO₂, all future investments made to capture CO₂ will need to be financially attractive based on revenue generated from the sale of CO₂ and/or revenue generated from oil production through CO₂-EOR."

Pipeline infrastructure is needed to connect the Industrial Corridor and the oilfields that have been identified as potential CO₂-EOR fields. One advantage of CO₂ pipeline construction is the system can be sized to allow for growth and multiple users with a relatively small increase in overall spending. If one is to look at a progression of potential EOR fields, a pipeline from the Industrial Corridor to the EOR miscible oil fields south and southeast could be used as a tie-in point for oilfields in the near offshore and then for the offshore oilfields.



High quality emissions sources, existing offshore oil and gas platforms, and potential EOR fields in Louisiana

Examples of Industrial CO₂ Sources Requiring Moderate (Low Purity) or Minimal (High Purity) Treatment

Low Purity (<90 vol %)

Hydrogen (Refinery)
Iron/Steel
Cement

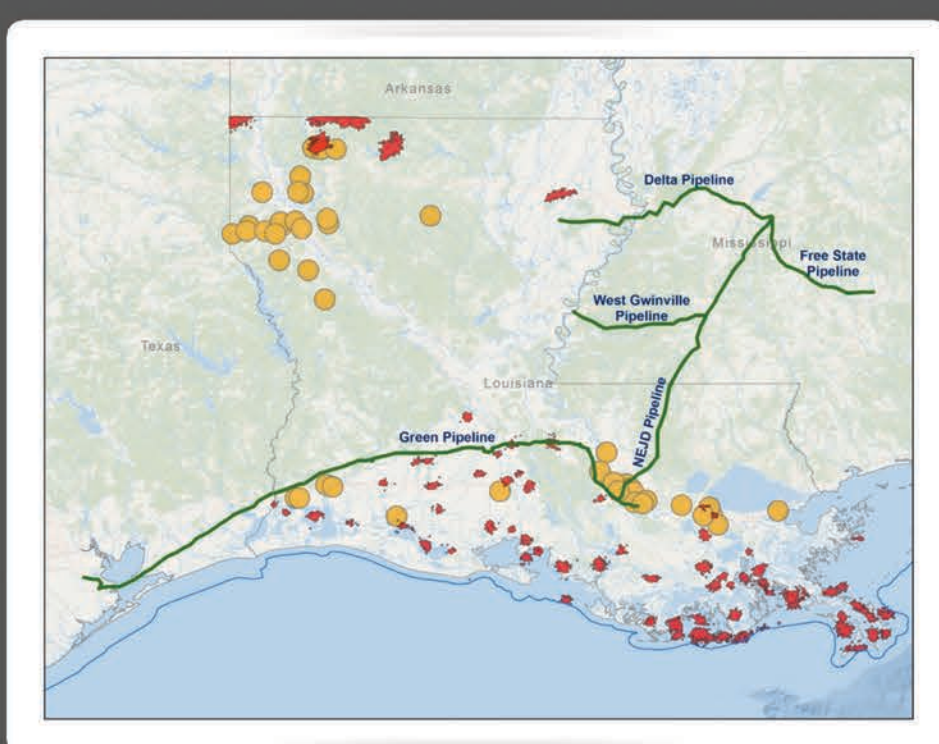
High Purity (>90 vol %)

Natural Gas Processing
Ammonia
Ethylene Oxide
Ethanol

Industrial CO₂ Vents

Candidate EOR Oil Fields

Existing CO₂ Pipelines



Potential high quality industrial sources in Louisiana (natural gas processing, ammonia, hydrogen production, and ethylene oxide production) along with existing CO₂ pipeline infrastructure and candidate EOR fields