

California CO₂ Storage Assurance Facility Enterprise (C₂SAFE)

Award Number: DE-FE0029489

Project Summary:

The main goal of this project was to develop a team to conduct an initial assessment of the southern San Joaquin Valley (SSJV) in California, specifically for the technical, economic, social, and regulatory challenges and solutions related to the development of a commercial-scale carbon dioxide (CO₂) storage facility. The Clean Energy Systems (CES) Kimberlina Power Plant was assessed as an initial site for carbon capture and storage in the SSJV. The project aimed to clear the way for future projects that will work toward a licensed CO₂ storage complex by 2025 that can safely store over 50 million metric tons (MMT) of CO₂. Operations experience gained from the biofueled power-generating facility owned by CES can serve as an operations model that can be incorporated into the U.S. Department of Energy's best practice manuals related to CO₂ storage.

- Prime Performer:**
Electric Power Research Institute, Inc.
- Key Performers:**
Clean Energy Systems
- Principal Investigator:**
Robert Trautz
- Project Duration:**
2/15/2017 – 6/15/2018
- Performer Location:**
Charlotte, North Carolina
- Field Sites:**
Kimberlina Power Plant, California
- Program:**
Carbon Storage

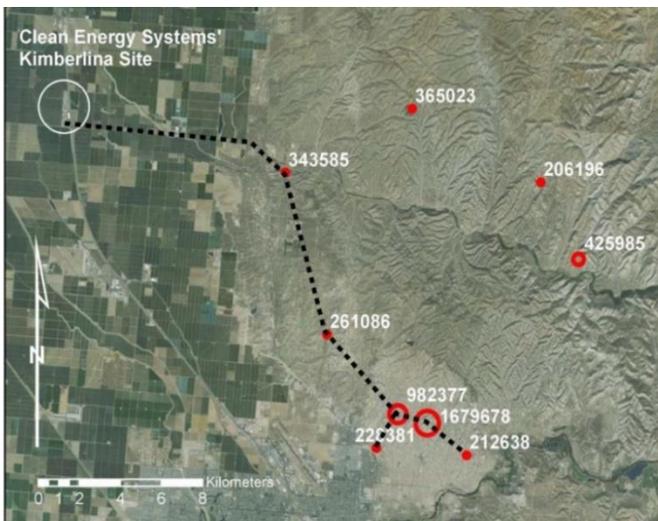


Figure 1: Sources emitting more than 200,000 metric tons of CO₂ per year and a hypothetical pipeline route to the Kimberlina Storage Site.

Project Outcomes:

This study considered multiple scenarios for a storage facility location. The CES Kimberlina Power Plant was considered the most viable option. Capture from the single closest source to the Kimberlina Storage Site would meet the CO₂ storage assurance facility enterprise (CarbonSAFE) Storage goal of 50 MMT. The study has shown there is sufficient storage capacity to meet this requirement and more, thus capture from any of the numerous additional large nearby sources would substantially leverage the CarbonSAFE investment. A comparison of preliminary CO₂ capture, transportation, and storage costs to economic value and incentives in the state shows current market conditions make it economically feasible to develop large-scale industrial storage sites in California's SSJV.

Presentations, Papers, and Publications

Final Report: [California CO₂ Storage Assurance Facility Enterprise \(C₂SAFE\): Final Technical Report](#) (June 2018) Robert Trautz, Joseph Swisher, Laura Chiaramonte, Rebecca Hollis, Joshua Perron, Keith Pronske, Richard Myhre, Marian Stone, Dayanand Saini, Preston Jordan, Jeff Wagoner, Ronald Kent