

IMPACT OF FEDERAL SUPPORT FOR CCUS – 2020 YEAR TO DATE

USEA CCUS Roadshow Webinar

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Carbon Utilization Research Council (CURC) Members

Equipment Suppliers

General Electric

Mitsubishi Heavy Industries America,
Inc. (MHIA)

Labor Unions

International Brotherhood of Boilermakers
International Brotherhood of Electrical
Workers

Producers

Consol Energy
Lignite Energy Council
Peabody Energy

Technology Developers

Bloom Energy
ION Engineering
Jupiter Oxygen Corporation
NET Power

NGOs

ClearPath Action
EnergyBlue Project

Research Organizations

Battelle
Electric Power Research Institute (EPRI)
Gas Technology Institute
University of North Dakota Energy &
Environmental Research Center

State Organizations

Kansas State Geological Survey
Southern States Energy Board
Wyoming Infrastructure Authority

Trade Associations

American Coal Council
American Coalition for Clean Coal
Electricity (ACCCE)
Edison Electric Institute (EEI)
National Rural Electric Cooperative
Association (NRECA)

Universities

Lehigh University
Ohio State University
Pennsylvania State University
Southern Illinois University
University of Illinois/PR
University of Kentucky/CAER
University of Texas – Austin
University of Wyoming
West Virginia University

Utilities

Basin Electric Power Cooperative
Duke Energy Services
Great River Energy
Nebraska Public Power District
Southern Company
Tri-State Generation &
Transmission Association

Orange = Steering Committee Members

Investment Impact of 45Q Tax Credits

- Oxy Low Carbon Ventures investment in NET Power's carbon capture technology:
 - *NET Power sees a large, global demand for its technology, made even greater by the passage of 45Q carbon capture tax credit reform in the U.S.*

<https://www.oxy.com/News/Pages/Article.aspx?Article=6020.html>

- OGCI investment in carbon capture and sequestration project to produce clean hydrogen and create the world's first ammonia produced with near zero carbon footprint:
 - *CCUS will be a crucial part of the low carbon economy. Our investment in Wabash Valley Resources is a tangible demonstration of our commitment to CCUS as a tool to decarbonize the industrial sector.* - Pratima Rangarajan, CEO of OGCI Climate Investments:

https://www.prnewswire.com/news-releases/the-largest-us-carbon-capture-and-sequestration-project-to-be-developed-by-wabash-valley-resources-with-funding-support-from-ogci-climate-investments-300852906.html?tc=eml_cleartime

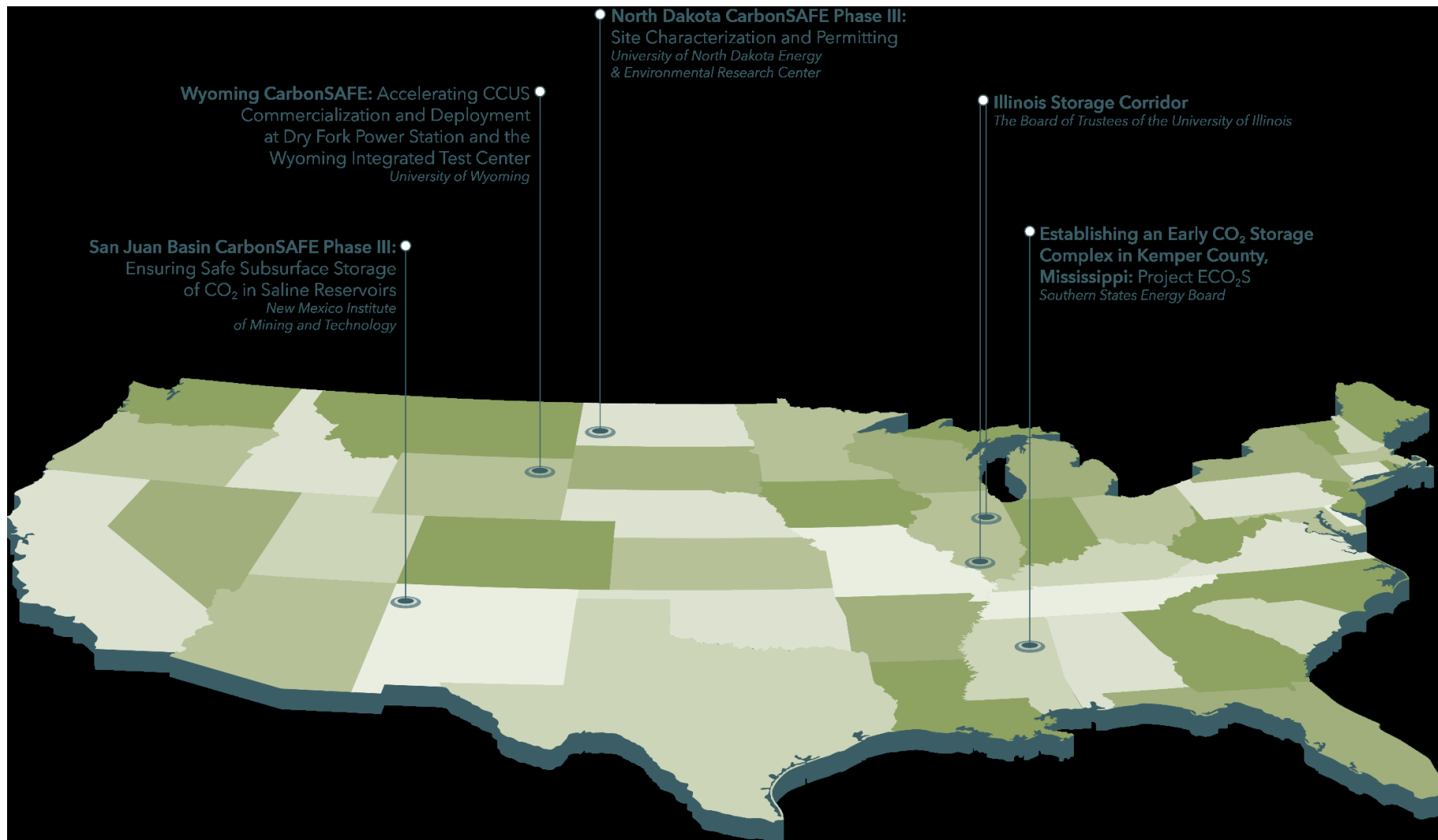
Announcements During COVID-19

- Svante, LafargeHolcim, Oxy Low Carbon Ventures and Total Launch Study for Commercial-Scale Carbon Capture and End-Use at U.S. Cement Plant
 - *Svante's capital cost advantage, combined with progressive tax credit policies such as the 45Q tax credit in the U.S., can make carbon capture profitable across a range of large-scale industrial applications like cement* - Claude Letourneau, president and CEO of Svante Inc.
 - <https://www.bloomberg.com/press-releases/2020-01-06/svante-lafargeholcim-oxy-low-carbon-ventures-and-total-launch-study-for-commercial-scale-carbon-capture-and-end-use-at-u-s-k52hxhu8>
- Starwood Energy, OGCI and Elysian Ventures launch new Carbon Capture Project at Cement Plant:
 - *The project will seek to use Section 45Q tax credits for the deployment of carbon capture projects once final regulations are implemented, including potential upcoming legislative enhancements. The project will be non-recourse financed, with construction of the facility expected to commence in early 2021.*
 - <https://www.prnewswire.com/news-releases/starwood-energy-ogci-climate-investments-and-elysian-ventures-launch-new-carbon-capture-project-301034074.html>

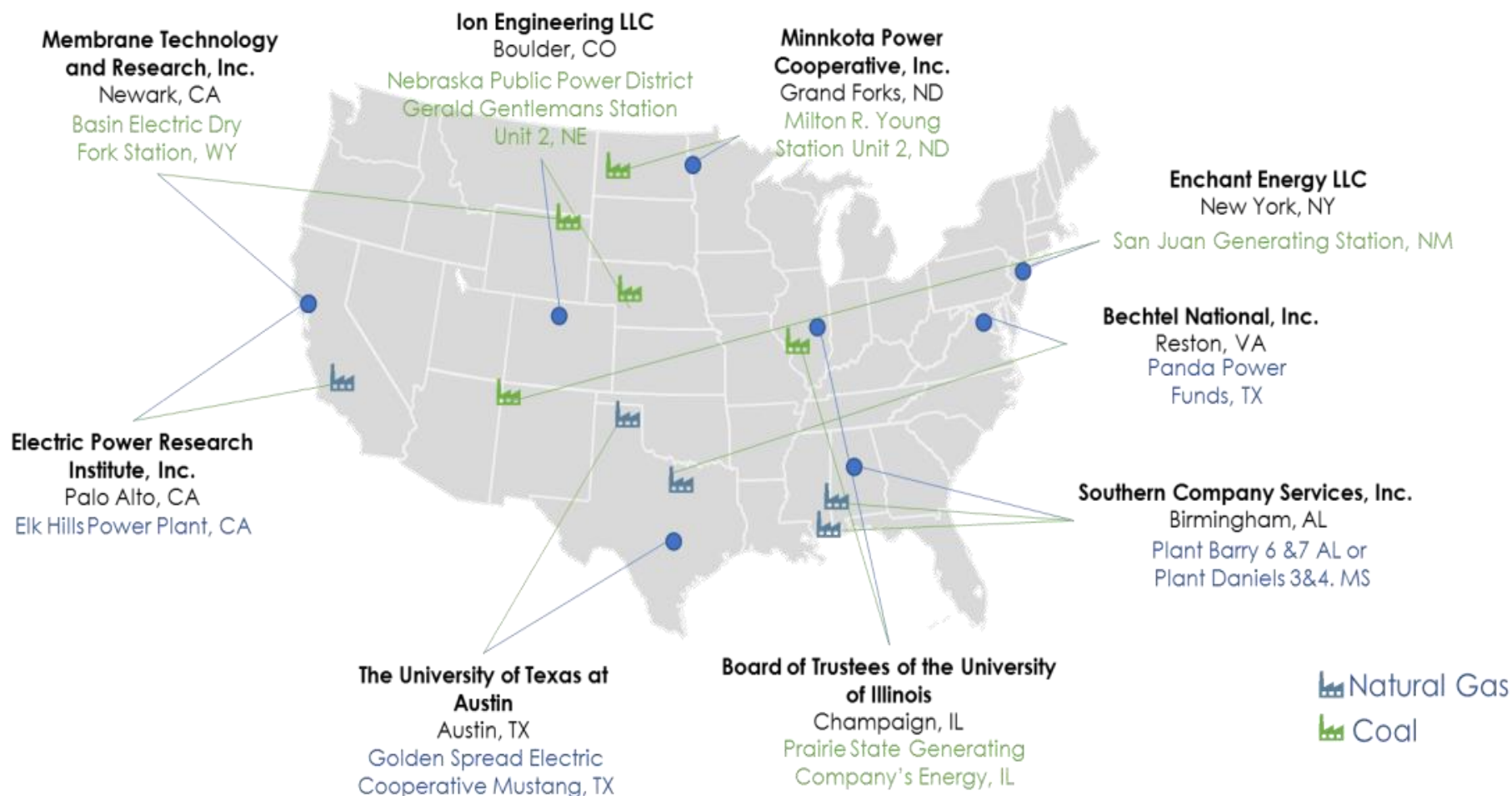
DOE/FE CCUS FOAs Announced in 2020

Title	Award
<u>Novel Concepts of the Utilization of Carbon Dioxide from Utility and Industry Sources</u>	\$15 million
<u>Critical Components for Coal First Power Plants of the Future</u>	\$64 million
<u>Advanced Components for 65% Combined Cycle Efficiency, sCO2 Power Cycles and Advanced Modular Heat Engines</u>	\$9 million
<u>Novel Research and Development for the Direct Capture of Carbon Dioxide from the Atmosphere</u>	\$22 million
<u>Carbon Capture Research and Development (R&D): Engineering Scale Testing from Coal- and Natural Gas-Based Flue Gas and Initial Engineering Design for Industrial Sources</u>	\$46 million
<u>Carbon Storage Assurance Facility Enterprise (CarbonSAFE): Site Characterization and CO2 Capture Assessment</u>	\$85 million
<u>Design Development and System Integration Design Studies for Coal FIRST Concepts</u>	\$81 million
<u>Small-Scale Solid Oxide Fuel Cell Systems and Hybrid Energy Systems</u>	\$30 million

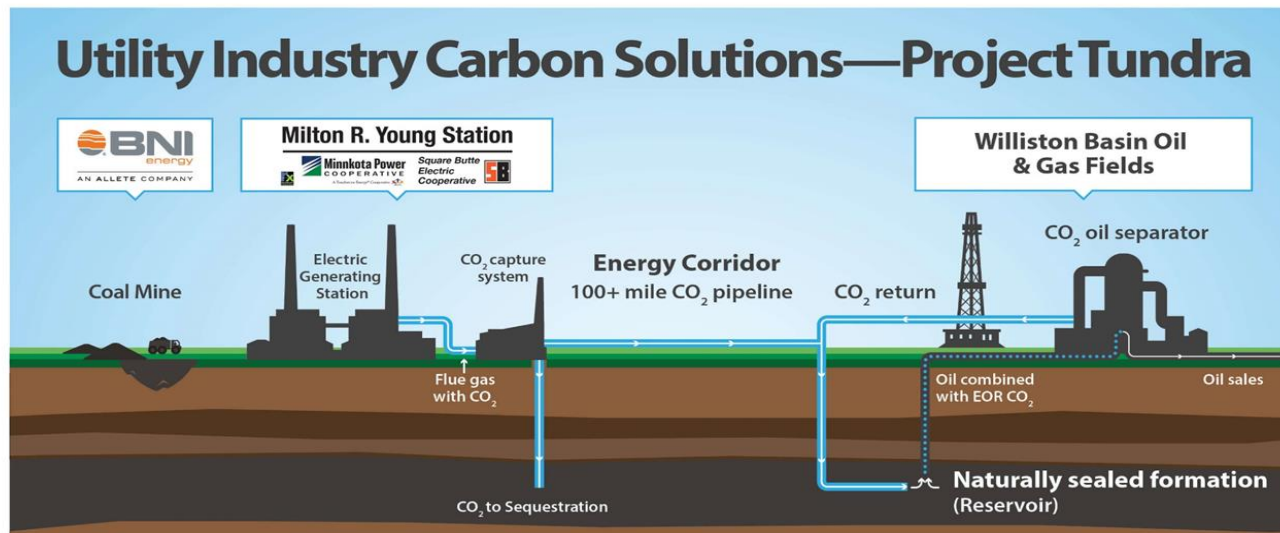
CarbonSAFE Phase III Projects



DOE-Funded FEED Studies



45Q Changes Everything



Project Tundra
Development
Pathways

Develop Business Structure

State and Federal Policy Support

Secure CO₂ Source

Secure CO₂ Sink

COVID-19 Reactions to CCUS

- **Open letter from the CEOs of the Oil and Gas Climate Initiative - May 26, 2020**
- *Climate change is a reality facing us all that requires a consistent and dedicated approach. The most successful responses to this pandemic around the world reveal how collaboration and solidarity are essential when facing global issues. This serves to reinforce the value of our collective effort to address the climate challenge through the collaboration among governments, businesses, civil society and the broader population. Advances in technology, more effective policy and infrastructure investments will all be needed to address the scale of the climate challenge.*
- <https://oilandgasclimateinitiative.com/ceo-open-letter-2020/>

Questions?

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