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Energy & Environmental Research Center (EERC)

# COAL CREEK CARBON CAPTURE: SITE CHARACTERIZATION AND PERMITTING (FE0032331)

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# PROJECT OVERVIEW

## Project Objective

- Characterize and permit a geologic CO<sub>2</sub> storage hub in central North Dakota to store up to 200 MMt of CO<sub>2</sub>, which would contribute 10% of the 2-billion-tonne CO<sub>2</sub> storage capacity goal of the CarbonSAFE Initiative Program.

## Project Details

- Phase III project: \$47,109,239
  - DOE share: \$37,687,391
  - Cost share: \$9,421,848
- Period of performance:
  - 3 years, with two 18-month BPs

## Project Partners



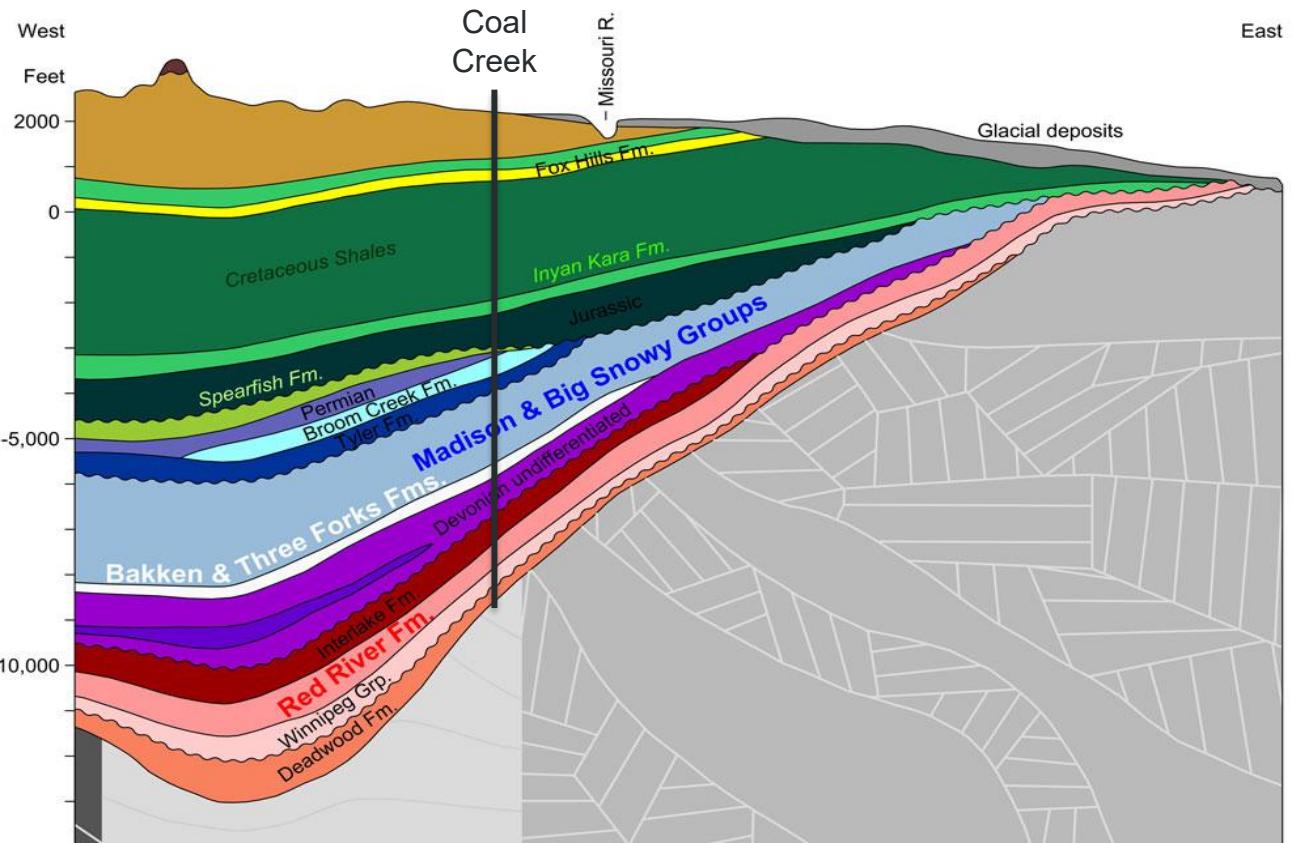
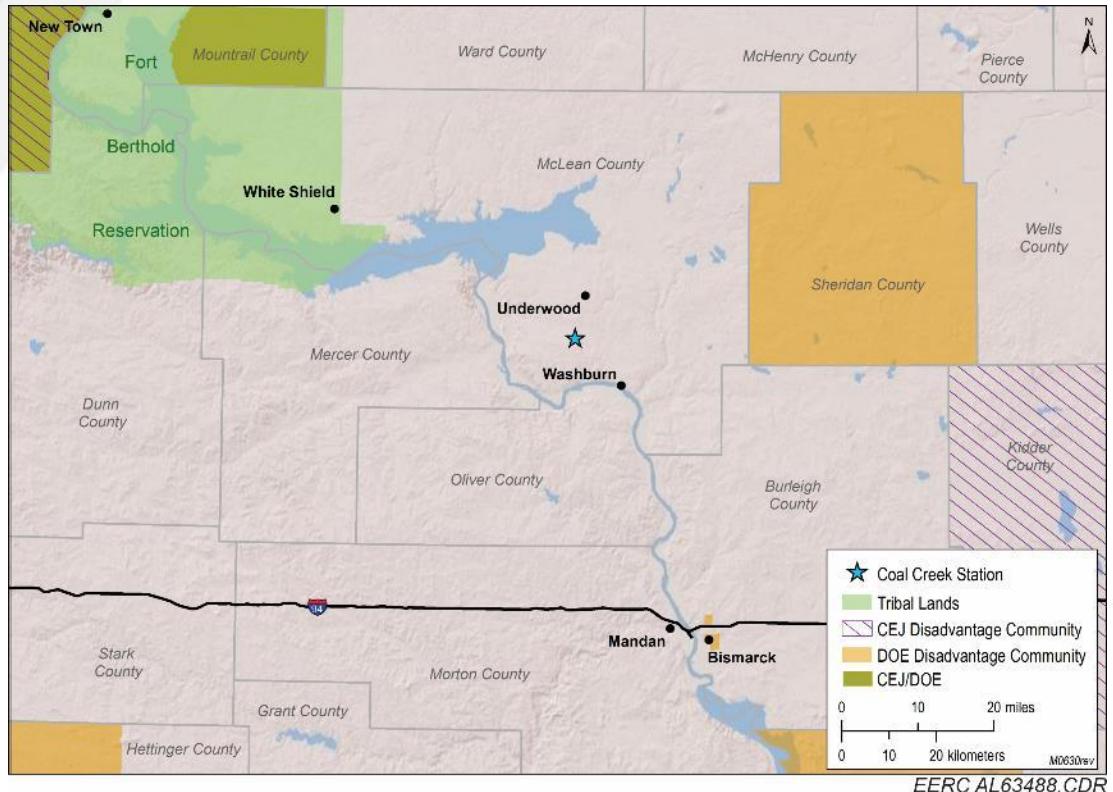
# PROJECT SOURCES

- Proposed storage hub will aggregate CO<sub>2</sub> captured from 1200-MWe Coal Creek Station power plant and Blue Flint ethanol plant.
- Development of CCS at Coal Creek will result in a 19% CO<sub>2</sub> emissions reduction from North Dakota's stationary sources.



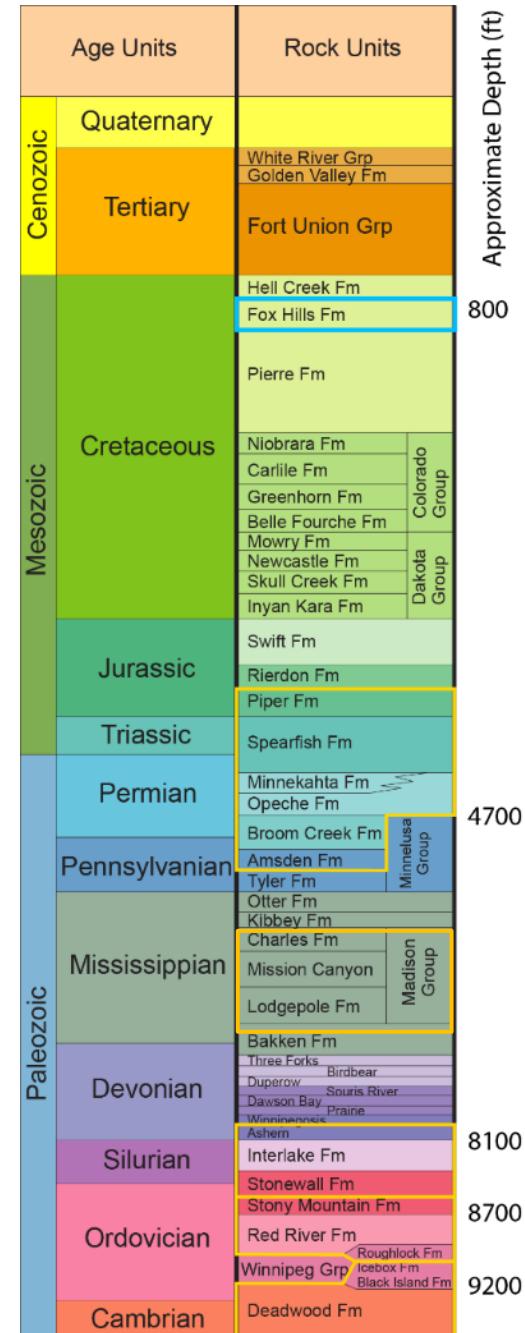
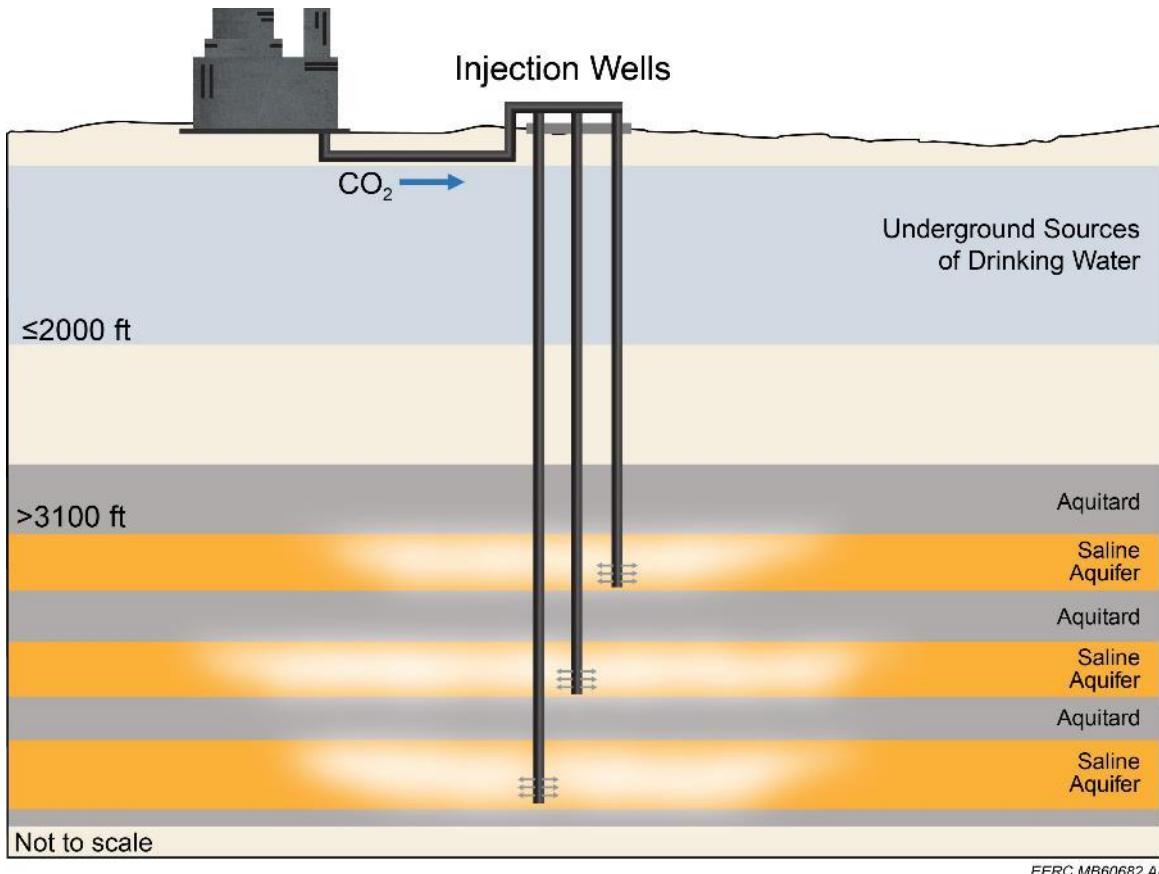
# PROJECT AREA

## Williston Basin



# STORAGE TARGETS

Multiple deep saline formations—Broom Creek, Interlake, Red River, and Deadwood Formations—and the Madison Group.



# MAJOR ACTIVITIES

- Detailed site characterization
  - Drilling and coring one new stratigraphic test well
  - Geophysical logging and fracture testing
  - 3D seismic data acquisition
  - Baseline sampling
- Preparation of North Dakota UIC Class VI storage facility permits and permits to inject
- Pipeline FEED study
- NEPA compliance
- Community benefits plan implementation

# ACCOMPLISHMENTS TO DATE



## Received permit to drill stratigraphic test well



## Started well pad construction



Initiated surveying/mapping and NEPA consultation for the 3D seismic survey



## Generated project fact sheets



## Engaged:

- Municipal, county and state regulators
- Landowners
- U.S. Fish and Wildlife Service
- North Dakota Game and Fish
- Local goods and services providers

Geophysical Survey and Source Test near Beulah, North Dakota



# ACCOMPLISHMENTS TO DATE (continued)

- Completed energy and environmental justice assessment
- Completed stakeholder analysis
- Hosted a tour of pilot capture facilities for high school vocational class
- Held a workshop on geologic modeling and reservoir simulation best practices for CCS in collaboration with SEG Evolve



# RELEVANCE AND OUTCOMES/IMPACTS

- Successful completion of the project and implementation of CCS at Coal Creek Station will result in:
  - 95% reduction of CO<sub>2</sub> emissions from Coal Creek Station.
  - 19% reduction of CO<sub>2</sub> from North Dakota's stationary sources.
  - Supply of reliable low-carbon-baseload power to members of the Midwest Independent System Operators, including Minnesota and disadvantaged communities there as well as others in the surrounding Midwest area.
  - Creation of 35–40 long-term jobs.
  - Creation of over 2000 direct/indirect short-term construction jobs.
  - Facilitation of opportunities to attract, train, and retain a skilled and well-qualified workforce for these new and existing jobs.
  - Internship opportunities for students from minority-serving institutions.

# ACKNOWLEDGMENT

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# ACKNOWLEDGMENT

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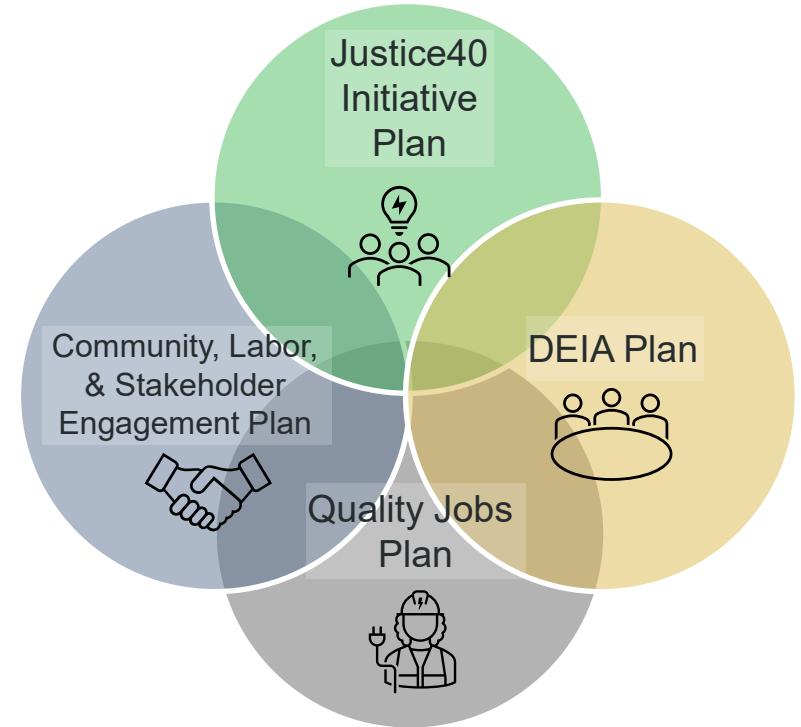
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# COMMUNITY BENEFITS PLAN

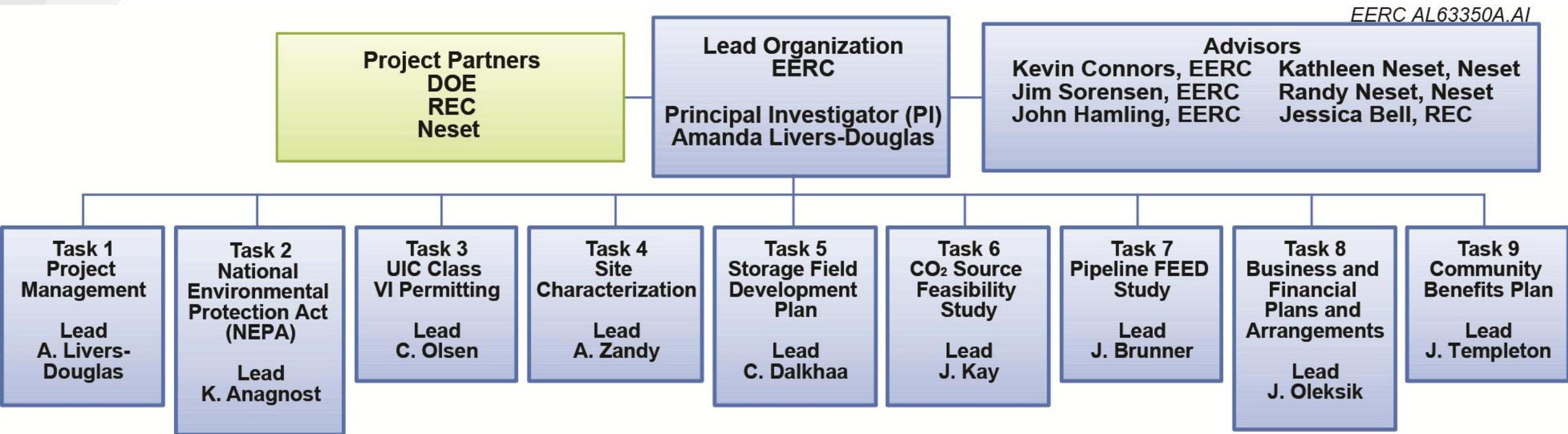
- Stakeholder engagement evaluation.
- Social characterization analysis.
- Open houses to gather community feedback.
- Evaluation of workforce needs and skills required for CCS implementation.
- Assessment of safety procedures required for CCS implementation.
- Training to advance understanding of DEIA among the project team.
- Development of effective partnership with a workforce diversity training partner to promote employment opportunities to underrepresented individuals and members of rural disadvantaged communities.
- Energy and environmental justice assessment.



# PROJECT TIMELINE



# ORGANIZATION CHART





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