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Energy & Environmental Research Center (EERC)

THE FUTURE OF CARBON CAPTURE FOR ALASKA

Resource Development Council Conference November 2022

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Carbon Capture and Storage (CCS)

CO₂ Capture, Transport and Injection

1. Capture the CO₂ instead of emitting to atmosphere.

CO₂ Source

FRESH WATER

2. Compress the CO_2 for optimal transport and storage.

- 3. Transport the CO_2 to injection site.
- Inject the CO₂ for permanent geologic storage.

CO₂ Plume

Injection Well

REGIONAL CARBON SEQUESTRATION PARTNERSHIP INITIATIVES





PCOR Partnership

EERC. OBENERGY

- 2003–2005: Phase Characterization
- 2005–2009: Phase || Field Validation
- 2007–2018: Phase III Demonstration
- 2019–2024: Initiative Deployment

(PCOR region expanded to include AK + all of BC, WY, and MT)







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PCOR PARTNERSHIP

The PCOR Partnership Initiative is addressing regional capture, transport, use, and storage challenges facing commercial CCUS deployment. The Initiative is focusing on:

- Strengthening the technical foundation for geologic CO₂ storage and enhanced oil recovery (EOR).
- Advancing capture technology.
- Improving application of monitoring technologies.
- Promoting integration between capture, transportation, use, and storage industries.
- Facilitating regulatory frameworks.
- Providing scientific support to policy makers.

Our Partners inform our priorities





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Active and Developing CCUS Projects in the PCOR Partnership Region

- Active Capture
- Active Injection
- O Developing Capture
- ✓ Developing Injection
 - -- CO₂ Pipeline
- ---- Proposed CO₂ Pipeline

EOR Fields for ACTL Boundary Dam Aquistore Weyburn Great Plains Synfuels Plant -Carbon Vault Red Trail Energy Coal Creek Station MidwestrAg CCA Milton R. Young Station Bell-Creek Summit Lost Cabin Dry Fork Station Riley Ridge Summit Shute Creek Navigator Tallgrass Sweetwater Hub Gerald Project Phoenix Gentleman

ACTL Nutrien and Sturgeon/

Quest

U.S. INCENTIVES Internal Revenue Code §45Q Tax Credits*

- Qualifying projects beginning construction before January 1, 2033, can claim credits for 12 years after operations begin.
- Direct payment option for receiving the credit.
- Transferability of all or a portion of the credit value to any third-party, tax-paying entity in exchange for cash value during 12-year credit window.
- Tax credit for CO₂ stored in a qualified EOR project (\$50/tonne).
- Tax credit for CO₂ stored in a saline formation (\$85/tonne).

West Coast LCFS⁺ Markets

- Credits trading up to \$60-\$150 per ton (Jan. 2022 – Oct. 2022)
- Stacked with 45Q

State Incentives

• State tax (e.g., no sales tax on capture-related infrastructure)



POLICY AND REGULATORY DEVELOPMENTS

NATIONAL ENERGY TECHNOLOGY

- Pore space Law
- Long-term Responsibility
- Class VI primacy
- Regulatory program implementation
- Pathways to permit approval
- Policy/Regulatory Barriers

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CURRENT CLASS VI PRIMACY ACTIVITY



PCOR PARTNERSHIP

- Building on over 19 years of applied research in CCUS.
- Active region developing commercial CCUS projects.
- Engaged and motivated partners.
- Engaged regulators.
- PCOR is a catalyst for CCUS projects in the region.
- Focused on infrastructure development strategies.
- Ethanol industry in the region accelerating CCUS.
- Expanding CO₂ EOR opportunities in the region.





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