Critical Challenges. Practical Solutions.

Energy & Environmental Research Center (EERC)

Plains CO_2 Reduction Partnership Initiative

FE0031838

U.S. Department of Energy National Energy Technology Laboratory

2021 Carbon Management and Oil and Gas Research Project Review Meeting

August 2, 2021

Kevin Connors

PCOR Partnership Project Manager

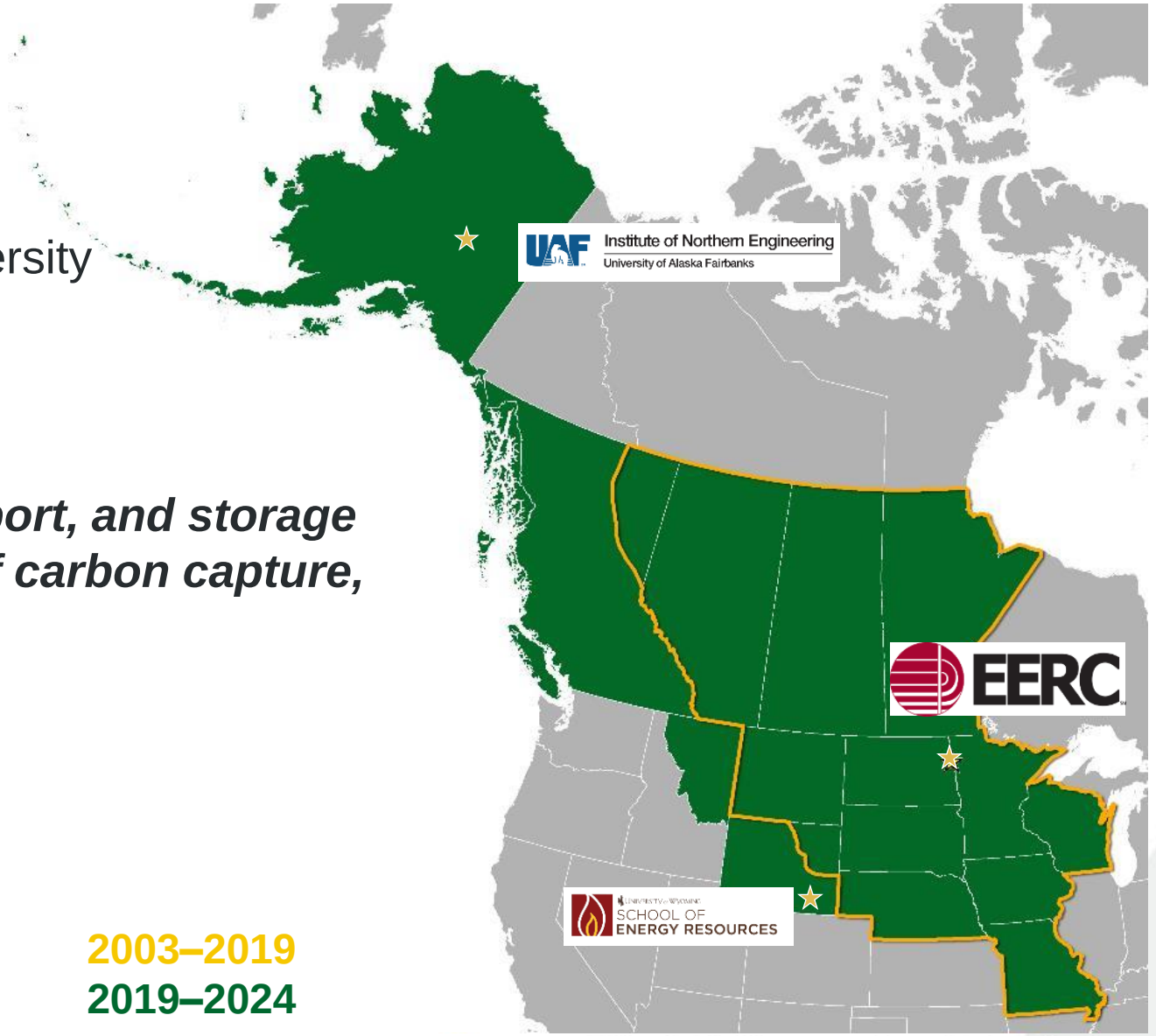
PLAINS CO_2 REDUCTION (PCOR) PARTNERSHIP

2019–2024 – Commercial Deployment

Partnered with University of Wyoming and University of Alaska Fairbanks to accomplish goal.

Goal:

Identify and address regional capture, transport, and storage challenges facing commercial deployment of carbon capture, utilization and storage (CCUS).

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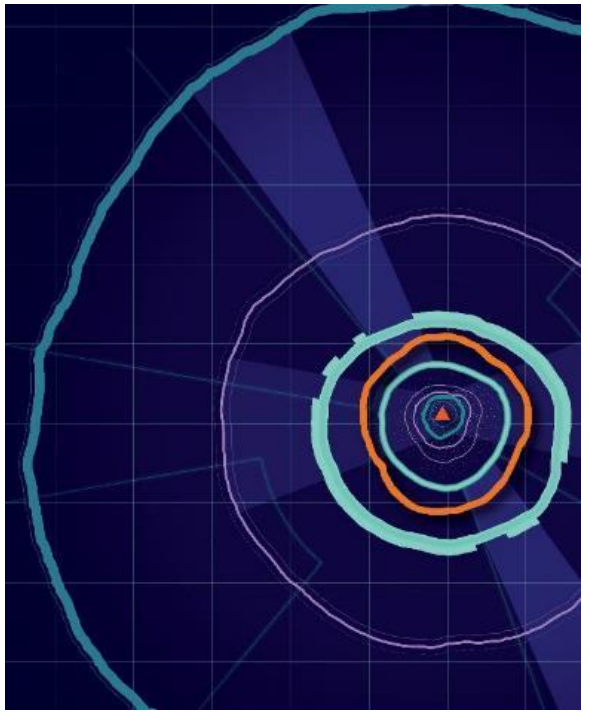
ACCOMPLISHMENTS

Carbon Dioxide Storage Optimization

- Potential for optimization remains in many saline aquifer CO_2 storage subdisciplines.
- CO_2 storage optimization was investigated using numerical simulations of CO_2 injection (eight separate cases) in a hypothetical scenario targeting the Cambrian–Ordovician Deadwood and Black Island Formations (informally referred to as the Basal Cambrian System).

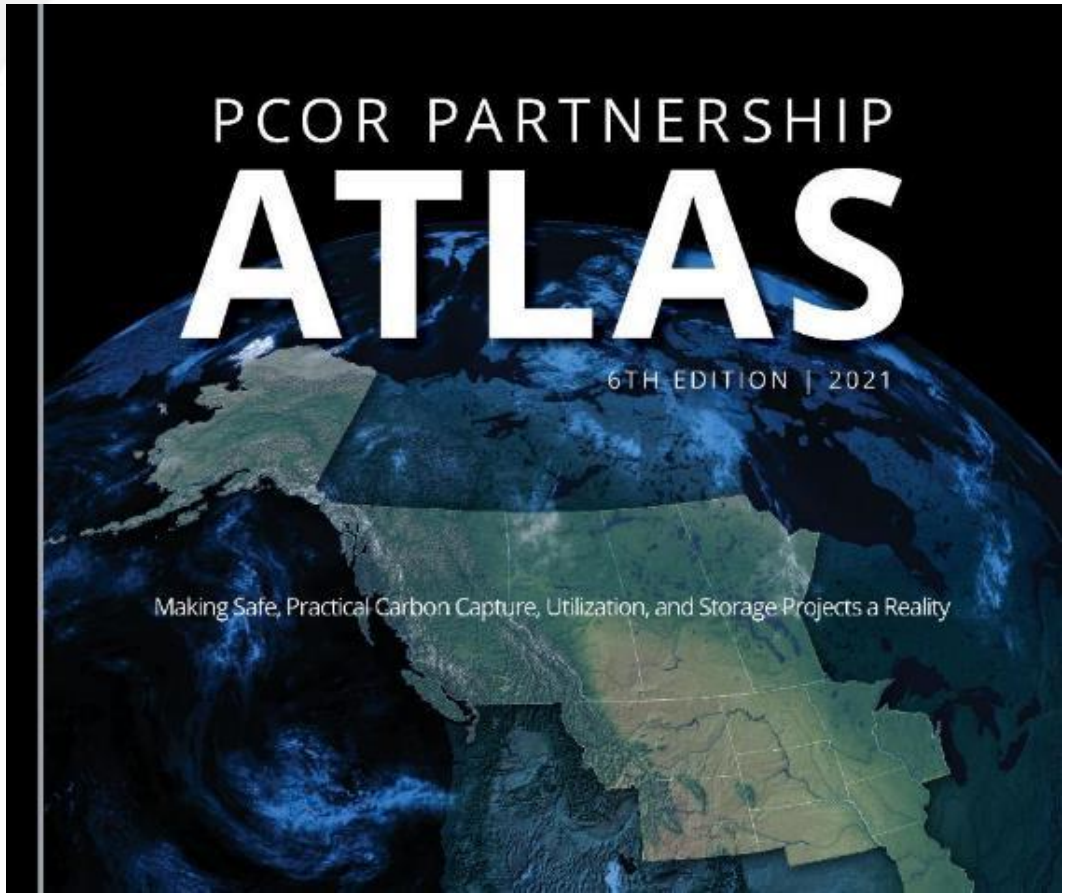


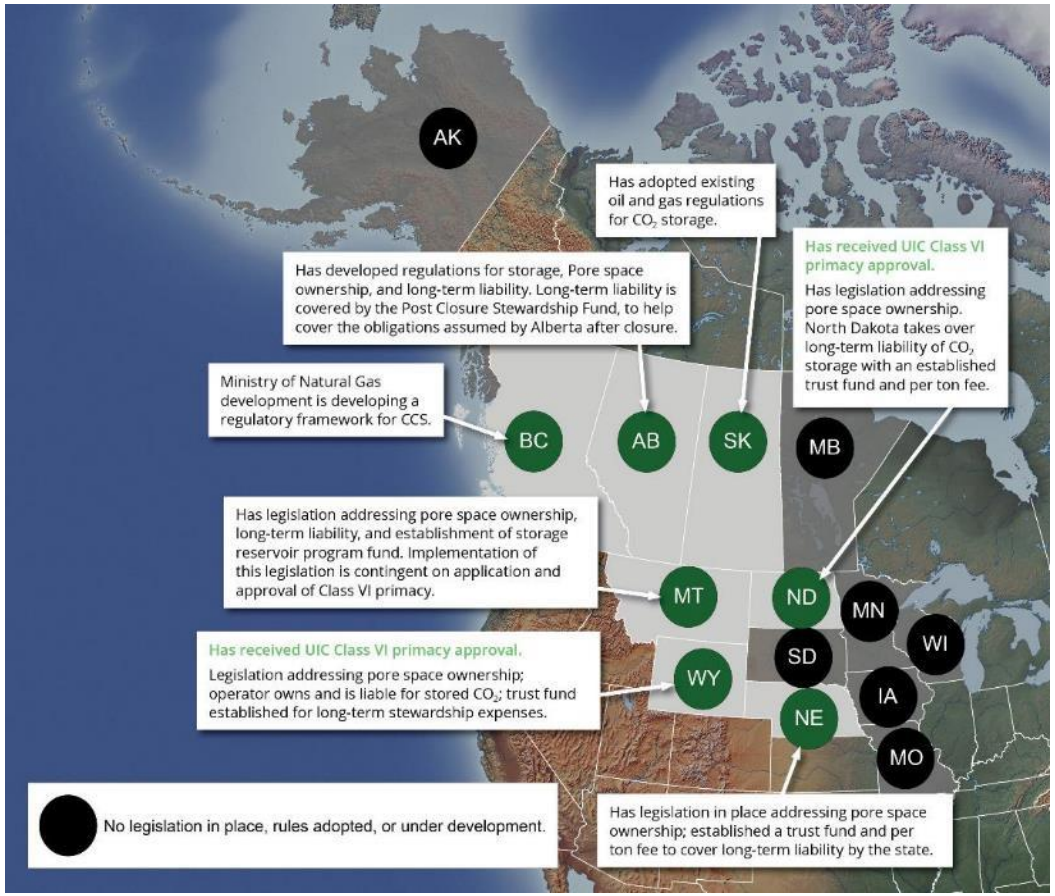
Risk-Based Area of Review

- Risk-based area of review estimation in overpressured reservoirs to support injection well storage facility permit requirements for CO_2 storage projects
- Published in *Greenhouse Gases: Science and Technology*

ACCOMPLISHMENTS

PCOR Partnership Atlas



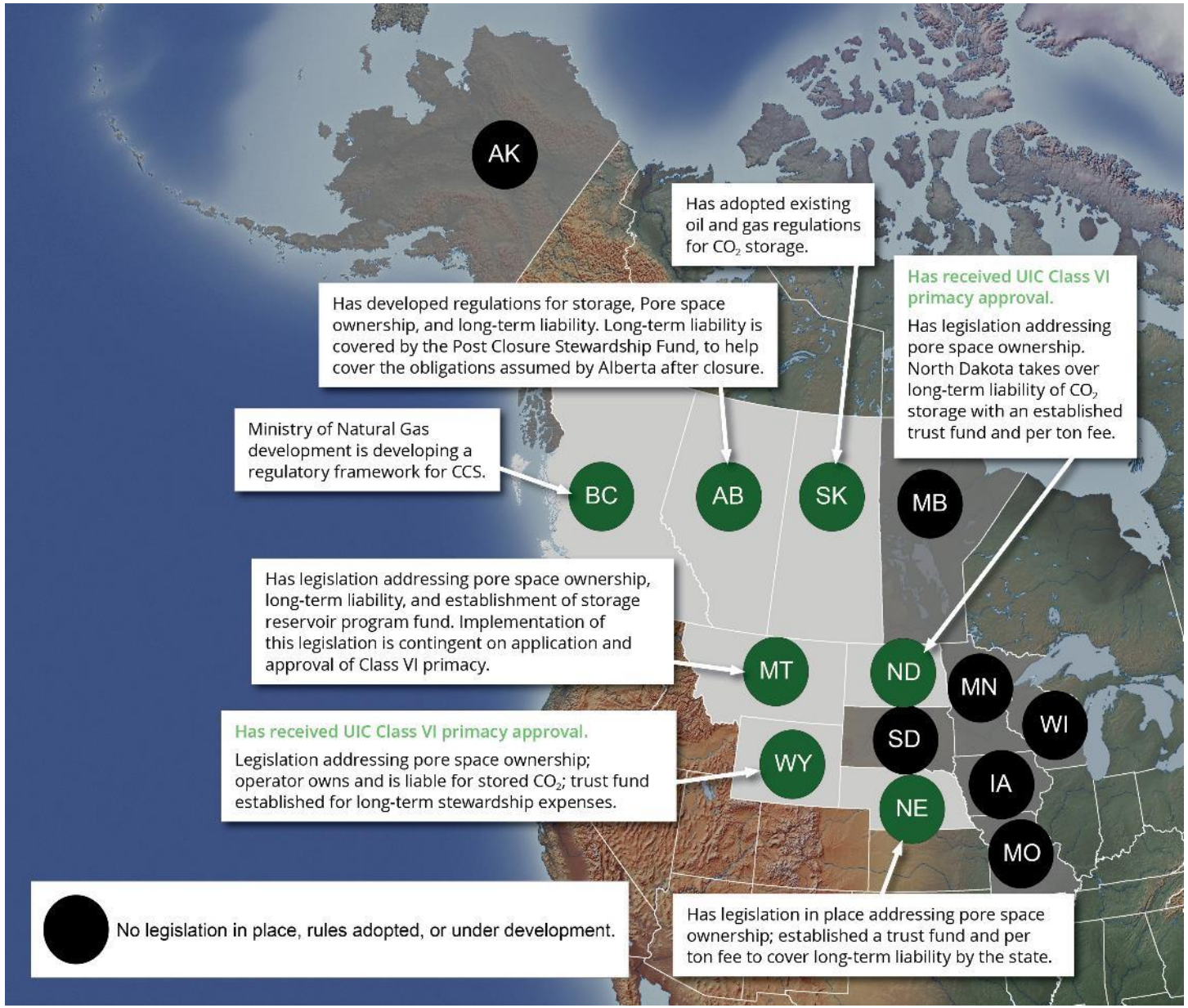


Policy and Regulatory Developments

- Pore space, 45Q tax credits, low carbon fuel standards, etc.
- Regulatory Roundup Meeting will be held August 17–18, 2021.

POLICY AND REGULATORY DEVELOPMENTS

- Pore space
- Long-term liability
- 45Q tax credit
- State tax credit
- Low carbon fuel standard



CONTINUING EFFORTS

- Aquistore modeling and simulation
- NRAP testing and validation
- Stacked storage opportunity assessment and geomechanical modeling
- Subsurface and legacy well integrity
- Regional business case assessment
- MVA strategies
- Website upgrade

ADDITIONAL EFFORTS

Challenges

- Pore space leasing
- Capillary entry pressure
- Maximum injection pressure
- Pressure interference
- Approaches to geomechanical and geochemical evaluations
- Impact of CCUS to electric grid stability

Lessons Learned

- Update to “Evaluation of Geophysical Technologies for Application to CCS”
- Coring program, wireline logging, and seismic survey considerations
- Understanding geologic modeling and computations simulations

Image credit – EERC

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THANK YOU

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