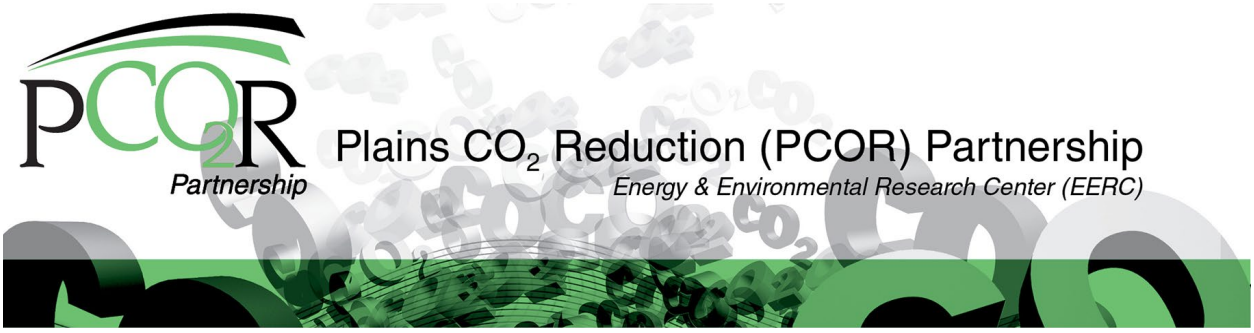

PCOR PARTNERSHIP INITIATIVE TO ACCELERATE CCUS DEPLOYMENT

Research Performance Progress Report (quarterly)

(for the period July 1 – September 30, 2023)

Prepared for:

AAD Document Control

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Project Period: October 1, 2019 – September 30, 2024
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October 27, 2023

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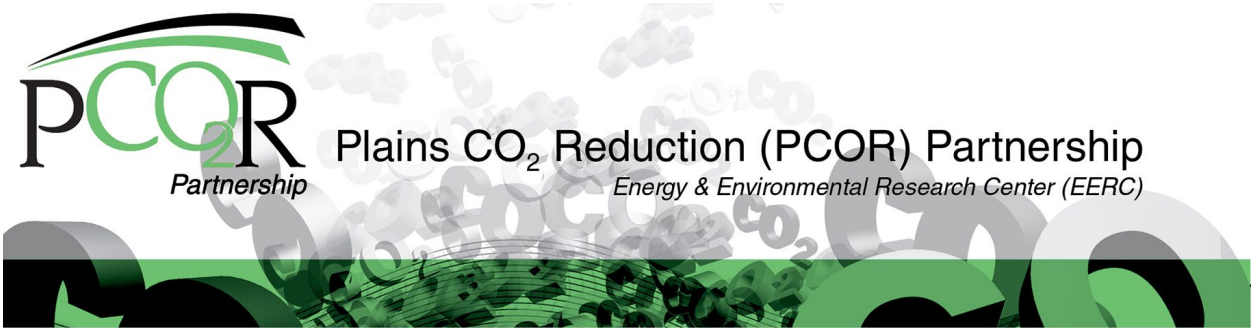


PCOR PARTNERSHIP INITIATIVE TO ACCELERATE CCUS DEPLOYMENT
Quarterly Progress Report
July 1 – September 30, 2023

EXECUTIVE SUMMARY

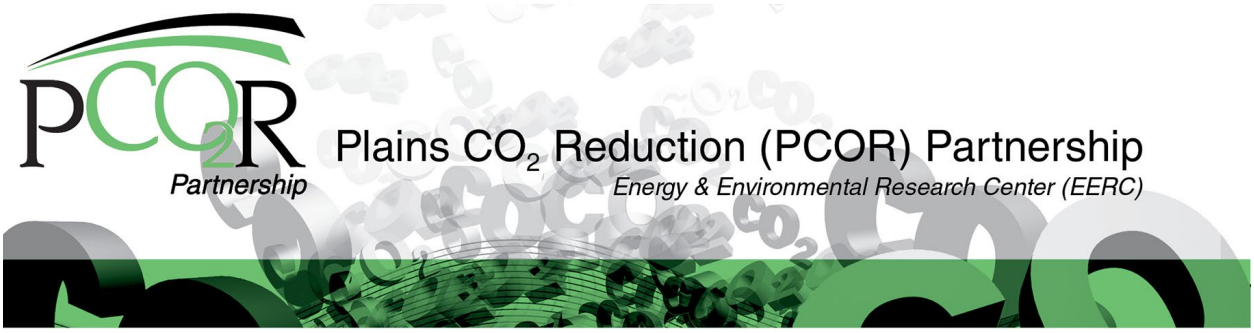
The Plains CO_2 Reduction (PCOR) Partnership, funded by the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL), the North Dakota Industrial Commission Oil and Gas Research Program and Lignite Research Program, and more than 250 public and private partners, is accelerating the deployment of carbon capture, utilization, and storage (CCUS) technology. The PCOR Partnership is focused on a region comprising ten U.S. states and four Canadian provinces in the upper Great Plains and northwestern regions of North America. It is led by the University of North Dakota Energy & Environmental Research Center (EERC), with support from the University of Wyoming (UW) and the University of Alaska Fairbanks (UAF).

The EERC received 11 requests for information on becoming a partner and two requests for reports through the public website. Presentations on the PCOR Partnership were given to four prospective partners. Two new members were welcomed to the PCOR Partnership this quarter, bringing the membership to 258: Frontier Carbon Solutions LLC and Retract.

The EERC hosted two important meetings this quarter. The Regulatory Roundup was held in Deadwood, South Dakota, on July 25 and 26, 2023. There were a record-breaking 46 attendees, including regulators from 13 states and two Canadian provinces. The PCOR Partnership Annual Meeting was held September 26 and 27, 2023, in Grand Forks, North Dakota, with a record-breaking 136 attendees from 62 organizations.

Work continued on the next three deliverables (D): D11 – Basement Faulting and Stress State, Induced Seismicity; D12 – Regional Socioeconomic Assessments; and D13 – Updated Regional Business Model Assessment.

The PCOR Partnership sent its third newsletter to project partners on September 18, 2023.



PCOR PARTNERSHIP INITIATIVE TO ACCELERATE CCUS DEPLOYMENT
Quarterly Progress Report
July 1 – September 30, 2023

INTRODUCTION

The Plains CO_2 Reduction (PCOR) Partnership, funded by the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL), the North Dakota Industrial Commission (NDIC) Oil and Gas Research Program and Lignite Research Program, and more than 250 public and private partners, is accelerating the deployment of carbon capture, utilization, and storage (CCUS) technology. The PCOR Partnership is focused on a region comprising ten U.S. states and four Canadian provinces in the upper Great Plains and northwestern regions of North America. It is led by the University of North Dakota Energy & Environmental Research Center (EERC), with support from the University of Wyoming (UW) and the University of Alaska Fairbanks (UAF).

The goal of the PCOR Partnership is to identify and address regional capture, transport, and storage challenges facing commercial deployment of CCUS in an expanded region, compared to past Regional Carbon Sequestration Partnership project phases. To achieve this goal, the PCOR Partnership will meet the following objectives:

1. Address key technical challenges by advancing critical knowledge and capabilities.

2. Facilitate data collection, sharing, analysis, and collaboration.

3. Evaluate regional infrastructure challenges/needs and promote infrastructure development.

4. Promote regional technology transfer.

The project goal and objectives will be accomplished through five tasks over two budget periods (BPs), corresponding to a 5-year period of performance. The EERC and project partners will collaborate to identify and address technical challenges facing deployment of CCUS in multiple categories, including stacked storage opportunities, CO_2 storage performance and monitoring, and risk assessment. The EERC will work with PCOR Partnership members and regional stakeholders to promote the development of infrastructure and large projects within the PCOR Partnership region. This development will then provide best practices throughout the United States for wide-scale deployment of CCUS technologies. Existing data sets and technologies will be analyzed and evaluated to highlight current challenges limiting commercial

adoption of CCUS as well as to identify potential solutions. The project team will support DOE's National Risk Assessment Partnership (NRAP) and machine learning (ML) initiatives by drawing on data sets and experience available through the team. Assessments of infrastructure, site readiness, techno-economics, and socioeconomics will provide an overview of the CCUS landscape within the defined PCOR Partnership region. Potential business case scenarios will be evaluated, accounting for current economic incentives to identify opportunities in CCUS project development. Technology transfer activities will inform and educate CCUS stakeholders of project learnings through annual meetings, regulatory roundup meetings, technical advisory board (TAB) meetings, webinars, reports, and conference presentations/papers. These activities will facilitate knowledge sharing and support DOE program goals.

ACCOMPLISHMENTS

Task 1.0 – Project Management and Planning

The objective of Task 1.0 is to manage and direct the project in accordance with a project management plan (PMP) to meet all technical, schedule, and budget objectives and requirements. Activities will be coordinated in order to effectively accomplish the work. The project manager (PM) will ensure that project plans, results, and decisions are appropriately documented and project reporting and briefing requirements are satisfied.

Significant accomplishments for Task 1.0 during the reporting period include the following:

- Held progress meetings with subrecipients UAF and UW.
- Held regular progress update meetings with the federal PM.
- Held discussions with prospective members on a regular basis. The PCOR Partnership currently has 258 members. Welcomed new members Frontier Carbon Solutions LLC and Retract.
- Submitted a due date extension request to extend Deliverable (D) 11 and D12 from September 30, 2023, to December 1, 2023. A revised PMP reflecting these changes was submitted to DOE on September 29, 2023.
- Hosted the 2023 Annual Meeting in Grand Forks, North Dakota, September 26 and 27, 2023 (Figure 1).
  - There were 151 initial registrations. After walk-on registrations and no-shows, a total of 136 participants attended, representing 62 organizations.
  - On September 26, the EERC led participants through an informational tour of the CCUS value chain and its components through the EERC facilities.
  - On September 27, 2023, the EERC hosted the formal annual meeting highlighting guest speakers and several panels, including a panel of project developers sharing their experiences and lessons learned implementing CCUS, and ideas and approaches to leveling the playing field for CO_2 enhanced oil recovery (Figure 2).

Figure 1. Participants of the 2023 PCOR Partnership Annual Meeting.

Figure 2. 2023 PCOR Partnership Annual Meeting panel discussion on experiences implementing CCUS (from left to right: Mike Holmes, Lignite Energy Council; Gerald Bachmeier, Red Trail Energy [RTE]; Mac McLennan, Minnkota Power Cooperative; and Jim Dodson, Carbon Vault Holdings LLC. Not pictured: Charlie Gorecki, EERC).

- Prepared and presented "Plains CO_2 Reduction Partnership Initiative to Accelerate Carbon Capture, Utilization, and Storage Deployment (FE0031838)" at the 2023 Office of Fossil Energy and Carbon Management (FECM)/NETL Carbon Management Research Project Review Meeting held August 28 –September 1, 2023, in Pittsburgh, Pennsylvania.

- EERC staff, including members of the project team, participated in a multiday event during the week of August 7–11. This in-person-only event occurred at the EERC facility in Grand Forks, North Dakota, and comprised training on EERC functions related to research management and execution, team meetings, and team building.

Next steps to accomplish the goals under Task 1.0 include the following:

- Continue tracking progress on project deliverables and milestones (Tables 1 and 2).

Task 2.0 – Technical Challenges

In Task 2.0, the project team will support regional deployment of CCUS programs by focusing on key technical challenges in the PCOR Partnership region related to stacked storage opportunities; storage performance; monitoring, verification, and accounting (MVA) technology; and subsurface integrity. The EERC will collaborate with PCOR Partnership members to identify knowledge gaps and address regional challenges through targeted webinars, workshops, reports, and papers.

Progress on Task 2.0 is as follows:

- Continued work and reviews on D11 – Basement Faulting and Stress State, Induced Seismicity. The due date for this deliverable was planned for September 30, 2023, and an extension was requested to extend the due date to December 1, 2023.

- Continued collaboration for the field effort at the RTE carbon capture and storage (CCS) site. Activities included the following:
  - The EERC geomechanics team completed modeling of surface deformation for this site, integrating pressure changes from numerical simulation applied to a 3D mechanical earth model (MEM). These modeling results have shown deformation estimates that are below the threshold of this InSAR (interferometric synthetic aperture radar) measurement technique. Further, even with installation of artificial reflectors, the expected changes in elevation will not be detectable with the InSAR technique at this site.
  - An internal data audit was conducted for potential time-lapse seismic analysis.
  - The EERC team is operating a Mechatronics electric vibe (eVibe) for both active and static sourcing operations. The EERC is currently operating the eVibe as a remote source for the SASSA (scalable, automated, sparse seismic array) method for monitoring CO_2 plume extents. The eVibe is active each week on Friday, Saturday, and Sunday for 9 hours. Decommissioning of the eVibe is planned for the next data-harvesting trip in October 2023.

Table 1. Project Deliverables

Deliverable (D) No. and Title	Planned Completion Date	Actual Completion Date	Verification Method	Comments
D1 – PMP	30 days after contract definitization	2/21/2020	PMP file submitted to DOE PM	
D2 – Report – Storage Optimization	4/30/2021	4/30/2021	Topical report submitted to DOE PM	Moved from 12/31/2020.
D3.A – Report – Stacked Storage Opportunity Assessment	8/31/2021	8/31/2021 (E.S.) 11/12/2021 (full report)	Topical report submitted to DOE PM	Moved from 6/30/2021.
D3.B – Report – Stacked Storage Scenario Geomechanical Modeling	3/31/2022	3/31/2022	Topical report submitted to DOE PM	Created a second D3 report.
D4 – Report – Regional Business Case Assessment	12/31/2021	12/17/2021	Topical report submitted to DOE PM	Moved from 3/31/2021.
D5 – Report – Subsurface and Legacy Well Integrity	12/31/2021	12/30/2021	Topical report submitted to DOE PM	
D6 – Report – MVA Strategies	6/30/2022	6/30/2022	Topical report submitted to DOE PM	
D7 – Report – Evaluation of Risk Management	9/30/2022	9/30/2022	Topical report submitted to DOE PM	
D8 – Report – Regional Permitting Guidance	9/30/2022	9/30/2022	Topical report submitted to DOE PM	Two reports submitted for D8.
D9 – Report – Infrastructure, Scale-Up, and Techno-Economic Assessments	3/31/2023	3/31/2023	Topical report submitted to DOE PM	
D10 – Report – NRAP Testing and Validation	3/31/2023	12/17/2021 (Part 1) 3/31/2023 (Part 2)	Topical report submitted to DOE PM	Provided in two parts.
D11 – Report – Basement Faulting and Stress State, Induced Seismicity	~~9/30/2023~~ Extended to 12/1/2023		Topical report submitted to DOE PM	A request to move the due date to 12/1/23 was made; a revised PMP was submitted to DOE on 9/29/23.
D12 – Report – Regional Socioeconomic Assessments	~~9/30/2023~~ Extended to 12/1/2023		Topical report submitted to DOE PM	A request to move the due date to 12/1/23 was made; a revised PMP was submitted to DOE on 9/29/23.
D13 – Report – Updated Regional Business Case Assessment	12/31/2023		Topical report submitted to DOE PM	
D14 – Report – Risk-Based Area of Review	1/31/2021	1/29/2021	Topical report submitted to DOE PM	Moved from 12/31/2020.
D15 – PCOR Partnership Atlas	6/30/2021 and 3/31/2024	6/30/2021	Atlas submitted to DOE PM	
D16 – Enabling Sustainable Monitoring for CCUS	6/30/2024		Topical report submitted to DOE PM	
D17 – PCOR Partnership Initiative Road Map	5/31/2024		Topical report submitted to DOE PM	

Table 2. Milestone Status Report

Milestone (M) No. and Title	Planned Completion Date	Actual Completion Date	Verification Method	Comments
M1 – Regulatory Roundup Scheduled	2/29/2020	3/31/2020	Reported in subsequent quarterly report	
M2 – Initial Techno-Economic Framework Established	4/30/2020	4/28/2020	Reported in subsequent quarterly report	
M3 –Annual Meeting Scheduled	3/31/2021	3/29/2021	Reported in subsequent quarterly report	
M4 – Regulatory Roundup Scheduled	3/31/2021	3/29/2021	Reported in subsequent quarterly report	
M5 – Data Share with National Lab for NRAP Assessment	6/30/2021	6/30/2021	Reported in subsequent quarterly report	Files added to EDX.[1]
M6 – GHGT-16[2] Abstract Submitted	1/31/2022	1/14/2022	Reported in subsequent quarterly report	
M7 – BP1 EDX Submitted	3/31/2022	3/31/2022	Reported in subsequent quarterly report	
M8 – Draft Journal Article Completed	11/30/2022	9/30/2022	Reported in subsequent quarterly report	
M9 – Regulatory Roundup Scheduled	3/31/2023	3/31/2023	Reported in subsequent quarterly report	
M10 – GHGT-17 Abstract Submitted	1/31/2024		Reported in subsequent quarterly report	
M11 – Annual Meeting Scheduled	3/31/2024		Reported in subsequent quarterly report	
M12 – BP2 EDX Submitted	6/30/2024		Reported in subsequent quarterly report	

[1] Energy Data eXchange.
[2] 16th International Conference on Greenhouse Gas Control Technologies.

  - The Research Institute of Innovative Technology for the Earth (RITE) completed maintenance on SOV1, and the EERC continues recording SASSA data with the Stryde nodes and Zland nodes. The next data harvest is planned for mid-October.
  - Processing of eVibe and SOV data from the SASSA array and 2D lines continued. Initial processing of eVibe data shows reflection energy at the injection formation.
  - The EERC team continues the operation of the Instrumental Software Technologies, Inc. (ISTI) 6C seismic station for recording waveform data to complement the SASSA processing effort. The seismic station includes three-component (3C) rotational and 3C translational sensors.
  - The EERC continues collaboration with NETL seismicity stations at the RTE site. Discussions continued about potential upgrades to stations to allow for real-time continuous data transmission.

- UW continued work on draft documents to advance the PCOR Partnership knowledge in topics under Task 2.0, including the following:
  - Formation Outlines for Minnelusa, Hulett, and Lakota Formations and Associated Seals – UW is currently incorporating the EERC's feedback into updated versions of the formation outlines. UW has requested an extension for the due date of this deliverable and expects to have it finalized in October 2023.

  - Formation Outlines for Storage Reservoirs and Seals in the Rock Springs Uplift – UW is currently incorporating feedback from the EERC into formation outlines. It is expected this deliverable will be combined with the formation outlines deliverable above and completed in October 2023.
  - Basement Faulting and Stress State, Induced Seismicity – UW worked on a project analyzing paleostress and fractures in the eastern Bighorn Mountains and western Black Hills, which flank the Powder River Basin. UW also built a database of existing fracture and fault data for all Wyoming basins. UW completed this deliverable and submitted it to the EERC on August 31, 2023.

Next steps to accomplish the goals under Task 2.0 in the coming quarter include the following:

- Decommission the Mechatronics eVibe and ship back to the manufacturer.
- Finalize white papers.
- Submit the report on basement faulting and stress state, inducted seismicity report (D11).

Task 3.0 – Data Collection, Sharing, and Analysis

In Task 3.0, the project team will collaborate with other DOE Fossil Energy Carbon Management (FECM)-funded researchers to improve understanding of CO_2 injection and storage impacts. The project team will work with national laboratories to facilitate data sharing, support the development and validation of NRAP tools with site-specific data, and participate in development of ML-based tools/methods in a commercial setting.

Progress on Task 3.0 is as follows:

- Subtask 3.1 – Data Sharing
  - The EERC continues to identify and catalog data sets that will be generated through the PCOR Partnership and available for upload to EDX for M12 – BP2 EDX Submitted.
- Subtask 3.3 – Machine Learning
  - The EERC continues to track ongoing work conducted under the SMART (Science-Informed Machine Learning for Accelerating Real-Time Decisions in Subsurface Applications) Initiative and look for ways to incorporate these learnings into the PCOR Partnership region.

Next steps to accomplish the goals under Task 3.0 in the coming quarter include the following:

- Continue to explore the use of ML-based predictive modeling techniques to use geophysical well logs to classify aquifers located throughout the PCOR Partnership region.

Task 4.0 – Regional Infrastructure

The objective of Task 4.0 is to evaluate the regional needs, challenges, and potential economic impacts related to the development of safe and environmentally sound CO_2 transportation infrastructure to accelerate commercial CCUS project deployment. This evaluation will be accomplished by assessing existing infrastructure, scale-up challenges and needs, and techno-economic and socioeconomic impacts in the PCOR Partnership region and will be communicated through outreach activities.

Progress on Task 4.0 is as follows:

- Continued development of D12 – Regional Socioeconomic Assessments report, originally due September 30, 2023. The EERC has requested an extension to the due date of this deliverable to December 1, 2023, as reflected in the updated PMP.

- Stress Engineering Services, Inc., worked as a subcontractor to provide the PCOR Partnership with basic guidelines and white papers on considerations for selecting corrosion-resistant alloy material for use in CO_2 storage and utilization applications and use of carbon steel (CS) pipelines with CO_2 streams containing hydrogen sulfide (H_2S). The EERC completed these two white papers and accompanying guideline documents and submitted them on September 28, 2023.

- Continued internal reviews of the white papers on the PCOR Partnership hydrogen carbon capture, utilization, and storage (CCUS) road map and CO_2 stream impurities.

- UW work continued on draft documents to advance the PCOR Partnership knowledge in topics under Task 4.0, including the following:
  - Hydrogen Production with CCS Opportunities – UW provided an updated version of this report on July 17, 2023. The EERC provided final comments and UW School of Energy Resources (SER) has finalized this deliverable, which will be published in October 2023 through the Center for Energy Regulation and Policy Analysis (CERPA).
  - Regional Socioeconomic Assessments – UW submitted this deliverable to the EERC on August 31, 2023. This work will contribute to the EERC's D12.
  - Social License for Wyoming's Energy Future – The draft final deliverable was submitted to the EERC on August 17, 2023. A final draft was published by SER in September 2023 through the Center for Energy Regulation and Policy Analysis (CERPA).
  - Updated Wyoming Pipeline Initiative Summary – This deliverable will include an assessment of steps for operators seeking to develop pipelines within the Wyoming Pipeline Corridor to obtain the necessary permits and regulatory review. Work on this deliverable has begun and is expected to be completed by December 15, 2023.

- UAF continued work to advance the PCOR Partnership knowledge in topics under Task 4.0, including the following:
  - Laboratory experiments on CO_2-induced corrosion continued. Preliminary results have been shared with the EERC, and a report with the data collected in the experiments will be delivered to the EERC.
  - Investigation continues on a new set of core floods for CO_2 storage in an oil reservoir following oil production and will be designed to develop a correlation for predicting CO_2 storage efficiency in oil reservoirs.
  - Alaska Department of Natural Resources (DNR) is coordinating with PCOR to arrange a meeting between Alaska state government and North Dakota state government to discuss state and federal CCUS policies, North Dakota's carbon management philosophy, and current CCUS project activity. The meeting is tentatively planned for December 2023.

Next steps to accomplish the goals under Task 4.0 in the coming quarter include the following:

- Continue to ship the PCOR Partnership Atlas (D15) to new PCOR Partnership members.

- Submit a report on regional socioeconomic assessments (D12).

- Submit a report on the updated regional business model assessment (D13).

Task 5.0 – Technology Transfer

Task 5.0 will inform and educate stakeholders about CCUS technologies. Nontechnical challenges to CCUS deployment in the PCOR Partnership region will be identified and assessed, with an emphasis on regulatory issues and solutions. Business case scenarios for CCUS projects will be identified, reviewed, and developed. Outcomes of this task will be transferred to stakeholders through meetings, presentations, and webinars. Developed materials will be shared with DOE to support its broader FECM program goals.

Progress on Task 5.0 is as follows:

- Held the 2023 Regulatory Roundup meeting in Deadwood, South Dakota, July 25 and 26, 2023. There were a record-breaking 46 attendees, including regulators from 13 states and 2 Canadian provinces. This 10th Regulatory Roundup served as a forum for sharing lessons learned from permitting CO_2 storage projects, seeking Class VI primacy, and establishing a regulatory framework. In addition, updates were provided on the Interstate Oil and Gas Compact Commission (IOGCC) and Groundwater Protection Council (GWPC) activities. Presentations and associated meeting materials are posted on the partners-only site (undeerc.org/PCOR). Meeting notes and action items are under development.

- Published the third edition of the *PCOR Pioneer* newsletter and distributed it to the Partnership on September 18, 2023.

- Created a new fact sheet covering monitoring, verification, and accounting (MVA) activities associated with CCUS, and distributed it to annual meeting attendees.

- Continued work on D13 – Updated Regional Business Model Assessment, which is due December 31, 2023.

- Continued reviews and development of white papers focusing on lessons learned through PCOR Partnership efforts with topics on N.D. reporting requirements and pipeline specifications.

- Presented "Carbon Capture, Utilization, and Storage and the PCOR Partnership" at the Alaska Oil & Gas Association Annual Meeting in Anchorage, Alaska, on August 31, 2023.

- Attended the 2023 Groundwater Protection Council Annual Forum in Tampa, Florida, September 12–14, 2023.

- Attended the MRV 2023 Workshop, hosted by Oak Ridge National Laboratory (ORNL) on September 28–29, 2023, in Oak Ridge, Tennessee.

- UW and the EERC continue to collaborate on efforts to draft several white papers focused on permitting CCUS on federal land and lessons learned from site characterization and permitting first-mover CCS projects in Wyoming:
  - Regional Permitting Guidance – A revised draft was submitted to the EERC in February 2023, and is currently under review.
  - Federal Land Challenges for CCS – A draft was reviewed by the EERC and returned with final comments to UW on September 5, 2023. UW plans to publish this deliverable through UW SER's CERPA, combined with UW SER's contributions to "Regulation and Permitting of Interstate CO2 Plumes."
  - Regulation and Permitting of Interstate CO_2 Plumes – UW is working with the Wyoming Department of Environmental Quality (WDEQ) on this deliverable to explore issues related to geologic storage projects in which CO_2 plumes may cross state boundaries and how states will work together to permit, monitor, and assess these projects. A draft version of this deliverable is expected September 30, 2023.

Next steps to accomplish the goals under Task 5.0 in the coming quarter include the following:

- Plan to host a group of Alaskan legislators and regulatory staff, to provide an opportunity for staff from the NDIC Department of Mineral Resources (DMR) to share its lessons learned on December 4 and 5, 2023, in Bismarck, North Dakota.

- Finalize D13 – Updated Regional Business Model Assessment, which is due December 31, 2023.

- Publish the fourth edition of the *PCOR Pioneer* newsletter, with plans to distribute to the partnership in December 2023.

- Continue the development of fact sheets, covering the topics listed below:
  - Pore space ownership and CCS projects.
  - CO_2 concentrations.
  - Aquifer exemptions.

- Continued reviews and development of white papers focusing on lessons learned through PCOR Partnership efforts with topics on N.D. reporting requirements and pipeline specifications.

- Continue UW and the EERC collaborative activities.

- EERC representatives will travel to meet with UW SER staff for in-person meetings October 12, 2023, to discuss their current scope of work as well as opportunities for future collaboration within the PCOR Partnership.

- Complete Regional Permitting Guidance white paper, currently under EERC review.

- Complete Federal Land Challenges with CCS white paper; UW plans to publish this deliverable through UW SER's CERPA, combined with UW SER's contributions to "Regulation and Permitting of Interstate CO_2 Plumes."

- Begin work on D17 – PCOR Partnership Initiative Road Map, due May 31, 2024.

CHANGES/PROBLEMS

No changes or problems at this time.

SPECIAL REPORTING REQUIREMENTS

None.

BUDGETARY INFORMATION

ENERGY & ENVIRONMENTAL RESEARCH CENTER

PLAINS CO_2 REDUCTION PARTNERSHIP INITIATIVE TO ACCELERATE CARBON CAPTURE, UTILIZATION, AND STORAGE DEPLOYMENT

DE-FE0031838

Project-to-Date Financial Report at September 30, 2023

($K)	Q2 Apr - Jun 2022	Q3 Jul - Sep 2022	Q4 Oct - Dec 2022	Q1 Jan - Mar 2023	Q2 Apr - Jun 2023	Q3 Jul - Sep 2023	Q4 Oct - Dec 2023	Q1 Jan - Mar 2024	Q2 Apr - Jun 2024	Q3 Jul - Sep 2024
Baseline Cost Plan										
Federal Share	889.2	889.2	889.2	889.2	889.2	889.2	889.2	889.2	889.1	889.1
Nonfederal Share	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.6	224.5
Total Planned	1113.8	1113.8	1113.8	1113.8	1113.8	1113.8	1113.8	1113.8	1113.7	1113.6
Cumulative Federal	6997.4	7886.6	8775.8	9665.0	10554.2	11443.4	12332.6	13221.8	14110.9	15000.0
Cumulative Nonfederal	1731.6	1956.2	2180.8	2405.4	2630.0	2854.6	3079.2	3303.8	3528.4	3752.9
Cumulative Baseline Costs	8729.0	9842.8	10956.6	12070.4	13184.2	14298.0	15411.8	16525.6	17639.3	18752.9
Actual Incurred Cost										
Federal Share	1823.3	1157.3	1223.0	979.6	1078.5	755.3				
Nonfederal Share	335.8	195.6	489.0	454.5	191.6	212.1				
Total Incurred Costs	2159.1	1352.9	1712.0	1434.1	1270.1	967.5				
Cumulative Federal	7931.5	9088.9	10311.9	11291.5	12370.0	13125.3				
Cumulative Nonfederal	1842.7	2038.3	2527.3	2981.9	3173.5	3385.7				
Cumulative Incurred Costs	9774.2	11127.1	12839.2	14273.3	15543.5	16510.9				
Variance										
Federal Share	(934.1)	(268.1)	(333.8)	(90.4)	(189.3)	133.9				
Nonfederal Share	(111.2)	29.0	(264.4)	(229.9)	33.0	12.5				
Total Variance	(1045.3)	(239.1)	(598.2)	(320.3)	(156.3)	146.3				
Cumulative Federal	(934.1)	(1202.3)	(1536.1)	(1626.5)	(1815.8)	(1681.9)				
Cumulative Nonfederal	(111.1)	(82.1)	(346.5)	(576.5)	(543.5)	(531.1)				
Cumulative Variance	(1045.2)	(1284.3)	(1882.6)	(2202.9)	(2359.3)	(2212.9)				