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October 29, 2021

Ms. Karlene Fine
Executive Director
North Dakota Industrial Commission
600 East Boulevard Avenue, Department 405
State Capitol, 14th Floor
Bismarck, ND 58505-0840

Dear Ms. Fine:

Subject: Quarterly Progress Report for the Period of July 1 – September 30, 2021, "PCOR Partnership Initiative to Accelerate CCUS Deployment"; Contract Nos. FY20-XCI-226 and G-050-096

Attached please find the Energy & Environmental Research Center (EERC) Quarterly Progress Report for the subject project. If you have any questions, please contact me by phone at (701) 777-5236 or by e-mail at kconnors@undeerc.org.

Sincerely,

DocuSigned by:
Kevin Connors
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Kevin C. Connors
Principal Policy & Regulatory Strategist

KCC/kal

Attachment

c/att: Michael Holmes, Lignite Energy Council
Brent Brannan, North Dakota Industrial Commission (NDIC) Department of Mineral Resources, Oil and Gas Division

c: Corey Irion, EERC

PCOR PARTNERSHIP INITIATIVE TO ACCELERATE CCUS DEPLOYMENT

Quarterly Technical Progress Report

(for the period July 1 – September 30, 2021)

Prepared for:

Karlene Fine

North Dakota Industrial Commission
600 East Boulevard Avenue, Department 405
State Capitol, 14th Floor
Bismarck, ND 58505-0840

Contract Nos. FY20-XCI-226 and G-050-96

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October 2021

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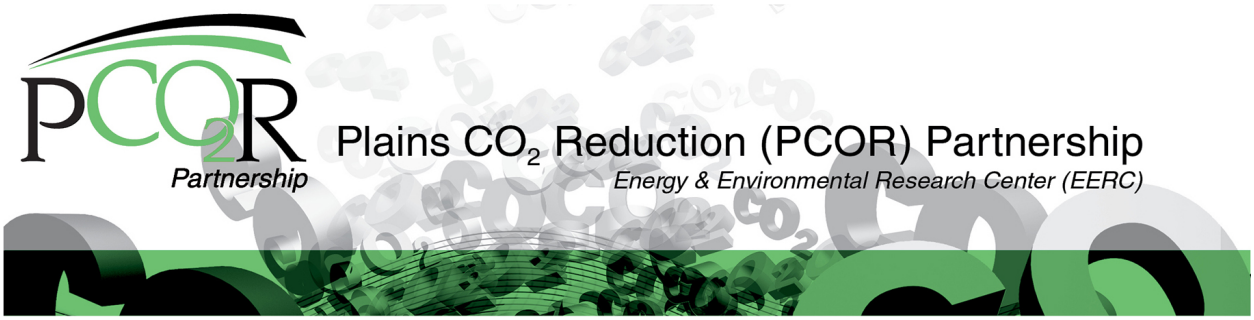
EXECUTIVE SUMMARY

The Plains CO_2 Reduction (PCOR) Partnership Initiative is one of four projects competitively awarded by the U.S. Department of Energy (DOE) National Energy Technology Laboratory under the Regional Initiative to Accelerate CCUS (carbon capture, utilization, and storage). The PCOR Partnership Initiative is led by the Energy & Environmental Research Center with support from the University of Wyoming and the University of Alaska Fairbanks (UAF) and includes stakeholders from the public and private sectors. The PCOR Partnership Initiative region includes all or part of ten U.S. states and four Canadian provinces. Ten new members were welcomed to the PCOR Partnership Initiative: Continental Resources, Inc.; ExxonMobil Corporation; Vault 44.01; Hilcorp Energy Company; E Energy Adams; TC Energy; NITEC LLC; Whiting Petroleum Corporation; Marathon Oil Corporation; and Seismos.

The PCOR Partnership Annual Membership Meeting was held on September 13–14, 2021, in Jackson, Wyoming. The meeting had record attendance for any PCOR Partnership Annual Membership Meeting held outside of Grand Forks, North Dakota, and resulted in numerous inquiries to become a member. The Regulatory Roundup meeting was held August 17–18, 2021, in Deadwood, South Dakota. PCOR Partnership representatives traveled to Anchorage, Alaska, on August 9–10, 2021, to meet with UAF representatives and others and to scout venues for the 2022 annual meeting.

During the final internal review of Deliverable (D) 3A, entitled "Stacked Storage Opportunities," the reviewers provided comments that identified additional work that would significantly improve the product. Based on these comments, a request for additional time to submit the full report on November 1, 2021, was approved by the federal project manager (FPM). The Executive Summary of D3.A was submitted to the FPM on August 31, 2021, for review. Review comments received from DOE on the draft "PCOR Partnership Atlas" (D15) were incorporated with additional internal review comments; efforts to finalize the atlas continued. A draft report was provided to the Petroleum Technology Research Centre on geologic modeling and numerical simulation focused on the region surrounding the Aquistore site. Technical work and writing on upcoming deliverables continued, including D3.B (a report detailing the stacked storage scenario geomechanical modeling), D4 (Regional Business Model Assessment), and D5 (Subsurface and Legacy Well Integrity). Work on numerous white papers on topics of interest to PCOR Partnership members continued.

A DOE contract modification was received on September 30, 2021, approving the proposed FY21 add-on scope and funding. Collaboration and planning efforts were under way for the Red Trail Energy field effort, which was included in the FY21 add-on scope. Additional testing of the DREAM (Designs for Risk Evaluation and Management Tool, Version 2020.01-2.0) tool is ongoing. The updated and upgraded PCOR Partnership Initiative partner website was released in a soft launch, with additional updates to be released in the coming quarters.



PCOR PARTNERSHIP INITIATIVE TO ACCELERATE CCUS DEPLOYMENT
Quarterly Progress Report
July 1 – September 30, 2021

INTRODUCTION

The Plains CO_2 Reduction (PCOR) Partnership Initiative is one of four projects operating under the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) Regional Initiative to Accelerate CCUS (carbon capture, utilization, and storage). The PCOR Partnership Initiative is led by the Energy & Environmental Research Center (EERC) with support from the University of Wyoming (UW) and the University of Alaska Fairbanks (UAF) and includes stakeholders from the public and private sectors. The membership, as of September 30, 2021, is at 209 members. The PCOR Partnership Initiative region includes all or part of ten states (Alaska, Iowa, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming) and four Canadian provinces (Alberta, British Columbia, Manitoba, and Saskatchewan).

The goal of the PCOR Partnership Initiative is to identify and address regional capture, transport, and storage challenges facing commercial deployment of CCUS in an expanded region, compared to past initiatives. To achieve this goal, the PCOR Partnership Initiative 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 and needs.
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. 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 the DOE 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 Initiative region. Potential business case scenarios will be evaluated, taking into account current economic incentives to identify opportunities in CCUS project development. Technology transfer activities will inform and educate CCUS stakeholders of

project learnings through annual membership 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:

- Received DOE Modification 005 on September 30, 2021, approving the proposed FY21 add-on scope and funding.

- Presented "Plains CO_2 Reduction Partnership Initiative" at the DOE NETL Carbon Management and Oil and Gas Research Project Review Meeting for the Integrated CCUS Projects and FEED Studies virtual session on August 2, 2021.

- Presented "Plains CO_2 Reduction Partnership Initiative" at the DOE NETL Carbon Management and Oil and Gas Research Project Review Meeting for the Carbon Storage virtual session on August 4, 2021.

- Held the PCOR Partnership Annual Membership Meeting on September 13–14, 2021, in Jackson, Wyoming. The meeting was attended by 106 participants from 50 companies, 12 states, and Washington, D.C. This was record attendance for any PCOR Partnership Annual Membership Meeting held outside of Grand Forks, North Dakota, even though some partners were unable to attend because of travel restrictions (e.g., DOE and international representatives). The agenda included the following presentations and panel sessions, which were uploaded to the PCOR Partnership partners-only website:
  - Welcome to Wyoming – provided by Holly Krutka, UW School of Energy Resources
  - PCOR Partnership Accelerating CCUS – presented by Kevin Connors, EERC
  - Panel: Basin Electric Dry Fork Station – Integrated Test Center
    - Moderator: Tyler Hamman, Basin Electric Power Cooperative (BEPC)
    - Dale Niezwaag, BEPC
    - Scott Quillinan, UW
    - Jason Begger, Wyoming Integrated Test Center
  - Panel: Maturing Projects – Lessons Learned

    - Moderator: Charles Gorecki, EERC
    - Gerald Bachmeier, Red Trail Energy, LLC (RTE)
    - Stacey Dahl, Minnkota Power Cooperative, Inc.
    - Ricky Williams, Denbury Resources Inc.
  - Pioneer Award Presentation – presented by Charles Gorecki, EERC
    - Presented to Gerald Bachmeier and Dustin Willet, RTE
  - Panel: Emerging Projects
    - Moderator: Lynn Helms, North Dakota Industrial Commission (NDIC)
    - Adam Dunlop, Midwest AgEnergy
    - Jim Dodson, CarbonVault LLC
    - Wade Boeshans, Summit Carbon Solutions
  - CCUS and Grid Reliability – presented by Mike Nasi, Jackson Walker LLP
  - Panel: Utilization Rate, Carbon Accounting, and LCAs (life cycle assessments)
    - Moderator: John Harju, EERC
    - Tom Olle, Lonestar Resources
    - Lynn Helms, NDIC
    - Fred Eames, Hunton Andrews Kurth LLP
  - Alaska 2022 Preview – presented by Brent Sheets, UAF
  - Wrap-Up with Regional Vision and Announcements – presented by Kevin Connors, EERC

- Held a TAB meeting on September 15, 2021, in Jackson, Wyoming. This meeting was held in conjunction with the PCOR Partnership Annual Membership Meeting. Five of the eight TAB members were in attendance.

- Began planning for the 2022 PCOR Partnership Initiative Annual Membership Meeting, which will be held in Anchorage, Alaska. Tentative dates are in May or June 2022.

- Held progress meetings with UW and UAF. Traveled to Anchorage, Alaska, on August 9–10, 2021, to meet with UAF representatives and others, including the Alaska Oil and Gas Conservation Commission and Hilcorp Energy Company, and to scout venues for the 2022 annual meeting.

- Engaged in conversations with current and prospective partners regarding their continued involvement in the PCOR Partnership Initiative:
  - Welcomed new members:
    - Continental Resources, Inc.
    - ExxonMobil Corporation
    - Vault 44.01
    - Hilcorp Energy Company
    - E Energy Adams
    - TC Energy
    - NITEC LLC
    - Whiting Petroleum Corporation
    - Marathon Oil Corporation
    - Seismos

  - Interest in PCOR Partnership membership is high. Nine new member requests were received through website communication in the last two weeks of the quarter, following the PCOR Partnership Annual Membership Meeting. Several presentations on the PCOR Partnership Initiative were given to prospective partners.

- Attended the DOE Communities LEAP (Local Energy Action Program) pilot informational webinar on September 28, 2021.

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

- Submit a revised PMP. Incorporating changes related to the additional scope of work approved in Modification 005. Submit request for incremental cost-share funding from NDIC. Work with subrecipients, UAF and UW, on revised scopes of work and incremental cost-share funding.

- Submit the BP2 continuation application by December 31, 2021.

- Work on plans for a TAB meeting in Quarter 1 2022.

- Continue planning for the 2022 annual meeting.

- Participate in DOE discussions related to the Communities LEAP pilot as needed.

- Continue progress on project deliverables (Ds) and milestones (Ms) (see 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 Initiative region related to stacked storage opportunities; storage performance; monitoring, verification, and accounting (MVA) technology; and subsurface integrity. The EERC will collaborate with PCOR Partnership Initiative 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 on the two divisions of D3 – Stacked Storage Opportunity Assessment. D3.A is a focused stacked storage opportunity assessment in the PCOR Partnership region, and D3.B is an evaluation of geomechanical modeling in stacked storage scenarios.
  - D3.A – a stacked storage opportunity assessment report will be delivered by November 1, 2021:
    - Submitted the Executive Summary of "Stacked Storage Opportunities" on August 31, 2021, to DOE and NDIC for review.

Table 1. Project Deliverables

Deliverable 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 (Executive Summary)	Topical report submitted to DOE PM	Moved from 6/30/2021 Full report due 11/1/2021 as discussed with DOE PM
D3.B – Report – Stacked Storage Scenario Geomechanical Modeling	3/31/2022		Topical report submitted to DOE PM	Created as second D3 report
D4 – Report – Regional Business Case Assessment	12/31/2021		Topical report submitted to DOE PM	Moved from 3/31/2021
D5 – Report – Subsurface and Legacy Well Integrity	12/31/2021		Topical report submitted to DOE PM	
D6 – Report – MVA Strategies	6/30/2022		Topical report submitted to DOE PM	
D7 – Report – Evaluation of Risk Management	9/30/2022		Topical report submitted to DOE PM	
D8 – Report – Regional Permitting Guidance	9/30/2022		Topical report submitted to DOE PM	
D9 – Report – Infrastructure, Scale-Up, and Techno-Economic Assessments	12/31/2022		Topical report submitted to DOE PM	
D10 – Report – NRAP Testing and Validation	3/31/2023		Topical report submitted to DOE PM	
D11 – Report – Basement Faulting and Stress State, Induced Seismicity	9/30/2023		Topical report submitted to DOE PM	
D12 – Report – Regional Socioeconomic Assessments	9/30/2023		Topical report submitted to DOE PM	
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 3/31/2023	6/30/2021	Atlas submitted to DOE PM	Moved from 3/31/2021

Table 2. Milestone Status Report

Milestone 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		Reported in subsequent quarterly report	
M7 – BP1 EDX Submitted	3/31/2022		Reported in subsequent quarterly report	
M8 – Draft Journal Article Completed	11/30/2022		Reported in subsequent quarterly report	
M9 – Regulatory Roundup Scheduled	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.

    - Requested additional time to submit the full report (November 1, 2021), which was requested and approved by DOE on August 31, 2021. During the internal final review of the assessment, the reviewers provided comments that identified additional work that would significantly improve the product.
    - Worked on finalizing the report text.
  - D3.B – a report detailing the stacked storage scenario geomechanical modeling will be delivered by March 31, 2022:
    - Completed the 1D mechanical earth model (MEM). Completed geomodeling and dynamic simulation for the 3D MEM. Progressing with 3D MEM simulations.

- Continued work on D5 – Subsurface and Legacy Well Integrity, due December 31, 2021. The EERC is collaborating with UW researchers on the effort.

- Continued collaborative efforts with the Petroleum Technology Research Centre (PTRC) focused on geologic modeling and numerical simulation around the Aquistore site. Activities included the following:
  - Presented the findings from the simulation to PTRC.

  - Submitted a draft report for the modeling and simulation effort to PTRC on August 20, 2021.
  - Presented a summary of the effort and draft report to PTRC.
  - Revised the report based on comments, and resubmitted to PTRC on September 23, 2021.

- Continued collaboration and planning for the RTE field effort, which was included in the FY21 add-on scope of work. Activities included the following:
  - Research Institute of Innovative Technology for the Earth (RITE), which is supporting research at the field site through a separate, but complementary effort at the RTE site, installed four surface orbital vibes (SOVs), associated foundations, and power at four locations on the site.
  - Based on the locations of the SOVs, EERC researchers designed a baseline noise and near-surface characterization study to align with timing of SOV source commissioning.
  - The EERC performed ray tracing and finite difference modeling to support the design of the semiautonomous sparse seismic array (SASSA) recording layout. This modeling will be updated following the baseline noise study. This updated model will help with designing baseline and ongoing SASSA deployment.

- Worked on white papers on approaches to geomechanical and geochemical evaluations.

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

- Submit the D3.A Stacked Storage Opportunity Assessment report by November 1, 2021.

- Submit D5 – Subsurface and Legacy Well Integrity by December 31, 2021.

- UW researchers plan to travel to Casper, Wyoming, at the beginning of October 2021 to meet with an EERC researcher at the Wyoming Oil and Gas Conservation Commission related to research for D5.

- The following activities are planned for the RTE field site:
  - Meet with the North Dakota Department of Mineral Resources on October 14, 2021, to discuss permitting procedures for the upcoming SASSA fieldwork at the RTE field site.
  - Begin work on a fact sheet and notification letter to start land access discussions with landowners near the RTE field site.
  - RITE plans to commission the SOVs for operations in early November 2021.
  - The EERC will collect noise and near-surface characterization data. These noise characterization data will include characterization of passive noise in the vicinity of surface facilities and busy roadways, near-surface velocity characterization utilizing 3C receivers to discriminate various noise modes, and targeted arrays for additional discrimination of direct arrivals, refracted arrivals, and reflected arrivals.

  - The near-surface characterization includes recording refraction data to build 3D velocity models at the SOV locations. These recordings will be conducted in a time-lapse manner during the project.
  - Once the field data are incorporated into the model created for the numerical modeling, the EERC will provide an updated layout of the seismic receivers for recording the SASSA baseline and monitoring data.

- Continue work on white papers.

Task 3.0 – Data Collection, Sharing, and Analysis

In Task 3.0, the project team will collaborate with other DOE Fossil Energy (FE)-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:
  - Uploading of geological models and reservoir simulations to the EERC workspace PCOR Partnership folder on EDX was initiated. Completion of the upload will satisfy Milestone M7 – BP1 EDX Submitted (due March 31, 2022). The set includes geologic models and reservoir simulations that were supported by NETL under Award No. DE-FE0009114 for i) dedicated storage in deep saline formations and ii) associated storage through CO_2 enhanced oil recovery (EOR) in clastic and carbonate reservoirs. In addition, the set includes 130 realizations of the SMART (Science-Informed Machine Learning for Accelerating Real Time Decisions in Subsurface Applications) Initiative clastic shelf models that were supported by NETL under Contract No. 89243318CFE000003, passed through Leidos Inc., Subcontract No. P010227025, Task Order Release No. 7. The set of geologic models and reservoir simulations will provide a valuable resource to other DOE researchers studying geologic carbon storage or EOR.

- Subtask 3.2 – NRAP Validation:
  - NRAP tools testing is ongoing with the following activities:
    - Testing of NRAP Open-Source Integrated Assessment Model is complete, and a draft report is currently under review.
    - Additional testing of the DREAM (Designs for Risk Evaluation and Management Tool, Version 2020.01-2.0) tool is ongoing and will be documented as part of a second NRAP testing report.

- Subtask 3.3 – Machine Learning:
  - The EERC continues to support the SMART Initiative through the PCOR Partnership Initiative. The EERC is directly involved in Tasks 1, 2, 4, 5 (Carbon

Storage Program), and 6 (Oil & Gas Program) of the SMART Initiative and is participating in the crosscutting groups for algorithms and data.
  - The EERC continued to apply ML-based predictive modeling techniques (e.g., random forest, gradient boost, and neural network) to evaluate reservoir simulations for storage projects. The techniques are an improvement over traditional response surface modeling and can be used to extend a set of reservoir simulations into broader decision regions for optimizing storage performance.

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

- Subtask 3.1: Complete the EDX upload of geologic models and reservoir simulations.

- Subtask 3.2: Continue to participate in the NRAP webinar series to learn about existing and forthcoming NRAP tools. Work with Pacific Northwest National Laboratory to test the DREAM tool, version 3, which is still undergoing beta testing. The DREAM testing results will be reported in D10 (Report – NRAP Testing and Validation).

- Subtask 3.3: Continue to track SMART Initiative activities to identify opportunities to leverage CO_2 storage project data sets for the validation and testing of ML-based approaches to modeling CO_2 and/or pressure in the subsurface.

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 Initiative region and will be communicated through outreach activities.

Progress on Task 4.0 is as follows:

- Received review comments from DOE on the draft "PCOR Partnership Atlas" (D15), which had been submitted to DOE on June 30, 2021, for review. Incorporated DOE and additional internal review comments. Continued to finalize images and text. Draft print copies were available for preview to members in attendance at the annual membership meeting in September 2021. The process of identifying and selecting a printing company has begun.

- Received reports from PCOR Partnership partner Resolute Engineering on cost analyses of multiple pipeline routes with variable pipeline diameters. Began work on distilling the information and drafting a summary of findings to provide insight to the PCOR Partnership members.

- Worked on a contract with Jackson Walker, LLP, to contribute to a study on CCUS and grid stability in the PCOR Partnership region. Submitted a request for subcontractor approval on July 14, 2021. Received approval of the subcontractor request on August 23, 2021.

- Continued efforts to summarize research on the concept of potential pressure interference during CO_2 injection and storage in a white paper.

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

- Finalize the PCOR Partnership Atlas (D15). Select a printing company.

- Finalize the subcontract with Jackson Walker, LLP. Initiate study on CCUS and grid stability in the PCOR Partnership region.

- Continue working on white papers on topics of interest to PCOR Partnership members.

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 Initiative 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 FE program goals.

Progress on Task 5.0 is as follows:

- Presented "The Plains CO_2 Reduction (PCOR) Partnership Initiative" on past, recent, and future PCOR Partnership work at the Southern States Energy Board (SSEB) regional initiative webinar on July 15, 2021.

- Held the Regulatory Roundup meeting August 17–18, 2021, in Deadwood, South Dakota.

- Participated in the SSEB-UH (University of Houston) CCUS Leadership Team Working Group for Transportation on July 20, 2021.

- Presented "Role of Geoscience in CCUS" to the Rowan University Geology Department on September 16, 2021.

- Presented "The Plains CO_2 Reduction (PCOR) Partnership North Dakota Class VI Primacy" at the National Energy States Association on September 30, 2021.

- Continued development of D4 – Regional Business Model Assessment due December 31, 2021.

- Released the PCOR Partnership Initiative partner website in a soft launch on August 31, 2021. The layout and look of the website are consistent with the updated public website launched in March 2021. Pages and features on the partner website include the following:
  - Home page featuring the eight most recent PCOR Partnership product releases; quick search links to the product database by a selected keyword, popular product type, or popular topic; and a scrolling list of PCOR Partnership members with logos.

  - Research webpage with short descriptions and webpage links (*indicates the webpage content is coming soon) to the following topics:
    - Capture*
    - Compression*
    - Transportation
    - Storage
    - Monitoring*
    - Modeling and Simulation

  - Adaptive management approach (AMA) webpage with information provided about each component of the AMA used by the PCOR Partnership. Included are sections on project consideration, cost considerations, and improved CO_2 storage system understanding.

  - Policy and regulatory webpage with short descriptions and webpage links to the following topics:
    - Regulation
    - Incentive Programs
    - Permitting
    - Risk Assessment

  - A searchable product database with products marked as partners-only or public. Summaries, keywords, and topics are uploaded for a portion of the products in the database.

  - An About webpage with the following features:
    - Information about the PCOR Partnership Initiative with webpage links to a narrative about the phased approach and to an annual membership meeting webpage.
    - Links to the other regional partnership websites.
    - A listing of the PCOR Partnership Initiative members with links to the member websites.

- Continued efforts to upgrade and update the PCOR Partnership Initiative partner website beyond the soft launch. Activities includes the following:

  - Worked on content for “Coming Soon” pages.
  - Additional summaries for products in the searchable database were created and uploaded. Keywords and topics were applied on more products.
  - Work on a partner database upgrade progressed for linkage to the website next quarter.

- Began planning a webinar focused on Canadian CCUS development. This webinar is tentatively planned for January 2022, pending invited speakers’ availability.

- Continued development of a white paper on pore space-leasing considerations and several white papers focused on various lessons learned through the PCOR Partnership.

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

- Submit D4 – Regional Business Model Assessment by December 31, 2021.

- Work to confirm speakers for a Canadian-focused webinar planned for January 2022. Send eBlast to members following speaker confirmations.

- Continue updating the PCOR Partnership Initiative public and partner websites. Release of the searchable database on the public website is planned for Quarter 4 2021 or Quarter 1 2022. Began updates to the public website based on the most recent version of the PCOR Partnership Atlas.

- Complete the draft white papers.

CHANGES/PROBLEMS

The delay in FY21 add-on funding impacted the start of the planned monitoring activities at the RTE site. The approval of Modification 005 by DOE on September 30, 2021, has allowed these activities to begin. The overall timeline of these activities is not anticipated to be impacted.

SPECIAL REPORTING REQUIREMENTS

None.