Supplemental Project Notice

CO_2DA: CO_2 CAPTURE AND STORAGE DEPLOYMENT ACCELERATION

PROJECT HIGHLIGHTS

- Accelerate the CCS demonstration pipeline to enable widespread, scaled commercial deployment for power plants by 2030
- Design, cost, and performance studies performed on CO_2 capture technologies on multiple host sites
- CO2 transport and storage assessments conducted for multiple sites
- Inform and educate the global stakeholder community

Background, Objectives, and New Learnings

With aggressive electric sector and economy-wide decarbonization targets already in place or on the horizon, there is a growing focus on technology options for decarbonization that can be available for wide-scale deployment by 2030. Carbon capture and storage (CCS) technology presents an option for reducing or eliminating CO_2 emissions from power plants that use carbon-based fuels, while preserving their ability to provide dispatchable, synchronous power.

Larger-scale CCS demonstrations are required to provide design references, performance assessments, critical operating data, and reliable cost estimates to expedite deployment of CCS in power generation. With a dedicated effort to accelerate demonstration, CCS technology can be available for deployment in power generation in this decade.

CO_2DA provides an industry forum and collaborative technical approach to accelerate development of carbon capture, transport, and storage demonstration projects for power generation. This project brings power generation companies, technology providers, and other stakeholders together to collaborate on CCS acceleration objectives and share in the learnings from a series of activities potentially leading up to and including commercial-scale demonstrations.

CO_2DA is designed to accommodate the interests of organizations at multiple stages of consideration, evaluation, and development for CCS demonstration or future deployment.

Benefits

Through an industry and stakeholder supported approach, CO_2DA provides a commitment to environmental, societal, and corporate governance expectations, with a focus on continuing to decarbonize the electric fleet.

Knowledge developed through CO_2DA can support and inform an accelerated CCS pathway, investment decisions, and collaborative learnings driving down cost and increasing viability of overall CCS deployment.

Project Approach and Summary

Development of a full-scale CCS demonstration project is a multi-year commitment, including a set of engineering analyses, studies, and designs, working with key stakeholders to enable permitting, construction, commissioning, operations, and testing.

CO_2DA will develop broad collaborative learnings through a range of customized host-site evaluations, and studies preparing for commercial demonstration, meeting each funder where they are on their CCS journey.

CO_2DA will perform studies on a set of CCS technologies and locations, intended to develop high-quality, ready-to-go sites designed to facilitate potential next-step large-scale demonstrations within the next decade. These studies would be performed on funder host sites—either retrofits on an existing fossil power plant or designed as a greenfield/brownfield site. Host site approaches will be customized to individual funders, and may include some of the following tasks:

- **Fleet CCS Assessment –** Development and application of a fleet screening and site criteria framework to support the identification of a potential host site. The assessment will consider technical requirements for capture, transport, and storage; regulatory and social factors; deployment timeline; and business and technical risks.
- **Capture Feasibility –** An independent feasibility study with an Association for the Advancement of Cost Engineering (AACE) Class 4 cost study. Results would include the process design, efficiency, capital costs, and operations and maintenance (O&M) costs, levelized cost of electricity, and the cost of CO_2 captured and avoided.
- **Front-End Engineering Design Study (FEED) –** Funders who have already completed a site feasibility study have the option to have this effort support the development of detailed design and engineering, required environmental/ regulatory work, code approvals, hazard and operability studies, process flow and piping and instrumentation diagrams, and an AACE Class 3 cost study for the site.
- **CO_2 Transport and Storage Screening, Assessment and Pre-Feasibility –** Studies include geologic static model development, dynamic storage capacity and injectivity estimates, and preliminary storage economics including the cost of CO_2 transport via pipeline from sources located nearby the preferred storage site. Gaps in geologic data/knowledge will be identified for the preferred site and a project implementation plan will be prepared that defines the site-specific steps needed to characterize and permit the storage project.
- **Advanced Project Development –** As projects proceed through the FEED and development phases, technical work will be defined with funding funders, driving results and learnings into the collaborative.

The collaborative nature of CO_2DA provides significant leverage and learnings. Members will receive valuable information from each study for use in the evaluation of CCS technologies designed to accelerate commercial-scale CCS demonstration. Other key activities include the following:

- **Industry and Stakeholder Engagement and Collaboration –** Work with key industry stakeholders and establish forums to inform the conversation, research plan, challenges, needs, solutions, timelines, and risks to accelerate CCS demonstration.
- **Design and Basis Specifications –** Develop design and cost basis criteria and specifications from shared feasibility and FEED study work.
- **Cost and Performance Comparisons –** Use cost and performance data from the other studies to provide useful comparisons on capture technologies and site storage and transport options.
- **Large-Scale Demonstration Preparation –** Engineering and technical resources to support the next step in the collaborative, where significant future investments and planning are needed to launch CCS demonstrations conducted at large scale.

Deliverables

The deliverables from the project include: (1) industry and stakeholder forums; (2) stakeholder communication plan; (3) customized technical CCS support; (4) fleet assessment framework; (5) design basis information (6); cost and performance data; and (6) technical reports and updates throughout project execution.

Price of Project

The cost for participation in the project is $1,500,000 and is payable over three years. This project is eligible for Self-Directed Funding or Tailored Collaboration. Membership in Program 222: Advanced Generation & Carbon Capture and Storage is a requirement for participation in CO_2DA.

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Project Schedule

The project is expected to have a duration of 36 months. Work will begin with one funder participant.

Who Should Join

This project would be of interest to organizations considering potential opportunities for CCS and its role in decarbonization.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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