



O CED
Office of Clean Energy Demonstrations

THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



Carbon Capture Demonstrations Project Tundra Community Briefing

January 9, 2024

Office of Clean Energy Demonstrations

U.S. Department of Energy

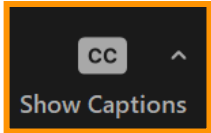
Welcome & Meeting Objectives

- The Office of Clean Energy Demonstrations (OCED) at DOE recently announced the selection of three Carbon Capture Demonstration Projects, including one in Center, North Dakota.
- We at DOE want to share more information on this project and the opportunities to plug in and help shape your community's energy future.
- Engage with DOE and the partners involved in this project.



Briefing Logistics

How do I turn on live captions?

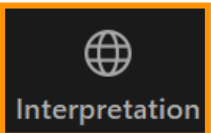


Click on the “**Show Captions**” button in the control panel at the bottom of your screen.

Is this briefing being recorded?

No, this briefing is not being recorded in order to encourage open dialogue and participation from all attendees.

How do I turn on Spanish or ASL interpretation?



Click on the “**Interpretation**” button in the control panel at the bottom of your screen.

Will the slides be shared?

Yes, a copy of the presentation slides will be shared via email with registrants and on the OCED website within the next few days.



Agenda

- Welcome & Objectives
- OCED Overview
- Carbon Capture Demonstration Projects Program Overview
- Project Tundra Overview
- Next Steps & Resources
- Feedback Session
- Wrap-up & Close



OCED Overview



Lydia Kubiak-Cardona,
Community Engagement
Specialist, OCED

OCED Mission

Deliver clean energy technology **demonstration projects at scale** in partnership with the **private sector** to **accelerate deployment, market adoption**, and the **equitable transition** to a decarbonized energy system.



Prioritizing Community Benefits in OCED Projects

OCED **requires** applicants to include a Community Benefits Plan to help ensure broadly shared prosperity in the clean energy transition.

By **prioritizing community benefits**, we can ensure the next chapter in America's energy story is marked by greater justice, equity, security, and resilience.

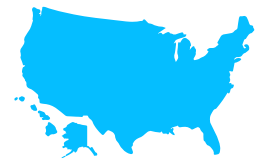
Community & Labor Engagement



Diversity, Equity, Inclusion, & Accessibility



Investing in the American Workforce



Justice40 Initiative



Carbon Capture Demonstration Projects



Todd Shrader,
Deputy Director, Project
Management, OCED

How Does Carbon Capture and Storage (CCS) Work?

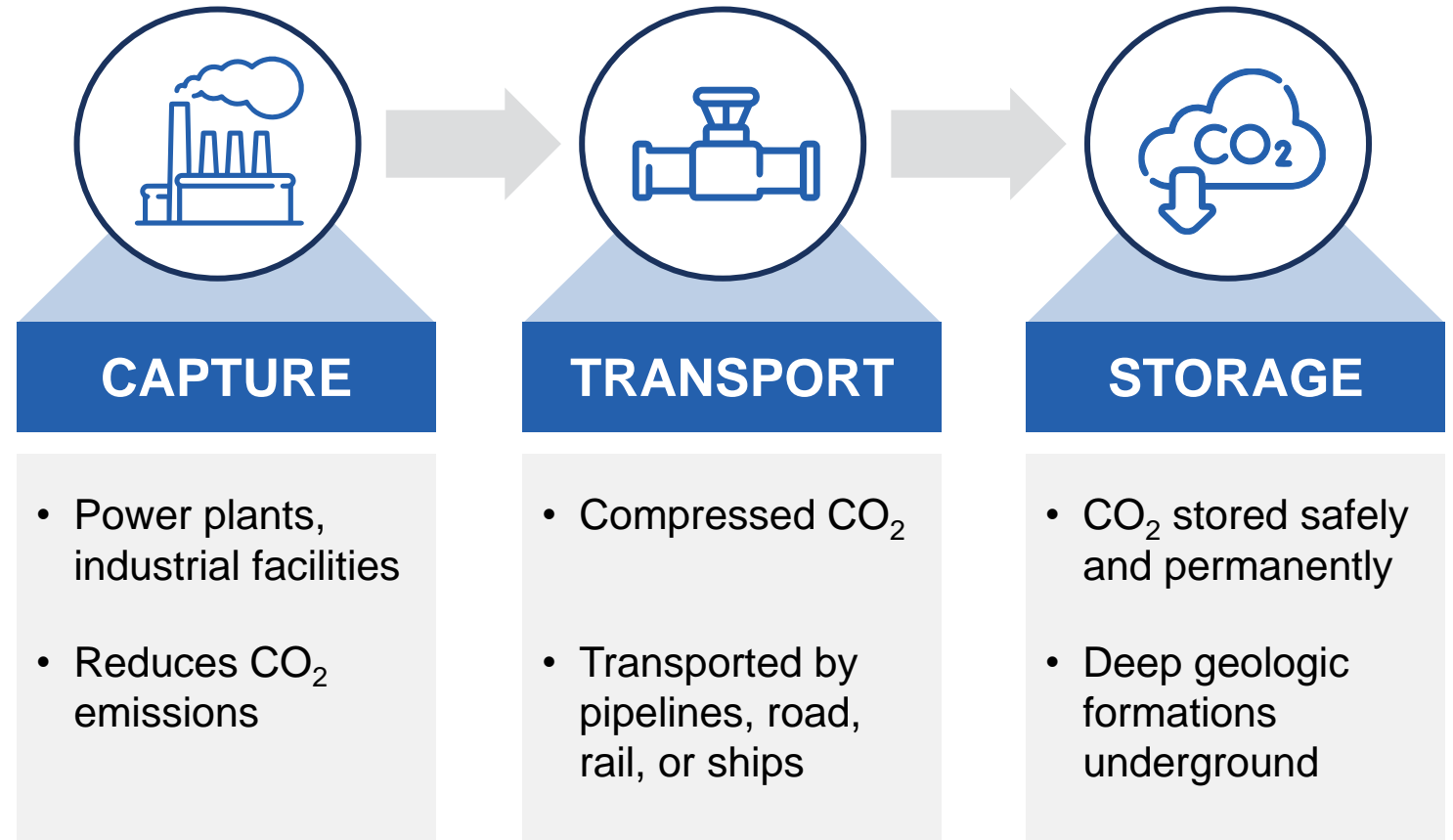
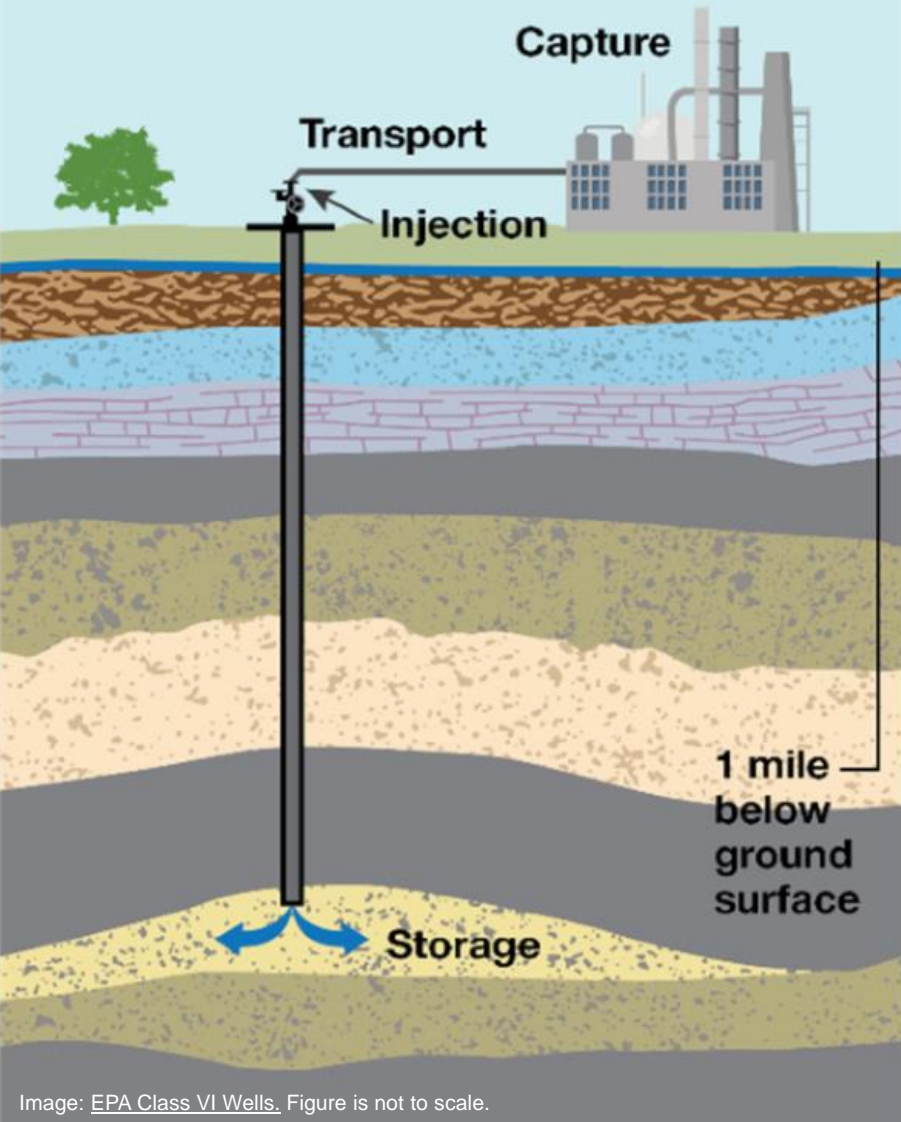


Image: EPA Class VI Wells. Figure is not to scale.

Deploying CCS Technology has the Potential to...



Reduce harmful carbon pollution by preventing carbon emissions from entering the atmosphere.



Demonstrate technology leadership and increase U.S. competitiveness in the global energy transition.



Deliver cleaner air by reducing health-harming pollutants, like SO₂, NO_x, and particulate matter.



Maintain good, high-wage jobs while advancing the clean energy economy.



Decarbonize existing infrastructure and assets in the power and industrial sectors.



Support our nation's net-zero goals and help the world decarbonize at existing facilities.



Carbon Capture Demonstration Projects Program

Develop six carbon capture facilities to significantly improve costs, emissions reductions, and environmental effects of coal and natural gas use.

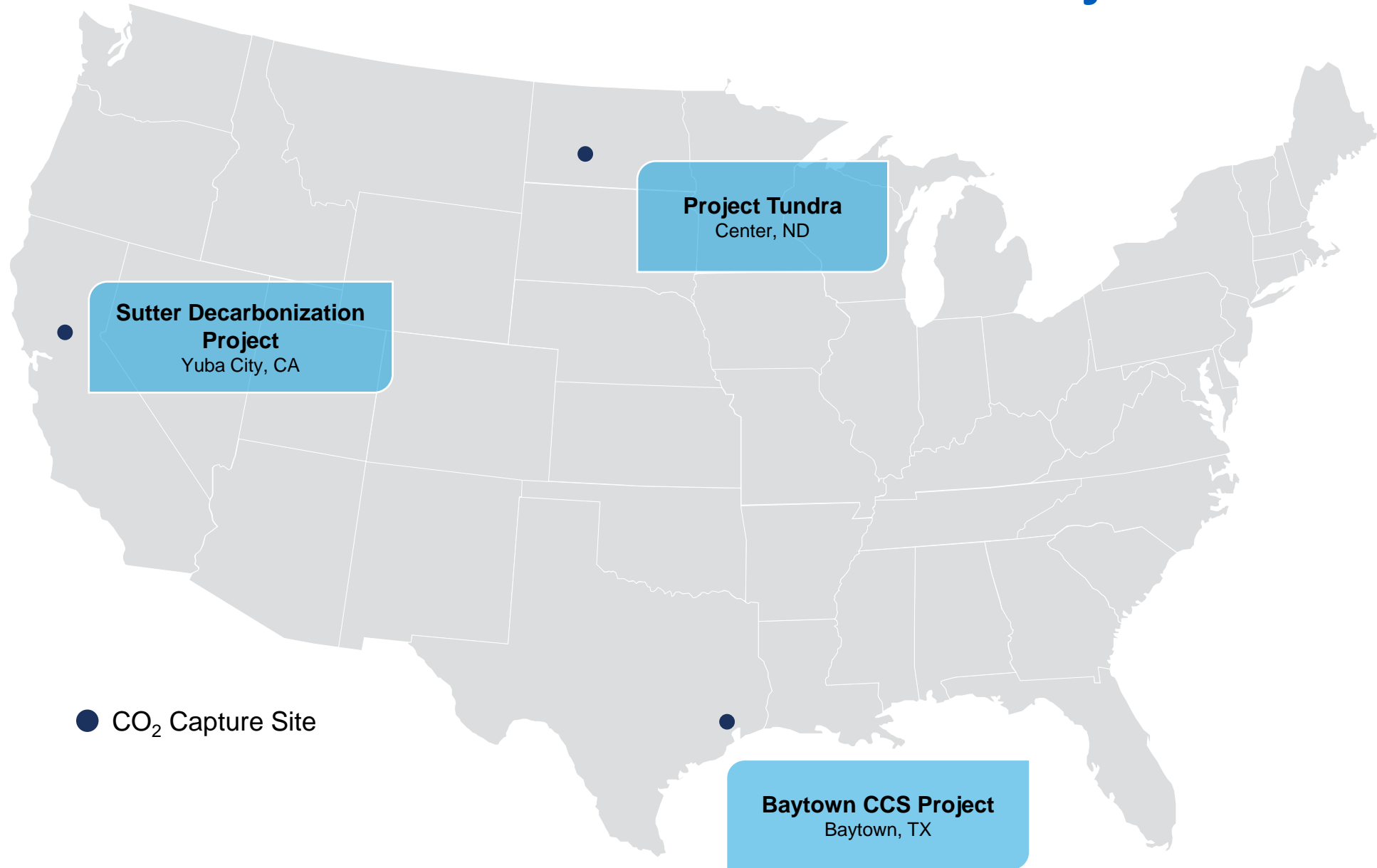
CCS Demonstrations Current Status

- February 2023: Announced funding opportunity for CCS Demonstration Projects.
- May 2023: Received full applications.
- **December 14, 2023: OCED announced three projects selected for award negotiation.**
- DOE anticipates future FOAs for CCS Demonstrations.

Carbon Capture FEED Studies Current Status

- May 2023: Selected nine FEED study projects for award negotiation.
- September 2023: Awarded two FEED study projects.
- December 2023: Awarded four FEED study projects.
- *Other FEED study selectees are still in negotiations.*

Selected CCS Demonstration Projects





Project Tundra Overview



Project Tundra



- **Project Title:** Project Tundra
- **Applicant:** Dakota Carbon Center East Project LLC
- **Location:** Near Center, North Dakota
- **Project Description:**
 - 530 MWe post-combustion CO₂ capture system
 - Host facility - Milton R. Young Station (MRYS), a two-unit lignite-fired power plant near Center, North Dakota.
 - Unit 2 (455 MWn) is designed as the principal project unit
 - Capture capacity - 4.0 million metric tons/year
 - CO₂ flowline and Class VI geologic storage are fully permitted

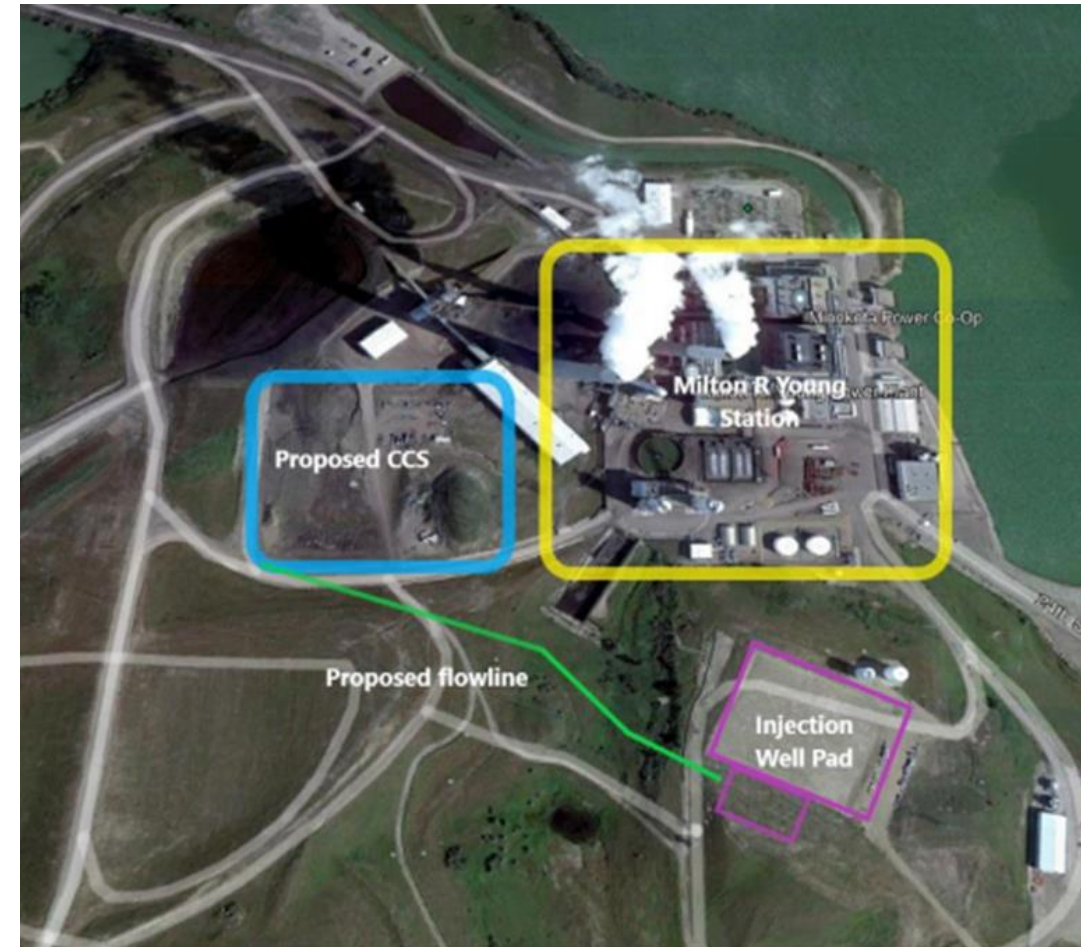


Figure 1. Project Map

Project Tundra



■ Schedule:

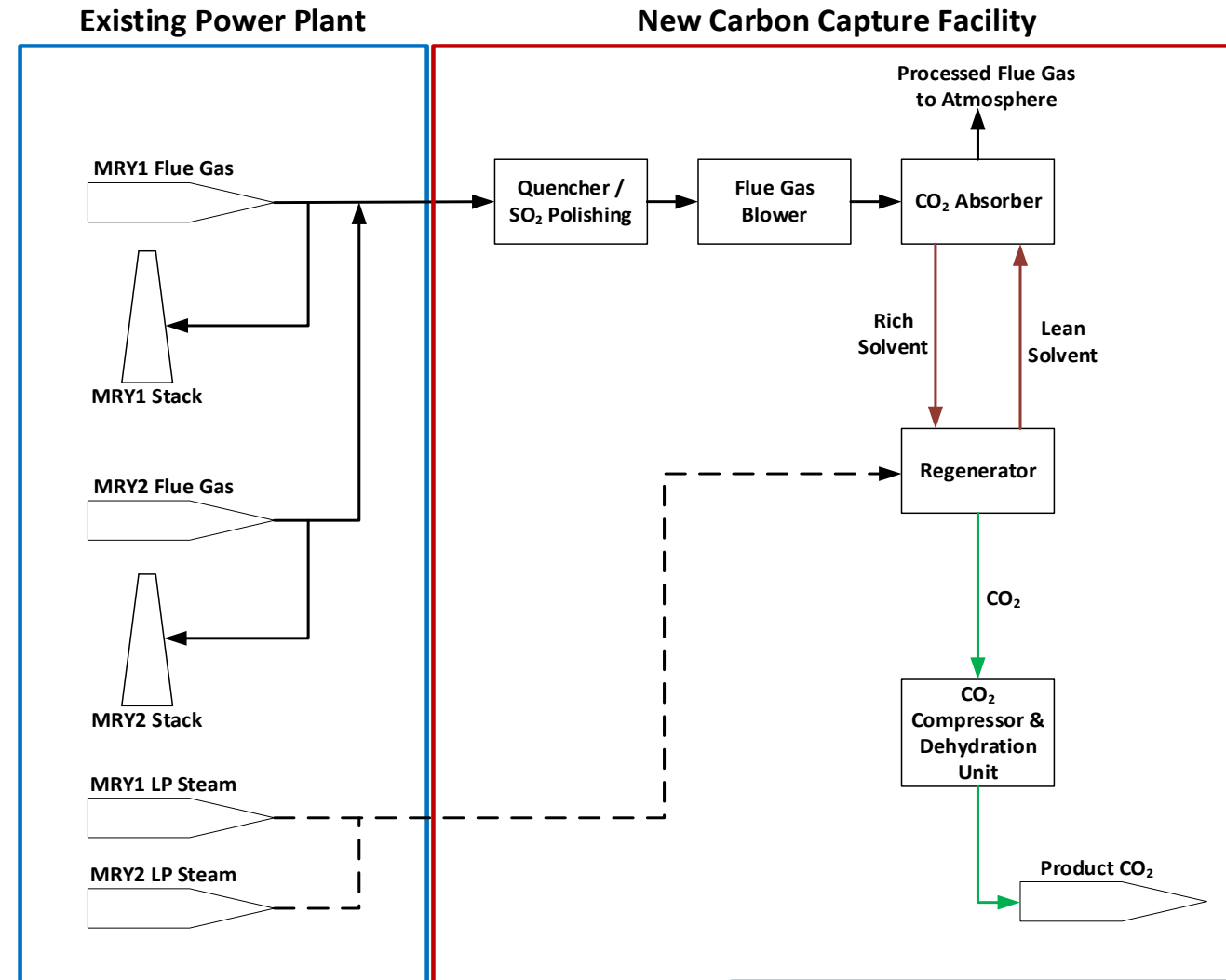
- Commercial Operation expected to occur in late 2028

■ Project Technology:

- MHI's Advanced KM CDR Process™ using KS-21 Solvent

■ Proposed CO₂ Capture Plant Efficiency:

- 95% removal from flue gas that is processed



On-Site Storage Injection



- Pipeline and Injection Well Pad are adjacent to the power plant and well within Minnkota's property line
- Class VI permit and MRV plan are both approved
 - Ready for construction
- Capacity to store 100 million metric tons of CO₂
 - Up to three Class VI CO₂ injection wells
 - Stacked Storage in
 - Broom Creek Fm (5,000 ft)
 - Deadwood Fm (9,000 ft)
- Monitoring wells to be installed in uppermost aquifer and deep subsurface
- CO₂ flowline - 0.25 miles, 24-inch O.D.



Project Attributes



■ Project Impact on Industry

- Innovative “station” approach to CCS with two independent inputs:
 - Treat flue gas from two units
 - Use of steam from two units
- Unique facility-wide optionality that improves overall utilization of the carbon capture plant

■ Key Project Takeaway

- Significant step in furthering Minnkota and TC Energy’s decarbonization goals
- Will provide key lessons learned and knowledge transfer to future national projects, through an innovative and large-scale demonstration

Community Benefits



- The project's Community Benefits Plan is consistent with Minnkota and TC Energy's project development philosophy
- Establishes goals, specific actions, and outcomes to be achieved
- Our goals:
 - Continue to ensure a well-informed community
 - Continue to evaluate opportunities for Labor engagement
 - Advance DEIA considerations for all stakeholders
 - Training the future CCS workforce
 - Ensure the project is of benefit to stakeholders & impacted communities

Community Benefits



- The Community Benefits Plan (CBP) involves four areas of emphasis:
 - Community and Labor Engagement (CLEP)
 - Investing in American Workforce (IAW)
 - Diversity, Equity, Inclusion, and Accessibility (DEIA)
 - Justice40 (J40)
- Many of the CBP goals overlap between these important areas
- Specific engagements have been independently started by the project
- Full two-way conversations to be implemented in early 2024

Potential Agreements



- Potential agreements involve stakeholders and community groups.
 - Community Benefits Agreements
 - To benefit the needs of the host and other impacted communities
 - Good Neighbor Agreements
 - To protect the natural landscapes and rural quality of life
 - Project Labor Agreements
 - To engage organized labor groups
 - Community Workforce Agreements
 - To partner with local workforce development organizations

Actions Implemented



- Independent actions taken or started include:
 - Identified geographical and entity-specific areas of attention
 - Government Websites for geographic, economic, and impacted social elements, including MSAs, Census tracts, and DAC designations
 - Stakeholder identification and mapping (full impact, ancillary, and induced)
 - Engaged with Home Communities, Service Territory, Project Site
 - 97% Landowner consent for project storage
 - Creation of Indigenous Engagement Plan (TCE-IR)
 - Community and Labor Support commitments from:
 - Impacted cities, counties
 - Locals and District union groups
 - Service territory cooperatives
 - US and State congressional delegation(s)

Actions Implemented



- Independent actions taken or started include (cont.):
 - Explored resources representing area women/minority owned businesses
 - Conducted Project Site Landowner meetings
 - Third-party analysis to estimate job creation (construction, indirect, induced)
 - Engagement re: CBP specific training for project participants
 - Explored DAC characteristics

These are on top of the other CB engagements that are a standing commitment of TC Energy, Minnkota and its member-owner cooperatives.

Engagements



- Specific engagements to be implemented in early 2024:
 - Project site and associated communities
 - Engagement with Safety personnel on commitments to site conditions
 - Engagement with Tribal Nations and Tribal Colleges
 - Exploration of school support options / programs re: benefit flow to minority students for project-related educational and vocational fields
 - Engagement with other Minority-Serving Institutions / organizations

It's important to note that much of future engagement involves reaction to and planning from two-way discussions with impacted communities.

Plan Development



- It is fully expected that the specifics with the current CBP will be expanded and enhanced through two-way engagement with stakeholders, DACs, and under-represented communities.
- Our Community Benefit Plan will be shaped and re-shaped through stakeholder engagement.
- It is the project's commitment to embrace these processes to better conduct and better benefit those that have need.

Next Steps & Resources



John Brown,
Stakeholder Engagement
Lead, Carbon Capture,
OCED

Next Steps – Negotiations

Award Negotiations: DOE OCED will begin the negotiations process with project selectees

After Award: *IF the projects receive an award (successful negotiations)*

- Awarded projects will enter into a cooperative agreement with OCED
- Phase 1: Detailed Project Planning begins
- OCED will work with the awarded project partners starting in Phase 1 to ensure compliance with the National Environmental Policy Act (NEPA)
- Local communities (state, local and community stakeholders) will have the opportunity for ongoing engagement with OCED and the awardee(s)

More broadly, DOE is exploring the use of regional frameworks to support project outcomes.



Get Involved

How could this project impact me?

Learn more about OCED's Community Benefits Plan →

Is there a Carbon Capture Demonstration project near me?

Learn more about the selected projects here →

Project selected



Announcement and Negotiations
Projects have been selected, but awards have not been made



What is a CC Demo project?

Learn more →



Project awarded



When are the CC Demos project-specific briefings?

Learn more and register here →

1

~12-18 months

2

~2-3 years

3

~3-6 years

4

~2-4 years

Phase 1: Detailed Plan

Community Benefit Commitments Public

Phase 2: Project Development

Community Benefit Commitments Public

Phase 3: Install, Integrate, Construct

Community Benefit Commitments Public

Phase 4: Ramp-Up & Operate

Community Benefit Commitments Public

Ongoing community engagement throughout each phase

How do I stay informed?

Sign up for updates →

CCS Demonstration Projects Resources

Carbon Capture Demonstration Projects Program

- [Program Page](#)
- [Press Release](#)
- [Overview of Selected Projects](#)
- [Local Engagement Opportunities](#)
- [National Briefing Recording](#)

Additional Carbon Capture Resources

- [Carbon Management Pathways to Commercial Liftoff Report](#)
- [Interactive Diagram of DOE's Carbon Management Provisions](#)
- [EPA Class VI Wells Information](#)

Community Benefits

- [CBP101 Webinar](#)
- [OCED CBP Factsheet](#)
- [OCED Communities, Jobs, and Justice Page](#)



Feedback Session



Emmanuel Taylor,
Facilitator

Ground Rules for Discussion

- Submit questions using the Q&A feature.
 - You can also see and upvote other questions that have been asked.
- Reserve judgement
- One idea at a time
- It is okay to build on the ideas of others
- Clarifying questions are okay





Stay Connected

- Reach DOE OCED about Project Tundra at Tundra_CCS@hq.doe.gov
- OCED Website & Newsletter energy.gov/oced

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