Financial Incentives and Investment Efforts

NARUC-WIEB Carbon Capture, Utilization, and Storage Workshop

FRIDAY, SEPT. 25, 2020 | 1 – 2 PM ET
SPEAKERS

- Shannon Angielski, Executive Director, Carbon Utilization Research Council
- Michael Nasi, Partner, Jackson Walker LLP
FEDERAL UPDATE, 45Q AND CCUS PROJECT FINANCING

NARUC-WIEB CCUS Workshop - #3 in a 6-Part Webinar Series
Financial Incentives and Investment Efforts
September 25, 2020

Shannon Angielski, Executive Director, CURC
Carbon Utilization Research Council (CURC) Members

**Equipment Suppliers**
- General Electric
- Mitsubishi Heavy Industries America, Inc. (MHIA)

**Labor Unions**
- International Brotherhood of Boilermakers
- International Brotherhood of Electrical Workers

**Producers**
- Consol Energy
- Lignite Energy Council
- Peabody Energy

**Technology Developers**
- Bloom Energy
- Bright Energy
- ION Engineering
- Jupiter Oxygen Corporation
- NET Power

**Research Organizations**
- Battelle
- Electric Power Research Institute (EPRI)
- Gas Technology Institute
- University of North Dakota Energy & Environmental Research Center

**State Organizations**
- Kansas State Geological Survey
- Southern States Energy Board
- Wyoming Infrastructure Authority

**Trade Associations**
- American Coal Council
- American Coalition for Clean Coal Electricity (ACCCE)
- Edison Electric Institute (EEI)
- National Rural Electric Cooperative Association (NRECA)

**Universities**
- Lehigh University
- Ohio State University
- Pennsylvania State University
- Southern Illinois University
- University of Illinois/PRI
- University of Kentucky/CAER
- University of Texas – Austin
- University of Wyoming
- West Virginia University

**Utilities**
- Basin Electric Power Cooperative
- Duke Energy Services
- Great River Energy
- Nebraska Public Power District
- Southern Company
- Tri-State Generation & Transmission Association

**NGOs**
- ClearPath Action
- EnergyBlue Project

Orange = Steering Committee Members
UNIQUE MISSION
With a global focus on reducing emissions from fossil fuel utilization, CURC’s nonpartisan, technology-driven mission ensures the long-term value of fossil energy resources in an increasingly carbon-constrained world.

CONSENSUS DRIVEN & TECHNICALLY INFORMED
CURC brings technology developers and end users together. Our recommendations represent the consensus of our membership, including cutting-edge technical experts from a diverse set of interests in power generation.

SKILLED FACILITATORS
CURC is an established facilitator and trusted authority on advanced fossil energy technologies. We maintain productive working relationships with Members of Congress and the Department of Energy, and these entities turn to CURC for the most recent, fact-driven expertise and recommendations on federal policies affecting technology.

PIONEERING RESEARCH & GLOBAL COLLABORATION
CURC collaborates with world-class U.S. and international research organizations, and has been a driving force behind the crafting and passage of federal legislation, creating financial incentives for fossil fuel technology development and funding for research programs at the U.S. Department of Energy.

CURC.NET
FEDERAL INITIATIVES IN SUPPORT OF CCUS:
• Authorizations for Federal RD&D Programs and DOE funding
• Infrastructure support for each component of CCUS ecosystem
• Tax incentives for CCUS deployment (entire ecosystem investment)
FY 2021 Appropriations for DOE Programs

- $1.25 billion in emergency infrastructure spending for Fossil Energy, including $750 million for CCUS-related efforts
- Senate is yet to process FY 2021 Appropriations bills in Committee

<table>
<thead>
<tr>
<th>Coal CCS &amp; Power Systems (All Figures in $ Thousands)</th>
<th>FY 19 Enacted</th>
<th>FY 20 enacted</th>
<th>FY 21 House Passed</th>
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<tbody>
<tr>
<td>Carbon Capture</td>
<td>100,671</td>
<td>117,800</td>
<td>135,500</td>
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<td>Carbon Storage: CarbonSAFE, RCSPs</td>
<td>98,096</td>
<td>100,000</td>
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<td>Advanced Energy Systems</td>
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<td>Crosscutting Research</td>
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<td>Supercritical CO2 Technology (STEP) Program</td>
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<tr>
<td>Transformation Pilot Plan Solicitation</td>
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<td>FEED Study Solicitations</td>
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<td><strong>COAL CCS &amp; Power Systems Subtotal</strong></td>
<td><strong>486,230</strong></td>
<td><strong>490,800</strong></td>
<td><strong>446,000</strong></td>
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CarbonSAFE Phase III Projects

- Wyoming CarbonSAFE: Accelerating CCUS Commercialization and Deployment at Dry Fork Power Station and the Wyoming Integrated Test Center, University of Wyoming.
- San Juan Basin CarbonSAFE Phase III: Ensuring Safe Subsurface Storage of CO₂ in Saline Reservoirs, New Mexico Institute of Mining and Technology.
- North Dakota CarbonSAFE Phase III: Site Characterization and Permitting, University of North Dakota Energy & Environmental Research Center.
- Illinois Storage Corridor: The Board of Trustees of the University of Illinois.
- Establishing an Early CO₂ Storage Complex in Kemper County, Mississippi, Project ECO2S, Southern States Energy Board.

Graphic: DOE/NETL
DOE-Funded FEED Studies

Membrane Technology and Research, Inc.
Newark, CA
Basin Electric Dry Fork Station, WY

Ion Engineering LLC
Boulder, CO
Nebraska Public Power District
Gerald Gentlemans Station
Unit 2, NE

Minnkola Power Cooperative, Inc.
Grand Forks, ND
Milton R. Young Station Unit 2, ND

Enchant Energy LLC
New York, NY
San Juan Generating Station, NM

Bechtel National, Inc.
Reston, VA
Panda Power Funds, TX

Southern Company Services, Inc.
Birmingham, AL
Plant Barry 6 & 7 AL or Plant Daniels 3&4, MS

The University of Texas at Austin
Austin, TX
Golden Spread Electric Cooperative Mustang, TX

Board of Trustees of the University of Illinois
Champaign, IL
Prairie State Generating Company's Energy, IL

Graphic: DOE/NETL
Fossil Energy RD&D Legislation

- **Enhancing Fossil Fuel Energy Carbon Technology (EFFECT) Act (S. 1201)**
  - Senators Manchin (D-WV) & Murkowski (R-AK) → 8 bipartisan cosponsors
  - Included in comprehensive Senate Energy bill (S. 2302), the American Energy Innovation Act

- **Fossil Energy Research and Development Act (H.R. 3607)**
  - Reps. Marc Veasey (D-TX) & David Schweikert (R-AZ) → 7 bipartisan cosponsors

- **Both bills would authorize new RD&D programs for CCUS:**
  - Large-scale pilots and commercial demos
  - Support for Front-End Engineering and Design (FEED) studies
  - Robust RD&D programs for Carbon Storage, Carbon Utilization, and Carbon Removal

- **Clean Industrial Technology Act (S. 2300 / H.R. 3978)**
  - Sen. Sheldon Whitehouse (D-RI) & Rep. Sean Casten (D-IL)
  - Creates industrial decarbonization RD&D program, which includes carbon capture to address industrial emissions
House Energy & Climate Legislation

- **Moving FORWARD Act (H.R. 2)**
  - Passed by House Democrats in July and considered to be their comprehensive climate policy and includes a clean energy standard for the electricity sector
  - In addition to 45Q modifications, the bill authorizes $15 billion in federal funding for CCUS and DAC commercial demonstration projects, FEED studies, large-scale carbon storage projects

- **Clean Economy Jobs and Innovation Act (H.R. 4447)**
  - Includes H.R. 3607, the FE R&D bill provisions
  - Adds provisions from H.R. 2, including $11 billion for in federal funding for CCUS and DAC commercial demonstration projects, large-scale carbon storage projects
  - No tax provisions included
**CO₂ Infrastructure Legislation**

- **Utilizing Significant Emissions with Innovative Technologies ("USE IT") Act (S. 383 / H.R. 1166)**
  - S. 383, Sens. John Barrasso (R-WY) and Sheldon Whitehouse (D-RI) → 16 bipartisan cosponsors
  - H.R. 1166, Reps. Scott Peters (D-CA) and David McKinley (R-WV) → 57 bipartisan cosponsors
  - Authorizes EPA to support carbon utilization and direct air capture research
  - Clarifies eligibility for CCUS projects and CO2 pipelines for FAST Act permitting review
  - Included in 2020 Senate Defense Reauthorization bill

- **Investing in Energy Systems for the Transport of CO₂ Act of 2019 (H.R. 4905)**
  - Introduced by Rep. Cheri Bustos (D-IL)
  - Establishes a minimum of a 10-year waiver of ad valorem and property taxes
  - Provides low-interest loans to finance up to 80% of project costs, with total program authorization of $500 million
Federal Tax Legislation

● **Carbon Capture Modernization Act** (S. 407 / H.R. 1796)
  • Sen. John Hoeven (R-ND), Sen. Tina Smith (D-MN)
  • Rep. David McKinley (R-WV), Rep. Colin Peterson (D-MN)
  • Modifies existing investment tax credits for carbon capture on coal plants

● **Financing Our Future Energy Act** (S. 1841 / H.R. 3249)
  • Sen. Chris Coons (D-DE) & Rep. Mike Thompson (D-CA)
  • Expands definition of Master Limited Partnerships to include income and gains from certain energy projects including CCUS

● **Carbon Capture Improvement Act** (S. 1763 / H.R. 3861)
  • Sen. Michael Bennet (D-CO) & Rep. Tim Burchett (R-TN)
  • Authorizes issuance of tax-exempt facility bonds for financing of CCUS facilities
Section 48A Tax Credit Legislation

- The Section 48A investment tax credit or “Credit for Investment in Clean Coal facilities” established in the Energy Tax Incentives Act (ETIA) of 2005.
- In 2008, Congress expanded the credit through the Energy Improvement and Extension Act (EIEA)
- Disconnect between original 2005 credit and 2008 revision
  - CCS projects on a new or existing plant cannot technically improve their efficiency; adding CO$_2$ capture reduces the efficiency of a new or existing plant
  - The Section 48A tax credit has not incentivized CCS on new non-IGCC or any existing coal plants.
FUTURE ACT of 2018:  
45Q Carbon Sequestration Tax Credits

- Functions like a production tax credit, with a $/ton value for CO₂ or COx captured and stored - *creates certainty for financial investment*
- Makes credit available through January 1, 2024 (commence construction) - *creates certainty for financial investment*
- Credit claiming period is 12 years
- Increases credit values over a 10 year escalation period to:
  - $35/ton for Enhanced Oil Recovery (EOR)
  - $50/ton for Geologic Storage
  - $35/ton for CO₂ or COx Captured and Utilized (CO₂ conversion and not emitted)
- Direct air capture an eligible technology - **New**
- Can assign tax credit to other entities involved in the project - *helps to fully monetize the tax credits within the project*
- Modifies eligibility criteria:
  - Shifts from industrial emitter to CO₂ capture equipment owner - *helps to fully monetize the tax credits within the project*
  - CO₂ Thresholds
    - Maintains 500,000 tons of CO₂ for EGUs
    - 100,000 tons for industrial emitters
    - 25,000 tons for pilot projects in which the CO₂ is stored in a utilization project
Pending 45Q Legislation

- **Carbon Capture and Sequestration Extension Act of 2019 (H.R. 5156)**
  - Rep. Terri Sewell (D-AL)
  - Extends commence construction date of Section 45Q tax credit by one year

- **Redeeming Effectiveness to Carbon Oxide Utilization Plus Sequestration Act of 2020 (H.R. 7986)**
  - Jack Bergman (R-MI) and Lizzie Fletcher (D-TX)
  - Allows taxpayers to claim tax credit in the form of a cash payment, but would be discounted by 10%

- **Moving FORWARD Act of 2020 (H.R. 2)**
  - House Democratic climate bill that:
    - Extends the commence construction date by two years (12/31/2025); and
    - Allows taxpayers to claim tax credit in the form of a cash payment, but would be discounted by 15%
Tax Equity, Direct Pay, and 45Q

- Many owners of energy development projects do not have tax liability to monetize the tax credits and need to enter into tax equity partnerships to create a revenue stream to the owner of the credit in return for tax equity investment in the partnership.
- Tax equity investors typically take on a significant portion of the tax credit value in return for equity investment.
- Implementing a direct pay mechanism would enhance monetization of the 45Q tax credits for CCUS project developers by allowing project owners to receive a cash payment from the Treasury instead of a tax credit.
COVID-19 Impacts

- COVID-19 pandemic may reduce tax liability of project developers as well as investors over the next several years
- Investor concerns over supply chain disruptions and delays
- There is precedent for providing a mechanism similar to direct pay for energy projects from the Recovery Act in 2009, which provided a grant in lieu of a tax credit, but these grants were provided only for renewable energy projects.
2020 Federal Legislative Outlook

- Action on CCUS legislation possible with House and Senate energy bills
- Infrastructure or energy-related legislation unlikely following the election, but not impossible:
  - Direct Pay for Section 45Q Tax Credit
  - Extension of commence construction date for 45Q
  - Funding for CCUS commercial demonstration and large-scale carbon storage projects (included in House energy innovation bill)
Thank You

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Overview of State CCUS Incentives

NARUC CCUS Workshop

September 25, 2020

Mike Nasi, Partner, Jackson Walker LLP, General Counsel,
Overview of State CCUS Incentives

A. FINANCIAL

1. Local Property Taxes (*Exemptions/Abatements/Increments*)
2. State Tax Exemptions & Credits (*Sales/Income/Severance*)

B. REGULATORY

1. Environmental Regulatory Certainty (*Air/UIC/Waste*)
2. Oil & Gas Regulatory Certainty (*UIC/Unitization*)
3. Utility Regulatory Certainty (*Regulated/Deregulated*)
Incentives Play a Key Role at Various Points Along a Project Development Timeline to Make Project Viable

- **Incentives Phases**
  - FEED
  - Permitting
  - Financing
  - Construction
  - Operation

- **Incentives**
  - Liability/Ownership Clarification
  - Clear Regulatory Framework
  - Grants
  - Loans
  - Franchise Tax Credits
  - Eminent Domain for pipelines
  - Sales Tax Exemptions
  - Property Tax Abatement
  - Franchise Tax Credits
  - Severance Tax Exemptions
  - Gross Receipts Tax Exemptions
Value Proposition of Incentives Varies Across Participants Depending Upon Role & Finances

Local Property
- Tax Exemptions / Abatements / Value Caps / TIFs

State
- Sales / Gross Receipts Tax Exemptions / Redirection
- Income / Franchise Tax Credits
- Severance Tax Exemptions / Credits

Host / Sponsor (E.g., Utility) → Technology Partner

Tax Equity Partner

Coal Supplier

EOR Partner
Local Property Tax Exemptions / Abatements / Value Caps / Increment Financing

- Significant economic value here ($80-200MM+ per plant)
- Clarify that CCUS-EOR network qualifies as tax-exempt under existing programs (“pollution control property”)
- If non-exempt, facilitate abatements of, value caps on, and/or increment financing of local property taxes
- Locally-controlled and relatively state budget-proof
State Sales & Gross Receipts Tax Exemptions

Sales Tax Exemption
• Clarify sales tax-exempt status of carbon capture, transportation & injection equipment relating to anthropogenic “emission” source

Gross Receipts Tax Exemption/Redirection
• Permanent exemption from (or redirection of) gross receipts & similar taxes
Corporate Income / Franchise Tax Credit Programs

• New & retrofit projects meeting defined “gatekeeper” emission criteria (% CO2, PM, SO2, Nox, etc...)

• Ensure it can be monetized (*multi-year & assignable*)

• Fuel & technology neutral so natural gas and pre and post-combustion carbon capture projects are covered

Severance Tax Exemptions (*or redirection/credits*)

• Coal

• Oil & Gas
CASE STUDY RE: Severance Tax for oil recovered using CO2 captured from a manmade source

- 75% tax exemption for oil recovered using EOR through the use of captured man-made CO₂
- Ensure that duration meets project needs (TX – 30 yrs)
- Fiscally-neutral, but significant incentive for projects
Time-Certain Air Permitting

- Cap time & refine public participation process for Air & UIC permitting

Underground Injection and Control (UIC) - Multi-state effort to allow, but not mandate, Documented sequestration as part of Class 2 permit

- Class VI issues can also be accommodated, but Class 2 preference

Regulatory treatment of CO\(_2\) in the EOR Context -

- NOT a “waste” or “pollutant” (sold and used as a product)
- Relevance to air, water, & waste programs
Utility Regulatory Incentives – Regulated Market Examples

WY HF 159 (Stick)
- “Good faith offer for sale” as prerequisite to retirement

WY HF 200 (Carrots and Sticks)
- Mandatory CCUS evaluation in IRPs
- CCUS Portfolio Standard - compliance as prerequisite to accelerated depreciation for coal plant retirement and/or cost recovery for replacement power
- Innovative Ratemaking to (1) enable IOUs to “earn” outside of rate-base and (2) allow large loads to aggregate behind the meter
• Capacity payments
• Dispatch priority
• CCUS as part of “clean energy” portfolio standards
• Require renewables to secure firming/balancing power to cover intermittence (CCUS or batteries)
• Given that most rural cooperatives are not “regulated,” how to develop carrots for them without full regulation?
QUESTIONS?

Overview of State Incentives for CCUS

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(512) 236-2216
mnasi@jw.com
QUESTIONS

Submit questions two ways:

1. Raise your hand and the moderator will call on you to unmute your line

2. Type a question into the question box
NARUC-WIEB CCUS WORKSHOP SCHEDULE

1. Sept. 11: The Case for Carbon Capture, Utilization, and Storage
2. Sept. 18: Breaking It Down: CCUS Technologies
5. Oct. 9: Project Update Part II: International CCUS Development Efforts

Full Agenda | Registration

All webinars are held from 1:00 – 2:00 pm ET
UPCOMING NARUC EVENTS

Innovation Webinars

• Oct 22, 3-4PM (ET): Emerging Possibilities for Bulk Energy Storage
• Nov 19, 3-4PM (ET): Where the Wind Blows: Offshore Wind Outlook for State Regulators

NARUC Annual Meeting – Nov 5-6 and 9-11

• Registration open
• https://www.naruc.org/meetings-and-events/naruc-annual-meetings/2020-annual-meeting/
Save-the-Dates

**Fall 2020 JOINT CREPC-WIRAB MEETING Webinar Series**

Fridays: October 23, October 30, November 6, and November 13, 2020
11:00 – 12:30 PM (MT) / 10:00 – 11:30 AM (PT)

You are invited to join us on Fridays this October and November for the Fall 2020 Joint CREPC-WIRAB Meeting Webinar Series, where western electric utility policymakers and regulators, industry experts, consumer advocates, and other stakeholders will explore and discuss current and emerging electricity trends, challenges, and opportunities for the Western Interconnection.

[https://westernenergyboard.org/](https://westernenergyboard.org/)

Joint CREPC-WIRAB Meetings are conducted by the Committee on Regional Electric Power Cooperation (CREPC)—a joint committee of the Western Interstate Energy Board and the Western Conference of Public Service Commissioners—and the Western Interconnection Regional Advisory Body (WIRAB).
THANK YOU

Join us for the next webinar in the NARUC-WIEB CCUS Workshop

Friday, Oct 2 | 1:00 – 2:00 pm ET

*Project Update Part I: Domestic CCUS Development Efforts*

- William Swetra, Senior Policy Analyst, Oxy Low Carbon Ventures
- Lee Beck, CCUS Policy Innovation Director, Clean Air Task Force