

The Carbon Utilization Research Council (CURC) is focused on technology solutions for the responsible use of our fossil energy resources to support our nation's need for reliable and affordable energy. For more information, please visit our website at www.curc.net.

LEADERSHIP

Co-Chairs

Barbara Walz

Senior VP, Policy & Compliance
Tri-State Generation & Transmission

Holly Krutka

Vice President, Coal Generation and Emissions
Technologies
Peabody Energy

Vice Chair

Regis Repko

Senior Vice President &
Chief Fossil/Hydro Officer
Duke Energy

LEADERSHIP COUNCIL

Scott Gossard

VP, Engineering & Technology
B&W Power Generation Group

OFFICERS

Treasurer

Jason Lynn

Washington Manager, Government Affairs
Caterpillar, Inc.

Secretary

Michael Stroben

Director, Environmental Policy
Analysis & Strategy
Duke Energy

www.curc.net

1050 Thomas Jefferson St. NW
Washington, D.C. 20007

Happy New Year from CURC! We wish to thank all of you who contributed to CURC's efforts last year, which have positioned us well for the start of 2018. Our newsletter communicates the work we have collectively accomplished during the last quarter of 2017, and provides a look forward to some of our efforts in 2018.

FEDERAL ADVOCACY

Section 45Q Tax Credits Included in Senate Extenders Bill

CURC continues to partner with industry, NGOs and stakeholders in a coalition effort to modify and expand the Section 45Q carbon sequestration tax credits that will increase the value of the tax credits and extend the date to be eligible for credits under the program, so investors will have the certainty needed to invest in CCUS projects. We are pleased to report that the provisions of Senate legislation supported and advocated by CURC, S. 1535 (the FUTURE Act), have been included the Senate Finance Committee bill that was released by Chairman Hatch just before the holidays.

Ahead of the release of the Committee's bill, the FUTURE Act's lead sponsors, Senators Heidi Heitkamp (D-ND), Shelley Moore Capito (R-WV), Sheldon Whitehouse (D-RI) and John Barrasso (R-WY) sent a [letter](#) to Senate leadership urging them to include their bill in any tax extenders package that will be considered in Congress, and CURC signed on to a joint industry and stakeholder [letter](#) to the Senate Finance Committee in November promoting a similar message. House and Senate leadership agreed to separately address tax extenders outside the scope of the tax reform bill that was enacted just before Christmas. Discussions are under way in Congress to determine if there is enough support to move a tax extenders bill early this year. The extenders bill is only one of many legislative issues that need to be addressed this month, including funding for FY 2018 and a disaster supplemental. As a result, extenders could move as a stand-alone package or be attached to other must pass legislation.

CURC is engaging with Congressional policymakers to urge their consideration and passage of this important legislation, and encourages your continued participation in our coalition efforts to enact Section 45Q legislation early in this Congress.

CURC STAFF

Shannon Angielski
Executive Director
sma@vnf.com

Stuart Hall
Director of Congressional Affairs
sch@vnf.com

Michael Weiner
Director of Coalition Services
mrw@vnf.com

Michael Platner
Tax Policy Specialist
mlp@vnf.com

UPCOMING EVENTS

CURC General Membership Meeting & Capitol Hill Day
February 27-28, 2018
Washington, D.C.

Federal Funding for Fossil Energy Research and Development

FY 2018

Congress passed a continuing resolution (CR) to fund the government through January 19th. At that time, Congress must pass another short or long term CR, or pass an omnibus appropriations measure that we anticipate will include FY 2018 funding levels for the Department of Energy's Fossil Energy and Research and Development (FER&D) Program. Earlier in 2017, Congress came to an agreement on an omnibus appropriations measure for the remainder of FY 2017. CURC advocated for funding increases for the Department of Energy's Coal CCS R&D program and the creation of a new transformational large pilot program, both of which were enacted in the final FY 2017 measure. CURC applauds the House recommendation for an additional \$25 million for the transformational large pilot program in FY 2018. We are similarly pleased that the FY 2018 House and Senate bills recommend overall funding levels for the Coal CCS & Power Systems program consistent with CURC recommendations. The Senate measure directs the Department to fund efforts beyond basic R&D, support the CarbonSAFE program, and the National Carbon Capture Center, which are supported through CURC's [recommendations](#) to Congressional appropriators. CURC continues to work with Members and the subcommittees in both the House and Senate to ensure robust and directed funding for the FER&D Program for FY 2018.

FY 2019

CURC sent a [letter](#) to Secretary of Energy Rick Perry and Office of Management and Budget (OMB) Director Mick Mulvaney urging the Administration to provide robust funding for the Fossil Energy Research and Development Program at the U.S. Department of Energy for FY 2019. The letter also provides CURC detailed budget recommendations for each of the program areas in the Fossil Energy R&D program of interest to CURC, and addresses how federal funding for RD&D will lead to the development and deployment of advanced fossil energy technologies.

Senate Hearings on Innovation and Regulation

The Senate Environment and Public Works Committee held hearings in the fall of 2017 focused on innovation and regulation. The first hearing in September was entitled "[Expanding and Accelerating the Deployment and Use of Carbon Capture, Utilization and Sequestration.](#)" During the hearing, NRG identified New Source Review (NSR) as a barrier to CO₂ capture retrofits, and discussed how the company wanted to modify a boiler at the PetraNova CO₂ capture project in Texas, but concerns over triggering NSR forced NRG into a more expensive modification to the system.

CURC SPEAKING ENGAGEMENTS

Shenhua Delegation Meeting

*September 8, 2017
Washington, D.C.*

CSIS Electricity in Transition: The Changing Landscape for Coal in the United States

*September 8, 2017
Washington, D.C.*

Mines and Money

*October 2, 2017
Toronto, ON*

International Brotherhood of Boilermakers Tripartite Conference

*October 3, 2017
Myrtle Beach, SC*

US-China Energy Technology Briefing

*November 6, 2017
Washington, D.C.*

CURC-USEA Panel on International CCUS Collaboration

*November 13, 2017
Washington, D.C.*

US-China Clean Coal Industry Forum

*November 30, 2017
Morgantown, WV*

In November, the Committee held a hearing entitled "[Promoting American Leadership in Reducing Air Emissions Through Innovation](#)". NSR was a key topic of discussion. The National Association of Manufacturers (NAM) highlighted how NSR is affecting the manufacturing industry as well as the power generation sector, and that it prevents the implementation of technologies that would solve environmental issues. Chairman John Barrasso (R-WY) also entered CURC's [NSR White Paper](#) into the hearing record, noting that he too believed NSR to be a barrier that prevents companies from retrofitting their facilities with technologies that would reduce emissions.

CURC is pleased that the Environment and Public Works Committee is evaluating all aspects of adopting CCUS technologies and attempting to find ways to encourage innovation through these hearings, and looks forward to continuing to work with the Committee on these issues.

CURC Statement on DOE Grid Resiliency Price Rule

In October, the Department of Energy issued a Notice of Proposed Rulemaking (NPR) that urged the Federal Energy Regulatory Commission (FERC) to expedite efforts to improve energy price formation in regional power markets. In a [letter](#) to Energy Secretary Rick Perry and then-Acting FERC Commissioner Neil Chatterjee, CURC agreed with the foundation of the proposal that reliability and resiliency attributes of electric generation sources need to be appropriately valued in markets, and that preserving this resilience in the future will require a diverse portfolio of generating technologies. The letter takes this further by noting the existing fleet will begin aging out over the next 10 to 20 years, and that accelerated development of new, transformational fossil energy technologies will be necessary to maintain a diverse generation portfolio. The letter proposes that increased federal research, development and demonstration (RD&D) and federal policy support will be necessary to support and accelerate the development and deployment of these critical technologies.

MARK YOUR CALENDARS: 2018 ACTIVITIES

CURC General Membership Meeting and 2018 Capitol Hill Day

CURC will hold its annual Capitol Hill Day on February 28th, 2018 in Washington, D.C. The Capitol Hill Day Event will be preceded by a General Membership Meeting and Reception the day prior. CURC and its members visited with 30 Congressional offices during the 2017 Capitol Hill Day to promote the development and deployment of fossil energy technologies.

2018 CURC Advanced Technology Showcase

CURC intends to host its biennial Advanced Technology Showcase in 2018.

CURC Members Receiving DOE Funding ***(September – December 2017)***

Carbon Storage Program

Pennsylvania State University
(\$2.016 million)

University of North Dakota
(\$1.831 million)

Advanced Combustion Systems Program

West Virginia University
(\$1.34 million)

Electric Power Research Institute
(\$1.179 million)

University of North Dakota
(\$1.5 million)

Rare Earth Elements Program

Ohio State University
(\$399,967)

**University of Kentucky Research
Foundation**
(\$322,352)

University of North Dakota
(\$400,000)

Battelle Memorial Institute
(\$674,940)

**West Virginia University Research
Corporation**
(\$644,060)

Prior Technology Showcases have allowed interaction with industry experts, federal policymakers and technology innovators to learn about the progress being made to develop advanced fossil energy and CCUS technologies and the policy mechanisms that are being developed to enable the advancement and commercialization of those technologies. CURC's 2016 showcase featured remarks from Senator Joe Manchin (R-WV), Senator Heidi Heitkamp (D-ND) and Congressman David McKinley (R-WV) along with former Principal Deputy Assistant Secretary for Fossil Energy Douglas Hollett and Andrew Hlasko of the Department of Energy. A list of exhibitors and information from the 2016 showcase can be found at [here](#). More information will be forthcoming as we begin to plan for the event later this year.

CURC EVENTS

CURC 2017 Fall General Membership Meeting

On October 26th, CURC held its Fall General Membership Meeting at the Capitol Visitors Center in Washington, D.C. We were pleased that Senator John Barrasso (R-WY), a critical leader in the U.S. Senate on advancing policies to support fossil energy and CCUS technologies, was able to join us. Senator Barrasso discussed the importance of domestic baseload power and the objective of unleashing American energy dominance. We were also joined throughout the day by a series of guest speakers, including:

- Jarad Daniels, Acting Deputy Assistant Secretary for Clean Coal and Carbon Management, U.S. Department of Energy
- Matt Wallace, Advanced Resources International
- Eric Holdsworth, Edison Electric Institute
- Heath Knakmuhs, U.S. Chamber of Commerce Global Energy Institute.

CURC would like to thank all of the members and speakers that were able to join us in Washington for the meeting, which help to inform CURC's efforts in support of our mission. Documents and presentations from the meeting are available on the CURC [website](#).

THANK YOU TO OUR FALL MEETING SPONSORS

CLEARPATH



CURC-USEA Panel on International CCUS Collaboration

On November 13th, CURC moderated a panel discussion on international CCUS collaboration at the offices of the United States Energy Association here in Washington. Shannon Angielski provided a brief summary of the findings from CURC's recent report [Analysis of Options to Overcome Barriers to Unilateral and Multilateral Large-Pilot Projects for Fossil Fuel Based Power Plants Equipped with CCS](#). Also participating on the panel were the following speakers:

- John Litynski, Carbon Capture Program Manager, United States Department of Energy
- Frank Morton, Director of Technology Development, National Carbon Capture Center
- Chris Romans, Senior Manager, Mitsubishi Heavy Industries America
- Don Stevenson, Executive Director, Gas Technology Institute
- Marnie Funk, Shell Oil Company

Presentations from the event are available [here](#).

CURC MEMBER SPOTLIGHT – NATIONAL CARBON CAPTURE CENTER

Sponsored by the U.S. Department of Energy (DOE), the [National Carbon Capture Center](#) is a cornerstone of innovation in advanced fossil energy research and development. Since its creation by DOE's Office of Fossil Energy in 2009, the center has established itself as a world-class, neutral test facility, working to accelerate the development and commercialization of next-generation technologies to reduce greenhouse gas emissions from fossil fuel-based power plants.

Managed and operated by Southern Company, the National Carbon Capture Center works with third-party technology developers – including over 30 government, industry, university and research organizations from seven countries – to bridge the gap between laboratory research and large-scale demonstrations. The center – which is located in Wilsonville, Alabama, adjacent to Southern Company subsidiary Alabama Power's Plant Gaston – offers a pathway to move novel technologies out of the laboratory and demonstrate them in the real-world conditions of a power plant.

The National Carbon Capture Center also provides worldwide leadership to promote the level of readiness for carbon capture technologies. The center co-founded and chairs the International Test Center Network, a global coalition of facilities focused on accelerating the research, development and commercial deployment of carbon capture, utilization and storage (CCUS) technologies. Under the guidance of the National Carbon Capture Center, worldwide CCUS testing collaboration and knowledge sharing is ongoing in Australia, Canada, China, the European Union, India, Japan, Korea, the United Arab Emirates and the U.S.



100,000 Hours of Testing

With its unique and highly skilled team, the National Carbon Center recently surpassed 100,000 hours of technology testing. This included testing of approximately 60 developer projects, which resulted in the reduction of carbon capture costs by one-third since 2011. In December, the center was recognized during Peabody's Global Clean Coal Leadership Awards as Carbon Capture and Storage Pioneer.

Learn more about why the National Carbon Capture Center is unique and the advantages it offers innovative technology developers [here](#).

CURC NEWS ROUNDUP

Holly Krutka to Serve as CURC Co-Chair

CURC is pleased to announce that Holly Krutka, Vice President of Coal Generation and Emissions Technologies at Peabody Energy, has replaced Michael Flannigan to be on CURC's leadership team as a Co-Chair in 2018. Holly has been a valuable contributor to CURC's efforts for many years in her various roles with Tri-State and Cornerstone, and has aided the organization in the development of the CURC-EPRI Advanced Technology Roadmap.

CURC would also like to thank departing CURC Co-Chair Barbara Walz of Tri-State Generation and Transmission Association for her years of service to our organization. Under Barbara's leadership, CURC became a progressive industry leader in promoting the development and deployment of advanced fossil energy technologies. We wish Barbara the best and look forward to both her and Tri-State's continued leadership in our efforts!

CURC Speaking Engagements

Shannon Angielski spoke at the US-China Clean Coal Industry Forum hosted by CURC member West Virginia University in Morgantown, West Virginia on November 30th. Shannon's remarks provided an update on the status of the 2017 CURC-EPRI Fossil Energy Technology Roadmap, which is set to be released in early 2018. More information about the event can be found on [here](#).

Earlier in November, Shannon participated in a panel discussion at the U.S. Capitol Visitors Center on the innovation race between the United States and China for energy technology dominance. The event was hosted by CURC member ClearPath Foundation, and Axios. Panelists included representatives of the fossil, renewable and nuclear energy sectors, as well as the Chamber of Commerce and the Council on Foreign Relations.

Shannon focused on the need for a core comprehensive energy strategy in order to enable the deployment of all advanced energy technologies rather than setting them against one another. She also emphasized the opportunity that the United States has to be a leader on CCUS technologies given the ability of our existing infrastructure to catalyze industry and implement emerging technologies in a way that China cannot. To view a video of the event, click [here](#).