



CARBON CAPTURE COALITION

March 10, 2019

The Honorable Lamar Alexander Chairman,
Subcommittee on Energy and Water
Development
Senate Committee on Appropriations
Washington, DC 20510

The Honorable Diane Feinstein Ranking
Member,
Subcommittee on Energy and Water
Development
Senate Committee on Appropriations
Washington, DC 20510

Dear Chairman Alexander and Ranking Member Feinstein,

On behalf of over 75 companies, unions, and environmental, energy and agricultural organizations in the Carbon Capture Coalition (see attached) who are working together to advance economywide deployment of carbon capture, utilization, removal and storage, we thank you for your continued support in the recently enacted FY 2020 Omnibus for increased funding of these technologies in the U.S. Department of Energy's (DOE) Office of Fossil Energy (FE) budget.

The United States leads the world in the commercialization of carbon capture, and there is bipartisan support for capturing and utilizing carbon dioxide (CO₂) and its precursor carbon monoxide. Carbon oxides may be captured from diverse sources, including power plants, industrial facilities and ambient air through direct air capture. Sustained investment in these technologies represents a genuine win-win for our nation's economy and environment, greatly reducing our nation's emissions, while benefitting energy-producing and industrial regions with the creation of high-paying jobs and a greater tax base.

Congress has recognized that, similar to wind and solar, carbon capture will need a full portfolio of federal policies to achieve economywide deployment. This includes tax credits and other incentives, federal funding for research, development and demonstration (RD&D), and federal financing in order to leverage private investment in carbon capture projects that will spur continued innovation and improved performance, thus driving down costs and attracting still more investment that further accelerates deployment. It is well established that there are long lead times for advancing capital-intensive energy technologies from concept to demonstration to commercialization, making it difficult to attract sufficient private investment to scale up these technologies in the marketplace, absent federal support.

In the 116th Congress, Senators have followed up on the landmark passage of the Section 45Q tax credit in 2018 by laying the groundwork for such a portfolio of policies that will facilitate the scale-up of a commercially viable carbon capture industry. Relevant bills introduced in the 116th Congress include:

- **The USE IT Act (S. 383)** supports RD&D for carbon utilization and direct air capture and facilitates collaboration on planning and permitting CO₂ transport infrastructure;

- **The Carbon Capture Modernization Act** (S. 407) enables existing power plants to access available Section 48A tax credits for greater deployment of carbon capture in the power sector;
- **The Carbon Capture Improvement Act** (S. 1763) allows carbon capture projects to access tax-exempt private activity bonds;
- **Financing Our Energy Future Act** (S. 1841) makes carbon capture and utilization projects eligible for tax-advantaged master limited partnerships;
- **The EFFECT Act** (S. 1201) reauthorizes, updates and expands RD&D programs for carbon capture, utilization, removal and storage;
- **The LEADING Act** (S. 1685) establishes a RD&D program for carbon capture at natural gas energy facilities;
- **The Clean Industrial Technology Act** (S. 2300) stands up an industrial decarbonization RD&D program, which includes carbon capture to address industrial emissions; and
- **The Renewable Energy Transferability Act** (S. 3032) provides for enhanced transferability of 45Q to expand the pool of eligible investors in carbon capture projects who can monetize the credit;

Aggressive and sustained federal support will play a key role in helping the private sector commercialize carbon capture technologies. The Department of Energy's Office of Fossil Energy has been instrumental in the development of carbon capture technologies. Investments through the DOE Fossil Energy Carbon Capture and Carbon Storage programs have resulted in reduction of technology costs. These programs have been a critical partner for the private sector, and they should continue to be robustly funded.

We are encouraged that appropriators recognize the role that carbon capture from diverse sources will play in encouraging specific, targeted RD&D for carbon capture technologies in the FY20 appropriations language. To continue this excellent progress, we respectfully request that in FY 2021, DOE Fossil Energy's Carbon Capture and Carbon Storage programs be funded at least at \$242,800,000, a \$25,000,000 increase over last year, to fund the proposed R&D efforts discussed in more detail below.

This federal funding should in no way be limited to supporting only basic research, and these resources should prioritize the development and testing of technologies at lab, pilot, demonstration and commercial scales. Demonstration projects are especially critical to advancing carbon capture, utilization, storage and removal, and new, emerging technologies would greatly benefit from targeted federal support. Historically, Congress has recognized that this is an appropriate role for DOE, and we request that funding be made available explicitly for demonstration and commercial-scale work.

As the carbon capture industry scales up, robust funding and collaboration between industry and DOE will be critical in characterizing, siting and permitting appropriate saline geologic storage sites. We also encourage additional funding for implementation of multi-year, regionally diverse demonstration projects under the Carbon Storage Program (through the CarbonSAFE initiative) to be linked with commercial power and industrial carbon capture projects.

Finally, there is growing recognition from Congress that addressing emissions of the so-called "hard-to-decarbonize" sectors, including industrial sectors such as chemicals, steel, cement as well as heavy-duty transport, will require sustained federal investment. While not the total solution, deployment of carbon capture technologies is an essential component in addressing overall industrial emissions, particularly process and energy-related emissions, while keeping domestic industrial sectors competitive and

preserving their high-wage jobs base. Therefore, the Coalition recommends increased activity at DOE that will address industrial emissions, to accompany sustained emphasis in the power sector.

We also raise three additional points for further consideration as you draft the FY21 budget:

- 1) We recommend Congress appropriate an additional \$15 million for front-end engineering and design studies (FEED) for carbon capture projects at industrial facilities to be eligible for FEED studies, in addition to power-sector facilities. Congress appropriated \$30 million in FY 2019 for FEED studies for retrofits at existing coal or natural gas power plants. However, many industrial processes inherently produce CO₂ independent of energy inputs, and they often require high-temperature process heat that is readily supplied by carbon-emitting fuels. With regards to capture from industrial sectors, we recommend that Fossil Energy prioritize funding FEED studies for those sources with significant carbon emissions that have lower purity carbon oxide streams and therefore higher capture costs.
- 2) We recommend Congress appropriate \$10 million for research and optimization of carbon capture technologies at industrial facilities, a \$6 million increase relative to FY2020 funding levels, with emphasis on building program structure for pilot-scale and demonstration projects. Within the Carbon Capture program, DOE has already successfully built a pilot-scale program for carbon capture at power facilities.
- 3) We support continued RD&D on carbon removal and utilization technologies at Fossil Energy, recognizing that carbon utilization has an important role to play in helping provide valuable markets for carbon oxides and providing revenue streams to carbon capture operations, and we recommend that Fossil Energy focus on carbon utilization technologies and applications that will have the greatest potential impact on reducing greenhouse gas emissions. We recommend \$25 million for Carbon Use and Reuse, a \$4 million increase relative to FY2020 funding, to continue research and development activities to support valuable and innovative uses for carbon, and that this increase be reflected in an overall increase to the Carbon Storage program.

Building on momentum from the reform and expansion of the Section 45Q tax credit and recently introduced bipartisan legislation, we respectfully urge you to continue robustly funding carbon capture, utilization, removal and storage in the FY 2021 budget. We stand ready work with you and the Department of Energy, and to provide any additional information you might need.

Thank you for your consideration of our requests.

Sincerely,



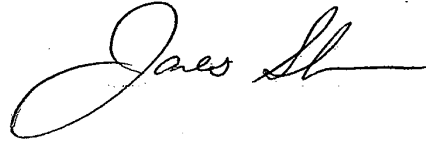
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James Selvin
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Utility Workers Union of America



Brad Markell
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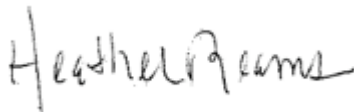
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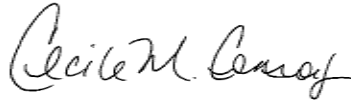
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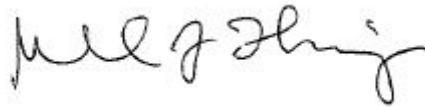
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CARBON CAPTURE COALITION

Coalition Participants:

Accelergy	Energy Innovation Reform Project	Occidental Petroleum Corporation
AFL-CIO	Glenrock Energy	Pacific Ethanol
Air Liquide	Great River Energy	Peabody
Air Products	Greene Street Capital	Prairie State Generating Company
AK Steel	Impact Natural Resources LLC	Praxair, Inc.
American Carbon Registry	ION Engineering LLC	Shell
ArcelorMittal	International Brotherhood of Boilermakers	SMART Transportation Division (of the Sheet Metal, Air, Rail and Transportation Workers)
Arch Coal	International Brotherhood of Electrical Workers	Summit Power Group
Archer Daniels Midland Co.	Jackson Hole Center for Global Affairs	Svante
Baker Hughes	Jupiter Oxygen Corporation	Tenaska Energy
Bipartisan Policy Center	Lake Charles Methanol	The Nature Conservancy
Action	LanzaTech	Third Way
Capital Power	Linde LLC	Thunderbolt Clean Energy LLC
Carbon180	Mitsubishi Heavy Industries America, Inc.	United Mine Workers of America
Carbon Wrangler LLC	National Audubon Society	United Steel Workers
Center for Climate and Energy Solutions	National Farmers Union	Utility Workers Union of America
Citizens for Responsible Energy Solutions Forum	National Wildlife Federation	White Energy
Clean Air Task Force	NET Power	Wyoming Outdoor Council
ClearPath	New Steel International, Inc.	
Conestoga Energy Partners	NRG Energy	
Core Energy LLC		
DTE Energy		
EBR Development LLC		
EnergyBlue Project		

Observers:

Algae Biomass Organization	Environmental Defense Fund
Biomass Power Association	Growth Energy
Brown Brothers Energy & Environment, LLC	Institute of Clean Air Companies
Carbon Engineering	Melzer Consulting
Carbon Utilization Research Council	Renewable Fuels Association
Chart Industries	Systems International The ZEROS Project
Cornerpost CO2 LLC	Tellus Operating Group
Enhanced Oil Recovery Institute, University of Wyoming	World Resources Institute