

Tips For Tapping Into New DOE Carbon Capture Funding

By **Pamela Wu** (March 3, 2023, 3:51 PM EST)

On Feb. 23, in the latest infusion of money into the carbon capture industry, the U.S. Department of Energy issued two funding opportunities for the development of large-scale carbon capture pilot projects and integrated carbon capture and storage projects at coal or natural gas generation facilities, and at industrial facilities that are not purposed for electric generation.

Each of these types of facilities have been identified as high sources of emissions. But pairing carbon capture technologies with these facilities can enable low-emissions generation and production.

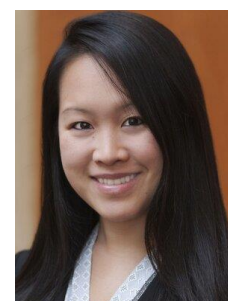
As the development of infrastructure to safely store carbon dioxide that is captured but not used as an input to other processes continues, these funding opportunities further the progress toward developing efficient and effective carbon capture, utilization and sequestration technologies and deployment.

CCUS will play an important role in achieving the Biden administration's net-zero emissions climate goals, as it can be utilized to mitigate hard-to-abate emissions sources. Equipping or retrofitting coal and natural gas-fired power plants with CCUS technologies would enable them to continue operating while meeting carbon reduction targets, and to provide dispatchable, low-carbon power to the grid.

Thus, significant focus has been placed on developing and scaling carbon capture projects and technologies, and substantial incentives and funding have been made available as well. In addition to the funding opportunities discussed below, the Inflation Reduction Act enhanced and expanded the Section 45Q tax credit that is available for carbon sequestration, by increasing the tax credit value, extending the construction deadline and lowering the qualification threshold.

Companies that may currently be considering undertaking carbon capture projects should pay close attention to this new lower capture threshold, and should assess whether their projects may meet the requirements to be eligible for the tax credit. Companies should also remain vigilant in identifying future funding opportunities — including the yet-to-be-finalized third round of funding for carbon capture projects — as they could lend further support to planned carbon capture projects.

Both of the funding opportunities discussed below were issued by the DOE's Office of Clean Energy Demonstrations, in collaboration with the Office of Fossil Energy and Carbon Management and the National Energy Technology Laboratory. Awards made under these funding opportunities will be funded



Pamela Wu

with funds that were appropriated under the Bipartisan Infrastructure Law.

Large-Scale Carbon Capture Pilot Projects

Of the \$937 million that was appropriated for large-scale carbon capture pilot projects under the Bipartisan Infrastructure Law, this funding opportunity makes available up to \$820 million, at a maximum of 70% federal cost share, for up to 10 carbon capture large-scale pilot projects.

The purpose of this funding opportunity is to further the development of transformational CCUS technologies that capture carbon emissions from existing coal or natural gas electric generation facilities, and existing industrial plants other than electric generation facilities.

The pilot projects that are funded under this opportunity must be integrated with commercial plant operations, and conducted in the U.S. They will generate operational data for verification and validation of the commercial potential of innovative technologies, and will help inform future large-scale demonstration and commercial deployment plans.

Of interest are technologies that have completed a small-pilot scale prototype and that will validate scaling factors, to enable the large-scale pilot project to proceed to commercial scale demonstration or application after the large-scale pilot project is complete. This funding opportunity is focused on technologies that are less technologically mature — i.e., technology readiness levels 5-7.

Concept papers for this funding opportunity are due by April 5, and full applications are due by June 21. Selection notifications are expected to be issued in September.

Carbon Capture Demonstration Projects

The carbon capture demonstration project program funding opportunity makes available up to \$1.7 billion for approximately six domestic commercial-scale integrated carbon capture and storage demonstration projects, at up to a 50% federal cost share.

This funding opportunity seeks proposals for projects that are designed to advance the development, deployment and commercialization of technologies to capture, transport (if required) and store CO₂ emissions, including the following:

- Two projects at new or existing domestic coal electric generation-only or coal combined heat and power facilities;
- Two projects at new or existing domestic simple cycle or combined cycle natural gas electric generation, natural gas combined heat and power facilities, or natural gas steam methane reformer facilities producing hydrogen for electricity generation; and
- Two projects at new or existing industrial facilities not purposed for electric generation — e.g., chemical, mineral, pulp and paper, iron, and steel production plants.

These carbon capture and storage demonstration projects must be integrated with commercial facility operations, and conducted in the U.S.

Of interest are carbon capture and storage demonstration projects with existing sufficient technical

detail to assess the readiness level of the proposed technologies and integrated systems to proceed into at-scale demonstrations, replication and commercial deployment — i.e., technologies with a minimum technology readiness level of 7.

Proposed projects must demonstrate at least 90% CO₂ capture efficiency over baseline emissions, and a path to achieve even greater CO₂ capture efficiencies for power and industrial operations. The captured CO₂ must be stored in a secure domestic subsurface geologic formation that has sufficient capacity to store CO₂ from the demonstration facility.

Concept papers for this funding opportunity are due by March 28, and full applications are due by May 23. Selection notifications are expected to be issued in August.

Looking Ahead

These funding opportunities follow the recent enhancement and expansion of the Section 45Q tax credit that further incentivizes the deployment of carbon capture projects.

The Inflation Reduction Act increased the tax credits available under Section 45Q to \$85 per metric ton for captured carbon that is stored in geologic formations, \$60 per metric ton for the use of captured carbon, and \$60 per metric ton for captured carbon that is stored in oil and gas fields, assuming the wage and apprenticeship requirements are met.

In addition to extending the date by which construction must begin by seven years, the Inflation Reduction Act also significantly reduced the amount of carbon oxide — generally, carbon dioxide — that a facility must capture to be eligible for the tax credit under Section 45Q. Previously, electricity generating facilities were required to capture at least 500,000 metric tons per year, and industrial facilities were required to capture at least 100,000 metric tons per year.

The Inflation Reduction Act reduced those thresholds to 18,750 metric tons per year and 12,500 metric tons per year, respectively. The lower thresholds may open up new opportunities for companies that were previously scaled out, so companies interested in pursuing smaller carbon capture projects should closely review these new requirements to assess whether they may be eligible for the Section 45Q tax credit.

Additional funding to incentivize continued development of carbon capture projects is expected. The DOE has stated that it anticipates issuing a third carbon capture funding opportunity announcement in the future for projects that are at the stage of performing front-end engineering design studies and other early project work, but that are not yet ready to apply.

Companies that may be in the earlier stages of developing carbon capture projects should keep this in mind as they progress through the project development, permitting and financing stages.

These funding opportunities and tax incentives are expected to continue to pave the way for the development and deployment of carbon capture projects and technologies, which can serve as a critical solution to decarbonizing hard-to-abate sources of greenhouse gas emissions. Notably, carbon capture projects at both new and existing power plants and industrial facilities may be eligible.

This is significant as operators of coal and natural gas electric generation facilities and industrial facilities look to transition and decarbonize their operations. The availability of the tax incentives and funding

opportunities could make the difference in a company's decision whether to continue to operate a facility as is or to invest capital to retrofit the facility and reduce emissions.

Companies that may be looking to undertake carbon capture projects should closely assess whether their projects could satisfy the requirements of the enhanced and expanded Section 45Q tax credit, which could provide significant dollars that could allow a carbon capture project to materialize.

In addition, companies should remain on the lookout for future funding opportunities — including the promised third round of funding for carbon capture projects — which could help provide additional support to their carbon capture projects.

Pamela T. Wu is a partner at Morgan Lewis & Bockius LLP.

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