



Recommendations for Implementing the Carbon Dioxide Transportation Infrastructure Finance and Innovation Program

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Purpose

This white paper provides recommendations for implementing the Carbon Dioxide Infrastructure Finance and Innovation Act (CIFIA) program within the Department of Energy (DOE).

Background

The CIFIA program was established with the passage of the bipartisan Infrastructure Investment and Jobs Act (IIJA). Modeled on the successful Transportation Infrastructure Finance and Innovation Act (TIFIA) and Water Infrastructure Finance and Innovation Act (WIFIA) programs for highway and water infrastructure, CIFIA encourages states and private companies to develop essential CO₂ infrastructure. The buildout of infrastructure is needed to transport CO₂ from where it is captured to where it can be utilized or securely sequestered underground.

CIFIA establishes the Secretary of Energy's authority to provide credit assistance in the form of a secured loan or loan guarantee for common carrier CO₂ transportation infrastructure or associated equipment, including pipeline, shipping, rail, or other transportation infrastructure and associated equipment that will transport or handle carbon dioxide captured from anthropogenic sources or ambient air.¹ Additionally, this program allows DOE to provide grants that would cover up to 80% of the cost of constructing additional flow capacity that the Secretary deems could be reasonably used within 20 years.²

Public or private entities looking to take part in the program must:

- Provide large capacity, common carrier infrastructure that is accessible to the public;
- Propose projects costing at least \$100 million;
- Begin repayment no later than five years after project completion;
- Be a recipient of an environmental categorical exclusion, a finding of no significant impact, or a record of decision in accordance with NEPA³;
- Adhere to Buy America provisions (iron, steel, etc.);
- Be sited within or adjacent to existing pipelines or other linear infrastructure corridors to minimize environmental disturbance and other siting concerns.

Congress appropriated \$2.1 billion to initiate this program. Eligible proposals can take advantage of a secured loan of up to 80% of the project cost. The funds for the CIFIA program are to be made available in the following amounts:

- Fiscal Year 2022: \$600,000,000
- Fiscal Year 2023: \$600,000,000
- Fiscal Year 2024: \$300,000,000
- Fiscal Year 2025: \$300,000,000
- Fiscal Year 2026: \$300,000,000

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This program must be implemented efficiently to enable CO₂ infrastructure to be built at the scale needed for widespread deployment. These critical infrastructure investments are an enabler to achieving large-scale carbon capture deployment and a net-zero emission economy.

Recommendations

Diversity of Location

DOE should prioritize geographically diverse projects that will provide the most significant emission reduction opportunities. Pairing sources of carbon dioxide with large capacity long-term carbon storage will be essential to future capacity agreements. The Department should give preference to regional industrial clusters that have already demonstrated carbon capture, utilization, and storage (CCUS) capabilities or demonstrate a high potential for CCUS activity, such as co-location with a hydrogen production or carbon storage hub. Additionally, DOE should seek to enable projects in all major CO₂-emitting regions of the US. DOE should give strong consideration to proposals which enable significant emission reductions or removal in the largest emitting regions.

The CIFIA program encourages projects be sited within or adjacent to existing pipelines or other infrastructure corridors to minimize environmental impacts and other siting concerns, which should also enable DOE to quickly and efficiently identify infrastructure routes that minimize environmental and community impacts. When considering how to identify routes which best minimize environmental and community impacts, DOE should be mindful of infrastructure routes already identified by project developers.

Guidance for DAC Hub Applicants

Today there are more than 5,000 miles of CO₂ pipelines transporting more than 70 million metric tons of CO₂ from both natural and anthropogenic sources.⁴ Pipelines are generally the most cost-effective method of transporting large volumes of CO₂⁵ and are a safe and proven mode of transportation.⁶ While pipelines may be the current primary method of transportation infrastructure within the United States, DOE should recognize the value of other modes of transportation infrastructure and identify opportunities to complement pipeline infrastructure. The CIFIA program authorizes funding for a variety of common carrier CO₂ transportation infrastructure or associated equipment, including pipeline, shipping, rail, or other methods, that will transport or handle captured CO₂. For example, over the past several years numerous companies have entered the market and found it to be both technically and economically more practical to ship CO₂ via specially equipped trucks that can utilize existing highway infrastructure.

Loans and Grants

One of the main barriers to widespread deployment of CO₂ transport and storage infrastructure projects is high capital costs. The federal government is the ideal candidate to provide project financing to large capital-intensive projects deemed to be of higher financial risk. The TIFIA program, widely lauded as a success and the model for CIFIA, supplied large-scale surface transportation project financing to complement state,

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local, and private investments. The TIFIA program is recognized as a relatively low-cost way for the federal government to incentivize the construction of critical infrastructure projects.⁷

Unlike TIFIA, CIFIA allows for grants as well as loans to be awarded. Grants may be awarded to cover the cost of up to 80% of the cost of additional excess capacity of a qualifying project, and loans may be awarded up to 80% of reasonably anticipated eligible project costs. DOE should offer the maximum cost-share of 80% for a project if deemed necessary. It is also recommended that DOE provide guidance to developers on how grants and loans can be combined for projects.

Streamlined and Flexible Approach

The permitting processes for interstate and intrastate pipelines are complex and can involve federal, state, and local agencies. The only federal agency that has exercised any authority over CO₂ pipelines siting and rates is the Bureau of Land Management (BLM), which gets involved if a pipeline crosses federal lands. The Utilizing Significant Emissions with Innovative Technologies (USE IT) Act, enacted as part of the Energy Act of 2020, clarified that carbon capture projects and CO₂ pipelines are eligible for expedited permitting reviews under Title 41 of the Fixing America's Surface Transportation (FAST) Act (referred to as FAST-41). It also directed the Council on Environmental Quality (CEQ) to establish guidance to assist project developers and operators of CCUS facilities and CO₂ pipelines and requires CEQ to establish two regional task forces to improve permitting processes and regional coordination of CCUS projects and CO₂ pipelines. Once established, it is recommended that DOE utilize the findings from these task forces and leverage the FAST-41 process to identify challenges, harmonize permitting processes, and facilitate regional planning. Additionally, within the IIJA, the Federal Permitting Reform and Jobs Act was enacted, which sets a permitting timeline goal of less than two years for FAST-41 projects. It is recommended that DOE encourage CIFIA projects to leverage the FAST-41 process for expedited permitting and keep to the less than two-year target in IIJA.

Access to DOE funding and approval of eligible projects should not be delayed due to administrative obstacles. Permitting processes can delay timelines and result in increased project costs. The IIJA appropriated funding through 2026 for CIFIA; therefore, it is imperative that funding and permitting timelines are considered in parallel with potential projects seeking funds in order to meet CIFIA's requirement that a recipient receives an environmental categorical exclusion, a finding of no significant impact, or a record of decision in accordance with NEPA prior to consideration. Projects looking to participate in this program will likely trigger the National Environmental Policy Act (NEPA) process and could trigger other permitting programs such as the Environmental Protection Agency's (EPA) Underground Injection Control (UIC) Class VI requirements. Siting of these projects must also take into account local and state ordinances. Therefore, these projects should be sited in locations where the existing regulatory regime facilitates timely deployment. These permitting processes can generate lengthy timelines, which are of significant concern if projects are to meet the funding timelines. DOE should evaluate its merit review processes and work with other permitting agencies to identify opportunities to streamline the process to ensure quick funding distribution.

Flexibility should be a key component of the CIFIA program. Budget periods and performance milestones should be in place to ensure that if a project cannot move forward for some reason, the funding can be reallocated for additional projects.

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Stability of Revenue Streams and Offtake Agreements

Early-stage CCUS projects are complex and capital intensive. Therefore, the demonstration of stable supplier and offtake agreements should be a prerequisite for funding. It is recommended that projects demonstrate they have or are in the process of securing supplier and/or offtake agreements as part of the application process.

Additionally, when evaluating projects seeking funding under CIFIA, the Secretary must assess if there is a reasonable prospect of repayment. This evaluation requires the Secretary to consider the strength of the contractual terms, the non-contractual cash flows forecast based on reputable market projections, and the financial stability of investors and strategic partners. IIJA allows other financial metrics to be considered at the Secretary's discretion in the evaluation process. DOE should determine and release explicit guidance on all additional metrics to potential program participants looking to receive funding.

Stakeholder Engagement

Robust and early stakeholder engagement will be critical to the success of CIFIA projects. Along with all relevant agencies, DOE should engage with relevant stakeholders throughout the credit determination process and provide clear guidance and expectations to project developers on stakeholder engagement, from the initial development of the funding opportunities through project selection, construction, and operation. DOE should ensure that project developers thoughtfully engage with host communities and ensure that communities directly benefit from these projects. Direct and early communication with communities will be critical to promoting CO₂ education and addressing public concerns with CO₂ infrastructure.

Coordination with IIJA Programs

The IIJA also provided \$3.5 billion allocated for a carbon capture pilot and demonstration program, \$3.5 billion for the buildout of regional direct air capture (DAC) hubs, \$500 million for industrial decarbonization demonstration projects, and \$8 billion for the development of regional clean hydrogen hubs. Most, if not all, of these programs, will be dependent on CO₂ transport infrastructure. DOE should evaluate how best to leverage opportunities across these programs to ensure maximum project delivery with limited funding and the development of regional and interregional carbon capture, removal, transport, storage, and utilization networks to share infrastructure and realize economies of scale.

Regulations

As stated in the IIJA, DOE may promulgate regulations as needed to carry out the CIFIA program. It is recommended that DOE establish a timeline for promulgating regulations that facilitates expeditious evaluation and funding of projects.

Conclusion

By leveraging existing frameworks of successful infrastructure programs, CIFIA has the potential to significantly expand the domestic CO₂ pipeline network. The buildout of CO₂ infrastructure with common

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carrier capacity is key to reaching decarbonization goals. Implementing the CIFIA program effectively by providing program clarity, streamlining the permitting process, and coupling CIFIA projects with other CCUS programs within the IIJA will ensure the success of this program and the deployment of critical infrastructure.

Sources

1. <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf>
2. *ibid.*
3. *ibid.*
4. https://dualchallenge.npc.org/files/CCUS-Chap_2-030521.pdf
5. https://dualchallenge.npc.org/files/CCUS-Chap_2-030521.pdf
6. According to a 2015 report out of the DOE, of nearly 2,000 hazardous liquid and CO2 transport pipeline accidental release incidents reported between 2010 and March 2015, 21 incidents occurred for CO2 transport pipelines, none of which resulted in fatality or injury. The industry experienced its first significant safety incident in 2020, with a CO2/hydrogen sulfide rupture incident believed to be caused by the record-setting rains in the region. No fatalities were associated with that incident.
5. <https://crsreports.congress.gov/product/pdf/R/R45516>