

FINANCIAL ASSISTANCE FUNDING OPPORTUNITY ANNOUNCEMENT



Department of Energy (DOE) Office of Fossil Energy and Carbon Management (FECM)

Bipartisan Infrastructure Law - Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program: Future Growth Grants (Section 40304)

Funding Opportunity Announcement (FOA) Number: DE-FOA-0002966

FOA Type: Initial

Assistance Listing Number: 81.089, Fossil Energy Research and Development

FOA Issue Date:	05/02/2024
Submission Deadline for Full Applications:	07/30/2024 5:00pm ET
Expected Date for DOE Selection Notifications:	12/12/2024
Expected Timeframe for Award Negotiations:	12/17/2024 – 4/30/2025

- To apply to this FOA, applicants must register with and submit application materials through [Grants.gov](https://www.grants.gov/) at <https://www.grants.gov/>.
- Applicants must designate primary and backup points-of-contact with whom DOE will communicate to conduct award negotiations. If an application is selected for award negotiations, it is not a commitment to issue an award. It is imperative that the applicant/selectee be responsive during award negotiations and meet negotiation

deadlines. Failure to do so may result in cancelation of further award negotiations and rescission of the selection.

Registration Requirements

There are several one-time actions that must be completed before submitting an application in response to this Funding Opportunity Announcement (FOA) (e.g., register with the System for Award Management (SAM), obtain a Unique Entity Identifier (UEI) number, register with, and register with to submit questions). It is vital that applicants address these items as soon as possible. Some may take several weeks, and failure to complete them could interfere with an applicant's ability to apply to this FOA.

- **SAM** – Applicants must register with SAM at <https://www.sam.gov/> prior to submitting an application in response to this FOA. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Failure to register with SAM will prevent your organization from applying through Grants.gov. The applicant must maintain an active SAM registration with current information at all times during which it has an active Federal award or application under consideration. More information about SAM registration for applicants is found at: https://www.fsd.gov/gsafsd_sp?id=gsafsd_kb_articles&sys_id=650d493e1bab7c105465eaccac4bcbcb.

NOTE: If clicking the SAM links do not work, please copy and paste the link into your browser.

Due to the high demand of SAM registrations and UEI requests, entity legal business name and address validations are taking longer than expected to process. Entities should start the SAM and UEI registration process as soon as possible. If entities have technical difficulties with the SAM registration or UEI validation process they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

- **UEI** – Applicants must obtain an UEI from the SAM to uniquely identify the entity. The UEI is available in the SAM entity registration record.

NOTE: Subawardees/subrecipients at all tiers must also obtain an UEI from the SAM and provide the UEI to the Prime Recipient before the subaward can be issued. Full registration in SAM is not required to obtain an UEI for subaward reporting.

- **Grants.gov** – Applicants must register with and set up your Workspace. You cannot submit an application through Grants.gov unless you are registered. Please read the registration requirements carefully and start the process immediately.

1. The Authorized Organizational Representative (AOR) must register at:
<https://apply07.grants.gov/apply/OrcRegister>.
2. An email is sent to the E-Business (E-Biz) POC listed in SAM. The E-Biz POC must approve the AOR registration using their MPIN from their SAM registration.

More information about the registration steps for Grants.gov is provided at:
<https://www.grants.gov/web/grants/applicants/registration.html>.

In addition:

- Add a Profile to a Grants.gov Account: A profile in corresponds to a single applicant organization the user represents (i.e., an applicant) or an individual applicant. If you work for or consult with multiple organizations and have a profile for each, you may log in to one account to access all of your grant applications. To add an organizational profile to your account, enter the UEI for the organization in the UEI field while adding a profile. For more detailed instructions about creating a profile on Grants.gov, refer to:
<https://www.grants.gov/web/grants/applicants/registration/add-profile.html>.
- *EBiz POC Authorized Profile Roles*: After you register with and create an Organization Applicant Profile, the organization applicant's request for roles and access is sent to the EBiz POC. The EBiz POC will then log in to and authorize the appropriate roles, which may include the AOR role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role.

NOTE: When applications are submitted through Grants.gov, the name of the organization applicant with the AOR role that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC **must** authorize people who are able to make legally binding commitments on behalf of the organization as a user with the AOR role; **this step is often missed and it is crucial for valid and timely submissions.**

For more detailed instructions about creating a profile on , refer to:
<https://www.grants.gov/web/grants/applicants/registration/authorize-roles.html>.

To track your role request, refer to:
<https://www.grants.gov/web/grants/applicants/registration/track-role-status.html>.

Questions relating to the **registration process, system requirements, or how an application form works** must be directed to at 1-800-518-4726 or support@grants.gov.

- **FedConnect.net** – Applicants must register with FedConnect to submit questions.
FedConnect website: <https://www.fedconnect.net/>

See Section IV for Application and Submission Information (including how to create a Workspace).

Table of Contents

Registration Requirements	v
Table of Contents.....	viii
I. Funding Opportunity Description.....	1
A. Background and Context	1
i. Program Purpose.....	4
ii. Technology Space and Strategic Goals	6
B. Topic Area	6
i. Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program: Future Growth Grants.....	6
ii. Technical Requirements	19
iii. Carbon Matchmaker.....	23
C. Applications Specifically Not of Interest	24
D. Community Benefits Plan: Job Quality and Equity	25
E. Authorizing Statutes.....	25
F. Notice of Bipartisan Infrastructure Law-Specific Requirements	26
II. Award Information	27
A. Award Overview	27
i. Estimated Funding.....	27
ii. Period of Performance	27
iii. New Applications Only	27
B. DOE Funding Agreements	27
i. Cooperative Agreements.....	28
III. Eligibility Information	28
A. Eligible Applicants	28
i. Restricted Eligibility	28
ii. Domestic Entities	29
iii. Foreign Entities.....	30
B. Cost Sharing	30
i. Legal Responsibility	30
ii. Cost Share Allocation	30
iii. Cost Share Types and Allowability.....	31
iv. Cost Share Contributions by FFRDCs	32
v. Cost Share Verification	32
C. Compliance Criteria.....	32
D. Responsiveness Criteria	33
E. Other Eligibility Requirements	33
i. Requirements for DOE/NNSA and non-DOE/NNSA FFRDCs Included as a Subrecipient	33
F. Limitation on Number of Full Applications Eligible for Review	34
IV. Application and Submission Information	34
A. Application Process	34
B. Application Forms	35
C. Content and Form of the Full Application.....	35
i. Full Application Content Requirements	35
ii. SF-424A: Budget Information – Non-Construction Programs File.....	37
iii. SF-424C: Budget Information – Construction Programs File.....	37

iv.	Project/Performance Site Location(s)	38
v.	Technical Volume	38
vi.	Resumes	41
vii.	Letters of Commitment	41
viii.	Community Partnership Documentation	42
ix.	Statement of Project Objectives (SOPO)	42
x.	Budget Justification Workbook	42
xi.	Summary for Public Release	43
xii.	Summary Slide	43
xiii.	Subrecipient Budget Justification (if applicable)	44
xiv.	Budget for DOE/NNSA FFRDC (if applicable)	44
xv.	Authorization for non-DOE/NNSA or DOE/NNSA FFRDCs (if applicable)	44
xvi.	SF-LLL: Disclosure of Lobbying Activities (required)	44
xvii.	Waiver Requests (if applicable)	45
xviii.	Community Benefits Plan: Job Quality and Equity	45
xix.	Community Benefits Plan Budget Justification	49
xx.	Current and Pending Support	49
xxi.	Locations of Work	52
xxii.	Environmental Questionnaire	52
xxiii.	Transparency of Foreign Connections	53
xxiv.	Potentially Duplicate Funding Notice	54
xxv.	Business Case Analysis	54
xxvi.	Financial Plan	55
xxvii.	Base Project Feed Study	55
xxviii.	Expanded Project Concept Study	55
xxix.	Data Table	55
xxx.	Regulatory Plan	56
xxxi.	CIFIA Program Eligibility Determination	56
xxxii.	Comparative Budget	56
D.	Content and Form of Replies to Reviewers Comments (Optional Submission)	57
E.	Post Selection Information Requests	57
F.	Unique Entity Identifier (UEI) and System for Award Management (SAM)	58
G.	Submission Dates and Times	59
H.	Intergovernmental Review	59
I.	Funding Restrictions	59
i.	Allowable Costs	59
ii.	Pre-Award Costs	59
iii.	Performance of Work in the United States (Foreign Work Waiver)	60
iv.	Construction	61
v.	Foreign Travel	61
vi.	Equipment and Supplies	61
vii.	Buy America Requirements for Infrastructure Projects	61
viii.	Davis-Bacon Act Requirements	62
ix.	Lobbying	64
x.	Risk Assessment	65
xi.	Invoice Review and Approval	65
xii.	Prohibition related to Foreign Government-Sponsored Talent Recruitment Programs	66
xiii.	Affirmative Action and Pay Transparency Requirements	67
xiv.	Foreign Collaboration Considerations	68
V.	Application Review Information	69
A.	Technical Review Criteria	69
i.	Full Applications	69

ii.	Criteria for Replies to Reviewer Comments	73
B.	Standards for Application Evaluation	73
C.	Other Selection Factors	73
i.	Program Policy Factors	73
D.	Evaluation and Selection Process	74
i.	Overview	74
ii.	Pre-Selection Interviews	74
iii.	Pre-Selection Clarification	75
iv.	Recipient Responsibility and Qualifications	75
v.	Selection	75
E.	Anticipated Notice of Selection and Award Negotiation Dates	76
VI.	Award Administration Information	77
A.	Award Notices	77
i.	Ineligible Submissions	77
ii.	Full Application Notifications	77
iii.	Successful Applicants	77
iv.	Alternate Selection Determinations	78
v.	Unsuccessful Applicants	78
B.	Administrative and National Policy Requirements	78
i.	Registration Requirements	78
ii.	Award Administrative Requirements	79
iii.	Foreign National Participation (April 2023)	79
iv.	Subaward and Executive Reporting	79
v.	National Policy Requirements	80
vi.	Environmental Review in Accordance with National Environmental Policy Act (NEPA)	80
vii.	Applicant Representations and Certifications	80
viii.	Statement of Federal Stewardship	82
ix.	Statement of Substantial Involvement	82
x.	Intellectual Property Provisions	84
xi.	Reporting	84
xii.	Go/No-Go Review	84
xiii.	Conference Spending	85
xiv.	Uniform Commercial Code (UCC) Financing Statements	86
xv.	Implementation of Executive Order 13798, Promoting Free Speech and Religious Liberty	86
xvi.	Participants and Collaborating Organizations	86
xvii.	Current and Pending Support	86
xviii.	Interim Conflict of Interest Policy for Financial Assistance	87
xix.	Fraud, Waste and Abuse	87
xx.	Cybersecurity Plan	88
xxi.	Real Property and Equipment	89
VII.	Questions/Agency Contacts	91
VIII.	Other Information	92
A.	FOA Modifications	92
B.	Government Right to Reject or Negotiate	92
C.	Commitment of Public Funds	92
D.	Treatment of Application Information	92
E.	Evaluation and Administration by Non-Federal Personnel	93
F.	Notice Regarding Eligible/Ineligible Activities	94
G.	Notice of Right to Conduct a Review of Financial Capability	94
H.	Requirement for Full and Complete Disclosure	94

I.	Retention of Submissions.....	94
J.	Rights in Technical Data	95
K.	Copyright.....	95
L.	Export Control.....	95
M.	Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment	96
N.	Personally Identifiable Information (PII)	96
O.	Annual Independent Audits	97
Appendix A – Cost Share Information		98
Appendix B – Waiver Requests For: 1. Foreign Entity Participation; and 2. Foreign Work		102
Appendix C – Required Use of American Iron, Steel, Manufactured Products, and Construction Materials Buy America Requirement for Infrastructure Projects.....		105
Appendix D – Principles For An Effective Consent-Based Project Siting Process.....		109
Appendix E – Workforce Readiness Plan Instructions And Template		111
Appendix F – Business Case Analysis.....		113
Appendix G – Business Plan		115
Appendix H – Financial Plan		117
Appendix I – Statement of Project Objectives		119
Appendix J – Base Project Feed Study		127
Appendix K – Expanded Project Concept Study		137
Appendix L – Expanded Project Feed Study.....		139
Appendix M – Detailed Design, Procurement, Construction, Commissioning, and Operating Plans		140
Appendix N – Procurement, Construction and Commissioning,		143
Appendix O – Data Table		144
Appendix P – Regulatory Plan		151
Appendix Q – Basis For Environmental, Safety, and Health (ES&H) Analysis.....		153
Appendix R – Project Management Plan Guidance.....		155
Appendix S – National Environmental Policy Act (NEPA) Compliance		162
Appendix T – Preparation Of Environmental Information Volume (EIV)		163
Appendix U – Community Benefits Plan Template for Demonstration and Deployment.....		169
Appendix V – Comparative Budget Guidance		190
Appendix W – List of Acronyms.....		192

I. Funding Opportunity Description

A. Background and Context

Demand for carbon capture and storage (CCS) technologies to meet climate goals is growing and will continue to grow in the foreseeable future. The United States will likely have to capture, transport, use, and/or permanently store significant quantities of carbon dioxide (CO₂) from stationary point sources and carbon dioxide removal (CDR) facilities to reach the Biden Administration's decarbonization goals of a net-zero Green House Gas (GHG) emissions economy by 2050, as highlighted in The Long-Term Strategy of the United States (U.S): Pathways to Net-Zero Greenhouse Gas Emissions by 2050, published in November 2021.¹ This FOA (DE-FOA-0002966) will support enabling the necessary CO₂ transport infrastructure that can allow for further demonstration, maturation, and validation of CCS and CDR technologies at commercial-scale.

The DOE Office of Fossil Energy and Carbon Management (FECM) and National Energy Technology Laboratory (NETL) are issuing this Funding Opportunity Announcement (FOA) for Future Growth Grants (FGG) to pay a portion of the cost differential, with respect to any projected future increase in demand for carbon dioxide transportation by an infrastructure project between (1) the cost of constructing the infrastructure based on capacity for an existing project (base project) and (2) the cost of constructing the infrastructure with a larger capacity to support future use by projected projects (expanded project). Awards made under this FOA will be funded by the Infrastructure Investment and Jobs Act (IIJA), more commonly known as the Bipartisan Infrastructure Law (BIL).²

The 2022 Strategic Vision developed by FECM sets a clear ambition for increasing CO₂ injectivity over the next two decades: starting with five million metric tonnes/year (MT/yr) injectivity in 2025 and increasing ultimately to 450 million MT/yr in 2040³.

Larson et al. (2021) carried out an investigation of five diverse United States emission reduction pathways to achieve net-zero by 2050 in the *Net Zero America*:

¹ [whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf](https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf)

² Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021). <https://www.congress.gov/bill/117th-congress/house-bill/3684>. This FOA uses the more common name "Bipartisan Infrastructure Law (BIL)."

³ [2022-Strategic-Vision-The-Role-of-Fossil-Energy-and-Carbon-Management-in-Achieving-Net-Zero-Greenhouse-Gas-Emissions_Updated-4.28.22.pdf](https://www.net-zero.gov/2022-Strategic-Vision-The-Role-of-Fossil-Energy-and-Carbon-Management-in-Achieving-Net-Zero-Greenhouse-Gas-Emissions_Updated-4.28.22.pdf)

Potential Pathways, Infrastructure and Impacts study.⁴ Larson et al. (2021) project that over 13,000 miles (21,000 kilometers) of CO₂ transport trunk pipelines and over 52,000 miles (85,000 kilometers) of lateral pipelines will be required by 2050 to service the geologic storage of approximately one billion metric tons of CO₂ per year. In the same study, Larson et al. (2021) model that by 2030, an injection rate of 65 million MT/yr of CO₂ and development of over 11,000 miles (19,000 kilometers) of pipelines will be required. This finding is also supported in the 2021 National Academies of Sciences, Engineering, and Medicine report *Accelerating Decarbonization of the U.S. Energy System*, which conducted a review of U.S. decarbonization studies.⁵

Today, there are 5,500 miles (8,850 kilometers) of CO₂ transportation pipelines in operation within 13 states, transporting large volumes of naturally sourced CO₂ over large distances, for use primarily in enhanced oil recovery applications.⁶ Additional modes of CO₂ transportation include rail, truck, and barge; these transportation methods are typically used to transport small volumes of CO₂ over relatively short distances compared to pipeline transport.⁷ Infrastructure for truck, rail, barge, or ship transport is likely necessary in regions where pipeline construction is not feasible or where pipeline construction is not economical. Alternative modes of CO₂ transport may also support early CCS adopters due to the time required to secure permits and construct pipelines. Hence, the large volume of anthropogenic CO₂ that will need to be stored in geologic reservoirs necessitates the timely, coordinated, and efficient buildout of CO₂ transportation infrastructure.

On November 15, 2021, President Joseph R. Biden, Jr. signed the Infrastructure Investment and Jobs Act (Public Law 117-58)². BIL is a once-in-a-generation investment in modernizing and upgrading American infrastructure to enhance United States competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure stronger access to economic, environmental, and other benefits for disadvantaged communities⁸. BIL appropriates more than 62 billion dollars to the DOE⁹ to invest in American manufacturing and workers, expand access to energy efficiency and clean energy, deliver reliable, clean and

⁴ <https://netzeroamerica.princeton.edu/the-report>

⁵ <https://nap.nationalacademies.org/catalog/25932/accelerating-decarbonization-of-the-us-energy-system>

⁶ [Annual Report Mileage for Hazardous Liquid or Carbon Dioxide Systems | PHMSA \(dot.gov\)](#)

⁷ [Meeting the Challenge: A Roadmap to At-Scale Deployment of Carbon Capture, Use, And Storage](#)

⁸ Established by EO 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021, the Justice40 Initiative sets a goal that 40% of the overall benefits of certain federal investments in climate, clean energy, and other areas flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. Pursuant to M-21-28 and M-23-09, issued by the White House Office of Management and Budget, White House Council on Environmental Quality.

⁹ U.S. Department of Energy. November 2021. "DOE Fact Sheet: The Bipartisan Infrastructure Deal Will Deliver For American Workers, Families and Usher in the Clean Energy Future." <https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0>

affordable power to more Americans, and demonstrate and deploy the technologies of tomorrow through clean energy demonstrations.

As part of and in addition to upgrading and modernizing infrastructure, DOE's BIL investments will support efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity sector by 2035, and to put the United States on a path to achieving net-zero emissions economy-wide by no later than 2050¹⁰.

Section 40304 of the BIL authorizes a total of \$2.1 billion for the five-year period encompassing fiscal years (FYs) 2022 through 2026 for a CIFIA program. CIFIA will support shared infrastructure projects, including pipelines, rail transport, ships and barges, and ground shipping, that connect anthropogenic sources of carbon dioxide with endpoints for its conversion or geologic storage. Carbon management technologies such as carbon capture from industry and power generation, CDR, Direct Air Capture (DAC), carbon conversion, and CO₂ transportation and storage technologies must be deployed at a large scale in the coming decades to meet the United States net-zero greenhouse gas goals by 2050.

Investments to finance projects that build shared transport infrastructure to move CO₂ from points of capture to CO₂ conversion sites or geologic storage facilities will help form a domestic interconnected carbon management ecosystem. Robust investments will be required to overcome barriers associated with deploying large common carrier CO₂ transport infrastructure, including high capital costs and uncertain near-term utilization and returns as demand comes online.

Section 999D of Title IX of the Energy Policy Act of 2005, added by BIL section 40304 (42 U.S.C. § 16374), authorizes the Secretary of Energy to provide Future Growth Grants (referred to herein as FGG) as part of the CIFIA program. Approximately 500 million dollars of CIFIA program funding will be used to support FGG.

The CIFIA legislation authorizes FGG to pay a portion of the cost differential with respect to a projected and probable future increase in demand for CO₂ transportation by a large-capacity, common carrier infrastructure project. The cost differential is defined as the difference between:

- a. the cost of constructing the infrastructure asset with the capacity to transport an increased flow rate of CO₂, as made practicable under the project; and
- b. the cost of constructing the infrastructure asset with the capacity to transport CO₂ at the flow rate initially required, based on commitments for the use of the asset¹¹.

¹⁰ [Executive Order \(EO\) 14008](#), "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

¹¹ [42 U.S.C. § 16374](#)

i. Program Purpose

To support the availability of CCS and CDR to reach climate goals, it is now imperative that the nation build upon existing research to test, mature, and validate CCS technologies at commercial scale. Doing so will require additional CO₂ transport infrastructure. In accordance with the language in BIL section 40304 (42 U.S.C. § 16374), the objective of the CIFIA program is to fund the design, development, construction, and installation of infrastructure for large-volume CO₂ transport by a variety of modes, such as through pipelines, rail, trucks, and ships and barges. As part of the CIFIA program, this FGG FOA is intended to provide financial assistance for developing and building CO₂ transport capacity that may not be contracted and utilized in the initial years of operation of the CO₂ transport system but is reasonably likely to become available when CO₂ suppliers such as carbon capture and DAC facilities are developed and come online and/or when CO₂ conversion sites or geologic storage facilities come online. Significant economies of scale can be achieved if additional up-front investments are made to “oversize” CO₂ transport infrastructure capacity to accommodate potential CO₂ supplies that are not yet under contract. However, private financing for uncontracted infrastructure investments is often difficult or impossible to obtain. Investments in additional capacity provided by FGG could also help avoid future construction of additional transport infrastructure (e.g., separate redundant transport networks) and associated environmental impacts.

Transport projects funded by a FGG must transport CO₂ derived only from anthropogenic sources (which could include CO₂ derived by direct capture from ambient air) and must ultimately deliver CO₂ to conversion sites or geologic storage facilities. The transport system must connect, either directly or indirectly, to two or more anthropogenic CO₂ sources, and to one or more conversion sites or geologic storage facilities. DOE may give priority to projects sited in different regions that will provide DOE with increased understanding of the diversity of CO₂ transport costs, transport modes, transport network configurations, technical, regulatory, and commercial considerations to inform DOE’s Research and Development (R&D) strategy and to encourage commercial-scale deployment of CCS and CDR. Additionally, infrastructure projects funded by FGG will be required to demonstrate that they are common carrier infrastructure that support the integration of multiple sources of CO₂.

In keeping with the administration’s goals, and as an agency whose mission includes strengthening our country’s energy prosperity, DOE intends to use this program to support the creation of good-paying jobs with the free and fair choice to join a union, the incorporation of strong labor standards, and high-road workforce development, especially registered apprenticeship, and quality pre-

apprenticeship. DOE will require projects to track and report on outcomes and outputs related to community benefits throughout the life of the project as described in Section IV.B.xix.

As part of the whole-of-government approach to advance equity and encourage worker organizing and collective bargaining^{12,13,14} and in alignment with BIL section 40304, this FOA and any related activities will seek to encourage meaningful engagement and participation of workforce organizations, including labor unions, as well as underserved communities and underrepresented groups, including Indian Tribes¹⁵. Consistent with Executive Order 14008⁸, this FOA is designed to help meet the goal that 40% of the overall benefits of the Administration's investments in clean energy and climate solutions flow to disadvantaged communities, identified by the Climate and Economic Justice Screening Tool (CEJST) pursuant to the Executive Order, and to drive creation of accessible, good-paying jobs with the free and fair chance for workers to join a union.

This FOA is complementary to DE-FE0002730, "Bipartisan Infrastructure Law (BIL): Carbon Capture Technology Program, Front-End Engineering and Design for Carbon Dioxide (CO₂) Transport," authorized by Section 962 of the Energy Policy Act of 2005, as amended by Section 40303 of the BIL. DE-FOA-0002730 is an ongoing, intermittently open solicitation that provides DOE funding for FEED studies of CO₂ transportation infrastructure projects. Recipients of awards under DE-FOA-0002730 and applicants to DE-FOA-0002730 are eligible to apply to the subject FOA (DE-FOA-0002966); however, the status of an entity with regard to its application, selection, or award under DE-FOA-0002730 will have no effect on its eligibility for application to DE-FOA-0002966 and will not be a factor in the evaluation or selection of its application to DE-FOA-0002966.

This FOA is also complementary to objectives of DE-FOA-002614 (Release 3), Area of Interest (AOI) 4, CO₂ National Network for Enhancing Carbon Transport Infrastructure Onshore/Offshore (CO₂NNECTION) Intermodal Transport Hubs, to accelerate and enable initial planning, design, and economic analysis for multi-modal transport of CO₂. This FOA is also complementary to objectives of other funding opportunities through the DOE's Office of Clean Energy Demonstrations

¹² [EO 13985](#), "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government" January 20, 2021. EO 14091, "Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government," February 16, 2023.

¹³ [EO 14025](#), "Worker Organizing and Empowerment," April 26, 2021.

¹⁴ [EO 14052](#), "Implementation of the Infrastructure Investment and Jobs Act," November 18, 2021.

¹⁵ EO 13175, November 6, 2000, "Consultation and Coordination with Indian Tribal Governments," charges all executive departments and agencies with engaging in regular, meaningful, and robust consultation with Tribal officials in the development of federal policies that have Tribal implications. [Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships | The White House](#).

(OCED), including the Carbon Capture Demonstrations Projects Program (DE-FOA-0002738), the Regional Clean Hydrogen Hubs Program (H2Hubs) (DE-FOA-0002779), and the Industrial Demonstrations Program (DE-FOA-0002936), which all include efforts to reduce CO₂ emissions.

Further discussion of the technical objectives of the FOA are provided in Section I.B. of this document.

ii. Technology Space and Strategic Goals

Large common-carrier CO₂ transport infrastructure shares similar barriers to deployment previously faced by other types of critical national infrastructure, such as high capital costs, short-term demand and utilization uncertainty, and chicken-and-egg challenges. This FOA is focused on the design and construction of large-capacity, common-carrier CO₂ transport projects (e.g., pipelines, rail, shipping, and other transport methods) that will spur the development of regional transport networks needed to move CO₂ from anthropogenic sources to CO₂ conversion locations and/or to geologic storage facilities, with an emphasis on projects with geographic diversity and a probable, yet to be contracted, future increase in demand.

The intent of this FOA is to award projects that have a reasonable prospect of increased future growth in the demand for transportation of CO₂, but that lack the contractual commitments to secure capital to deploy such infrastructure.

B. Topic Area

i. Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program: Future Growth Grants

This FOA will fund projects that support and accelerate the development of CO₂ transport by a variety of modes, such as through pipelines, rail, trucks, and ships or barges. The CO₂ must be derived only from anthropogenic sources (which could include CO₂ derived by direct capture from ambient air) and must ultimately be delivered to CO₂ conversion sites or geologic storage facilities. Applicants must propose to develop a common carrier CO₂ transport system that, either by itself or integrated within a larger transport network, is capable of transporting anthropogenic CO₂ from two or more carbon capture sources to one or more CO₂ conversion sites or geologic storage facilities. Carbon capture sources may include a combination of CO₂ removal (e.g., DAC and biomass carbon removal and storage (BiCRS)), and point sources (e.g., industrial and power generation). Carbon dioxide may be transported to a combination of one or more geologic storage location(s) and/or one or more CO₂ conversion location(s). DOE will give priority to projects

using anthropogenic CO₂ paired with geologic storage or CO₂ conversion. DOE plans to also give priority to projects sited in different regions that will provide DOE with an increased understanding of the diversity of CO₂ transport costs, transport modes, transport network configurations, and technical, regulatory, and commercial considerations that will inform DOE's R&D strategies and encourage commercial-scale deployment of CCS and CDR.

Applicants must describe:

- a. a *Base Project* consisting of a large-capacity, common carrier¹⁶ infrastructure that would transport quantities of captured CO₂, (from anthropogenic sources or the ambient air) for which firm commercial commitments are in place for CO₂ supply and offtake; and
- b. an *Expanded Project* consisting of a large-capacity, common carrier¹⁶ infrastructure with the capacity to transport an **increased** flow rate of CO₂ compared to the *Base Project*.

CO₂ transport systems described in the *Base Project* and *Expanded Project* must consist of a transport network that is physically connected by way of pipeline, rail, road, and/or body of water. Applicants may propose projects that use one or multiple modes of CO₂ transport infrastructure (e.g., pipelines, rail, truck, ships or barge). Existing infrastructure that is currently transporting CO₂ does not qualify as a *Base Project*; however, re-purposing existing infrastructure for CO₂ service does qualify as a *Base Project*.

Examples of projects for which applications for FGG will be accepted include but are not limited to:

Example 1

- The *Base Project* is a transport system that includes a trunk pipeline 24 inches in diameter and 600-miles long.
- The *Expanded Project* follows the same route as the *Base Project* but includes a 30-inch diameter trunk pipeline (in place of the 24-inch pipeline) or a looped 18-inch pipeline and any additional infrastructure (e.g., pumping stations) necessary to accommodate future CO₂ receipts or delivery points along the length of the trunk line.

Example 2

- The *Base Project* is a transport system that includes multiple interconnected pipelines across a four-state area but does not have full utilization of the transport system capacity.
- The *Expanded Project* includes the same pipeline network as the *Base Project*,

¹⁶ 42 U.S.C. § 16371

but also consists of additional pipelines connected to the network to accept CO₂ from new sources. These new CO₂ sources would expand the overall transport system's capacity.

Example 3

- The *Base Project* is a transport system that includes a trunk pipeline 24-inches in diameter and 600-miles long but does not have full utilization of the transport system capacity.
- The *Expanded Project* includes the same trunk pipeline as the *Base Project*, but also consists of a combination of rail spur(s), intermodal transfer facilities, and associated transport vehicles (rail, cars, or trucks) that can deliver additional CO₂ to the trunk line and/or offload delivery by truck or rail to CO₂ conversion/geologic storage facilities.

Example 4

- The *Base Project* is a transport system that delivers CO₂ to a geologic storage site located onshore near a United States seaport.
- The *Expanded Project* includes the same transport system as the *Base Project*, but also consists of infrastructure at the seaport that has the capacity to load the CO₂ from the *Base Project* and additional volumes of CO₂ from other transport systems onto marine vessels for delivery to offshore geologic storage or conversion locations, along with the infrastructure on those vessels (tanks, compressors, etc.) needed to accommodate CO₂.

Each application must describe a unique combination of a single *Base Project* and a single *Expanded Project*. Applications that include "options" for two or more *Expanded Projects* that build upon the same *Base Project* will not be accepted. Applicants may submit more than one application in which the identical *Base Project* is described, however the *Expanded Projects* described in each unique application must be completely different from each other.

Applicants to the FOA must demonstrate that the proposed infrastructure for both the *Base* and *Expanded Projects* can reasonably be expected to be used during the 20-year period beginning on the date of substantial completion of the *Expanded Project*. "Substantial completion" means either that (a) the project has begun to transport CO₂ or (b) an event has occurred during the project that is comparable to (a), as determined by the Secretary and as specified in the financial assistance agreement.

Each selected Applicant to the FOA will negotiate a Financial Assistance Agreement with DOE-NETL to receive a FGG award. The total value (cost) of the FGG will be the difference between the total cost of the *Expanded Project* and the total cost of the *Base Project*. The federal share of the FGG will be a maximum of 80% of the total value of the FGG. The Recipient and/or its non-federal partner(s)

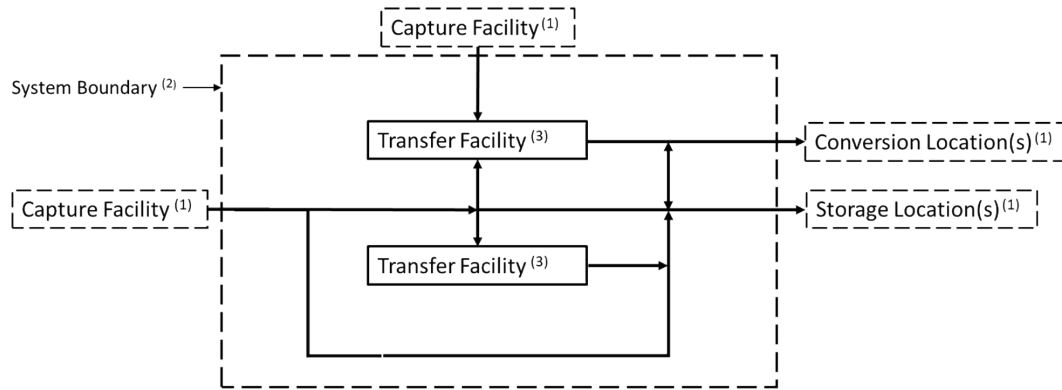
in the *Expanded Project* will be required to pay at least 20% of the total cost of the FGG.

The transport system may consist of one or multiple modes of transport and may include onshore, offshore, or a combination of onshore and offshore infrastructure. CO₂ transported by multiple modes of transport is considered multimodal transportation. If the CO₂ is transported using standardized containers, where the tank containing the CO₂ is transferred between modes (i.e., from a railcar to a barge), then the transport is considered intermodal transportation. A transport system may include one or multiple transfer facilities to transport CO₂ from its receipt point to its delivery point. (Note – In this FOA, a transfer facility is defined as a facility that receives anthropogenic CO₂ from one or more transport modes and performs any of the operations (e.g., metering, purification, dehydration, liquefaction, storage, pumping, loading/unloading, etc.) necessary to continue transporting the CO₂ to its delivery point(s). A transfer facility is typically bounded by a facility fence line).

CO₂ transport systems proposed for this FOA should have already completed a Front-End Engineering Design (FEED) study for the *Base Project* that demonstrates technical definition, a basic level of market interest, and commercial viability. The *Base Project* must transport a minimum of one million metric tons (MMT) of anthropogenic CO₂ annually within or across the system boundaries shown in Figure 1.

The boundaries of the transport system are defined as:

- a. The furthestmost downstream point at the CO₂ capture facility/facilities;
- b. The furthestmost upstream point at the CO₂ conversion location(s); and
- c. The furthestmost upstream point at the CO₂ storage location(s).



NOTES:

1. Capture Facilities and Storage/Conversion Locations are not within the project scope.
2. Area inside indicated rectangle indicates transport infrastructure within the project scope.
3. A Transfer Facility may include, but is not limited to: purification, pumping, compression, dehydration, heating, cooling, liquefaction, interconnection, metering, intermediate storage, terminals, loading, unloading, and regasification.
4. Bold arrows indicate any mode of transport (e.g., pipeline, rail, truck, barge, ship).

Figure 1: Example sketch that defines the transport system boundaries. The sketch is not intended to prescribe the type, arrangement, quantity, or interconnection of transport infrastructure within the system boundaries. Nor is the sketch intended to prescribe the type, arrangement, quantity, or interconnection of capture facilities, transfer facilities, conversion locations, and/or storage locations.

Projects will adhere to a three-phased structure for managing scope, schedule, deliverables, and budget. Table 1 below summarizes activities and deliverables required for each of the three project phases. Items listed under Phases 1 – 3 are indicative of the type and scope of activities applicants should plan to execute in each phase if continued into that phase of funding. These activities may be further defined during award negotiations and subsequent negotiations between phases. DOE review and evaluation of deliverables reflecting activities in each phase will inform Go/No-Go (see section VI.B.xii) decisions that occur between phases. Each project phase constitutes a budget period; therefore, the entire project consists of three budget periods. DOE approval of a Continuation Application will be required to proceed to a subsequent budget period.

If the applicant has already conducted or is currently conducting activities required under Phase 1 of this FOA, the status of such activities should be clearly described in the application, and the Applicant should propose only uncompleted, yet required Phase 1 activities. Applicants who feel they are conducting or have already completed most of the required Phase 1 activities but still want to be considered for Phases 2 and 3 should propose a scope and budget for Phase 1 covering only those additional activities that are necessary to be ready for Phase 2.

In order for DOE to determine whether the intended purpose of the FOA (funding for transport infrastructure to accommodate additional CO₂ flow) is being achieved, reports and deliverables associated with Phase 1 – 3 activities must be described and developed in the context of the project's final, *Expanded Project* configuration, with explicit reference to the *Base Project* configuration that would be built if funding from this FOA were not available. For example, all required progress reports and financial reports should contrast the work actually performed and costs actually incurred during a given reporting period with the work that would have been performed and costs that would have been incurred if only the *Base Project* were being conducted. Similarly, although all award recipients will be required to develop business plans, regulatory plans, FEED studies, etc., only for the *Expanded Project*, each plan and study should include a thorough discussion of how it would have differed if only the *Base Project* were being performed.

Table 1: Summary of Project Development Phases

	Phase 1: Detailed Plan ⁽¹⁾	Phase 2: Develop, Permit, Finance ⁽¹⁾	Phase 3: Procure, Construct, Commission ⁽¹⁾
Business Development and Management	<ul style="list-style-type: none"> • Status report on commitment from CO₂ sources and sinks • Business plan (BP) • Execute and update Project Management Plan (PMP) • Execute and update Financial Plan (FP) • Execute and update Statement of Project Objectives (SOPO) 	<ul style="list-style-type: none"> • Status report on commitment from CO₂ sources and sinks • Teaming and labor agreements secured • Land acquisition complete • Confirmed project financing • Execute and update BP, PMP, FP, SOPO 	<ul style="list-style-type: none"> • Status report on commitment from CO₂ sources and sinks • Regular progress/status reporting for all agreements • Financial status reports • Execute and update BP, PMP, FP, SOPO
Engineering, Procurement, Construction, and Operations (EPCO)	<ul style="list-style-type: none"> • Expanded project FEED study • Updated data table • Updated budget justification (Class 3) • Workforce readiness plan 	<ul style="list-style-type: none"> • Detailed design and plans for procurement, construction, commissioning, and operations • Updated data table • Updated budget justification (Class 1) • Final workforce readiness plan 	<ul style="list-style-type: none"> • Procurement, construction, commissioning • Progress execution reporting • Updated data table
Safety, Security, Regulator Requirements	<ul style="list-style-type: none"> • Execute and update regulatory plan • Execute and update Environmental Safety and Health (ES&H) analysis • Cybersecurity plan • Environmental information volume (EIV) • Hazard and Operability (HAZOP) study 	<ul style="list-style-type: none"> • Execute and update regulatory plan • Execute and update ES&H analysis • Execute and update cybersecurity plan • Permits in place for construction and storage • Environmental Reviews under NEPA (e.g. Environmental Assessment/Environmental Impact Statement complete (Finding of No Significant Impact and Record of Decision - FONSI/ROD)) • Final HAZOP study 	<ul style="list-style-type: none"> • Status reporting on required permits • Safety and security incident reporting & audits
Risk Analysis & Mitigation	<ul style="list-style-type: none"> • Execute and update Risk Management Plan (RMP)⁽²⁾ • Execute and update risk register ⁽²⁾ 	<ul style="list-style-type: none"> • Execute and update RMP ⁽²⁾ • Execute and update risk register ⁽²⁾ 	<ul style="list-style-type: none"> • Execute and update RMP ⁽²⁾ • Execute and update risk register ⁽²⁾
Community Benefits	<ul style="list-style-type: none"> • Implement Phase 1 scope of the Community Benefits Plan (CBP) • Update CBP for Phase 2 and 3 based on Phase 1 activities • Measure and report on CBP metrics 	<ul style="list-style-type: none"> • Implement Phase 2 scope of CBP • Update CBP for Phase 3 and based on Phase 1 & 2 activities • Measure and report on CBP metrics 	<ul style="list-style-type: none"> • Implement Phase 3 scope of CBP • Measure and report on CBP metrics

(1) Phase activities and deliverables.

- (2) May be included as part of the PMP.

Phase 1 – Detailed Project Planning

Phase 1 activities will focus on completing specific details about the overall transport system project plan and analysis to refine projections submitted as part of the application. These activities should provide assurance to DOE that the overall transport system plan is technologically, financially, and legally viable. Business development and management activities will progress according to business plans, management plans, and financial models. The project team will provide status updates on any commitments obtained for CO₂ sources and sinks throughout the life of the project. Final site selection will be determined, and the project team will complete a FEED study for the *Expanded project*.

Safety, security, and regulatory requirements will be finalized. The project team should be fully engaged with the DOE's National Environmental Policy Act (NEPA) team as they develop environmental and regulatory plans to prepare for permitting and approval processes in Phase 2. The risk management plan and risk register will be updated to reflect the current state of the project. Outreach and stakeholder engagement, which should be active prior to the application process, should continue in Phase 1 as the transportation system is finalized and community economic and development impacts become clearer. The project team will implement the Phase 1 scope of the CBP and update the plan as needed for Phase 2. Table 2 elaborates on the specific activities and deliverables required for Phase 1.

Table 2: Phase 1 Activities and Deliverables

Project Phase 1		
	Activities and Deliverables	Additional Explanation
Business Development and Management	<ol style="list-style-type: none"> 1. Commitment status of CO₂ Sources and Sinks 2. BP 3. Execute and update PMP 4. Execute and update FP 5. Execute and update SOPO 	<ol style="list-style-type: none"> 1. N/A 2. Refer to Appendix G (Business Plan) 3. Refer to Appendix R (PMP). Integrated project schedule: Full project – L2; Phase 2 – L3 4. Refer to Appendix H (Financial Plan) 5. Refer to Appendix I (Statement of Project Objectives)
Engineering, Procurement, Construction, and Operations	<ol style="list-style-type: none"> 1. Expanded Project FEED study 2. Updated data table 3. Updated budget justification (Class 3) 4. Workforce readiness plan 	<ol style="list-style-type: none"> 1. Refer to Appendix L (Expanded Project FEED Study) 2. Refer to Appendix O (Data Table) 3. Refer to FOA Section IV.C.x (budget justification file) 4. Refer to Appendix E (Workforce Readiness Plan)
Safety, Security, Regulator Requirements	<ol style="list-style-type: none"> 1. Execute and update regulatory plan 2. Execute and update ES&H analysis 3. Cybersecurity plan 4. EIV 5. HAZOP study 	<ol style="list-style-type: none"> 1. Refer to Appendix P (Regulatory Plan) 2. Refer to Appendix Q (ES&H Analysis) 3. Refer to Appendices S and U (NEPA Compliance and Environmental Information Volume) 4. May be included with FEED study
Risk Analysis & Mitigation	<ol style="list-style-type: none"> 1. Execute and update RMP 2. Execute and update risk register 	<ol style="list-style-type: none"> 1. May be included with PMP 2. May be included with PMP
Community Benefits	<ol style="list-style-type: none"> 1. Implement Phase 1 scope of CBP 2. Update CBP for Phase 2 and 3 based on Phase 1 activities 3. Measure and report on CBP metrics 	<ol style="list-style-type: none"> 1. N/A 2. N/A 3. N/A

Applicants should plan approximately 12-18 months for Phase 1, depending on the extent of advanced planning and analysis each team has already completed, and how quickly the awardee can move through the negotiated Go/No-Go requirements to move into Phase 2. The Go/No-Go decision will also consider completion of the required EIV (Appendices S and T) which will be used to determine the level of NEPA review needed. DOE anticipates that some project teams will have already performed extensive analysis, planning, design, and community engagement as required in Phase 1, and therefore some projects may advance to Phase 2 in under 12 months.

Phase 2 – Project Development, Permitting, and Financing

Phase 2 encompasses advanced planning activities. During phase 2 transport

systems will finalize their project development plans, commercial agreements, financial structure, and complete the necessary permitting and approval activities required to begin construction of the transport system. By the end of Phase 2, engineering designs should be sufficiently mature to support completion and execution of relevant procurement or construction contracts and overall commencement of major project execution tasks. Long-lead procurement activities may be started in Phase 2 with prior DOE approval. Third-party financing agreements should be completed. Risk management plans should be revised and updated to reflect progress made and risks mitigated as well as new or emerging risks and corresponding management plans.

By the completion of Phase 2, safety and security plans should be finalized and ready for execution. All necessary permits and approvals should be in place to prepare for construction, including completion of required NEPA reviews. A NEPA review will include completion of the DOE NEPA process, resulting in a FONSI on an Environmental Assessment (EA), or a ROD on an Environmental Impact Statement (EIS). The project team will implement the Phase 2 scope of the CBP and update the plan as needed for Phase 3.

DOE expects that Phase 2 activities will take up to one to two years but could be shorter depending on how advanced the transport system's analysis, planning, design, and community and labor engagement activities are to this point.

Table 3 elaborates on the specific activities and deliverables required for Phase 2. Evidence and active management of a contingency reserve is required prior to beginning Phase 3 activities.

Table 3: Phase 2 Activities and Deliverables

Project Phase 2		
	Activities and Deliverables	Additional Explanation
Business Development and Management	<ol style="list-style-type: none"> 1. Commitment status of CO₂ Sources and Sinks 2. Teaming and labor agreements secured 3. Land acquisition complete 4. Confirmed project financing 5. Execute and update BP 6. Execute and update PMP 7. Execute and update FP 8. Execute and update SOPO 	<ol style="list-style-type: none"> 1. N/A 2. N/A 3. N/A 4. N/A 5. Refer to Appendix G (Business Plan) 6. Refer to Appendix R (PMP). Integrated project schedule: Full project – L3; 7. Refer to Appendix H (Financial Plan) 8. Refer to Appendix I (Statement of Project Objectives)
Engineering, Procurement, Construction, and Operations	<ol style="list-style-type: none"> 1. Detailed design and plans for procurement, construction, commissioning, and operations 2. Updated data table 3. Updated budget justification (Class 1) 4. Final workforce readiness plan 	<ol style="list-style-type: none"> 1. Refer to Appendix M (Detailed Design, Procurement, Construction, Commissioning, and Operating Plans) 2. Refer to Appendix O (Data Table) 3. Refer to FOA Section IV.C.x (budget justification file) 4. Refer to Appendix E (Workforce Readiness Plan)
Safety, Security, Regulator Requirements	<ol style="list-style-type: none"> 1. Execute and update regulatory plan 2. Execute and update ES&H analysis 3. Execute and update cybersecurity plan 4. Permits in place for construction and storage 5. Environmental Assessment/Environmental Impact Statement complete (FONSI/ROD) 6. Final HAZOP study 	<ol style="list-style-type: none"> 1. Refer to Appendix P (Regulatory Plan) 2. Refer to Appendix Q (ES&H Analysis) 3. N/A 4. N/A 5. May be included with detailed design
Risk Analysis & Mitigation	<ol style="list-style-type: none"> 1. Execute and update RMP 2. Execute and update risk register 	<ol style="list-style-type: none"> 1. May be included with PMP 2. May be included with PMP
Community Benefits	<ol style="list-style-type: none"> 1. Implement Phase 2 scope of CBP 2. Update CBP for Phase 3 based on Phase 2 activities 3. Measure and report on CBP metrics 	<ol style="list-style-type: none"> 1. N/A 2. N/A 3. N/A

Phase 3 – Procurement, Construction, and Commissioning

Phase 3 activities will focus on procurement, construction, and commissioning with an ultimate end goal of preparing the system for startup and commercial operation. DOE expects this phase to be the longest in duration and the most cost intensive. The project team will employ project management tools and will be required to provide regular status updates and reports. Plans developed in the preceding phases will be revised and updated as appropriate to reflect actual performance. Previously and newly developed risks will be tracked, actively managed, and regularly reported to DOE. Reporting frequencies and content requirements will be unique to each transport system and negotiated prior to Phase 3 commencement.

While project teams will manage implementation, DOE will closely monitor progress and evaluate it against the plans developed through Phase 2. DOE and/or its third-party representatives will visit the site(s) regularly to verify progress and collect data, consistent with the established reporting requirements and substantial involvement (see Section VI.B.ix “Statement of Substantial Involvement”).

Phase 3 may look significantly different for each transport system as there will be varying amounts of construction for each project. Applicants should propose a funding level that is appropriate for the scale of the transport system being constructed. DOE expects that Phase 3 activities may take approximately 1 to 3 years. Table 4 elaborates on the specific activities and deliverables required for Phase 3.

Table 4: Phase 3 Activities and Deliverables

Project Phase 3		
	Activities and Deliverables	Additional Explanation
Business Development and Management	<ol style="list-style-type: none"> 1. Commitment status of CO₂ Sources and Sinks 2. Regular progress/status reporting for all agreements 3. Financial status reports 4. Execute and update BP 5. Execute and update PMP 6. Execute and update FP 7. Execute and update SOPO 	<ol style="list-style-type: none"> 1. N/A 2. N/A 3. Refer to Appendix G (Business Plan) 4. Refer to Appendix R (PMP). Integrated project schedule: Full project – L3; 5. Refer to Appendix H (Financial Plan) 6. Refer to Appendix I (Statement of Project Objectives)
Engineering, Procurement, Construction, and Operations	<ol style="list-style-type: none"> 1. Procurement, construction, commissioning 2. Progress execution reporting 3. Updated data table 	<ol style="list-style-type: none"> 1. Refer to Appendix N (Procurement, Construction, Commissioning) 2. N/A 3. Refer to Appendix O (Data Table)
Safety, Security, Regulator Requirements	<ol style="list-style-type: none"> 1. Status reporting on required permits 2. Safety and security incident reporting and audits 	<ol style="list-style-type: none"> 1. N/A 2. N/A
Risk Analysis & Mitigation	<ol style="list-style-type: none"> 1. Execute and update RMP 2. Execute and update risk register 	<ol style="list-style-type: none"> 1. May be included with PMP 2. May be included with PMP
Community Benefits	<ol style="list-style-type: none"> 1. Implement Phase 3 scope of CBP 2. Measure and report on CBP metrics 	<ol style="list-style-type: none"> 1. N/A 2. N/A

Transition Between Phases

While this FOA is soliciting plans for all 3 phases, the projects will be structured into multiple budget periods where funding will be authorized for only the initial phase. Funding for subsequent phases will be authorized only after successful

completion of a Go/No-Go review at the end of each phase. Specific Go/No-Go criteria will be negotiated with each selected project for transitions between each phase. DOE may also require the negotiation of additional Go/No-Go decision points within phases. Applicants should propose quantitative Go/No-Go criteria for each budget period as part of the SOPO.

If DOE determines that a project is making insufficient progress, additional scrutiny and oversight by DOE or its representatives may be employed, and corrective measures negotiated. Projects may be discontinued at any of the Go/No-Go decision points if the Go/No-Go criteria, project, and/or program eligibility requirements are not met. See Section VI.B.xii for more information about Go/No-Go reviews.

Specific project structure details for each awardee will be negotiated on a project-by-project basis to produce the best possible balance between project outcomes and DOE risk exposure. Examples of factors that may be considered as part of such negotiations include project and risk management processes, team capabilities, cost share amounts, financial contingencies, and engagement of independent monitors such as an independent engineer and/or CBP consultants representing DOE interests. DOE will require unfettered access to project performance and financial data necessary to track progress against a project baseline (or similar). Project progress and non-confidential information will be shared with interested stakeholders.

Achieving DOE's broad end goals will necessitate review and evaluation of proposed project characteristics that include cost, schedule, and scope, technology, business, market, financial, management, community support, and/or other factors throughout the project to validate assumptions made for determining commercial viability. The three-phased approach is designed to guide projects through the project development process incrementally. Each subsequent phase is structured to ensure that the transport systems meet a standard level of maturity, employ a robust execution approach, and that technical and non-technical project risks are adequately and appropriately managed throughout DOE's award.

If funded through all three phases, DOE expects that the transport system will continue to operate beyond the financial assistance project period (well beyond DOE funding). As the transport systems are expected to continue as self-sustaining entities operating fully independent of federal funds, DOE may also request financial sustainability plans or long-term disposition and decommissioning plans as part of future decision points. This may include proposed sources of funding/revenue and the business model which will support the transport system beyond the DOE award. This may also include an estimate of profit and loss demonstrating how the transport system will maintain financial self-sufficiency

and strategies to connect with future CO₂ sources, sinks, and/or other transport systems.

ii. Technical Requirements

For this FOA, applicants must include the following in the Technical Volume section of their applications.

Applications should describe the overall long-term vision and strategy for the transport infrastructure, detailed plans for Phase 1 activities and higher-level plans for Phase 2 and 3 activities, along with planned partnerships and financing strategies/commitments. Applicants should thoroughly describe the rationale for the transport system location, system design, and market potential. Applicants should clearly identify the differences between the *Base Project* and *Expanded Project*, such that there is a clearly discernable technical scope, budget, and business case between the *Base Project* and *Expanded Project*. Applicants should also provide detail, including technical and financial, of any differences in the original *Base Project* proposed in the Letter of Interest and the *Base Project* described in response to this FOA. DOE understands that some applicants will be unable to initially provide a complete, detailed plan for all activities beyond Phase 1 and that certain partnering agreements and financing details will emerge during the early phases. The following sections contain details of application requirements that must be included in the Technical Volume.

1. Project Details

All applications must include a summary of the *Expanded Project* transport system and associated design details needed to evaluate if a project is technically feasible, reasonable, and executable within the constraints of the CIFIA program. At a minimum the following details should be included as a part of the *Expanded Project* summary:

- a. The type of transport, including:
 - A route map with a description of the extent to which stakeholder and local community input was used to develop the route;
 - Benefits of the route relative to alternative routes;
 - Challenges of this route and how they will be addressed;
 - Proximity to and use of existing infrastructure and rights of way (ROW) (including the positive and/or negative community and environmental impacts of extending, repurposing, or altering existing infrastructure); and
 - Proximity to and ability to serve anthropogenic CO₂ sources at existing and/or proposed industrial hubs (e.g., petrochemical, hydrogen, DAC), and CO₂ conversion and/or geologic storage locations.

- b. The differences between the *Base Project* and *Expanded Project*, including:
- Locations;
 - CO₂ sources, if applicable;
 - Conversion or geologic storage sites, if applicable;
 - Transport infrastructure;
 - Facilities infrastructure;
 - Infrastructure siting;
 - Transport system staffing;
 - Costs; and
 - Additional detail on differences between the *Base Project* and *Expanded Project*. The differences should be included in a Data Table, per Appendix O, to assist in identifying the differences between the Base Project and Expanded Project. The table should be included as an attachment.
 - Detail regarding the differences between the *Base Project* as proposed in the Letter of Interest for Eligibility and the *Base Project* as proposed as a part of this FOA should be elaborated on within the data table.
 - Additional detail on the *Base Project* shall be included in the form of a FEED study, per the guidance in Appendix J, and submitted as a separate attachment.
- c. Current status of development of the *Expanded Project*, including:
- Potential CO₂ sources and their status of development, if known, including:
 - Company names, locations, sizes, and industry;
 - Expected CO₂ volumes and capture costs;
 - Local emissions and/or other pollution impacts from technology used by targeted sources for capture;
 - Financial and permitting requirements;
 - Status of carbon capture equipment and installation at respective industrial facilities;
 - Business case;
 - Risks to continued CO₂ supply from potential sources; and
 - Potential competition for CO₂ sources.
 - Potential CO₂ geologic storage locations and/or conversion site(s) and their development status if known, including:
 - Land rights and ownership;
 - Pore space rights;
 - Permitting status;
 - Associated models and or descriptions of the storage reservoir; and
 - Potential competition for CO₂ sinks.

- The anticipated timelines included in a table for the following key milestones:
 - Land and/or route acquisition;
 - Completion of detailed design;
 - Permitting and NEPA activities;
 - Procurement of materials;
 - Commencement of construction;
 - Substantial completion; and
 - Readiness for commercial operation.
- Permits, including federal, state and local permits, right-of-way, and any contracts that are to be negotiated for transportation, capture or storage elements of the project; additional detail on the Regulatory Plan should be provided in a separate attachment and following Appendix P guidance.
- Additional detail on the *Expanded Project* development should be included in the form of an *Expanded Project* Concept Study, per the guidance in Appendix K, and submitted as a separate attachment.
- d. The ES&H considerations for the *Expanded Project*, include:
 - Transport system safety features;
 - First responder training and notification plans;
 - Community advanced notification plans; and
 - Release of CO₂.
- e. Plan to use United States made iron, steel and manufactured goods (Appendix C),
- f. Any legal challenges or public concerns in the project area with respect to carbon capture, transport, and storage.

2. Applicant & Team Details

All applications must include an overview of the legal entities responsible for executing the project. At a minimum the following details should be included:

- a. The legal entity or entities responsible for overseeing the *Expanded Project* development, construction, and operation;
- b. An organizational chart of the project management team and a description of the experience, qualifications, and roles of the respective management team members;
- c. The organizational structure of the Applicant that shows the relationship to key project partners (e.g., construction contractor, operations, CO₂ sources, CO₂ sinks, ES&H, etc.);
- d. The status and nature of contractual relationships between the Applicant and key expanded project counterparties;

- e. The team's prior experience and safety record designing, constructing, and operating CO₂ transport infrastructure in the geographical region of the proposed project; and
- f. Additional details, as prescribed in Appendix R included as an attachment.

3. Financial Details

All applications must include a summary of the financial plan. This summary should identify how project financing will be obtained for the non-DOE portion of the funding (cost share) and the projected long term financial outlook for the proposed expanded system. At a minimum, the following details should be included:

- a. The cost of the *Expanded Project*, including:
 - A break down by phase (i.e., development, financing, construction), cost category, and year of expenditure;
 - A description of the methodology and key assumptions used to estimate total project costs;
 - An indication of how firm the cost estimates are and estimates for escalation and contingencies; and
 - An indication of which costs are eligible and ineligible.
- b. Details of the plan and status of financing of eligible project costs that are not covered by FGG and for other needs such as working capital lines and letters of credit. Additional detail on financing should be provided in a separate attachment following Appendix H guidance.
- c. A brief description of the project business case analysis with highlights on the strengths/weakness and risks/mitigants. Additional detail on the business case analysis should be provided in a separate attachment and following Appendix F guidance.
- d. Estimated project cash flows for the tenor of any private financing for the expanded project, including a description of how the tariff rate will be determined and applied in a nondiscriminatory fashion.
- e. Terms of any third-party, private financing for the *Expanded Project*, including percentage of the *Expanded Project* costs supported by the private financing, tenor, interest rate, debt service coverage ratio (minimum, average, maximum), reserve accounts (e.g., debt service, operating and maintenance, major maintenance), and other material items.
- f. The anticipated financial performance of the *Expanded Project*, under optimal conditions, including:
 - A demonstration that the *Expanded Project* can generate revenue from a non-discriminatory tariff;
 - Risks, if using private third-party financing, that could impair the project's ability to meet debt obligations; to account for such risks the following should be included:

- Copies of all material agreements, to the extent available, whether entered into or proposed, relevant to the investment and financing of the *Expanded Project*;
 - Anticipated short-term financing or credit facilities required for on-going operations of the *Expanded Project*, such as working capital facilities, performance bonds and similar forms of financing;
 - A description the nature of the security or collateral to be made available to respective financing parties;
 - A summary of each tranche of funding (e.g., source, amount, maturity, fixed or floating rate, and amortization schedule); and
 - A confirmation that the FGG will not be subordinated to the claims of any holder of project obligations in the event of bankruptcy, insolvency, or liquidation of the obligor; or a request for a waiver of the non-subordination pursuant to the Infrastructure Investment and Jobs Act (IIJA).
- g. The anticipated Operational Expenditures (OPEX) and Capital Expenditures (CAPEX) for the lifetime of the transport system.

iii. **Carbon Matchmaker**

Applicants have access to Carbon Matchmaker, which may be utilized to facilitate the formation of new project teams for this FOA. Carbon Matchmaker is an online information resource to connect users across the CCS and CDR supply chains. Carbon matchmaker will:

- a. Enable a teaming mechanism to support geographically diverse CCS/CDR projects across the United States, including with relevant labor unions;
- b. Increase awareness and facilitate development of regional carbon management hubs, including alongside hydrogen hub development where relevant;
- c. Provide domestic and international community, industry, and technology development stakeholders with carbon dioxide supply and demand maps for current and planned projects; and
- d. Highlight past and currently funded DOE carbon management projects in a geospatial map.

Carbon Matchmaker is intended to help facilitate regional carbon management team formation by allowing carbon management producers, end-users, labor unions, and other stakeholders to self-identify and align potential needs in specific geographic areas within the United States. Carbon Matchmaker allows organizations who may wish to participate on an application to express their interest to other applicants and to explore potential partnerships.

Participation by underrepresented partners and suppliers is encouraged. Teams that include representation from diverse entities such as, but not limited to: Minority Serving Institutions (MSIs), including Historically Black Colleges and Universities (HBCUs)/Other Minority Institutions (OMIs), or through linkages with Opportunity Zones, are encouraged.

- MSIs, including HBCUs/OMIs as educational entities recognized by the Office of Civil Rights (OCR), United States Department of Education, and identified on the OCR's Department of Education United States accredited postsecondary minorities' institution list. See <https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>.
- Opportunity Zones were added to the Internal Revenue Code by Section 13823 of the Tax Cuts and Jobs Act of 2017, codified at 26 U.S.C. 1400Z-1. The list of designated Qualified Opportunity Zones can be found in IRS Notices 2018-48 (PDF) and 2019-42 (PDF). Further, a visual map of the census tracts designated as Qualified Opportunity Zones may also be found at Opportunity Zones Resources. Also see, frequently asked questions about Qualified Opportunity Zones.

Interested applicants can follow the submission instructions on the Carbon Matchmaker website at: <https://www.energy.gov/fecm/carbon-matchmaker>. Please indicate if DOE's Carbon Matchmaker enabled or connected partnerships of participants in the application. If so, please describe. This is merely to evaluate the effectiveness of, and to continually improve, the matchmaker tool.

Note: Participation in the Carbon Matchmaker online resource is voluntary. Participation, or lack thereof, will not have any impact on an organization being selected for award. All provided data is self-reported by interested stakeholders and is not furnished by DOE. DOE does not recommend, endorse, or otherwise evaluate the qualifications or validity of any entities or data that is self-reported on this platform. DOE does not fund the provision of any information, nor compensate any applicants or requesting organizations for the development of such information.

C. Applications Specifically Not of Interest

The following types of applications will be deemed nonresponsive and will not be reviewed or considered (See Section III.D. of the FOA):

- a. Applications that fall outside the technical parameters specified in Sections I.A. and I.B. of the FOA;
- b. Submissions that include non-anthropogenic CO₂ sources;
- c. Submissions for new or conversion of transport infrastructure that do not adhere to relevant local, state, and/or federal regulations;

- d. Submissions for an *Expanded Project* that is geographically isolated from the *Base Project* without a means of transporting CO₂ between projects;
- e. Submissions that request funding in excess of the maximum DOE share as outlined in Section II Award Information;
- f. Submissions for proposed technologies that are not based on sound scientific principles (e.g., violates the laws of thermodynamics);
- g. Submissions that advance the maturation of CO₂ transport technologies, apart from the required design concept and FEED study submittals (e.g. pilot programs, demonstration programs, etc.);
- h. Submissions that include costs for designing and constructing new electric generation and industrial facilities; and
- i. Submissions for basic research aimed solely at discovery and/or fundamental knowledge generation.

D. Community Benefits Plan: Job Quality and Equity

To support the goal of building a clean and equitable energy economy, the BIL-funded projects are expected to (1) support meaningful community and labor engagement; (2) invest in America’s workforce; (3) advance diversity, equity, inclusion, and accessibility (DEIA); and (4) contribute to the President’s goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities (the Justice40 Initiative).⁸ To ensure these goals are met, applications must include a Community Benefits Plan that describes how the proposed project would incorporate the four objectives stated above.

Applicants are encouraged to submit Community and Labor Partnership Documentation from established labor and community-based organizations that demonstrate the applicant’s ability to achieve the above goals as outlined in the Community Benefits Plan. Within the Community Benefits Plan, the applicant is encouraged to provide details on how to ensure the delivery of measurable community and jobs benefits, ideally using negotiated agreements between the applicant and the community, and/or the applicant and labor unions referred to collectively here as “Workforce and Community Agreements.” These include good neighbor agreements, community benefits agreements, community workforce agreements, project labor agreements, and other collective bargaining agreements. See Section IV.C.xix. for the Community Benefits Plan content requirements.

E. Authorizing Statutes

Section 40304 of the Bipartisan Infrastructure Law (Public Law 117-58) amends Title IX of the Energy Policy Act of 2005 by adding “Subtitle J – Carbon Dioxide Transportation Infrastructure Finance and Innovation”. Section 999H(a) of Subtitle J

(42 U.S.C.A. § 16378) authorizes \$2.1 billion over the FYs 2022 – 2026 to establish the CIFIA program (42 USC 16371 – 16378). This FOA will implement the FGG portion of the CIFIA program as defined under Section 999D of Subtitle J (42 U.S.C.A. § 16374).

Awards made under this announcement will fall under the purview of Title 2 Code of Federal Regulation (CFR) Part 200 as amended by 2 CFR Part 910.

F. Notice of Bipartisan Infrastructure Law-Specific Requirements

Be advised that special terms and conditions apply to projects funded by the BIL relating to:

- a. Reporting, tracking and segregation of incurred costs;
- b. Reporting on job creation and preservation;
- c. Publication of information on the Internet;
- d. Access to records by Inspectors General and the Government Accountability Office;
- e. Requiring all of the iron, steel, manufactured goods, and construction materials used in the infrastructure activities of applicable projects are produced in the United States;
- f. Ensuring laborers and mechanics employed by contractors or subcontractors on BIL-funded projects are paid wages equivalent to prevailing wages on similar projects in the area;
- g. Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- h. Certification and Registration.

Recipients of funding appropriated by the BIL must comply with requirements of all applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA. Recipients must flow down the requirements to subrecipients to ensure the recipient's compliance with the requirements.

II. Award Information

A. Award Overview

i. Estimated Funding

DOE expects to make a total of approximately \$500,000,000 of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making up to ten awards under this FOA (Table 5). DOE may issue one, multiple, or no awards. Individual awards may vary between \$31,250,000 and \$125,000,000.

Table 5: Estimated funding and anticipated number of awards per fiscal year.

FY	Total Value			Anticipated No. of Awards	Anticipated Individual Award Size		
	DOE Share \$K/%	Cost Share \$K/%	Total \$K		DOE Share* \$K/%	Cost Share** \$K/%	Total \$K
24	200,000/80	50,000/20	250,000	2-4	25,000 - 100,000/80	6,250- 25,000/20	31,250- 125,500
25	200,000/80	50,000/20	250,000	2-4	25,000 - 100,000/80	6,250- 25,000/20	31,250- 125,500
26	100,000/80	25,000/20	125,000	1-2	25,000 - 100,000/80	6,250- 25,000/20	31,250- 125,500
Total	500,000/80	125,000/20	625,000	5-10	25,000 - 100,000/80	6,250- 25,000/20	31,250- 125,500

DOE may establish more than one budget period for each award and fund only the initial budget period(s). Funding for all budget periods, including the initial budget period, is not guaranteed.

ii. Period of Performance

DOE anticipates making awards that will have a period of performance not to exceed 5 years, with at least 3 budget periods. Project continuation will be contingent upon several elements, including satisfactory performance and DOE's Go/No-Go decision. For a complete list and more information on the Go/No-Go review, see Section VI.B.xii.

iii. New Applications Only

DOE will accept only new applications under this FOA. DOE will not consider applications for renewals of existing DOE-funded awards through this FOA.

B. DOE Funding Agreements

Through cooperative agreements and other similar agreements, DOE provides financial and other support to projects that have the potential to realize the FOA objectives. DOE does not use such agreements to acquire property or services for the direct benefit or use of the United States government.

i. Cooperative Agreements

DOE generally uses cooperative agreements to provide financial and other support to prime recipients.

Through cooperative agreements, DOE provides financial or other support to accomplish a public purpose of support or stimulation authorized by federal statute. Under cooperative agreements, the government and prime recipients share responsibility for the direction of projects.

DOE has substantial involvement in all projects funded via cooperative agreement. See Section VI.B.ix. of the FOA for more information on what substantial involvement may involve.

III. Eligibility Information

To be considered for substantive evaluation, an Applicant's submission must meet the criteria set forth below. If the application does not meet these eligibility requirements, it will be considered ineligible and removed from further evaluation.

A. Eligible Applicants

i. Restricted Eligibility

In accordance with 2 CFR 910.126, Competition, eligibility for award is restricted to applicants that are **eligible** for the CIFIA program as specified in BIL Section 999B(b) (42 U.S.C. § 16372) and summarized in the [CIFIA Program Guide](#) that has been published by the DOE Loan Program Office (LPO). DOE is restricting eligibility because applicants must first be determined **eligible** for the CIFIA program by way of a Letter of Interest to DOE in accordance with 42 USC § 16372 (b)(1)(A). DOE will review Letters of Interest to determine if the project appears eligible for credit assistance under the CIFIA program. Potential applicants that submit Letters of Interest to DOE that are favorably reviewed will be notified in writing within thirty (30) days that they are eligible to submit an application to the FOA. To be considered for this FOA a Letter of Interest must be submitted at least forty-five (45) days prior to the closing date of the FOA. Letters of Interest that are not favorably reviewed will receive written notification from DOE along with an explanation of why the applicant was determined not to be eligible to submit an

application to the FOA, and information on options for the potential applicant to withdraw the Letter of Interest or potentially submit a revised Letter of Interest.

Applicants are strongly encouraged to consult LPO's [CIFIA Program Guide](#) for specific information pertinent to eligibility for the CIFIA Program. Applicants may submit a Letter of Interest to DOE at any time during the duration of the CIFIA Program. Applicants must submit their CIFIA Program eligibility determination letter with their application to be considered for this FOA.

ii. Domestic Entities

The proposed prime recipient and subrecipient(s) must be domestic entities. The following types of domestic entities are eligible to participate as a prime recipient or subrecipient of this FOA:

1. For-profit entities; and
2. State and local governmental entities and Indian Tribes.

To qualify as a domestic entity, the entity must be organized, chartered or incorporated (or otherwise formed) under the laws of a particular state or territory of the United States; have majority domestic ownership and control; and have a physical place of business in the United States.

DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient. **NETL is not eligible for award under this announcement and may not be proposed as a subrecipient on another entity's application. An application that includes NETL as a prime recipient or subrecipient will be considered non-responsive.**

Non-DOE/NNSA FFRDCs are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Federal agencies and instrumentalities (other than DOE) are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Entities banned from doing business with the United States government, such as entities debarred, suspended, or otherwise excluded from or ineligible for participating in Federal programs, are not eligible.

Nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995 are **not** eligible to apply for funding.

iii. **Foreign Entities**

In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a prime recipient or subrecipient. A foreign entity may submit a Full Application to this FOA, but the Full Application must be accompanied by an explicit written waiver request. Likewise, if the applicant seeks to include a foreign entity as a subrecipient, the applicant must submit a separate explicit written waiver request in the Full Application for each proposed foreign subrecipient.

Appendix B lists the information that must be included in a foreign entity waiver request. The applicant does not have the right to appeal DOE's decision concerning a waiver request.

B. Cost Sharing

Applicants are bound by the cost share proposed in their Full Applications if selected for award negotiations. The cost share must be at least 20% of the total project costs¹⁷ for research and development projects¹⁸. The cost share must come from non-federal sources unless otherwise allowed by law.

i. **Legal Responsibility**

Although the cost share requirement applies to the project as a whole, including work performed by members of the project team other than the prime recipient, the prime recipient is legally responsible for paying the entire cost share. If the funding agreement is terminated prior to the end of the project period, the prime recipient is required to contribute at least the cost share percentage of total expenditures incurred through the date of termination.

The prime recipient is solely responsible for managing cost share contributions by the project team and enforcing cost share obligation assumed by project team members in subawards or related agreements.

ii. **Cost Share Allocation**

Each project team is free to determine how best to allocate the cost share requirement among the team members. The amount contributed by individual project team members may vary, as long as the cost share requirement for the project as a whole is met.

¹⁷ Total project costs are the sum of the government share, including FFRDC costs if applicable, and the recipient share of project costs.

¹⁸ Energy Policy Act of 2005, Pub.L. 109-58, sec. 988. Also see 2 CFR 200.306 and 2 CFR 910.130 for additional cost sharing requirements.

iii. Cost Share Types and Allowability

Every cost share contribution must be allowable under the applicable federal cost principles, as described in Section IV.J.i. of the FOA. In addition, cost share must be verifiable upon submission of the Full Application. Cost share may be provided in the form of cash or cash equivalents, or in-kind contributions. Cost share must come from non-federal sources (unless otherwise allowed by law), such as project participants, state or local governments, or other third-party financing. DOE Loan Guarantee, cannot be leveraged by applicants to provide the required cost share or otherwise support the same scope that is proposed under a project.

Cost share may be provided by the prime recipient, subrecipients, or third parties (entities that do not have a role in performing the scope of work). Vendors/contractors may not provide cost share. Any partial donation of goods or services is considered a discount and is not allowable.

Cash contributions include, but are not limited to: personnel costs, fringe costs, supply and equipment costs, indirect costs and other direct costs.

In-kind contributions are those where a value of the contribution can be readily determined, verified and justified but where no actual cash is transacted in securing the good or service comprising the contribution. Allowable in-kind contributions include, but are not limited to: the donation of volunteer time or the donation of space or use of equipment.

Project teams may use funding or property received from state or local governments to meet the cost share requirement, so long as the federal government did not provide the funding to the state or local government.

The recipient may not use the following sources to meet its cost share obligations:

- a. Revenues or royalties from the prospective operation of an activity beyond the project period;
- b. Proceeds from the prospective sale of an asset of an activity;
- c. Federal funding or property (e.g., federal grants, equipment owned by the federal government); or
- d. Expenditures that were reimbursed under a separate federal program.

Project teams may not use the same cash or in-kind contributions to meet cost share requirements for more than one project or program.

Cost share contributions must be specified in the project budget, verifiable from the prime recipient's records, and necessary and reasonable for proper and efficient accomplishment of the project. As all sources of cost share are considered part of total project cost, the cost share dollars will be scrutinized

under the same federal regulations as federal dollars to the project. Every cost share contribution must be reviewed and approved in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred.

Applicants are encouraged to refer to 2 CFR 200.306 and 2 CFR 910.130 for additional cost sharing requirements.

iv. Cost Share Contributions by FFRDCs

Because FFRDCs are funded by the federal government, costs incurred by FFRDCs generally may not be used to meet the cost share requirement. FFRDCs may contribute cost share only if the contributions are paid directly from the contractor's Management Fee or another non-federal source.

v. Cost Share Verification

Applicants are required to provide written assurance of their proposed cost share contributions in their Full Applications.

Upon selection for award negotiations, applicants are required to provide additional information and documentation regarding their cost share contributions. Please refer to Appendix A of the FOA.

C. Compliance Criteria

All applicant submissions must:

- comply with the applicable content and form requirements listed in Section IV. of the FOA;
- include all required documents;
- be successfully uploaded in Grants.gov at <https://www.grants.gov/>, including clicking the "Submit" button; and
- be submitted by the deadline stated in the FOA.

DOE will not review or consider submissions submitted through means other than [Grants.gov](https://www.grants.gov/), submissions submitted after the applicable deadline, or incomplete submissions.

Applicants are strongly encouraged to submit their Full Applications and Replies to Reviewer Comments at least 48 hours in advance of the submission deadline.

Under normal conditions (i.e., at least 48 hours in advance of the submission deadline), applicants should allow at least 1 hour to submit a Full Application or Reply to Reviewer Comments. Once the Full Application or Reply to Reviewer Comments are submitted by means specified in the FOA, applicants may revise or update that submission until the expiration of the applicable deadline. If changes

are made to any of these documents, the applicant must resubmit the Full Application or Reply to Reviewer Comments before the applicable deadline. DOE will not extend the submission deadline for applicants that fail to submit required information by the applicable deadline due to server/connection congestion.

D. Responsiveness Criteria

All “Applications Specifically Not of Interest,” as described in Section I.C. of the FOA, are deemed nonresponsive and are not reviewed or considered.

E. Other Eligibility Requirements

i. Requirements for DOE/NNSA and non-DOE/NNSA FFRDCs Included as a Subrecipient

DOE/NNSA and non- DOE/NNSA FFRDCs may be proposed as a subrecipient on another entity’s application subject to the following guidelines:

i. Authorization for non-DOE/NNSA FFRDCs

The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with its authority under its award.

ii. Authorization for DOE/NNSA FFRDCs

The cognizant Contracting Officer for the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization:

Authorization is granted for the Laboratory to participate in the proposed project. The work proposed for the Laboratory is consistent with or complementary to the missions of the Laboratory, and will not adversely impact execution of the DOE assigned programs at the Laboratory.

iii. Funding, Cost Share, and Subaward with FFRDCs

DOE will NOT fund DOE/NNSA FFRDCs participating as a subrecipient through the DOE field work authorization process. DOE will NOT fund non-DOE/NNSA FFRDCs through an interagency agreement with the sponsoring agency. Therefore, the prime recipient and FFRDC are responsible for entering into an appropriate subaward that will govern, among other things, the funding of the FFRDC portion of the work from the prime recipient under its DOE award. Such an agreement must be entered into before any project work begins.

The applicant should prepare the budgets using rates appropriate for funding the FFRDCs through subawards. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's, the subrecipient's, and the FFRDC's portions of the project.

iv. *Responsibility*

The prime recipient will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including, but not limited to disputes and claims arising out of any agreement between the prime recipient and the FFRDC.

v. *Limit on FFRDC Effort*

The FFRDC effort, in aggregate, shall not exceed 25% of the total estimated cost of the project, including the applicant's and the FFRDC's portions of the effort.

F. Limitation on Number of Full Applications Eligible for Review

An entity may submit more than one Full Application to this FOA, provided that each application describes a unique, scientifically distinct project.

IV. Application and Submission Information

A. Application Process

The application process includes a Full Application phase only.

All submissions must conform to the form and content requirements described below, including maximum page lengths:

- Each must be submitted in Adobe PDF format unless stated otherwise,
- Each must be written in English,
- All pages must be formatted to fit on 8.5 x 11 inch paper with margins not less than one inch on every side, use Calibri typeface, a black font color, and a font size of 12 point or larger (except in figures or tables, which may be 10 point font), a symbol font may be used to insert Greek letters or special characters, but the font size requirement still applies; references must be included as footnotes or endnotes in a font size of 10 or larger,

and footnotes and endnotes are counted toward the maximum page requirement,

- Page numbers must be included in the footer of every page,
- Each submission must not exceed the specified maximum page limit, including cover page, charts, graphs, maps, and photographs when printed using the formatting requirements set forth above and single spaced; if applicants exceed the maximum page lengths indicated below, DOE will review only the authorized number of pages and disregard any additional pages. and
- Additional information may be included, as prescribed in the section I.B, in Appendices.

B. Application Forms

The application forms and instructions are available on [Grants.gov](https://www.grants.gov).

Note: The maximum file size that can be uploaded to the [Grants.gov](https://www.grants.gov) website is 10MB. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 10MB but is still within the maximum page limit specified in the FOA, it must be broken into parts and denoted to that effect. For example:

TechnicalVolume_Part_1
TechnicalVolume_Part_2

DOE will not accept late submissions that resulted from technical difficulties due to uploading files that exceed 10MB.

C. Content and Form of the Full Application

Applicants must complete the following application forms found on the website at <https://www.grants.gov/>.

i. Full Application Content Requirements

Each Full Application must be limited to a single concept. Full Applications must conform to the following requirements and must not exceed the stated page limits.

Table 6: Full Application Content Requirements.

Component	File Format	Page Limit	File Name
SF-424A Budget Information – Non-Construction Programs File	Form	N/A	SF424A.xls or .xlsx
SF-424C Budget Information – Construction Programs File	Form	N/A	SF424C.xls or .xlsx
Project/Performance Site Location(s)	Form	N/A	N/A
Technical Volume	PDF	80	TechnicalVolume.pdf
Project Management Plan	PDF	15	PMP.pdf
Resumes	PDF	2 pages each	Resumes.pdf
Letters of Commitment	PDF	1 page each	LOC.pdf
Other Commitment Letter(s)	PDF	N/A	CLOthers.pdf
Community Partnership Documentation	PDF	10	PartnershipDocs.pdf
Budget Justification Workbook	MS Excel	N/A	Budget_Justification.xls or xlsx
Summary for Public Release	PDF	1	Summary.pdf
Summary Slide	MS PowerPoint	1	Slide.ppt or pptx
Subrecipient Budget Justification	MS Excel	N/A	Subrecipient_Budget_Justification.xls or xlsx
DOE Work Proposal for FFRDC, if applicable (see DOE O 412.1A, Attachment 2)	PDF	N/A	WP.pdf
Authorization from cognizant Contracting Officer for FFRDC	PDF	N/A	FFRDCAuth.pdf
SF-LLL Disclosure of Lobbying Activities	Form	N/A	N/A
Foreign Entity Waiver Requests and Foreign Work Waiver Requests	PDF	N/A	FN_Waiver.pdf
Community Benefits Plan: Job Quality and Equity	PDF	N/A	CBenefits.pdf
Community Benefits Plan Budget Justification	MS Excel	N/A	CBP_Budget_Justification.xls or xlsx
Current and Pending Support	PDF	N/A	CPS.pdf
Locations of Work	PDF	N/A	LOW.xls or xlsx
Transparency of Foreign Connections	PDF	n/a	BusinessSensitive.pdf
Environmental Questionnaire	PDF	N/A	Env.pdf
Potentially Duplicative Funding Notice (if applicable)	PDF	N/A	PDFN.pdf
Business Case Analysis	PDF	10	BusCase.pdf

Financial Plan	PDF	10	FinPlan.pdf
Base Project Feed Study	PDF	N/A	BaseFeed.pdf
Expanded Project Concept Study	PDF	30	ExpConcept.pdf
Data Table	MS Excel	N/A	DataTable.xls or xlsx
Regulatory Plan	PDF	10	RegPlan.pdf
CIFIA Program Eligibility Determination	PDF	N/A	Eligibility.pdf
Comparative Budget	MS Excel	N/A	CompBudget.xls or xlsx

Note: The maximum file size that can be uploaded to the [Grants.gov](https://www.grants.gov) website is 10MB.

DOE provides detailed guidance on the content and form of each component below.

ii. SF-424A: Budget Information – Non-Construction Programs File

Applicants must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF-424 A Excel, "SF-424A Budget Information – Non-Construction Programs" form on the DOE Financial Assistance Forms Page at <https://www.energy.gov/management/financial-assistance-forms-and-information-applicants-and-recipients> under DOE budget forms.

You may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See Section I Funding Restrictions). Save the information in a single file named "SF424A.xls or xlsx," and click on "Add Optional Other Attachment" to attach.

iii. SF-424C: Budget Information – Construction Programs File

Applicants must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF-424C Excel, "SF-424C Budget Information – Construction Programs" form on the DOE Financial Assistance Forms Page at <https://www.energy.gov/management/financial-assistance-forms-and-information-applicants-and-recipients> under DOE budget forms.

You may request funds under any of the Cost Classification Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See Section IV Funding Restrictions). Save the information in a single file named "SF424C.xls or xlsx," and click on "Add Optional Other Attachment" to attach.

iv. Project/Performance Site Location(s)

Indicate the primary site where the work will be performed by the prime recipient or subrecipient(s). If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided.

Note that the Project/Performance Site Congressional District is entered in the format of the 2-digit state code followed by a dash and a 3 digit Congressional district code, for example VA-001. Hover over this field for additional instructions.

Use the Next Site button to expand the form to add additional Project/Performance Site Locations.

v. Technical Volume

The Technical Volume must conform to the following content and form requirements (table 7). This volume must address the technical review criteria as discussed in Section V. of the FOA. Save the Technical Volume in a single PDF file using the following convention for the title "TechnicalVolume.pdf" and click on "Add Mandatory Other Attachment" to attach.

Applicants must provide sufficient citations and references to the primary research literature to justify the claims and approaches made in the Technical Volume. However, DOE and reviewers are under no obligation to review cited sources.

The Technical Volume to the Full Application may not be more than 60 pages, including the cover page, table of contents, and all citations, charts, graphs, maps, photos, or other graphics, and must include all of the information in the table below. The applicant should consider the weighting of each of the technical review criterion (see Section V.A of the FOA) when preparing the Technical Volume.

Table 7: Technical Volume Content Requirements.

SECTION/PAGE LIMIT	DESCRIPTION
Cover Page (1-page maximum)	The cover page should include the project title, the applicant’s name, and the names of all team member organizations. Additionally, the applicant’s technical and business points of contact along with e-mail addresses and telephone numbers, names of all team member organizations, names of project managers, Senior/Key personnel (i.e., individuals who contribute in a substantive, measurable way to the execution of the proposed project) and their organizations should be provided. The cover page should also include the federal and non-federal share of costs associated with each team member’s proposed

	<p>effort. Applicants should ensure the cost information is consistent with the submitted budget justification(s).</p>
<p>Table of Contents (included in page limitation)</p>	<p>Applicant should capture, at a minimum, all of the required sections identified in this table.</p>
<p>Project Overview and Objectives (included in page limitation)</p>	<p>This section should provide a clear, concise statement of the specific objectives of the proposed project.</p> <ul style="list-style-type: none"> • Project Goal: The applicant should explicitly identify the targeted system enhancements and the critical success factors in achieving that goal, including the ways in which the proposed project location and related infrastructure, skilled workforce, community benefits, etc. will contribute to the success of the overall project. • DOE Impact: The applicant should discuss the impact that DOE funding would have on the proposed project. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the project objectives. • Constraints on Resources: The applicant should identify any potential long-term constraints project will have on community’s access to natural resources (e.g., water) and tribal cultural resources. If applicable, the applicant should describe a long-term cleanup strategy that ensures communities and neighborhoods remain healthy, safe, and not burdened with cleanup costs and waste. • Climate Strategy: The applicant should outline a climate resilience strategy that accounts for climate impacts and extreme weather patterns such as high winds (tornadoes and hurricanes), heat and freezing temperatures, wildfire, drought, and floods. • Technical Scope Summary: The applicant should provide a summary of the overall work scope and approach to achieve the objective(s). The overall work scope is to be divided by performance periods that are separated by discrete, approximately annual decision points (see below for more information on Go/No-Go decision points). The applicant should describe the specific expected end result of each performance period, including milestones in the CBP. • Buy America Requirements for Infrastructure Projects: Within the first two pages of the Technical Volume, the applicant should include a short statement on the construction, alteration, and/or repair of infrastructure in the United States. See Appendix C for applicable definitions and other information to inform this statement.
<p>Merit Review Criterion Discussion (included in page limitation)</p>	<p>The section should be formatted to address each of the merit review criterion and sub-criterion listed in Section V. The applicant should provide sufficient information so that reviewers will be able to evaluate the application in accordance with merit review criteria. The Technical Volume should only address Merit Review Criteria when those criteria are not addressed in other required</p>

	documents, i.e., plans that are required to be submitted under unique file names and have stated page limits.
Statement of Project Objectives (included in page limitation)	<p>The technical volume must contain a single, detailed SOPO that addresses how the project objectives will be met. The SOPO must contain a clear, concise description of all activities to be completed during project performance period. It is therefore required that the SOPO should not contain proprietary or confidential business information.</p> <p>Applicants shall prepare the SOPO in the format provided in Appendix I of the FOA.</p>
Multiple Principal Investigators (included in page limitation)	<p>The applicant, whether a single organization or team/partnership/consortium, must indicate if the project will include multiple principle investigators (PIs). This decision is solely the responsibility of the applicant. If multiple PIs will be designated, the application must identify the contact PI/project coordinator and provide a "Coordination and Management Plan" that describes the organization structure of the project as it pertains to the designation of multiple PIs. This plan should, at a minimum, include:</p> <ul style="list-style-type: none"> • Process for making decisions on scientific/technical direction; • Publications; • Communication plans; • Procedures for resolving conflicts; and • PIs' roles and administrative, technical, and scientific responsibilities for the project.
Facilities and Other Resources (included in page limitation)	<p>The applicant must identify the facilities (e.g., office, laboratory, computer, etc.) to be used at each performance site listed and, if appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. The applicant must describe only those resources that are directly applicable to the proposed work, and provide any information describing the other resources available to the project such as machine and electronics shops.</p>
Land and Infrastructure Assets (included in page limitation)	<p>The applicant must identify any existing land or infrastructure assets, including ownership of rights of way, easements, and/or transportation infrastructure, that will be used in execution of the proposed work. The applicant must describe only those assets which are directly applicable to the proposed work. Additionally, the applicant must provide a description of the asset condition, including but not limited to repurposing, refurbishing, or preparatory work that would be required to leverage the asset.</p>
Equipment (included in page limitation)	<p>The applicant must list important items and equipment already available for this project and, if appropriate, note the location and pertinent capabilities of each. If the applicant is proposing to acquire equipment, describe comparable equipment, if any, already at your organization and explain why it cannot be used.</p>
Identification of Potential Conflicts of Interest or Bias in Selection of	<p>Provide the following information in this section:</p> <ul style="list-style-type: none"> • Collaborators and Co-editors: List in alphabetical order all persons, including their current organizational affiliation, who are, or who have been, collaborators or co-authors with you on a research project, book

Reviewers (NOT included in page limitation)	<p>or book article, report, abstract, or paper during the 48 months preceding the submission of this application. Also, list any individuals who are currently, or have been, co-editors with you on a special issue of a journal, compendium, or conference proceedings during the 24 months preceding the submission of this application. If there are no collaborators or co-editors to report, state "None."</p> <ul style="list-style-type: none"> • Graduate and Postdoctoral Advisors and Advisees: List the names and current organizational affiliations of your graduate advisor(s) and principal postdoctoral sponsor(s) during the last 5 years. Also, list the names and current organizational affiliations of your graduate students and postdoctoral associates.
Bibliography (NOT included in page limitation)	<p>If applicable: provide a bibliography for any references cited in the Technical Volume section. This section must include only bibliographic citations.</p>

vi. Resumes

A resume provides information that can be used by reviewers to evaluate the individual’s relevant skills and experience of the key project personnel. Applicants must submit a two-page resume for each project manager and Senior/Key personnel that includes the following:

1. Contact Information;
2. Education: Include all academic institutions attended, major/area, degree;
3. Training: E.g. certification or credential from a Registered Apprenticeship or Labor Management Partnership
4. Professional Experience: Beginning with the current position, list professional/academic positions in chronological order with a brief description;
5. List all current academic, professional, or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether or not remuneration is received, and, whether full-time, part-time, or voluntary; and
6. There should be no lapses in time over the past ten years or since age 18, whichever time period is shorter.

Save the resumes in a single PDF file using the following naming convention for the title “Resumes.pdf” and click on "Add Optional Other Attachment" to attach.

vii. Letters of Commitment

Submit letters of commitment from all subrecipient and third party cost share providers. If applicable, the letter must state that the third party is committed to providing a specific minimum dollar amount or value of in-kind contributions allocated to cost sharing. The following information for each third party contributing to cost sharing should be identified: (1) the name of the organization; (2) the proposed dollar amount to be provided; and (3) the proposed cost sharing

type – (cash or in-kind contributions). Each letter must not exceed 1 page. Save the letters of commitment in a single PDF file using the following naming convention for the title “LOC.pdf” and click on "Add Optional Other Attachment" to attach.

Letters of support or endorsement for the project from entities that do not have a substantive role in the project are not accepted.

viii. Community Partnership Documentation

In support of the Community Benefits Plan, applicants may submit documentation to demonstrate existing or planned partnerships with community entities, such as organizations that work with local stakeholders most vulnerable to or affected by the project. Examples of such as entities include organizations that carry out workforce development programs, labor unions, Tribal organizations, and community-based organizations that work with disadvantaged communities. The Partnership Documentation can be a letter on the partner’s letterhead outlining the planned partnership signed by an officer of the entity, a Memorandum of Understanding, or other similar agreement. Such letters must state the specific nature of the partnership and must not be general letters of support. If the applicant intends to enter into Workforce and Community Agreements as part of the Community Benefits Plan, they should include letters from proposed partners. Each letter must not exceed 1 page. In total, the partnership documentation must not exceed 10 pages.

Save the Community Partnership Documentation in a single PDF file using the following naming convention for the title “PartnershipDoc.pdf” and click on "Add Optional Other Attachment" to attach.

ix. Statement of Project Objectives (SOPO)

Applicants are required to complete a SOPO. A SOPO template is available as an Appendix of the FOA. Save the SOPO in a single Microsoft Word file using the following naming convention for the title “SOPO.doc or docx” and click on "Add Optional Other Attachment" to attach.

x. Budget Justification Workbook

Applicants must complete the Budget Justification Workbook. This workbook is included as an attachment to this announcement for use and to describe the level of detail required in the budget justification. Applicants are strongly encouraged to use the provided template and complete each tab of the Budget Justification Workbook for the project as a whole, including all work to be performed by the prime recipient and its subrecipients and contractors. Applicants should include costs associated with implementing the various BIL-specific requirements (e.g., Buy America Requirements for Infrastructure projects, Davis Bacon, Community

Benefits Plan, reporting, oversight) and with required annual audits and incurred cost proposals in their proposed budget documents. Such costs may be reimbursed as a direct or indirect cost. The “Instructions and Summary” included with the Budget Justification Workbook will auto-populate as the applicant enters information into the Workbook. Applicants must carefully read the “**Instructions and Summary**” tab provided within the Budget Justification Workbook. As stipulated within the Budget Justification Workbook, all direct costs must be identified by specific task. All costs should include the basis of cost and justification of need, as applicable. Of specific note is the necessity to identify personnel costs for each individual proposed for all tasks to which they are assigned. Save the Budget Justification Workbook in a single Microsoft Excel file using the following naming convention for the title “Recipient_Budget_Justification.xls or.xlsx” and click on “Add Optional Other Attachment” to attach.

xi. Summary for Public Release

Applicants must submit a one-page summary of their project that is suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the lead project manager/project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (e.g., benefits, outcomes), major participants (for collaborative projects), and the project’s commitments and goals described in the Community Benefits Plan. This document must not include any proprietary or sensitive business information as DOE may make it available to the public after selections are made. The summary must not exceed 1 page when printed using standard 8.5 x 11 paper with 1” margins (top, bottom, left, and right) with font not smaller than 12 point. Save the Summary for Public Release in a single PDF file using the following naming convention for the title “Summary.pdf” and click on “Add Optional Other Attachment” to attach.

xii. Summary Slide

Applicants must provide a single slide summarizing the proposed project.

The Summary Slide template must include the following information:

- A technology summary;
- A description of the technology’s impact;
- Proposed project goals;
- Any key graphics (illustrations, charts and/or tables);
- The project’s key idea/takeaway;
- Topline community benefits;
- Project title, prime recipient, Principal Investigator, and senior/key personnel information; and
- Requested DOE funds and proposed applicant cost share.

Save the Summary Slide in a single Microsoft PowerPoint file using the following naming convention for the title “Slide.ppt or pptx” and click on “Add Optional Other Attachment” to attach.

xiii. Subrecipient Budget Justification (if applicable)

Applicants must provide a separate budget justification for each subrecipient that is expected to perform work estimated to be more than \$250,000 or 25 percent of the total work effort (whichever is less). The budget justification must include the same justification information described in the “Budget Justification Workbook” section above. Save each subrecipient budget justification in a Microsoft Excel file using the following naming convention for the title “Subrecipient_Budget_Justification.xls or.xlsx” and click on “Add Optional Other Attachment” to attach.

xiv. Budget for DOE/NNSA FFRDC (if applicable)

If a DOE/NNSA FFRDC is to perform a portion of the work, the applicant must provide a DOE WP in accordance with the requirements in DOE Order 412.1A, Work Authorization System, Attachment 2, available at: <https://www.directives.doe.gov/directives-documents/400-series/0412.1-Border-a-chg1-AdmChg>. Save the WP in a single PDF file using the following naming convention for the title “WP.pdf” and click on “Add Optional Other Attachment” to attach.

xv. Authorization for non-DOE/NNSA or DOE/NNSA FFRDCs (if applicable)

The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with the contractor’s authority under its award. Save the Authorization in a single PDF file using the following naming convention for the title “FFRDCAuth.pdf” and click on “Add Optional Other Attachment” to attach.

xvi. SF-LLL: Disclosure of Lobbying Activities (required)

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Recipients and subrecipients are required to complete and submit SF-LLL, “Disclosure of Lobbying Activities” to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;

- A member of Congress;
- An officer or employee of Congress; or
- An employee of a member of Congress.

xvii. Waiver Requests (if applicable)

i. Foreign Entity Participation

For projects selected under this FOA, as set forth in Section III., all recipients and subrecipients must qualify as domestic entities. See Section III. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a waiver request.

ii. Foreign Work Waiver Request

As set forth in Section IV.J.iii., all work for projects selected under this FOA must be performed in the United States. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a foreign work waiver request.

Save the Waivers in a single PDF file using the following naming convention for the title “FN_Waiver.pdf” and click on “Add Optional Other Attachment” to attach.

xviii. Community Benefits Plan: Job Quality and Equity

The Community Benefits Plan: Job Quality and Equity (Community Benefits Plan or Plan) must set forth the applicant’s approach to ensuring that federal investments advance four goals: 1) community and labor engagement; 2) investing in job quality and workforce continuity; 3) advancing diversity, equity, inclusion, and accessibility (DEIA); and 4) contributing to the Justice40 Initiative. The below sections include the requirements for each goal. The Community Benefits Plan should indicate the applicant’s intention to engage meaningfully with labor and community stakeholders on these goals, including the potential of entering into formal Workforce and Community Agreements. Given project complexity and sensitivities, applicants may consider pursuing multiple agreements.

For your convenience, a Community Benefits Plan Template for Demonstration and Deployment is available in Appendix U. Applicants are strongly encouraged to use the template to complete their specific Plan. If the template is not used, the Plan must address all of the elements described below, and as outlined in the template.

The applicant's Community Benefits Plan must include at least one Specific, Measurable, Achievable, Relevant, and Timely (SMART) milestone per budget period to measure progress on the proposed actions. The Plan will be evaluated as part of the technical review process. If DOE selects a project, DOE will incorporate the Community Benefits Plan into the award, and the recipient must implement its Community Benefits Plan when carrying out its project. Public transparency around the plan and SMART commitments ensure accountability. In addition, DOE will evaluate the recipient's progress during the award period of performance, including as part of the Go/No-Go review process.

The Community Benefits Plan be submitted in PDF format. This Plan must address the technical review criterion titled, "Community Benefits Plan: Job Quality & Equity." See Section V. of the FOA.

For additional information, see [About Community Benefits Plans](#).

Save the Community Benefits Plan in a single PDF file using the following naming convention for the title "CBenefits.pdf" and click on "Add Optional Other Attachment" to attach.

The Community Benefits Plan must address the following:

1. Community and Labor Engagement: The Community Benefits Plan must describe the applicant's actions to date and plans to engage with community partners, such as local and/or Tribal governments, labor unions, and community-based organizations that support or work with underserved communities, including Disadvantaged Communities as defined for purposes of the Justice40 Initiative. By facilitating community input, social buy-in, and accountability, such engagement can substantially reduce or eliminate stalls or slowdowns, litigation, and other risks associated with project implementation. Community and labor engagement should lay the groundwork for the negotiation of Workforce and Community Agreements, which could take the form of one or more kinds of negotiated agreements with communities, labor unions, or, ideally, both. Registered apprenticeship programs, labor-management training partnerships, quality pre-apprenticeship programs, a card check provision, and local and targeted hiring goals are all examples of provisions that Workforce and Community Agreements could cover that would increase the success of a DOE-funded project.

Applicants should also provide Community and Labor Partnership Documentation from representative organizations reflecting substantive engagement and feedback on applicant's approach to community benefits including job quality and workforce continuity; diversity, equity, inclusion, and accessibility; and the Justice40 Initiative detailed below.

2. **Investing in Job Quality and Workforce Continuity:** A well-qualified, skilled, and trained workforce is necessary to ensure project stability, continuity, and success, and to meet program goals. High-quality jobs are critical to attracting and retaining the qualified workforce required.

The Plan must describe the applicant's approach to investing in workforce education and training of both new and incumbent workers and ensuring jobs are of sufficient quality to attract and retain skilled workers in the industry.

As the 1935 National Labor Relations Act states, employees' ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them contributes to the effective conduct of business and facilitates amicable settlements of any potential disputes between employees and employers, providing assurances of project efficiency, continuity, and multiple public benefits.

The Plan must include:

- a. A summary of the applicant's plan to attract, train, and retain a skilled and well qualified workforce for both construction and ongoing operations/production activities. A collective bargaining agreement, labor-management partnership, or other similar agreement would provide evidence of such a plan. Alternatively, applicants may describe:
 - 1) wages, benefits, and other worker supports to be provided benchmarking against prevailing wages for construction and local median wages for other occupations;
 - 2) commitments to invest in workforce education and training, including measures to reduce attrition, increase productivity from a committed and engaged workforce, and support the development of resilient, skilled, and stable workforce for the project; and
 - 3) efforts to engage employees in the design and execution of workplace safety and health plans.
- b. It is the policy of the United States to eliminate the causes of certain substantial obstructions to the free flow of commerce by encouraging the practice and procedure of collective bargaining and by protecting the exercise by workers of full freedom of association. Applicants should provide a description of how and if they plan to affirmatively support worker organizing and collective bargaining. This might include a commitment to negotiate pre-hire project labor agreements for construction activity, a pledge to remain neutral during any union organizing campaigns, intention or willingness to permit union recognition through card check (as opposed to requiring union elections), intention or

willingness to enter into binding arbitration to settle first contracts, a pledge to allow union organizers access to appropriate onsite non-work places (e.g., lunch rooms), a pledge to refrain from holding captive audience meetings, and other supportive commitments or pledges.

3. **Diversity, Equity, Inclusion, and Accessibility:** The Community Benefits Plan must include a section describing how diversity, equity, inclusion, and accessibility (DEIA) objectives will be incorporated into the project. The section should detail how the applicant will partner with underrepresented businesses, educational institutions, and training organizations that serve workers who face barriers to accessing quality jobs, and/or other project partners to help address DEIA.

The following is a list of potential DEIA actions that could be included in a Plan. This list is offered to provide guidance to applicants and is not intended to be comprehensive.

- a. Commit to partner with socially-disadvantaged businesses for contractor support needs;
 - b. To fill open positions for the DOE-funded project, partner with workforce training organizations serving under-represented communities and those facing systemic barriers to quality employment such as those with disabilities, women, returning citizens, opportunity youth, and veterans and
 - c. Provide workers with comprehensive support services, such as childcare and transportation, to increase representation and access in project's construction and operations jobs.
4. **Justice40 Initiative:** Applicants must provide an overview of benefits to disadvantaged communities that the project can deliver, supported by measurable milestones.

Specifically, the Justice40 Initiative section must include:

- a. Identification of applicable disadvantaged communities to which the anticipated project benefits will flow.
- b. Identification of Applicable Benefits that are quantifiable, measurable, and trackable, including, at a minimum, a discussion of the relevance of each of the four DOE Justice40 Initiative benefits outlined below. Benefits include (but are not limited to) measurable direct or indirect investments or positive project outcomes that achieve or contribute to the following in disadvantaged communities: (1) a decrease in environmental exposure and burdens; (2) an increase in high-quality job creation, the clean energy job pipeline, and job training for individuals; (3) increases in clean energy enterprise creation and contracting (e.g., socially-disadvantaged business enterprises); and (4) increased parity in clean energy technology access and adoption. Applicants

should also discuss how the project will maximize all of the benefits listed in #2 above.

- c. A description of how and when anticipated benefits are expected to flow to disadvantaged communities. For example, will the benefits be provided directly within the disadvantaged communities (s) identified in the Justice40 Initiative section, or another way; whether the benefits will flow during project development or after project completion, and how will the applicant track benefits delivered.
- d. A discussion of anticipated negative and cumulative environmental impacts on disadvantaged communities. Applicants should discuss any anticipated negative or positive environmental impacts associated with the project, and how they will mitigate any negative impacts. Within the context of cumulative impacts created by the project, applicants should use the Environmental Protection Agency EJSCREEN tool to quantitatively discuss existing environmental impacts in the project area. See [EJScreen: Environmental Justice Screening and Mapping Tool | US EPA](#)

For projects funded under this FOA, DOE will provide specific reporting guidance for the benefits described above.

xix. Community Benefits Plan Budget Justification

Applicants must provide a separate budget justification identifying the Community Benefits Plan costs included in the “Budget Justification Workbook.” This Community Benefits Plan Budget Justification must include the same justification information described in the “Budget Justification Workbook” section above but should only include Community Benefits Plan costs. There should only be one Community Benefits Plan Budget Justification submitted with the application (i.e., recipient and subrecipients should combine their costs into one spreadsheet). The total budget for each of the four sections of the Community Benefits Plan must also be listed.

Save the Community Benefits Plan in a Microsoft Excel file using the following naming convention for the title “CBP_Budget_Justification.xlsx” and click on “Add Optional Other Attachment” to attach.”

xx. Current and Pending Support

Current and pending support is intended to allow the identification of potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support. As part of the application, the principal investigator or lead project manager and all Senior/Key personnel at the applicant and subrecipient level must provide a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or

voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All connections with foreign government-sponsored talent recruitment programs must be identified in current and pending support.

For every activity, list the following items:

- The sponsor of the activity or the source of funding;
- The award or other identifying number;
- The title of the award or activity. If the title of the award or activity is not descriptive, add a brief description of the research being performed that would identify any overlaps or synergies with the proposed research;
- The total cost or value of the award or activity, including direct and indirect costs and cost share. For pending proposals, provide the total amount of requested funding;
- The award period (start date through end date); and
- The person-months of effort per year being dedicated to the award or activity.

To identify overlap, duplication of effort, or synergistic efforts, append a description of the other award or activity to the current and pending support.

Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to either the applicant institution or DOE. Supporting documents of any identified source of support must be provided to DOE on request, including certified translations of any document.

PIs and Senior/Key personnel must provide a separate disclosure statement listing the required information above regarding current and pending support. Each individual must sign and date their respective disclosure statement and include the following certification statement:

I, [Full Name and Title], certify to the best of my knowledge and belief that the information contained in this Current and Pending Support Disclosure Statement is true, complete, and accurate. I understand that any false, fictitious, or fraudulent information, misrepresentations, half-truths, or omissions of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (18 U.S.C. §§ 1001 and 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812). I further understand and agree that (1) the statements and representations made herein are material to DOE's funding

decision, and (2) I have a responsibility to update the disclosures during the project period of performance of the award should circumstances change which impact the responses provided above.

The information may be provided in the format approved by the National Science Foundation (NSF), which may be generated by the Science Experts Network Curriculum Vita (SciENCv), a cooperative venture maintained at <https://www.ncbi.nlm.nih.gov/sciencv/>. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats. If the NSF format is used, the individual must still include a signature, date, and a certification statement using the language included in the paragraph above.

Save the Current and Pending Support in a single PDF file using the following naming convention for the title "CPS.pdf" and click on "Add Optional Other Attachment" to attach.

Definitions:

Current and pending support – (a) All resources made available, or expected to be made available, to an individual in support of the individual's RD&D efforts, regardless of (i) whether the source is foreign or domestic; (ii) whether the resource is made available through the entity applying for an award or directly to the individual; or (iii) whether the resource has monetary value; and (b) includes in-kind contributions requiring a commitment of time and directly supporting the individual's RD&D efforts, such as the provision of office or laboratory space, equipment, supplies, employees, or students. This term has the same meaning as the term Other Support as applied to researchers in NSPM-33: For researchers, Other Support includes all resources made available to a researcher in support of and/or related to all of their professional RD&D efforts, including resources provided directly to the individual or through the organization, and regardless of whether or not they have monetary value (e.g., even if the support received is only in-kind, such as office/laboratory space, equipment, supplies, or employees). This includes resource and/or financial support from all foreign and domestic entities, including but not limited to, gifts provided with terms or conditions, financial support for laboratory personnel, and participation of student and visiting researchers supported by other sources of funding.

Foreign Government-Sponsored Talent Recruitment Program – An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise

acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to United States entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

Senior/Key personnel – an individual who contributes in a substantive, meaningful way to the scientific development or execution of a research, development and demonstration (RD&D) project proposed to be carried out with DOE award¹⁹.

xxi. Locations of Work

The applicant must complete the supplied template by listing the city, state, and zip code + 4 for each location where project work will be performed by the prime recipient or subrecipient(s). Save the Location of Work in a single Microsoft Excel file using the following naming convention for the title “LOW.xls or xlsx” and click on “Add Optional Other Attachment” to attach.

xxii. Environmental Questionnaire

The Applicant must submit an environmental questionnaire providing for the work of the entire project. The Applicant is also responsible for submitting a separate environmental questionnaire for each proposed subrecipient performing at a different location. The environmental questionnaire is available at http://www.netl.doe.gov/File%20Library/Business/forms/451_1-1-3.pdf. Save the questionnaire in a single file named "Env.pdf" (or “Env-FILL IN TEAM MEMBER.pdf” if more than questionnaire is submitted) and click on "Add Optional Other Attachment” to attach.

¹⁹ Typically, these individuals have doctoral or other professional degrees, although individuals at the masters or baccalaureate level may be considered senior/key personnel if their involvement meets this definition. Consultants, graduate students, and those with a postdoctoral role also may be considered senior/key personnel if they meet this definition.

NOTE: If selected for award and if a subrecipient's location is not known at the time of application, a subsequent environmental questionnaire will be needed prior to them beginning work at an alternate location.

xxiii. Transparency of Foreign Connections

Applicants must provide the following as it relates to the proposed recipient and subrecipients. Include a separate disclosure for the applicant and each proposed subrecipient. United States National Laboratories, domestic government entities, and institutions of higher education are only required to respond to items one, two and nine. If applying to serve as the prime recipient, then the applicant must provide complete responses for project team members that are not United States National Laboratories, domestic government entities, or institutions of higher education.

1. Entity name, website address, and mailing address;
2. The identity of all owners, principal investigators, project managers, and Senior/Key personnel who are a party to any *Foreign Government-Sponsored Talent Recruitment Program* of a foreign country of risk (i.e., China, Iran, North Korea, and Russia);
3. The existence of any joint venture or subsidiary that is based in, funded by, or has a foreign affiliation with any foreign country of risk;
4. Any current or pending contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity;
5. Percentage, if any, that the proposed recipient or subrecipient has foreign ownership or control;
6. Percentage, if any, that the proposed recipient or subrecipient is wholly or partially owned by an entity in a foreign country of risk;
7. Percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of risk;
8. Any technology licensing or intellectual property sales to a foreign country of risk, during the 5-year period preceding submission of the proposal;
9. Any foreign business entity, offshore entity, or entity outside the United States related to the proposed recipient or subrecipient;
10. Complete list of all directors (and board observers), including their full name, citizenship and shareholder affiliation, date of appointment, duration of term, as well as a description of observer rights as applicable;
11. Complete capitalization table for the applicants entity, including all equity interests (consisting of LLC and partnership interests, as well as derivative securities). Include both the number of shares issued to each equity holder, as well as the percentage of that series and all equity on a fully diluted basis. Identify the principal place of incorporation (or organization)

for each equity holder. If the equity holder is a natural person, identify the citizenship(s). If the recipient or subrecipient is a publicly traded company, provide the above information for shareholders with an interest greater than 5%;

12. A summary table identifying all rounds of financing, the purchase dates, the investors for each round, and all the associated governance and information rights obtained by investors during each round of financing;
13. An organization chart to illustrate the relationship between your entity and the immediate parent, ultimate parent, and any intermediate parent, as well as any subsidiary or affiliates. Identify where each entity is incorporated; and
14. DOE reserves the right to request additional or clarifying information based on the information submitted.

Save the Potentially Duplicative Funding Notice in a single PDF file using the following naming convention for the title “BusinessSensitive.pdf” and click on “Add Optional Other Attachment” to attach.

xxiv. Potentially Duplicate Funding Notice

If the applicant or project team member has other active awards of federal funds, the applicant must determine whether the activities of those awards potentially overlap with the activities set forth in its application to this FOA. If there is a potential overlap, the applicant must notify DOE in writing of the potential overlap and state how it will ensure any project funds (i.e., recipient cost share and federal funds) will not be used for identical cost items under multiple awards. Likewise, for projects that receive funding under this FOA, if a recipient or project team member receives any other award of federal funds for activities that potentially overlap with the activities funded the DOE award, the recipient must promptly notify DOE in writing of the potential overlap and state whether project funds from any of those other federal awards have been, are being, or are to be used (in whole or in part) for one or more of the identical cost items under the DOE award. If there are identical cost items, the recipient must promptly notify the DOE Contracting Officer in writing of the potential duplication and eliminate any inappropriate duplication of funding.

Save the Potentially Duplicative Funding Notice in a single PDF file using the following naming convention for the title “PDFN.pdf” and click on “Add Optional Other Attachment” to attach.

xxv. Business Case Analysis

A business case analysis must be submitted that demonstrates an understanding of the current and projected commercial viability of the proposed CO₂ transport network(s). The analysis should describe the projected and intended use for the

transport infrastructure over the next 50 years including types of CO₂ sources and sinks in the present and future that will be available to utilize the transport infrastructure. The analysis must also clearly state how the project will operate as common carrier infrastructure and has considered capacity for future CO₂ sources. The detailed outline of what must be included in the business case analysis is provided in Appendix F.

Save the information in a single file named “BusCase.pdf” and click “Add Optional Other Attachment” to attach.

xxvi. Financial Plan

A financial plan must be submitted that demonstrates a viable plan to obtain funding for the entire non-DOE share of the total project cost that identifies all sources of project funds. The plan should address Technical Requirements described in section I.B.ii. and Appendix H.

Save the information in a single file named “FinPlan.pdf” and click “Add Optional Other Attachment” to attach.

xxvii. Base Project Feed Study

A Base Project Feed Study must be submitted in Adobe PDF format. The Base Project Feed study must address the technical criteria listed in Appendix J and provide technical detail as described in Section I.B.ii.

Save the information in a single file named “BaseFeed.pdf” and click “Add Optional Other Attachment” to attach. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If the Base Project Feed Study exceeds 10MB it must be broken into parts and denoted to that effect. For example:

BaseFeed_1.pdf
BaseFeed_2.pdf, etc.

xxviii. Expanded Project Concept Study

An Expanded Project Concept Study must be submitted in Adobe PDF format. The Expanded Project Concept Study must address the technical criteria listed in Appendix K and provide technical detail as described in Section I. of the FOA.

Save the information in a single file named “ExpConcept.pdf” and click “Add Optional Other Attachment” to attach.

xxix. Data Table

A Data Table must be submitted in Microsoft Excel format. The Data Table should provide the requisite detail to differentiate between the *Base Project* as submitted

in the Letter of Interest, the *Base Project* at the time of this application, and the *Expanded Project* as is detailed in Section I.B.ii. The Data Table should be fully populated by the applicant using the template provided in the FOA announcement and per the guidance provided in Appendix O. Save the information in a single file named “DataTable.xls or.xlsx” and click “Add Optional Other Attachment” to attach.

xxx. Regulatory Plan

Applicants must submit a Regulatory Plan that demonstrates how the deployment of the proposed CO₂ Transport system will meet or exceed local, state, and federal regulatory requirements and as detailed in section I.B.ii. The Regulatory Plan shall identify the permits and regulatory approvals needed to construct and operate the proposed CO₂ transport system. Successful applicants will demonstrate the ability of a plan to exceed the minimum health, environment, and safety regulatory requirements. The Regulatory Plan shall identify if community and stakeholder support has been obtained or opposition has been received by the applicant. If awarded, applicants must implement, evaluate, and update this plan throughout the life of the project. In addition, applicants will be required to report on regulatory approval progress and outcomes throughout the project lifecycle and the final report at the direction of DOE. Information that must be included in the regulatory plan is detailed in Appendix P.

Save the information in a single file named “RegPlan.pdf” and click “Add Optional Other Attachment” to attach.

xxxi. CIFA Program Eligibility Determination

Applicants must submit a CIFA eligibility determination for the proposed project per the requirements listed in Section III.A.i., Determination of Restricted Eligibility. Applications not accompanied by an official DOE CIFA eligibility determination will not be considered for the FOA.

Save the information in a single file named “Eligibility.pdf” and click “Add Optional Other Attachment” to attach.

xxxii. Comparative Budget

A Comparative Budget must be submitted in Microsoft Excel format. The Comparative Budget should provide the requisite detail needed to differentiate which costs are applicable to the *Base Project* and the proposed *Expanded Project*. Information and details that must be included in the Comparative Budget are detailed in Appendix V.

Save the information in a single file named “CompBudget.xls or.xlsx” and click “Add Optional Other Attachment” to attach.

D. Content and Form of Replies to Reviewers Comments (Optional Submission)

DOE will provide applicants with reviewer comments following the evaluation of all eligible Full Applications. Applicants have a brief opportunity to prepare a short Reply to Reviewer Comments (Reply). The Reply must not exceed three (3) pages. If a Reply is more than three (3) pages in length, DOE will review only the first three (3) pages and disregard any additional pages. Applicants may use the Reply to respond to one or more comments or to supplement their Full Application. The Reply may include text, graphs, charts, or data.

The Reply to Reviewer Comments is an optional submission; applicants are not required to submit a Reply to Reviewer Comments. DOE will provide the Reviewer Comments via email. The expected submission deadline is on the cover page of the FOA; however, it is the applicant's responsibility to monitor the FOA in FedConnect in the event that the expected date changes. The deadline will not be extended for applicants who are unable to timely submit their reply due to failure to check FedConnect or relying on the expected date alone. Applicants should anticipate having approximately three (3) business days to submit Replies to Reviewer Comments.

DOE will not review or consider ineligible Replies to Reviewer Comments (see Section III. of the FOA). DOE will review and consider each eligible Full Application, even if no Reply is submitted or if the Reply is found to be ineligible.

E. Post Selection Information Requests

If selected for award negotiations, DOE reserves the right to require that selected applicants provide additional or clarifying information regarding the application submissions, the project, the project team, the award requirements, and any other matters related to anticipated award. The following is a non-exhaustive list of examples information that may be required:

- Personnel proposed to work on the project and collaborating organizations (See Section VI.B.xvi. Participants and Collaborating Organizations);
- Current and Pending Support (See Section IV.D.xxi Current and Pending Support);
- Indirect cost information;
- Other budget information;
- Letters of Commitment from third parties contributing to cost share, if applicable;

- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5);
- Information for the DOE Office of Civil Rights to process assurance reviews under 10 CFR 1040;
- Representation of Limited Rights Data and Restricted Software, if applicable;
- Information related to Davis-Bacon Act Requirements;
- Information related to any proposed Workforce and Community Agreement, as defined above in “Community Benefits Plan: Job Quality and Equity,” that applicants may have made with the relevant community;
- Any proposed or required Project Labor Agreements; and
- Environmental Questionnaire.

F. Unique Entity Identifier (UEI) and System for Award Management (SAM)

Each applicant (unless the applicant is an individual or federal awarding agency that is excepted from those requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the federal awarding agency under 2 CFR 25.110(d)) is required to: (1) Be registered in the SAM at <https://www.sam.gov> before submitting its application; (2) provide a valid UEI number in its application; and (3) continue to maintain an active SAM registration with current information at all times during which it has an active federal award or an application or plan under consideration by a federal awarding agency. DOE may not make a federal award to an applicant until the applicant has complied with all applicable UEI and SAM requirements and, if an applicant has not fully complied with the requirements by the time DOE is ready to make a federal award, the DOE will determine that the applicant is not qualified to receive a federal award and use that determination as a basis for making a federal award to another applicant.

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the **HELP** feature on [SAM.gov](https://www.sam.gov). [SAM.gov](https://www.sam.gov) will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

G. Submission Dates and Times

All required submissions must be submitted as specifically stated in the announcement no later than 5 p.m. ET on the dates provided on the cover page of this FOA.

H. Intergovernmental Review

This FOA is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

I. Funding Restrictions

i. Allowable Costs

All expenditures must be allowable, allocable, and reasonable in accordance with the applicable federal cost principles. Pursuant to 2 CFR 910.352, the cost principles in the Federal Acquisition Regulations (48 CFR 31.2) apply to for-profit entities. The cost principles contained in 2 CFR Part 200, Subpart E apply to all entities other than for-profits.

ii. Pre-Award Costs

Applicants selected for award negotiations (selectees) must request prior written approval to charge pre-award costs. Pre-award costs are those incurred prior to the effective date of the federal award directly pursuant to the negotiation and in anticipation of the federal award where such costs are necessary for efficient and timely performance of the scope of work. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the federal award and **only** with the written approval of the federal awarding agency, through the DOE Contracting Officer.

Pre-award costs cannot be incurred prior to the Selection Official signing the Selection Statement and Analysis.

Pre-award expenditures are made at the selectee's risk. DOE is not obligated to reimburse costs: (1) in the absence of appropriations; (2) if an award is not made; or (3) if an award is made for a lesser amount than the selectee anticipated.

1. National Environmental Policy Act (NEPA) Requirements Related to Pre-Award Costs

DOE's decision whether and how to distribute federal funds under this FOA is subject to NEPA. Applicants should carefully consider and should seek legal

counsel or other expert advice before taking any action related to the proposed project that would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE completing the NEPA review process.

DOE does not guarantee or assume any obligation to reimburse pre-award costs incurred prior to receiving written authorization from the Contracting Officer. If the applicant elects to undertake activities that DOE determines may have an adverse effect on the environment or limit the choice of reasonable alternatives prior to receiving such written authorization from the Contracting Officer, the applicant is doing so at risk of not receiving federal funding for their project and such costs may not be recognized as allowable cost share. Nothing contained in the pre-award cost reimbursement regulations or any pre-award costs approval letter from the Contracting Officer override the requirement to obtain the written authorization from the Contracting Officer prior to taking any action that may have an adverse effect on the environment or limit the choice of reasonable alternatives. Likewise, if an application is selected for negotiation of award, and the prime recipient elects to undertake activities that are not authorized for federal funding by the Contracting Officer in advance of DOE completing a NEPA review, the prime recipient is doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

iii. Performance of Work in the United States (Foreign Work Waiver)

1. Requirement

All work performed under DOE awards issued under this FOA must be performed in the United States. The prime recipient must flow down this requirement to its subrecipients.

2. Failure to Comply

If the prime recipient fails to comply with the Performance of Work in the United States requirement, DOE may deny reimbursement for the work conducted outside the United States and such costs may not be recognized as allowable recipient cost share. The prime recipient is responsible should any work under this award be performed outside the United States, absent a waiver, regardless of whether the work is performed by the prime recipient, subrecipients, contractors or other project partners.

3. Waiver

To seek a foreign work waiver, the applicant must submit a written waiver request to DOE. Appendix B lists the information that must be included in a request for a foreign work waiver.

Save the waiver request(s) in a single PDF file. The applicant does not have the right to appeal DOE's decision concerning a waiver request.

iv. Construction

Recipients are required to obtain written authorization from the Contracting Officer before incurring any major construction costs.

DOE strongly encourages the use of project labor agreements (PLAs) in connection with construction projects. A PLA is a pre-hire agreement between a private entity (or entities) and a labor organization (or organizations) representing individuals who will be working on the construction project. Applicants that commit to using best-practice project labor agreements will generally be likely to produce a construction workforce plan that meets the criteria in this FOA. By contrast, applicants that do not commit to using a PLA will be required to submit workforce continuity plans and show that they have taken other measures to reduce the risk of delays in project delivery.

For large construction projects, DOE may require a PLA. Assessment of applicability will be conducted on a case-by-case basis.

v. Foreign Travel

Foreign travel costs are not allowable under this FOA.

vi. Equipment and Supplies

Property disposition may be required at the end of a project if the current fair market value of property exceeds \$5,000. For-profit entity disposition requirements are set forth at 2 CFR 910.360. Property disposition requirements for other non-federal entities are set forth in 2 CFR 200.310 – 200.316. However, pursuant to the FY23 Consolidated Appropriations Act (Pub. L. No. 117-328), Division D, Title III, Section 309, the Secretary, or a designee of the Secretary may, at their discretion, vest unconditional title or other property interests acquired under this project regardless of the fair market value of the property at the end of the award period.

vii. Buy America Requirements for Infrastructure Projects

Pursuant to the Build America Buy America Act, subtitle IX of BIL (Buy America or "BABA"), federally assisted projects that involve infrastructure work, undertaken by applicable recipient types, require that:

- All iron, steel, and manufactured products used in the infrastructure work are produced in the United States; and
- All construction materials used in the infrastructure work are manufactured in the United States.

In general, whether a given project must apply this requirement is dependent on several factors, such as the recipient’s entity type, whether the work involves “infrastructure,” as that term is defined in Section 70914 of the BIL (discussed in more detail in Appendix C), based in part on whether the infrastructure in question serves a public function. For this FOA specifically, DOE finds that all projects subject to this FOA are considered “infrastructure” within the Buy America provision of BIL, based on implementation guidance from the Office of Management and Budget (OMB) issued on October 25, 2023.

Consistent with M-24-02, for-profit organizations are generally not considered non-Federal entities for the purpose of determining applicability. However, M-24-02 does not alter legal authorities that agencies may have to include the Buy America preference, or other domestic content requirements, in awards of Federal financial assistance issued to for-profit organizations. Unless the Federal award specifically indicates otherwise, subawards should conform to the terms and conditions of the Federal award from which they flow. For example, if a Federal agency obligates an award to a State government as a direct recipient, and the State issues a subaward to a for-profit entity to carry out the project as a subrecipient, then the Buy America preference requirements included in the Federal award would flow down to the for-profit entity. Finally, for all applicants—both non-Federal entities and for-profit entities—DOE is including a program policy factor that the Selection Official may consider in determining which Full Applications to select for award negotiations that considers whether the applicant has made a commitment to procure U.S. iron, steel, manufactured products, and construction materials in its project.

The DOE financial assistance agreement will require each recipient: (1) to fulfill the commitments made in its application regarding the procurement of U.S.-produced products, and (2) to fulfill the commitments made in its application regarding the procurement of other key component metals and manufactured products domestically that are deemed available in sufficient and reasonably available quantities or of a satisfactory quality at the time of award negotiation. Applicants may seek waivers of these requirements in very limited circumstances and for good cause shown. Further details on requesting a waiver can be found in Appendix C and the terms and conditions of an award.

Applicants are strongly encouraged to consult Appendix C for more information.

viii. Davis-Bacon Act Requirements

Projects awarded under this FOA will be funded under Division D of the Bipartisan Infrastructure Law. Accordingly, per section 41101 of that law, all laborers and mechanics employed by the recipient, subrecipients, contractors or subcontractors in the performance of construction, alteration, or repair work funded in whole or in part under this FOA shall be paid wages at rates not less

than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code commonly referred to as the "Davis-Bacon Act" (DBA).

Applicants shall provide written assurance acknowledging the DBA requirements above, and confirming that the laborers and mechanics performing construction, alteration, or repair work on projects funded in whole or in part by awards made as a result of this FOA are paid or will be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act).

Applicants acknowledge that they will comply with all of the Davis-Bacon Act requirements, including but not limited to:

1. ensuring that the wage determination(s) and appropriate Davis-Bacon clauses and requirements are flowed down to and incorporated into any applicable subcontracts or subrecipient awards.
2. ensuring that if wage determination(s) and appropriate Davis-Bacon clauses and requirements are improperly omitted from contracts and subrecipient awards, the applicable wage determination(s) and clauses are retroactively incorporated to the start of performance.
3. being responsible for compliance by any subcontractor or subrecipient with the Davis-Bacon labor standards.
4. receiving and reviewing certified weekly payrolls submitted by all subcontractors and subrecipients for accuracy and to identify potential compliance issues.
5. maintaining original certified weekly payrolls for 3 years after the completion of the project and must make those payrolls available to the DOE or the United States Department of Labor (DOL) upon request, as required by 29 CFR 5.6(a)(2).
6. conducting payroll and job-site reviews for construction work, including interviews with employees, with such frequency as may be necessary to assure compliance by its subcontractors and subrecipients and as requested or directed by the DOE.
7. cooperating with any authorized representative of the Department of Labor in their inspection of records, interviews with employees, and other actions undertaken as part of a DOL investigation.
8. posting in a prominent and accessible place the wage determination(s) and DOL Publication: WH-1321, Notice to Employees Working on Federal or Federally Assisted Construction Projects.
9. notifying the Contracting Officer of all labor standards issues, including all complaints regarding incorrect payment of prevailing wages and/or fringe benefits, received from the recipient, subrecipient, contractor, or subcontractor employees; significant labor standards violations, as defined in 29 CFR 5.7; disputes concerning labor standards pursuant to 29 CFR

parts 4, 6, and 8 and as defined in FAR 52.222-14; disputed labor standards determinations; DOL investigations; or legal or judicial proceedings related to the labor standards under this Contract, a subcontract, or subrecipient award.

10. Preparing and submitting to the Contracting Officer, the Office of Management and Budget Control Number 1910-5165, Davis Bacon Semi-Annual Labor Compliance Report, by April 21 and October 21 of each year. Form submittal will be administered through the iBenefits system (<https://doeibenefits2.energy.gov>), its successor system, or other manner of compliance as directed by the Contracting Officer.

Recipients of funding under this FOA will also be required to undergo Davis-Bacon Act compliance training and to maintain competency in Davis-Bacon Act compliance. The Contracting Officer will notify the recipient of any DOE sponsored Davis-Bacon Act compliance trainings. The DOL offers free Prevailing Wage Seminars several times a year that meet this requirement, at <https://www.dol.gov/agencies/whd/government-contracts/construction/seminars/events>.

For additional guidance on how to comply with the Davis-Bacon provisions and clauses, see <https://www.dol.gov/agencies/whd/government-contracts/construction> and <https://www.dol.gov/agencies/whd/government-contracts/protections-for-workers-in-construction>.

DOE anticipates contracting with a third party for a Davis-Bacon Act electronic payroll compliance software application. Recipients of funding under this FOA must ensure the timely electronic submission of weekly certified payrolls through this software as part of its compliance with the Davis-Bacon Act unless a waiver is granted to a particular contractor or subcontractor because it is unable or limited in its ability to use or access. Applicants should indicate if they will seek a waiver.

ix. Lobbying

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Recipients and subrecipients are required to complete and submit SF-LLL, “Disclosure of Lobbying Activities” (<https://www.grants.gov/forms/forms-repository/sf-424-individual-family>) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;
- A Member of Congress;

- An officer or employee of Congress; or
- An employee of a Member of Congress.

x. Risk Assessment

Pursuant to 2 CFR 200.206, DOE will conduct an additional review of the risk posed by applications submitted under this FOA. Such risk assessment will consider:

1. Financial stability;
2. Quality of management systems and ability to meet the management standards prescribed in 2 CFR 200 as amended and adopted by 2 CFR 910;
3. History of performance;
4. Audit reports and findings; and
5. The applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-federal entities.

DOE may make use of other publicly available information and the history of an applicant's performance under DOE or other federal agency awards.

Depending on the severity of the findings and whether the findings were resolved, DOE may elect not to fund the applicant.

In addition to this review, DOE must comply with the guidelines on government-wide suspension and debarment in 2 CFR Part 180, and must require non-federal entities to comply with these provisions. These provisions restrict federal awards, subawards and contracts with certain parties that are debarred, suspended or otherwise excluded from or ineligible for participation in federal programs or activities.

Further, as DOE invests in critical infrastructure and funds critical and emerging technology areas, DOE also considers possible threats to United States research, technology, and economic security from undue foreign government influence when evaluating risk. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant.

xi. Invoice Review and Approval

DOE employs a risk-based approach to determine the level of supporting documentation required for approving invoice payments. Recipients may be required to provide some or all of the following items with their requests for reimbursement:

- Summary of costs by cost categories;
- Timesheets or personnel hours report;
- Proof of compliance with Davis-Bacon and electronic submittals of certified payroll reports;

- Invoices/receipts for all travel, equipment, supplies, contractual, and other costs;
- UCC filing proof for equipment acquired with project funds by for-profit recipients and subrecipients;
- Explanation of cost share for invoicing period;
- Analogous information for some subrecipients; and
- Other items as required by DOE.

xii. Prohibition related to Foreign Government-Sponsored Talent Recruitment Programs

a. Prohibition

Persons participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk* are prohibited from participating in projects selected for federal funding under this FOA. Should an award result from this FOA, the recipient must exercise ongoing due diligence to reasonably ensure that no individuals participating on the DOE-funded project are participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk*. Consequences for violations of this prohibition will be determined according to applicable law, regulations, and policy. Further, the recipient must notify DOE within five (5) business days upon learning that an individual on the project team is or is believed to be participating in a foreign government talent recruitment program of a foreign country of risk. DOE may modify and add requirements related to this prohibition to the extent required by law.

b. Definitions

1. Foreign Government-Sponsored Talent Recruitment Program. An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of Federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms including cash,

research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

2. **Foreign Country of Risk.** DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

xiii. Affirmative Action and Pay Transparency Requirements

All applicants must comply with all applicable Federal labor and employment laws, including but not limited to Title VII of the Civil Rights Act of 1964, the Fair Labor Standards Act, the Occupational Safety and Health Act, and the National Labor Relations Act, which protects employees' right to bargain collectively and engage in concerted activities for the purpose of workers' mutual aid or protection.

All Federally assisted construction contracts exceeding \$10,000 annually will be subject to the requirements of Executive Order 11246:

1. Recipients, subrecipients, contractors, and subcontractors are prohibited from discriminating in employment decisions on the basis of race, color, religion, sex, sexual orientation, gender identity or national origin.
2. Recipients and contractors are required to take affirmative action to ensure that equal opportunity is provided in all aspects of their employment. This includes flowing down the appropriate language to all subrecipients contractors, and subcontractors.
3. Recipients, subrecipients, contractors, and subcontractors are prohibited from taking adverse employment actions against applicants and employees for asking about, discussing, or sharing information about their pay or, under certain circumstances, the pay of their co-workers.

The Department of Labor's (DOL) Office of Federal Contractor Compliance Programs (OFCCP) uses a neutral process to schedule compliance evaluations. Consult OFCCP's Technical Assistance Guide²⁰ to gain an understanding of the requirements and possible required actions the recipients, subrecipients, contractors, and subcontractors must take. Additional guidance may also be found in the National Policy Assurances, produced by DOE.

Additionally, for construction projects valued at \$35 million or more and lasting more than one year, the recipients, subrecipients, contractors, and subcontractors may be selected by the OFCCP to participate in the *Mega Construction Project Program*. DOE, under relevant legal authorities including Sections 205 and 303(a)

²⁰ See OFCCP's Technical Assistance Guide at: <https://www.dol.gov/sites/dolgov/files/ofccp/Construction/files/ConstructionTAG.pdf?msclkid=9e397d68c4b111ec9d8e6fecb6c710ec>. Also see the National Policy Assurances <http://www.nsf.gov/awards/managing/rtc.jsp>.

of Executive Order 11246, will require participation as a condition of the award. This program offers extensive compliance assistance with EO 11246. For more information regarding this program, see <https://www.dol.gov/agencies/ofccp/construction/mega-program>.

xiv. Foreign Collaboration Considerations

- a. Consideration of new collaborations with foreign entities and governments. The recipient will be required to provide DOE with advanced written notification of any potential collaboration with foreign entities or governments in connection with its DOE-funded award scope. The recipient will then be required to await further guidance from DOE prior to contacting the proposed foreign entity or government regarding the potential collaboration or negotiating the terms of any potential agreement.
- b. Existing collaborations with foreign entities and governments. The recipient will be required to provide DOE with a written list of all existing foreign collaborations in which has entered in connection with its DOE-funded award scope.
- c. Description of collaborations that should be reported. In general, a collaboration will involve some provision of a thing of value to, or from, the recipient. A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the DOE award, regardless of whether or not they have monetary value. Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students). In-kind contributions not intended for direct use on the DOE award but resulting in provision of a thing of value from or to the DOE award must also be reported. Collaborations do not include routine workshops, conferences, use of the recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the recipient's standard polices and procedures.

V. Application Review Information

A. Technical Review Criteria

i. Full Applications

Applications will be evaluated against the technical review criteria shown below. All sub-criteria are of equal weight.

Merit Review Criterion 1: Scientific and Technological Merit (35%)

This criterion involves consideration of the following factors:

- Breadth, depth, clarity, and completeness of the applicant's description of the overall future growth scenario in which the proposed common carrier CO₂ transport system would be deployed, including CO₂ sources, CO₂ conversion and/or geologic CO₂ storage locations, transport modes (pipeline, rail, truck, ship, barge), and transport routes as required in Section I.B.ii.1.a;
- Breadth, depth, clarity, and completeness of the applicant's *Base Project* FEED study as required in Section I.B.ii.1.b;
- Thoroughness and completeness of the differences between the *Base Project* and the *Expanded Project*, as required in Section 1.B.ii.1.b;
- Breadth, depth, clarity, and completeness of the applicant's description of the development status of the *Expanded Project*, as required in Section I.B.ii.1.c; and
- Quality and clarity of the discussion of ES&H risks and/or impacts over the lifetime of the transport system in accordance with the Program Purpose described in Section I.B.ii.d of this FOA.

Merit Review Criterion 2: Technical Approach and Understanding (10%)

This criterion involves consideration of the following factors:

- Feasibility of the proposed *Base Project* FEED study; the degree to which the proposed work is based on sound scientific and engineering principles;
- Feasibility of the proposed *Expanded Project* concept design study; the degree to which the proposed work is based on sound scientific and engineering principles;
- Feasibility, appropriateness, rationale, and completeness of the proposed SOPO, such that there is a logical methodology and schedule for the progression of work through the project phases, including appropriate Go/No-Go criteria;
- Degree to which the Applicant understands the risks and challenges posed by the be proposed CO₂ source sites, CO₂ transport modes, CO₂ conversion and/or geologic storage facilities, including but not limited to the effects

of impurities on hydraulics, equipment sizing, corrosion, metallurgy, operations, regulatory compliance, leakage, injection, and economics.

- Degree to which the Applicant has identified and considered legal challenges and public concerns associated with carbon capture, transport, and storage in the project region;
- Degree to which the applicant demonstrates that the transport system can reasonably be expected to be used during the 20-year period beginning on the date of substantial completion of the *Expanded Project*;
- Degree to which the Applicant understands the risk and challenges posed by transporting the proposed volume of CO₂ in the stated physical phase, terrain, geography, jurisdiction, and amongst, if any, applicable extreme weather scenarios and ground movement considerations;
- Degree to which the Applicant has identified and considered federal, state, and local CO₂ transport laws and regulations;
- Understanding of risk assessment and mitigation methodologies against abovementioned risk factors; and
- Plausibility of connectivity/flexibility within/between future CCS hubs/clusters that is supportive of catalyzing CCS development that otherwise would not be feasible.

Merit Review Criterion 3: Technical and Management Capabilities, Facilities and Resources (15%)

This criterion involves consideration of the following factors:

- Demonstrated experience of the applicant and partnering organizations in safely designing, constructing, and operating CO₂ transport infrastructure in the geographical region of the proposed project;
- Credentials, capabilities, and experience of key personnel and partnering organizations;
- Clarity and likely effectiveness of the project organization, including subrecipients or partners, to successfully complete the project within the proposed budget and timeframe;
- The adequacy and completeness of the PMP in establishing baselines (technical scope, budget, schedule) and in managing project performance relative to those baselines, defining the actions that will be taken when these baselines must be revised, and identification of project risks and strategies for mitigation;
- Adequacy and availability of proposed personnel, facilities, and equipment to perform project tasks in the specified timeframe; and
- Evidence of interest/commitment from relevant parties including commitment letters from other team members, cost-share contributors, and third parties whose cooperation is essential to the success of the project (e.g., CO₂ sources, equipment and material suppliers, CO₂

conversion/ geologic storage facilities, landowners, and other relevant stakeholders).

Merit Review Criterion 4: Community Benefits Plan (20%)

This criterion involves consideration of the following factors:

Community Labor and Engagement

- Extent to which the applicant demonstrates community and labor engagement to date that results in support for the proposed project;
- Extent to which the applicant has a clear and appropriately robust plan to engage – ideally through a clear commitment to negotiate an enforceable Workforce and Community Agreements with labor unions, Tribal entities, and community-based organizations that support or work with disadvantaged communities and other affected stakeholders;
- Extent to which the applicant has considered accountability to affected workers and community stakeholders, including those most vulnerable to project activities with a plan to publicly share Specific, Measurable, Achievable, Relevant and Timely (SMART) CBP commitments; and
- Extent to which the applicant demonstrates that community and labor engagement will lead to the delivery of high-quality jobs, minimal environmental impact, and allocation of project benefits to disadvantaged communities.

Job Quality and Workforce Continuity

- Quality and manner in which the proposed project will create and/or retain high quality, good-paying jobs with employer-sponsored benefits for all classifications and phases of work;
- Extent to which the project provides employees with the ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them and that contribute to the effective conduct of business and facilities amicable settlements of any potential disputes between employees and employers, providing assurances of project efficiency, continuity, and multiple public benefits; and
- Extent to which applicant demonstrates that it is a responsible employer, with ready access to a sufficient supply of appropriately skilled labor, and an effective plan to minimize the risk of labor disputes or disruptions.

Diversity, Equity, Inclusion, and Accessibility

- Extent to which the CBP includes specific and high-quality actions to meet DEIA goals, which may include DEIA recruitment procedures; supplier diversity plans, and other DEIA initiatives; and

- Quality of any partnerships and agreements with apprenticeship readiness programs, or community-based workforce training and support organizations serving workers facing systematic barriers to employment to facilitate participation in the project's construction and operations.

Justice40 Initiative

- Extent to which the CBP identifies specific, measurable benefits for disadvantaged communities, how the benefits will flow to disadvantaged communities, and how negative environmental impacts affecting disadvantaged communities would be mitigated; and
- Extent to which the project would contribute to meeting the objective that 40% of the overall benefits of climate and clean energy investments will flow to disadvantaged communities.

Merit Review Criterion 5: Financial (20%)

This criterion involves consideration of the following factors:

- Reasonableness and completeness of the Business Case analysis, as described in Appendix F, including the cost estimate, market size, business drivers, projected revenue sources, expenses, Return on Investment (ROI), and growth opportunities in the region(s) in which the proposed *Expanded Project* is located;
- Adequacy, completeness, and viability of the proposed Financial Plan, as described in Appendix H, demonstrating the potential for the Applicant to successfully implement the project through the project phases;
- Financial condition and capacity of proposed funding sources to provide their portion of project costs, including development costs;
- Viability and reasonableness of financial projections, including anticipated OPEX and CAPEX, for the proposed project;
- Degree and strength of financial commitment to the project evidenced by applicant, other project parties, and third-party private sources of financing.

~End of Merit Review Criteria~

Environmental Evaluation Criteria

The environmental evaluation, which is not point scored, will be conducted as follows. The Environmental Questionnaire(s) will be evaluated to (1) determine the adequacy and completeness of information submitted, (2) assess the applicant's awareness of project-related requirements, including requirements for mitigating any project-related environmental risks and impacts, (3) assess the applicant's ability to meet compliance requirements and the applicant's approach to identification and resolution of issues, and (4) assess the potential impacts of the proposed work and the potential liability to DOE. The Environmental

Questionnaire will be used to assist DOE in partially fulfilling requirements for compliance with NEPA and for making a preliminary assessment regarding the level of analysis necessary to comply with NEPA.

The Selection Official may consider the results of this evaluation when making selections.

ii. Criteria for Replies to Reviewer Comments

DOE has not established separate criteria to evaluate Replies to Reviewer Comments. Instead, Replies to Reviewer Comments are attached to the original applications and evaluated as an extension of the Full Application.

B. Standards for Application Evaluation

Applications that are determined to be eligible will be evaluated in accordance with this FOA and the guidance provided in the “DOE Merit Review Guide for Financial Assistance,” effective September 2020, which is available at: <https://energy.gov/management/downloads/merit-review-guide-financial-assistance-and-unsolicited-proposals-current>.

C. Other Selection Factors

i. Program Policy Factors

In addition to the above criteria, the Selection Official may consider the following program policy factors in determining which Full Applications to select for award negotiations:

- It may be desirable to select a project, or group of projects, that represent a diversity of technical approaches and methods under this FOA or the overall program;
- It may be desirable to support complementary and/or similar projects which, when taken together, will best achieve the program’s research goals and objectives;
- In order to best achieve the program’s research goals and objectives, it may be desirable to select a project or group of projects with a broad or specific geographic distribution under this FOA or the overall program;
- It may be desirable to select a project, or group of projects, if such a selection will optimize use of available funds;
- It may be desirable to select a project, or group of projects, if such a selection presents lesser schedule risk, lesser budget risk, lesser technical risk, and/or lesser environmental risks. Environmental risk includes, but is not limited to, an adverse impact to air, soil, water, or increase in overall cradle to grave greenhouse gas footprint (carbon dioxide equivalent, CO₂e).

- The degree to which the proposed project incorporates applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/Other Minority Serving Institutions); and partnerships with socially-disadvantaged Businesses and Indian Tribes Nations;
- The degree to which the proposed project, when compared to the existing DOE project portfolio and other projects to be selected from the subject FOA, contributes to the total portfolio meeting the goals reflected in the Community Benefits Plan criteria; and

D. Evaluation and Selection Process

i. Overview

The evaluation process consists of multiple phases; each includes an initial eligibility review and a thorough technical review. Rigorous technical reviews of eligible submissions are conducted by reviewers that are experts in the subject matter of the FOA. Ultimately, the Selection Official considers the recommendations of the reviewers, along with other considerations such as program policy factors, in determining which applications to select.

ii. Pre-Selection Interviews

As part of the evaluation and selection process, DOE may invite one or more applicants to participate in Pre-Selection Interviews. Pre-Selection Interviews are distinct from and more formal than pre-selection clarifications (See Section V.D.iii. of the FOA). The invited applicant(s) will meet with DOE representatives to provide clarification on the contents of the Full Applications and to provide DOE an opportunity to ask questions regarding the proposed project. The information provided by applicants to DOE through Pre-Selection Interviews contributes to DOE's selection decisions.

DOE will arrange to meet with the invited applicants in person at DOE's offices or a mutually agreed upon location. DOE may also arrange site visits at certain applicants' facilities. In the alternative, DOE may invite certain applicants to participate in a one-on-one conference with DOE via webinar, videoconference, or conference call.

DOE will not reimburse applicants for travel and other expenses relating to the Pre-Selection Interviews, nor will these costs be eligible for reimbursement as pre-award costs.

Participation in Pre-Selection Interviews with DOE does not signify that applicants have been selected for award negotiations.

iii. Pre-Selection Clarification

DOE may determine that pre-selection clarifications are necessary from one or more applicants. Pre-selection clarifications are distinct from and less formal than pre-selection interviews. These pre-selection clarifications will solely be for the purposes of clarifying the application. The pre-selection clarifications may occur before, during or after the merit review evaluation process. Information provided by an applicant that is not necessary to address the pre-selection clarification question will not be reviewed or considered. Typically, a pre-selection clarification will be carried out through either written responses to DOE’s written clarification questions or video or conference calls with DOE representatives.

The information provided by applicants to DOE through pre-selection clarifications is incorporated in their applications and contributes to the merit review evaluation and DOE’s selection decisions. If DOE contacts an applicant for pre-selection clarification purposes, it does not signify that the applicant has been selected for negotiation of award or that the applicant is among the top ranked applications.

DOE will not reimburse applicants for expenses relating to the pre-selection clarifications, nor will these costs be eligible for reimbursement as pre-award costs.

iv. Recipient Responsibility and Qualifications

DOE, prior to making a federal award with a total amount of federal share greater than the simplified acquisition threshold, is required to review and consider any responsibility and qualification information about the applicant that is in the entity information domain in [SAM.gov](https://sam.gov) (see 41 U.S.C. § 2313).

The applicant, at its option, may review information in the entity information domain in [SAM.gov](https://sam.gov) and comment on any information about itself that a federal awarding agency previously entered and is currently in the entity information domain in [SAM.gov](https://sam.gov).

DOE will consider any written comments by the applicant, in addition to the other information in the entity information domain in [SAM.gov](https://sam.gov), in making a judgment about the applicant's integrity, business ethics, and record of performance under federal awards when completing the review of risk posed by applicants as described in 2 CFR 200.206.

v. Selection

The Selection Official may consider the technical merit, the Federal Consensus Board’s recommendations, program policy factors, and the amount of funds available in arriving at selections for this FOA.

E. Anticipated Notice of Selection and Award Negotiation Dates

DOE anticipates notifying applicants selected for negotiation of award and negotiating awards by the dates provided on the cover page of this FOA.

VI. Award Administration Information

A. Award Notices

i. Ineligible Submissions

Ineligible Full Applications will not be further reviewed or considered for award. The Contracting Officer will send a notification letter by email to the technical and administrative points of contact designated by the applicant. The notification letter will state the basis upon which the Full Application is ineligible and not considered for further review.

ii. Full Application Notifications

DOE will notify applicants of its determination via a notification letter by email to the technical and administrative points of contact designated by the applicant in [Grants.gov](https://www.grants.gov). The notification letter will inform the applicant whether or not its Full Application was selected for award negotiations. Alternatively, DOE may notify one or more applicants that a final selection determination on particular Full Applications will be made at a later date, subject to the availability of funds or other factors.

iii. Successful Applicants

Receipt of a notification letter selecting a Full Application for award negotiations does not authorize the applicant to commence performance of the project. If an application is selected for award negotiations, it is not a commitment by DOE to issue an award. Applicants do not receive an award until award negotiations are complete and the Contracting Officer executes the funding agreement, accessible by the prime recipient in FedConnect.

The award negotiation process will take approximately 60 days. Applicants must designate a primary and a backup point-of-contact in [Grants.gov](https://www.grants.gov) with whom DOE will communicate to conduct award negotiations. The applicant must be responsive during award negotiations (i.e., provide requested documentation) and meet the negotiation deadlines. If the applicant fails to do so or if award negotiations are otherwise unsuccessful, DOE will cancel the award negotiations and rescind the selection. DOE reserves the right to terminate award negotiations at any time for any reason.

Please refer to Section IV.K.ii. of the FOA for guidance on pre-award costs.

iv. Alternate Selection Determinations

In some instances, an applicant may receive a notification that its application was not selected for award and DOE designated the application to be an alternate. As an alternate, DOE may consider the Full Application for federal funding in the future. A notification letter stating the Full Application is designated as an alternate does not authorize the applicant to commence performance of the project. DOE may ultimately determine to select or not select the Full Application for award negotiations.

v. Unsuccessful Applicants

DOE shall promptly notify in writing each applicant whose application has not been selected for award or whose application cannot be funded because of the unavailability of appropriated funds.

B. Administrative and National Policy Requirements

i. Registration Requirements

There are several one-time actions before submitting an application in response to this FOA, and it is vital that applicants address these items as soon as possible. Some may take several weeks, and failure to complete them could interfere with an applicant’s ability to apply to this FOA, or to meet the negotiation deadlines and receive an award if the application is selected. These requirements are as follows:

1. System for Award Management

Register with the SAM at <https://www.sam.gov>. Designating an E-Biz POC and obtaining a special password called a Marketing Partner ID Number (MPIN) are important steps in SAM registration. Applicants should update their SAM registration annually.

2. FedConnect

Register in FedConnect at <https://www.fedconnect.net>. To create an organization account, your organization’s SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at <https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect Ready Set Go.pdf>.

3. Grants.gov

Register in Grants.gov (<https://www.grants.gov/>) to receive automatic updates when Amendments to this FOA are posted. However, please note that Letters of Intent, Concept Papers, and Reply to Reviewer Comments will not be accepted through [Grants.gov](https://www.grants.gov/).

4. Electronic Authorization of Applications and Award Documents

Submission of an application and supplemental information under this FOA through electronic systems used by the DOE, including [Grants.gov](https://www.doe.gov/grants) and [FedConnect.net](https://www.doe.gov/fedconnect), constitutes the authorized representative's approval and electronic signature.

ii. Award Administrative Requirements

The administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR Part 200 as amended by 2 CFR Part 910.

iii. Foreign National Participation (April 2023)

All applicants selected for an award under this FOA and project participants (including subrecipients and contractors) who anticipate involving foreign nationals in the performance of an award, will be required to provide DOE with specific information about each foreign national to satisfy requirements for foreign national participation and access approvals. The volume and type of information collected may depend on various factors associated with the award. DOE concurrence may be required before a foreign national can participate in the performance of any work under an award.

Approval for foreign nationals in Principal Investigator/Co-Investigator roles, from countries of risk (i.e., China, Iran, North Korea, and Russia), or from countries identified on the U.S. Department of State's list of State Sponsors of Terrorism (<https://www.state.gov/state-sponsors-of-terrorism/>) may require written authorization from DOE before they can participate in the performance of any work under an award.

A "foreign national" is defined as any person who is not a United States citizen by birth or naturalization. DOE may elect to deny foreign national's participation in the award. Likewise, DOE may elect to deny a foreign national's access to a DOE sites, information, technologies, equipment, programs, or personnel.

Applicants selected for award negotiations must include this requirement in subawards.

iv. Subaward and Executive Reporting

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR Part 170. Prime recipients must register with the new FFATA Subaward Reporting System database and report the required data on their first tier subrecipients. Prime recipients must report the executive compensation for their own executives as part of their registration profile in SAM.

v. National Policy Requirements

The National Policy Assurances that are incorporated as a term and condition of award are located at: <http://www.nsf.gov/awards/managing/rtc.jsp>.

vi. Environmental Review in Accordance with National Environmental Policy Act (NEPA)

DOE's decision whether and how to distribute federal funds under this FOA is subject to NEPA (42 U.S.C. § 4321, *et seq.*). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the potential environmental impacts of their proposed actions. For additional background on NEPA, please see DOE's NEPA website, at <https://www.energy.gov/nepa>.

While NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all recipients selected for an award will be required to assist in the timely and effective completion of the NEPA process in the manner most pertinent to their proposed project. If DOE determines certain records must be prepared to complete the NEPA review process (e.g., biological evaluations or environmental assessments), the recipient may be required to prepare the records and the costs to prepare the necessary records may be included as part of the project costs.

vii. Applicant Representations and Certifications

1. Lobbying Restrictions

By accepting funds under this award, the prime recipient agrees that none of the funds obligated on the award shall be expended, directly or indirectly, to influence Congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. § 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

2. Corporate Felony Conviction and Federal Tax Liability Representations

In submitting an application in response to this FOA, the applicant represents that:

- a.** It is **not** a corporation that has been convicted of a felony criminal violation under any federal law within the preceding 24 months; and
- b.** It is **not** a corporation that has any unpaid federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

For purposes of these representations the following definitions apply:

A Corporation includes any entity that has filed articles of incorporation in any of the 50 states, the District of Columbia, or the various territories of the United States [but not foreign corporations]. It includes both for-profit and non-profit organizations.

3. Nondisclosure and Confidentiality Agreements Representations

In submitting an application in response to this FOA the applicant represents that:

- a. It **does not and will not** require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contractors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a federal department or agency authorized to receive such information.
- b. It **does not and will not** use any federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:
 - (1) *“These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive Order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive Orders and statutory provisions are incorporated into this agreement and are controlling.”*
 - (2) The limitation above shall not contravene requirements applicable to Standard Form 312 Classified Information Nondisclosure Agreement (<https://fas.org/sgp/othergov/sf312.pdf>), Form 4414 Sensitive Compartmented Information Disclosure Agreement (<https://fas.org/sgp/othergov/intel/sf4414.pdf>), or any other form issued by a federal department or agency governing the nondisclosure of classified information.
 - (3) Notwithstanding the provision listed in paragraph (a), a nondisclosure or confidentiality policy form or agreement that is to be executed by a person connected with the conduct of an

intelligence or intelligence-related activity, other than an employee or officer of the United States government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity unless specifically authorized to do so by the United States government. Such nondisclosure or confidentiality forms shall also make it clear that they do not bar disclosures to Congress, or to an authorized official of an executive agency or the Department of Justice, that are essential to reporting a substantial violation of law.

viii. Statement of Federal Stewardship

DOE will exercise normal federal stewardship in overseeing the project activities performed under DOE awards. Stewardship Activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing assistance and/or temporary intervention in unusual circumstances to correct deficiencies that develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.

ix. Statement of Substantial Involvement

DOE has substantial involvement in work performed under awards made as a result of this FOA. DOE does not limit its involvement to the administrative requirements of the award. Instead, DOE has substantial involvement in the direction and redirection of the technical aspects of the project as a whole. Substantial involvement includes, but is not limited to, the following:

Recipient's Responsibilities. The Recipient is responsible for:

- Performing the activities supported by this award in accordance with the Project Management Plan, including providing the required personnel, facilities, equipment, supplies and services;
- Managing and controlling project activities in accordance with established processes and procedures to ensure tasks and subtasks are completed within schedule and budget constraints defined by the current Project Management Plan;
- Implementing an approach to identify, analyze, and respond to project risks that is commensurate with the complexity of the project;
- Defining and revising approaches and plans, submitting the plans to DOE for review, and incorporating DOE comments;

- Coordinating related project activities with subrecipients and external suppliers, including contractors, to ensure effective integration of all work elements;
- Attending annual project review meetings and reporting project status;
- Participating in peer review evaluations of the project, or peer review evaluations of the program that their project supports;
- Submitting technical reports and publicly releasable documents that incorporate DOE comments;
- Presenting the project results at appropriate technical conferences or meetings as directed by the DOE Project Officer;

DOE Responsibilities. DOE has the right to intervene in the conduct or performance of project activities for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities. Suspension or termination of the cooperative agreement under 2 CFR part 200, as amended by 2 CFR part 910 (DOE Financial Assistance Regulations) does not constitute intervention in the conduct or performance of project activities.

DOE is responsible for:

- Reviewing in a timely manner project plans, including project management, testing and technology transfer plans, and recommending alternate approaches, if the plans do not address critical programmatic issues;
- Participating in project management planning activities, including risk analysis, to ensure DOE's program requirements or limitations are considered in performance of the work elements;
- Conducting annual project review meetings to ensure adequate progress and that the work accomplishes the program and project objectives. Recommending alternate approaches or shifting work emphasis, if needed;
- Providing substantial involvement to ensure that project results address critical system and programmatic goals established by the DOE Office of Fossil Energy and Carbon Management, in coordination with DOE's Carbon Transport and Storage Program;
- Promoting and facilitating technology transfer activities, including disseminating program results through presentations and publications;
- Serving as scientific/technical liaison between awardees and other program or industry staff; and
- Reviewing and concurring with ongoing technical performance to ensure that adequate progress has been obtained within the current Budget

Period authorized by DOE before work can commence on subsequent Budget Periods.

x. Intellectual Property Provisions

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

xi. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist and Instructions, DOE F 4600.2, attached to the award agreement.

Additional reporting requirements apply to projects funded by BIL. DOE may require specific data collection to track progress toward key departmental goals: ensuring justice and equity, investing in the American workforce, boosting domestic manufacturing, reducing greenhouse gas emissions, and advancing a pathway to private sector deployment. Examples of data that may be collected include:

- New manufacturing production or recycling capacity.
- Jobs data including:
 - Number and types of jobs provided, wages and benefits paid
 - Workforce demographics, including local hires
 - Efforts to minimize risks of labor disputes and disruptions
 - Contributions to ratio of apprentice-to-journey level workers employed
- Number of trainings completed, trainees placed in full-time employment, or number of trainings with workforce partnerships involving employers, community-based organizations, or labor unions.
- Justice and Equity data, including:
 - Socially-disadvantaged businesses acting as vendors and sub-contractors for bids on supplies, services and equipment.
 - Value, number, and type of partnerships with MSIs
 - Stakeholder engagement events, consent-based siting activities
 - Other relevant indicators from the Community Benefits Plan
- Number and type of energy efficient and clean energy equipment installed.

xii. Go/No-Go Review

Each project selected under this FOA will be subject to a periodic project evaluation referred to as a Go/No-Go Review. A Go/No-Go Review is a risk management tool and a project management best practice to ensure that, for the current phase or period of performance, technical success is definitively achieved and potential for success in future phases or periods of performance is evaluated,

prior to actually beginning the execution of future phases. At the Go/No-Go decision points, DOE will evaluate project performance, project schedule adherence, the extent milestone objectives are met, compliance with reporting requirements, and overall contribution to the program goals and objectives. Federal funding beyond the Go/No-Go decision point (continuation funding) is contingent upon (1) availability of federal funds appropriated by Congress for the purpose of this program; (2) the availability of future-year budget authority; (3) recipient's technical progress compared to the Milestone Summary Table stated in Attachment 1 of the award; (4) recipient's submittal of required reports; (5) recipient's compliance with the terms and conditions of the award; (6) DOE's Go/No-Go decision; (7) the recipient's submission of a continuation application²¹; and (8) written approval of the continuation application by the Contracting Officer.

As a result of the Go/No-Go Review, DOE may, at its discretion, authorize the following actions: (1) continue to fund the project, contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority; (2) recommend redirection of work under the project; (3) place a hold on federal funding for the project, pending further supporting data or funding; or (4) discontinue funding the project because of insufficient progress, change in strategic direction, or lack of funding.

The Go/No-Go decision is distinct from a non-compliance determination. In the event a recipient fails to comply with the requirements of an award, DOE may take appropriate action, including but not limited to, redirecting, suspending or terminating the award.

xiii. Conference Spending

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant or cooperative agreement was awarded that would defray the cost to the United States government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the United States government would otherwise exceed \$20,000, thereby circumventing the required notification

²¹ Includes the following information:

- i. A progress report on the project objectives, including significant findings, conclusions, or developments, and an estimate of any unobligated balances remaining at the end of the budget period. If the remaining unobligated balance is estimated to exceed 20 percent of the funds available for the budget period, explain why the excess funds have not been obligated and how they will be used in the next budget period.
- ii. A detailed budget and supporting justification if there are changes to the negotiated budget, or a budget for the upcoming budget period was not approved at the time of award.
- iii. A description of any planned changes from the SOPO and/or Milestone Summary Table.

by the head of any such Executive Branch department, agency, board, commission, or office to the Inspector General (or senior ethics official for any entity without an Inspector General), of the date, location, and number of employees attending such conference.

xiv. Uniform Commercial Code (UCC) Financing Statements

Per 2 CFR 910.360 (Real Property and Equipment) when a piece of equipment is purchased by a for-profit recipient or subrecipient with federal funds, and when the federal share of the financial assistance agreement is more than \$1,000,000, the recipient or subrecipient must:

Properly record, and consent to the Department's ability to properly record if the recipient fails to do so, UCC financing statement(s) for all equipment in excess of \$5,000 purchased with project funds. These financing statement(s) must be approved in writing by the Contracting Officer prior to the recording, and they shall provide notice that the recipient's title to all equipment (not real property) purchased with federal funds under the financial assistance agreement is conditional pursuant to the terms of this section, and that the government retains an undivided reversionary interest in the equipment. The UCC financing statement(s) must be filed before the Contracting Officer may reimburse the recipient for the federal share of the equipment unless otherwise provided for in the relevant financial assistance agreement. The recipient shall further make any amendments to the financing statements or additional recordings, including appropriate continuation statements, as necessary or as the Contracting Officer may direct.

xv. Implementation of Executive Order 13798, Promoting Free Speech and Religious Liberty

States, local governments, or other public entities may not condition sub-awards in a manner that would discriminate, or disadvantage sub-recipients based on their religious character.

xvi. Participants and Collaborating Organizations

If selected for award negotiations, the selected applicant must submit a list of personnel who are proposed to work on the project, both at the recipient and subrecipient level and a list of proposed collaborating organizations prior to award. Recipients will have an ongoing responsibility to notify DOE of changes to the personnel and collaborating organizations and submit updated information during the life of the award.

xvii. Current and Pending Support

If selected for award negotiations, within 30 days of the selection notice, the selectee must submit 1) current and pending support disclosures and resumes for

any new PIs or Senior/Key personnel, and 2) updated disclosures if there have been any changes to the current and pending support submitted with the application. Throughout the life of the award, the Recipient has an ongoing responsibility to submit 1) current and pending support disclosure statements and resumes for any new PI and Senior/Key personnel, and 2) updated disclosures if there are changes to the current and pending support previously submitted to DOE. Also See Section IV.D.xxi.

xviii. Interim Conflict of Interest Policy for Financial Assistance

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)²² is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under the DOE financial assistance award. The term “Investigator” means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. Recipients must flow down the requirements of the interim COI Policy to any subrecipient non-Federal entities. Further, for DOE funded projects, the recipient must include all financial conflicts of interest (FCOI) (i.e., managed and unmanaged/unmanageable) in their initial and ongoing FCOI reports.

It is understood that non-Federal entities and individuals receiving DOE financial assistance awards will need sufficient time to come into full compliance with DOE’s interim COI Policy. To provide some flexibility, DOE allows for a staggered implementation. Specifically, prior to award, applicants selected for award negotiations must: ensure all Investigators complete their significant financial disclosures; review the disclosures; determine whether a FCOI exists; develop and implement a management plan for FCOIs; and provide DOE with an initial FCOI report that includes all FCOIs (i.e., managed and unmanaged/unmanageable). Recipients will have 180 days from the date of the award to come into full compliance with the other requirements set forth in DOE’s interim COI Policy. Prior to award, the applicant must certify that it is, or will be within 180 days of the award, compliant with all requirements in the COI Policy.

xix. Fraud, Waste and Abuse

The mission of the DOE Office of Inspector General (OIG) is to strengthen the integrity, economy and efficiency of the Department’s programs and operations including deterring and detecting fraud, waste, abuse and mismanagement. The

²² DOE’s interim COI Policy can be found at [PF 2022-17 FAL 2022-02 Department of Energy Interim Conflict of Interest Policy Requirements for Financial Assistance](#).

OIG accomplishes this mission primarily through investigations, audits, and inspections of DOE activities to include grants, cooperative agreements, loans, and contracts.

The OIG maintains a Hotline for reporting allegations of fraud, waste, abuse, or mismanagement. To report such allegations, please visit <https://www.energy.gov/ig/ig-hotline>.

Additionally, recipients of DOE awards must be cognizant of the requirements of [2 CFR 200.113 Mandatory disclosures](#), which states:

The non-Federal entity or applicant for a Federal award must disclose, in a timely manner, in writing to the Federal awarding agency or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Non-Federal entities that have received a Federal award including the term and condition outlined in appendix XII of 2 CFR Part 200 are required to report certain civil, criminal, or administrative proceedings to SAM. Failure to make required disclosures can result in any of the remedies described in [2 CFR 200.339](#). (See also [2 CFR part 180](#), [31 U.S.C. § 3321](#), and [41 U.S.C. § 2313](#).) [[85 FR 49539](#), Aug. 13, 2020]

Applicants and subrecipients (if applicable) are encouraged to allocate sufficient costs in the project budget to cover the costs associated for personnel and data infrastructure needs to support performance management and program evaluation needs including but not limited to independent program and project audits to mitigate risks for fraud, waste, and abuse.

xx. Cybersecurity Plan

In accordance with BIL Section 40126, applicants selected for award negotiations must submit an acceptable cybersecurity plan to DOE prior to receiving funding²³. These plans are intended to foster a cybersecurity-by-design approach for BIL efforts. The Department will also use these plans to ensure effective integration and coordination across its research, development, and demonstration programs. **A cybersecurity plan is NOT required as part of the application submission for this FOA, but all projects selected under this FOA will be required to submit a cybersecurity plan during the award negotiation phase.**

The Department recommends using open guidance and standards such as the National Institute of Standards and Technology's (NIST) Cybersecurity Framework

²³ U.S.C. § 18725

(CSF) and the DOE Cybersecurity Capability Maturity Model (C2M2)²⁴. The cybersecurity plan created pursuant to BIL section 40126 should document any deviation from open standards, as well as the utilization of proprietary standards where the awardee determines that such deviation is necessary.

- Cybersecurity plans should be commensurate to the threats and vulnerabilities associated with the proposed efforts and demonstrate the cybersecurity maturity of the project.
- Cybersecurity plans may cover a range of topics relevant to the proposed project, e.g., software development lifecycle, third-party risks, and incident reporting.
- At a minimum, cybersecurity plans should address questions noted in BIL section 40126 (b) 'Contents of Cybersecurity Plan'²⁵.

Supplementary guidance on the cybersecurity plan requirement is available at <https://www.energy.gov/ceser/bipartisan-infrastructure-law-implementation>.

xxi. Real Property and Equipment

Real property and equipment purchased with project funds (federal share and recipient cost share) are subject to the requirements at 2 CFR 200.310, 200.311, 200.313, and 200.316 (non-Federal entities, except for-profit entities) and 2 CFR 910.360 (for-profit entities). For projects selected for award under this FOA, the recipient may (1) take disposition action on the real property and equipment; or (2) continue to use the real property and equipment after the conclusion of the award period of performance, with Contracting Officer approval.

The recipient's written Request for Continued Use must identify the property and include: a summary of how the property will be used (must align with the authorized project purposes); a proposed use period, (e.g., perpetuity, until fully depreciated, or a calendar date where the recipient expects to submit disposition instructions); acknowledgement that the recipient shall not sell or encumber the property or permit any encumbrance without prior written DOE approval; current

²⁴ NERC critical infrastructure protection (CIP) standards for entities responsible for the availability and reliability of the bulk electric system. NIST IR 7628: 2 Smart grid cyber security strategy and requirements. NIST SP800-53, Recommended Security Controls for federal Information Systems and Organizations: Catalog of security controls in 18 categories, along with profiles for low-, moderate-, and high-impact systems. NIST SP800-82, Guide to Industrial Control Systems (ICS) Security. NIST SP800-39, Integrated Enterprise-Wide Risk Management: Organization, mission, and information system view. AMI System Security Requirements: Security requirements for advanced metering infrastructure. ISO (International Organization for Standardization) 27001, Information Security Management Systems: Guidance on establishing governance and control over security activities (this document must be purchased). IEEE (Institute of Electrical and Electronics Engineers) 1686-2007, Standard for Substation Intelligent Electronic Devices (IEDs) Cyber Security Capabilities (this document must be purchased). DOE Cybersecurity Capability Maturity Model (C2M2).

²⁵ 42 U.S.C. § 18725

fair market value of the property; and an Estimated Useful Life or depreciation schedule for equipment.

When the property is no longer needed for authorized project purposes, the recipient must request disposition instructions from DOE. For-profit entity disposition requirements are set forth at 2 CFR 910.360. Property disposition requirements for other non-federal entities are set forth in 2 CFR 200.310-200.316.

VII. Questions/Agency Contacts

Upon the issuance of a FOA, DOE personnel are prohibited from communicating (in writing or otherwise) with applicants regarding the FOA except through the established question and answer process as described below. Specifically, questions regarding this FOA must be submitted through the FedConnect portal. You must register with FedConnect to respond as an interested party to submit questions, and to view responses to questions. It is recommended that you register as soon after release of the FOA as possible to have the benefit of all responses. Applicants are encouraged to review previously issued Questions and Answers prior to the submission of questions.

Questions and comments concerning this FOA shall be submitted not later than 3 business days prior to the application due date. Please note, feedback on individual concepts will not be provided through Q&A.

All questions and answers related to this FOA will be posted on the FedConnect portal at: <https://www.FedConnect.net>. DOE will attempt to respond to a question within 3 business days, unless a similar question and answer has already been posted on the website.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to [Grants.gov](https://www.Grants.gov) at 1-800-518-4726 or support@grants.gov. DOE cannot answer these questions.

VIII. Other Information

A. FOA Modifications

Amendments to this FOA will be posted on the [Grants.gov](https://www.Grants.gov) system and the FedConnect portal. However, you will only receive an email when an amendment or a FOA is posted on these sites by registering with FedConnect as an interested party for this FOA. DOE recommends that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any amendments or other FOAs.

B. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this FOA and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. Commitment of Public Funds

The Contracting Officer is the only individual who can make awards or commit the government to the expenditure of public funds. A commitment by anyone other than the Contracting Officer, either express or implied, is invalid.

D. Treatment of Application Information

Applicants should not include trade secrets or business sensitive proprietary, or otherwise confidential information in their application unless such information is necessary to convey an understanding of the proposed project or to comply with a requirement in the FOA. Applicants are advised to not include any critically sensitive proprietary detail.

If an application includes trade secrets or business sensitive, proprietary, or otherwise confidential information, it is furnished to the Federal Government in confidence with the understanding that the information shall be used or disclosed only for evaluation of the application. Such information will be withheld from public disclosure to the extent permitted by law, including the Freedom of Information Act. Without assuming any liability for inadvertent disclosure, DOE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the application or as otherwise authorized by law. This restriction does not limit the Government's right to use the information if it is obtained from another source.

If an applicant chooses to submit business sensitive, trade secrets, proprietary, or otherwise confidential information, the applicant must provide **two copies** of the submission (e.g., Concept Paper, Full Application). The first copy should be marked, “non-confidential” with the information believed to be confidential deleted. The second copy should be marked “confidential” and must clearly and conspicuously identify the business sensitive, trade secrets, proprietary, or otherwise confidential information and must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The Government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose as authorized by law.

The cover sheet of the Full Application, and other applicant submission must be marked as follows and identify the specific pages business sensitive, trade secrets, proprietary, or otherwise confidential information:

Notice of Restriction on Disclosure and Use of Data:

Pages [list applicable pages] of this document may contain business sensitive, trade secrets, proprietary, or otherwise confidential information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]

In addition, (1) the header and footer of every page that contains business sensitive, trade secrets, proprietary, or otherwise confidential information must be marked as follows: “Contains Business Sensitive, Trade Secrets, Proprietary, or Otherwise Confidential Information Exempt from Public Disclosure,” and (2) every line or paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

E. Evaluation and Administration by Non-Federal Personnel

In conducting the merit review evaluation, the Go/No-Go Reviews and Peer Reviews, the government may seek the advice of qualified non-federal personnel as reviewers. The government may also use non-federal personnel to conduct routine, nondiscretionary administrative activities, including DOE contractors. The applicant, by submitting its application, consents to the use of non-federal reviewers/administrators. Non-federal reviewers must sign conflict of interest

(COI) and non-disclosure acknowledgements (NDA) prior to reviewing an application. Non-federal personnel conducting administrative activities must sign an NDA.

F. Notice Regarding Eligible/Ineligible Activities

Eligible activities under this FOA include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

G. Notice of Right to Conduct a Review of Financial Capability

DOE reserves the right to conduct an independent third party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

H. Requirement for Full and Complete Disclosure

Applicants are required to make a full and complete disclosure of all information requested. Any failure to make a full and complete disclosure of the requested information may result in:

- The termination of award negotiations;
- The modification, suspension, and/or termination of a funding agreement;
- The initiation of debarment proceedings, debarment, and/or a declaration of ineligibility for receipt of federal contracts, subcontracts, and financial assistance and benefits; and
- Civil and/or criminal penalties.

I. Retention of Submissions

DOE expects to retain copies of all Full Applications and other submissions. No submissions will be returned. By applying to DOE for funding, applicants consent to DOE's retention of their submissions.

J. Rights in Technical Data

Data rights differ based on whether data is first produced under an award or instead was developed at private expense outside the award.

“Limited Rights Data”: The United States government will not normally require delivery of confidential or trade secret-type technical data developed solely at private expense prior to issuance of an award, except as necessary to monitor technical progress and evaluate the potential of proposed technologies to reach specific technical and cost metrics.

Government Rights in Technical Data Produced Under Awards: The United States government retains unlimited rights in technical data produced under government financial assistance awards, including the right to distribute to the public. One exception to the foregoing is that invention disclosures may be protected from public disclosure for a reasonable time in order to allow for filing a patent application.

K. Copyright

The prime recipient and subrecipients may assert copyright in copyrightable works, such as software, first produced under the award without DOE approval. When copyright is asserted, the government retains a paid-up nonexclusive, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and to perform publicly and display publicly the copyrighted work. This license extends to contractors and others doing work on behalf of the government. In addition, for those awards requiring distribution of software as Open-Source Software (OSS), the additional information in Appendix E must be addressed in the application.

L. Export Control

The United States government regulates the transfer of information, commodities, technology, and software considered to be strategically important to the United States to protect national security, foreign policy, and economic interests without imposing undue regulatory burdens on legitimate international trade. There is a network of federal agencies and regulations that govern exports that are collectively referred to as “Export Controls”. All recipients and subrecipients are responsible for ensuring compliance with all applicable United States Export Control Laws and regulations relating to any work performed under a resulting award.

The recipient must immediately report to DOE any export control violations related to the project funded under the DOE award, at the recipient or subrecipient level, and provide the corrective action(s) to prevent future violations.

M. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

As set forth in 2 CFR 200.216, recipients and subrecipients are prohibited from obligating or expending project funds (federal funds and recipient cost share) to procure or obtain; extend or renew a contract to procure or obtain; or Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses *covered telecommunications equipment or services* as a substantial or essential component of any system, or as critical technology as part of any system. As described in section 889 of Public Law 115-232, *covered telecommunications equipment* is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

See Public Law 115-232, section 889, 2 CFR 200.216, and 2 CFR 200.471 for additional information.

N. Personally Identifiable Information (PII)

All information provided by the applicant must to the greatest extent possible exclude PII. The term “PII” refers to information which can be used to distinguish or trace an individual's identity, such as their name, social security number, biometric records, alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual, such as date and place of birth, mother’s maiden name. (See OMB Memorandum M-17-12 dated January 3, 2017, found at: [MEMORANDUM FOR HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES \(archives.gov\)](https://www.archives.gov/omb/memoranda/2017/m17-12))

By way of example, applicants must screen resumes to ensure that they do not contain PII such as personal addresses, personal landline/cell phone numbers, and personal emails. **Under no circumstances should Social Security Numbers (SSNs) be included in the application.** Federal agencies are prohibited from the collecting, using, and displaying unnecessary SSNs. (See, the Federal Information Security Modernization Act of 2014 (Pub. L. No. 113-283, Dec 18, 2014; 44 U.S.C. § 3551).

O. Annual Independent Audits

If a for-profit entity is a prime recipient and has expended \$750,000 or more of DOE awards during the entity's fiscal year, an annual compliance audit performed by an independent auditor is required. For additional information, please refer to 2 CFR 910.501 and Subpart F.

If an educational institution, non-profit organization, or state/local government is a prime recipient or subrecipient and has expended \$750,000 or more of federal awards during the non-federal entity's fiscal year, then a Single or Program-Specific Audit is required. For additional information, please refer to 2 CFR 200.501 and Subpart F.

Applicants and subrecipients (if applicable) should propose sufficient costs in the project budget to cover the costs associated with the audit. DOE will share in the cost of the audit at its applicable cost share ratio.

APPENDIX A – COST SHARE INFORMATION

Cost Sharing or Cost Matching

The terms “cost sharing” and “cost matching” are often used synonymously. Even the DOE Financial Assistance Regulations, 2 CFR 200.306, use both of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term “cost sharing,” as it conveys the concept that non-federal share is calculated as a percentage of the Total Project Cost. An exception is the State Energy Program Regulation, 10 CFR 420.12, State Matching Contribution. Here “cost matching” for the non-federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

How Cost Sharing Is Calculated

As stated above, cost sharing is calculated as a percentage of the Total Project Cost. FFRDC costs must be included in Total Project Costs. The following is an example of how to calculate cost sharing amounts for a project with \$1,000,000 in federal funds with a minimum 20% non-federal cost sharing requirement:

- Formula: Federal share (\$) divided by federal share (%) = Total Project Cost
Example: \$1,000,000 divided by 80% = \$1,250,000
- Formula: Total Project Cost (\$) minus federal share (\$) = Non-federal share (\$)
Example: \$1,250,000 minus \$1,000,000 = \$250,000
- Formula: Non-federal share (\$) divided by Total Project Cost (\$) = Non-federal share (%)
Example: \$250,000 divided by \$1,250,000 = 20%

What Qualifies For Cost Sharing

While it is not possible to explain what specifically qualifies for cost sharing in one or even a couple of sentences, in general, if a cost is allowable under the cost principles applicable to the organization incurring the cost and is eligible for reimbursement under a DOE grant or cooperative agreement, then it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, then it is not allowable as cost share. In addition, costs may not be counted as cost share if they are paid by the federal government under another award unless authorized by federal statute to be used for cost sharing.

The rules associated with what is allowable as cost share are specific to the type of organization that is receiving funds under the grant or cooperative agreement, though are generally the same for all types of entities. The specific rules applicable to:

- FAR Part 31 for For-Profit entities, (48 CFR Part 31); and
- 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

In addition to the regulations referenced above, other factors may also come into play such as timing of donations and length of the project period. For example, the value of ten years of donated maintenance on a project that has a project period of five years would not be fully allowable as cost share. Only the value for the five years of donated maintenance that corresponds to the project period is allowable and may be counted as cost share.

Additionally, DOE generally does not allow pre-award costs for either cost share or reimbursement when these costs precede the signing of the appropriation bill that funds the award. In the case of a competitive award, DOE generally does not allow pre-award costs prior to the signing of the Selection Statement by the DOE Selection Official.

General Cost Sharing Rules on a DOE Award

1. Cash Cost Share – encompasses all contributions to the project made by the recipient or subrecipient(s), for costs incurred and paid for during the project. This includes when an organization pays for personnel, supplies, equipment for their own company with organizational resources. If the item or service is reimbursed for, it is cash cost share. All cost share items must be necessary to the performance of the project.
2. In-Kind Cost Share – encompasses all contributions to the project made by the recipient or subrecipient(s) that do not involve a payment or reimbursement and represent donated items or services. In-Kind cost share items include volunteer personnel hours, donated existing equipment, donated existing supplies. The cash value and calculations thereof for all In-Kind cost share items must be justified and explained in the Cost Share section of the project Budget Justification. All cost share items must be necessary to the performance of the project. If questions exist, consult your DOE contact before filling out the In-Kind cost share section of the Budget Justification.
3. Funds from other federal sources MAY NOT be counted as cost share. This prohibition includes FFRDC subrecipients. Non-federal sources include any source not originally derived from federal funds. Cost sharing commitment letters from subrecipients must be provided with the original application.
4. Fee or profit, including foregone fee or profit, are not allowable as project costs (including cost share) under any resulting award. The project may only incur those costs that are allowable and allocable to the project (including cost share) as determined in accordance with the applicable cost principles prescribed in FAR Part 31 for For-Profit entities and 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

DOE Financial Assistance Rules 2 CFR Part 200 as amended by 2 CFR Part 910

As stated above, the rules associated with what is allowable cost share are generally the same for all types of organizations. Following are the rules found to be common, but again, the specifics are contained in the regulations and cost principles specific to the type of entity:

- A. Acceptable contributions. All contributions, including cash contributions and third party in-kind contributions, must be accepted as part of the prime recipient's cost sharing if such contributions meet all of the following criteria:
1. They are verifiable from the recipient's records.
 2. They are not included as contributions for any other federally-assisted project or program.
 3. They are necessary and reasonable for the proper and efficient accomplishment of project or program objectives.
 4. They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:
 - a. For-profit organizations. Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A-122 is determined in accordance with the for-profit cost principles in 48 CFR Part 31 in the FAR, except that patent prosecution costs are not allowable unless specifically authorized in the award document. (v) Commercial Organizations. FAR Subpart 31.2—Contracts with Commercial Organizations; and
 - b. Other types of organizations. For all other non-federal entities, allowability of costs is determined in accordance with 2 CFR Part 200 Subpart E.
 5. They are not paid by the federal government under another award unless authorized by federal statute to be used for cost sharing or matching.
 6. They are provided for in the approved budget.
- B. Valuing and documenting contributions
1. Valuing recipient's property or services of recipient's employees. Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:
 - a. The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or
 - b. The current fair market value. If there is sufficient justification, the Contracting Officer may approve the use of the current fair market value of the donated property, even if it exceeds the certified value at the time of donation to the project. The Contracting Officer may accept the use of any reasonable basis for determining the fair market value of the property.
 2. Valuing services of others' employees. If an employer other than the recipient furnishes the services of an employee, those services are valued at the

employee's regular rate of pay, provided these services are for the same skill level for which the employee is normally paid.

3. Valuing volunteer services. Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.
4. Valuing property donated by third parties.
 - a. Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching share must be reasonable and must not exceed the fair market value of the property at the time of the donation.
 - b. Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the Contracting Officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:
 - i. The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.
 - ii. The value of loaned equipment must not exceed its fair rental value.
5. Documentation. The following requirements pertain to the recipient's supporting records for in-kind contributions from third parties:
 - a. Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.
 - b. The basis for determining the valuation for personal services and property must be documented.

APPENDIX B – WAIVER REQUESTS FOR: 1. FOREIGN ENTITY PARTICIPATION; AND 2. FOREIGN WORK

1. Waiver for Foreign Entity Participation

Many of the technology areas DOE funds fall in the category of critical and emerging technologies (CETs). CETs are a subset of advanced technologies that are potentially significant to United States national and economy security. For projects selected under this FOA, all recipients and subrecipients must be organized, chartered or incorporated (or otherwise formed) under the laws of a state or territory of the United States; have majority domestic ownership and control; and have a physical location for business operations in the United States. To request a waiver of this requirement, an applicant must submit an explicit waiver request in the Full Application.

Waiver Criteria

Foreign entities seeking to participate in a project funded under this FOA must demonstrate to the satisfaction of DOE that:

- a. Its participation is in the best interest of the United States industry and United States economic development;
- b. The project team has appropriate measures in place to control sensitive information and protect against unauthorized transfer of scientific and technical information;
- c. Adequate protocols exist between the United States subsidiary and its foreign parent organization to comply with export control laws and any obligations to protect proprietary information from the foreign parent organization;
- d. The work is conducted within the United States and the entity acknowledges and demonstrates that it has the intent and ability to comply with the U.S. Competitiveness Provision (see Section VI.B.iii.); and
- e. The foreign entity will satisfy other conditions that may be deemed necessary by DOE to protect United States government interests.

Content for Waiver Request

A Foreign Entity waiver request must include the following:

- a. Information about the entity: name, point of contact, and proposed type of involvement in the project;
- b. Country of incorporation, the extent of the ownership/level control by foreign entities, whether the entity is state owned or controlled, a summary of the ownership breakdown of the foreign entity and the percentage of ownership/control by foreign entities, foreign shareholders, foreign state or foreign individuals;
- c. The rationale for proposing a foreign entity participate (must address criteria above);
- d. A description of the project's anticipated contributions to the United States economy;

- How the project will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
 - How the project will promote manufacturing of products and/or services in the United States;
- e. A description of how the foreign entity's participation is essential to the project;
 - f. A description of the likelihood of Intellectual Property (IP) being created from the work and the treatment of any such IP; and
 - g. Countries where the work will be performed (Note: if any work is proposed to be conducted outside the United States, the applicant must also complete a separate request foreign work waiver).

DOE may also require:

- A risk assessment with respect to IP and data protection protocols that includes the export control risk based on the data protection protocols, the technology being developed and the foreign entity and country. These submissions could be prepared by the project lead (if not the prime recipient), but the prime recipient must make a representation to DOE as to whether it believes the data protection protocols are adequate and make a representation of the risk assessment – high, medium or low risk of data leakage to a foreign entity.
- Additional language be added to any agreement or subagreement to protect IP, mitigate risk or other related purposes.

DOE may require additional information before considering the waiver request.

DOE's decision concerning a waiver request is not appealable.

2. Waiver for Performance of Work in the United States (Foreign Work Waiver)

As set forth in Section IV.K.iii., all work under funding under this FOA must be performed in the United States. To seek a waiver of the Performance of Work in the United States requirement, the applicant must submit an explicit waiver request in the Full Application. A separate waiver request must be submitted for each entity proposing performance of work outside of the United States.

Overall, a waiver request must demonstrate to the satisfaction of DOE that it would further the purposes of this FOA and is otherwise in the economic interests of the United States to perform work outside of the United States. A request for a foreign work waiver must include the following:

1. The rationale for performing the work outside the United States ("foreign work");
2. A description of the work proposed to be performed outside the United States;
3. An explanation as to how the foreign work is essential to the project;
4. A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the United States economy;

5. The associated benefits to be realized and the contribution to the project from the foreign work;
6. How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
7. How the foreign work will promote manufacturing of products and/or services in the United States;
8. A description of the likelihood of Intellectual Property (IP) being created from the foreign work and the treatment of any such IP;
9. The total estimated cost (DOE and recipient cost share) of the proposed foreign work;
10. The countries in which the foreign work is proposed to be performed; and
11. The name of the entity that would perform the foreign work.

DOE may require additional information before considering the waiver request.

DOE's decision concerning a waiver request is not appealable.

APPENDIX C – REQUIRED USE OF AMERICAN IRON, STEEL, MANUFACTURED PRODUCTS, AND CONSTRUCTION MATERIALS BUY AMERICA REQUIREMENT FOR INFRASTRUCTURE PROJECTS

A. Definitions

For purposes of the Buy America Requirement, based both on the statute and OMB Guidance Document dated April 18, 2022, the following definitions apply:

“Construction materials” means articles, materials, or supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.

(1) The listed items are:

- (i) Non-ferrous metals;
- (ii) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- (iii) Glass (including optic glass);
- (iv) Fiber optic cable (including drop cable);
- (v) Optical fiber;
- (vi) Lumber;
- (vii) Engineered wood; and
- (viii) Drywall.

(2) Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material.

“Infrastructure” means public infrastructure projects in the United States, which includes, at a minimum, the structures, facilities, and equipment for roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and structures, facilities, and equipment that generate, transport, and distribute energy including electric vehicle (EV) charging.

Moreover, according to the OMB guidance document:

Section 184.4(d) [of 2 CFR part 184] explains that Federal agencies should interpret the term “infrastructure” broadly and consider the description provided in section 184.4(c)

as illustrative and not exhaustive. Section 184.4(d) also explains that, when determining if a particular construction project of a type not listed in section 184.4(c) constitutes “infrastructure,” agencies should consider whether the project will serve a public function, including whether the project is publicly owned and operated, privately operated on behalf of the public, or is a place of public accommodation, as opposed to a project that is privately owned and not open to the public. Through this memorandum, OMB notes that projects with the former “public” qualities have greater indicia (or distinguishing features) of “infrastructure,” while projects with the latter “private” quality have fewer. As a result, projects consisting solely of the purchase, construction, or improvement of a private home for personal use, for example, would not constitute a public infrastructure project for purposes of BABA. Federal agencies are strongly encouraged to consult with OMB when making such determinations or if they are uncertain about the applicability of this guidance to any particular infrastructure program.

The agency, not the applicant, will have the final say as to whether a given project includes infrastructure, as defined herein. Accordingly, in cases where the “public” nature of the infrastructure is unclear, but the other relevant criteria are met, DOE strongly recommends that applicants complete their Full Application with the assumption that Buy America Requirements will apply to the proposed project.

B. Buy America Requirement for Infrastructure Projects (“Buy America” Requirements)

In accordance with section 70914 of the BIL, none of the project funds (includes federal share and Recipient cost share) may be used for a project for infrastructure unless:

- (1) all iron and steel used in the project are produced in the United States--This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials²⁶ are produced in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only apply to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does the Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable

²⁶ Excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.

Consistent with M-24-02, for-profit organizations are generally not considered non-Federal entities. Unless the Federal award specifically indicates otherwise, subawards should conform to the terms and conditions of the Federal award from which they flow. For example, if a Federal agency obligates an award to a State government as a direct recipient, and the State issues a subaward to a for-profit entity to carry out the project as a subrecipient, then the Buy America preference requirements included in the Federal award would flow down to the for-profit entity.

For additional information related to the application and implementation of these Buy America requirements, please see OMB Memorandum M-24-02 -issued October 25, 2023.

Note that for all applicants – both non-Federal entities and for-profit entities – DOE is including a Program Policy Factor that the Selection Official may consider in determining which Full Applications to select for award negotiations that considers whether the applicant has made a commitment to procure U.S. iron, steel, manufactured products, and construction materials in its project.

C. Waivers

The DOE financial assistance agreement will require each recipient: (1) to fulfill the commitments made in its application regarding the procurement of U.S.-produced products and (2) to fulfill the commitments made in its application regarding the procurement of other key component metals and manufactured products domestically that are deemed available in sufficient and reasonable available quantities or of a satisfactory quality at the time of award negotiation.

In limited circumstances, DOE may waive the application of the Buy America Requirement where DOE determines that:

- (1) applying the Buy America requirements would be inconsistent with the public interest;
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

If an applicant or recipient is seeking a waiver of the Buy America requirements, it may submit a waiver request after it has been notified of its selection for award negotiations. A waiver request must include:

- A detailed justification for the use of “non-domestic” iron, steel, manufactured products, or construction materials to include an explanation as to how the non-domestic item(s) is essential to the project;
- A certification that the applicant or recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with potential suppliers;
- Applicant /Recipient name and Unique Entity Identifier (UEI)
- Total estimated project cost, DOE and cost-share amounts
- Project description and location (to the extent known)
- List and description of iron or steel item(s), manufactured goods, and construction material(s) the applicant or recipient seeks to waive from Domestic Content Procurement Preference requirement, including name, cost, country(ies) of origin (if known), and relevant Product Service Codes (PSC) and North American Industry Classification System (NAICS) code for each
- Waiver justification including due diligence performed (e.g., market research, industry outreach) by the applicant or recipient
- Anticipated impact if no waiver is issued.

DOE may require additional information before considering the waiver request.

Waiver requests are subject to public comment periods of no less than 15 days and must be reviewed by the Made in America Office. There may be instances where an award qualifies, in whole or in part, for an existing waiver described at [DOE Buy America Requirement Waiver Requests](#)

DOE’s decision concerning a waiver request is not appealable.

APPENDIX D – PRINCIPLES FOR AN EFFECTIVE CONSENT-BASED PROJECT SITING PROCESS

DOE Principles for an Effective Consent-Based Project Siting Process	
1.	Prioritization of Safety – The highest priority will be to site, design, construct, and operate the proposed facilities in a safe and secure manner that is protective of human health and the environment.
2.	Environmental Responsibility – The siting process will support the development, construction, and operation of facilities that successfully transport and store carbon dioxide (CO ₂) and use best practices with respect to rigorous planning, implementation, and monitoring.
3.	Regulatory Requirements – The siting process will support the development of facilities that meet or exceed applicable regulatory requirements. Regulatory requirements will be applied rigorously and transparently.
4.	Trust Relationship with Indian Tribes – The siting process will respect tribal sovereignty and self-determination, lands, assets, resources, treaty, and other federally recognized and reserved rights. The process will take into account siting impacts on sacred tribal lands, and other areas and resources of religious or cultural significance.
5.	Environmental Justice – The process will pursue fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. The process will also embrace environmental justice principles, and comply with federal requirements and guidance on these issues.
6.	Informed Participation – Consent is not meaningful unless it is informed. This means that the implementing organization will share information and provide financial and technical resources to communities as needed to enable effective participation and provide for informed decision-making.
7.	Equal Treatment and Full Consideration of Impacts – The siting process will be conducted in a manner that is considerate of parties who are or may reasonably be affected, identifies and shares information about potential impacts, and makes explicit the role of fairness and equity considerations in its decision-making
8.	Community Well-being – Communities will want to weigh the potential opportunities and risks of hosting a facility, including the social, economic, environmental, and cultural effects, both positive and negative, it may have on the community. To ensure that the siting process is fair and durable, consideration of all these impacts and benefits will be integral to the siting process.
9.	Voluntariness/Right to Withdraw – Participation in the consent-based siting process will be voluntary. Further, a community that volunteers to be considered for hosting a transport infrastructure reserves the option to reconsider and withdraw itself from further participation up to the point that a binding agreement has been signed. Provisions specifying when and on what grounds agreements could be terminated or amended beyond that point could be negotiated as part of the agreement.
10.	Transparency – The siting process will be open to input throughout and transparent with respect to how decisions are made. Every effort will be made to share information and

input with all participants in the process and explain how this information and input is being considered or applied.

11. Stepwise and Collaborative Decision-Making that is Objective and Science-Based – The process will be implemented in discrete, transparent, and easily observed and evaluated steps, in consultation with the public, interested stakeholders, and affected parties. Decisions will be based on sound science and siting considerations and regulatory requirements will be applied rigorously and transparently. The siting process will recognize the value of supporting robust participation, encouraging multiple applications, and keeping options open, especially in the early phases of the siting process.
12. A flexible and adaptive process - Experience in the United States and elsewhere suggests that siting processes, especially for complex and controversial facilities, are inherently unique. That means the steps taken may not occur exactly in the sequence described by DOE or elsewhere and may need to be modified—in duration and/or scope—based on the particular needs of potentially interested communities and on the nature of the facility itself.

APPENDIX E – WORKFORCE READINESS PLAN INSTRUCTIONS AND TEMPLATE

WORKFORCE READINESS PLAN TEMPLATE

This is a suggested format. If it makes sense for the Recipient to present the information in a different format, it may do so provided all content is covered.

Recipient Name:

PI Name:

Award Number:

Project Title:

Technology:

What are the occupations and necessary skills, certificates, certifications, or other educational attainment involved in the occupations related to this technology/activity?

Examples include applicable skills, apprenticeships, certificates, certifications, academic training or other programs available through in-house training or in coordination with education institutions such as community colleges, technical schools, universities, unions or other professional associations.

What is the availability and accessibility of training programs and current and projected future demand for these occupations?

Describe any training required to prepare the workforce needed to commercialize/deploy the technology and if there is availability of training and educational programs to fill current or projected activity / commercialization need as well as any projected future demand for training.

Does this activity have any ongoing or planned collaborations with education and training providers?

Describe how the Recipient plans to access any necessary training for its workforce, through coordination with educational institutions such as community colleges, technical schools, and universities, company-led, in-house training, union training, etc. Please identify any institutions with which working relationships exist.

Is there a need for the creation of a new workforce training program for this specific technology being developed to meet demand or to teach new skills necessary for emerging technologies?

This may include the creation of new apprenticeship, certificate, certifications, or other related training programs with educational training providers, like community colleges or universities or others. Ex. New welding techniques, skills necessary for advanced materials, increased demand for IT and coding skills, etc.

How will the project secure the necessary workforce for timely project completion?

Describe partnerships with workforce organizations, including labor unions, public workforce agencies, workforce intermediaries, and/or educational institutions to recruit and staff projects.

In addition, this should include measures to ensure job quality and workforce continuity.

Elements that should be identified and reviewed or revised as needed between Phase 1 and Phase 2 include the anticipated number of workers needed to construct and operate this project, the minimum wages and benefits offered, and measures to support health and safety, access to on-the-job training, including coordination of the above education and training initiatives for investments in workforce development, upskilling, and retention.

APPENDIX F – BUSINESS CASE ANALYSIS

The business case analysis should demonstrate an understanding of the current and projected commercial viability of the proposed carbon dioxide (CO₂) transport network(s). The analysis should describe the projected and intended use for the transport infrastructure over the next 50 years, including types of CO₂ sources and sinks in the present and future that will be available to utilize the transport infrastructure. The analysis must also clearly state how the project will operate as common carrier infrastructure and has considered capacity for future CO₂ sources. The analysis will contain a business case analysis, technical overview, market analysis, future deployment projection, and quantification of potential benefits of the technology.

An outline of each of the five major pieces of the analysis are as follows:

Business Case Analysis

- A pro forma which quantifies the projected financial parameters such as operating costs, operating revenues, financing cash flows, earnings before interest, taxes, depreciation, and amortization, tax credits and liabilities, and on return on investment over the project lifespan. The Business Case Analysis should also include a list of key economic and financial assumptions; and
- A discussion summarizing how transportation service agreements will be developed.

Technical Overview

- Description of the fluid compositions, volume aggregation, and suitability for CO₂ transport and storage; and
- Rationale for the selected mode(s) of transport.

Market Analysis

- Description of the CO₂ sources, transfer facilities, CO₂ conversion options, and/or geologic CO₂ storage locations, and transport routes within the region of interest;
- Analysis of applicability for co-location of the transport system with other clean energy applications;
- Discussion of the potential utilization of tax credits and other incentives, including projected revenue and duration; and
- Discussion of potential financing structures and partnerships for deployment of the technology

Future Deployment Projection

- Provide the potential deployment scale of the infrastructure across the current and future CO₂ sources, CO₂ transfer facilities, CO₂ conversion, and/or geologic CO₂ storage locations;
- Identify and compare competing technology options and/or competing transportation modes; and
- Discussion of potential barriers to large scale deployment.

Quantify Potential Benefits of the Technology

- Provide estimates of the potential benefits of large-scale deployment in terms of metrics such as manufacturing jobs, revenue, emissions reductions, etc.

APPENDIX G – BUSINESS PLAN

The business plan should address the items listed below and any other pertinent information to understand the transport system business plans.

Commercial Feasibility and Business Case Analysis: The business plan should describe the commercial feasibility of the proposed common carrier transport infrastructure and projected and intended use for the infrastructure over the next 25 years, including types of carbon dioxide (CO₂) sources and sinks in the present and future that will be available to utilize the infrastructure. The business case analysis shall include a pro forma which quantifies the projected financial parameters such as operating costs, operating revenues, financing cash flows, earnings before interest, taxes, depreciation, and amortization, tax credits and liabilities, and return on investment over the project lifespan. The business case analysis should also include a list of key economic and financial assumptions.

Key Contracts, Permits, and Agreements: The business plan should provide a top-level description, schedule, and status, of all critical path contracts and agreements relevant to the transportation system, encompassing permits, National Environmental Policy Act, design, engineering, labor, technology licensing, financing, construction, commissioning, startup, operation, and maintenance of the system.

Market Analysis: The market analysis must include:

- A description of the CO₂ sources, CO₂ conversion options, and/or geologic CO₂ storage locations, and transport routes within the region of interest;
- An analysis of applicability for co-location of the transport system with other clean energy applications or right of ways;
- A discussion of the potential utilization of tax credits and other incentives, including projected revenue and duration;
- A discussion of potential financing structures and partnerships for deployment of the technology; and
- A market analysis for the CO₂ conversion product, if applicable. The analysis should include an initial assessment of the product market potential, including current and projected market volume and value, as well as the estimated quantity of CO₂ converted to durable products that have a lower greenhouse gas life cycle compared to incumbent products.

Feedstock and Supplies Arrangements: The plan should provide a detailed description of plans for ensuring an adequate supply of feedstock and other major raw materials or supplies (including power purchase agreements), as needed for successful operation of the transport system. The plan should demonstrate how supply chains are or will be available and accessible for the intended project and do not significantly increase risk to proposed project cost and

schedule. Additionally, the plan should demonstrate how specific long lead materials, items, and equipment are identified, planned for, and managed throughout the project to support the efficient procurement, delivery, and construction of the proposed transport infrastructure.

Transport System Build-Out Plan: The business plan should describe the potential for expanding the proposed transport system during and beyond the award performance period. The business plan should also discuss how the proposed transport system will support the development of regional networks and/or a national CO₂ transport network, including the ability to attract follow-on private sector investments beyond the award performance period. Applicants must discuss competing technology options and/or competing transportation modes and potential barriers to large scale deployment.

APPENDIX H – FINANCIAL PLAN

The financial plan must present a viable plan to obtain funding for the entire non-Department of Energy (DOE) share of the total project cost that identifies all sources of project funds. The plan should provide a description of the following elements for the proposed transport system:

- The preliminary funding plan including the total amount for:
 - Funding for project development in Phases 1 and 2,
 - Funding for Phase 3 including medium-term financing for machinery and equipment, and longer-term financing for the transport system including sources and uses;
- Plan and schedule to achieving long-term financial viability, beyond DOE and other funding;
- The amount of expected traditional equity investments (identify participants and level of participation, if applicable);
- The timing of expected equity contributions and/or debt funding;
- The timing of repayment of expected debt funding;
- If debt is contemplated, provide a plan for managing potential interest rate risk and default risk;
- If tax equity or other non-traditional equity investments are contemplated, highlight any structural requirements that might arise from such investments;
- Contingency funding including the source should also be detailed in the financial plan; and
- Plan and schedule for managing contingency throughout the project lifecycle.

Prime Applicant and Project Partners: In line with the organization structure in the Project Management Plan, the application should describe the financial relationship of the prime recipient to major project partners, including any foreign owned entities who are contributing cost share and/or performing work. It should include a table that identifies the name of the organization or entity that are expected to contribute debt or equity financing and any person, organization, or entity who owns or will own five percent or more of the transport system. The plan should indicate the prime recipient, project partners, and other debt or equity contributors by listing the organization or entity name, website address, mailing address, city and state, and postal code.

Financial Strength: The financial plan should describe the prime recipient's and major project partners' financial strengths, as well as the transport system's strategic significance to the prime recipient and major project partner involved.

Other Federal Support: Federal financing, such as grants or loan guarantees from federal agencies, cannot be leveraged by applicants to provide the required transport system cost share or to otherwise support the same scope of the transport system. However, other federal support may be used for activities that fall outside of the transport system scope/budget. The financial plan should identify whether the transport system will benefit directly or indirectly from other forms of federal support, such as grants, loan guarantees, tax credits, having federal agencies or entities as a customer or off-taker of the transport system's products or services, or other federal contracts, including acquisitions, leases, and other arrangements, that may indirectly support the transport system.

Non-Federal Support: The plan should identify other non-federal governmental (including state or local) incentives or other assistance on which the proposed transport system relies, including grants, tax credits and loan guarantees to support the financing, construction, and operation of the transport system. It should indicate the terms of such support which could result in termination or reduction of anticipated/actual non-federal support, and whether any such incentives or assistance are subject to claw-back and the circumstances under which a claw-back could occur.

APPENDIX I – STATEMENT OF PROJECT OBJECTIVES

STATEMENT OF PROJECT OBJECTIVES

Title of Project

(Insert the title of the work to be performed. Be concise and descriptive)

This should be a standalone document that states the work to be conducted and should not include any proprietary/confidential information.

A. OBJECTIVES

Include one paragraph on the overall objective(s) of the work. The scope of work should include specific scope statement(s) for each phase.

B. SCOPE OF WORK

This section should not exceed one page and should summarize the effort and approach to achieve the objective(s) of the work. Note: if the project will be performed in phases, include specific scope statement(s) for each phase.

C. TASKS TO BE PERFORMED

This section provides a brief summary of the planned approach to this project. Tasks/subtasks, concisely written, should be provided in a logical sequence, and should be divided into the phases of the project, as appropriate. In writing the Statement of Project Objectives (SOPO), avoid 1) the use of proper nouns to minimize SOPO modifications in the event of changes to the project team, facilities, etc.; 2) figures and equations; 3) references to other documents and publications; and 4) details about past work and discussion of technical background (which should be covered elsewhere in the application technical volume).

NOTE: Please refer to Section I.B.i. of this FOA for detailed information on what elements, at a minimum, should be included in the task structure for each project phase.

Tasks 1.0 and 2.0 will be executed for all Project Phases

Task 1.0 – Project Management and Planning (REQUIRED; APPLICANT INSERT THIS TASK)

Subtask 1.1 – Project Management Plan (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“The Recipient shall manage and direct the project in accordance with a Project Management Plan to meet all technical, schedule and budget objectives and requirements. The Recipient will coordinate activities in order to effectively accomplish the work. The Recipient will ensure that project plans, results, and decisions are appropriately documented and project reporting and briefing requirements are satisfied.

The Recipient shall update the Project Management Plan 30 days after award and as necessary throughout the project to accurately reflect the current status of the project. Examples of when it may be appropriate to update the Project Management Plan include: (a) project management policy and procedural changes; (b) changes to the technical, cost, and/or schedule baseline for the project; (c) significant changes in scope, methods, or approaches; or (d) as otherwise required to ensure that the plan is the appropriate governing document for the work required to accomplish the project objectives.

Management of project risks will occur in accordance with the risk management methodology delineated in the Project Management Plan in order to identify, assess, monitor and mitigate technical uncertainties as well as schedule, budgetary and environmental risks associated with all aspects of the project. The results and status of the risk management process will be presented during project reviews and in quarterly progress reports with emphasis placed on the medium- and high-risk items.”

Subtask 1.2 – Workforce Readiness Plan (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES AND CONTINUE TO COMPLETE. REFERENCE APPENDIX E FOR SUGGESTED FORMAT.)

“The Recipient will prepare and maintain a Workforce Readiness Plan related to the technology being researched under the project during Phase 1 and Phase 2. The Plan must describe the skillset and availability of the workforce needed for future commercialization and deployment of the technology, including whether any related apprenticeships, certificates, certifications, or academic training are currently available. If a workforce with the required skills is not readily available, or if the technology is so new that a trained workforce does not yet exist, the Recipient’s plan shall detail how the needed workforce could be developed, for instance, through coordination with educational institutions such as community colleges, technical schools, and universities; company-led in-house training; union training, etc. The Recipient will monitor and update its assessment of workforce availability and development plans throughout the life of the project.”

APPLICANT CONTINUE WITH TASKS/SUB-TASKS AS NECESSARY.

Subtask 1.3 – Progress Management and Reporting (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES AND CONTINUE TO COMPLETE.)

“The Recipient shall prepare a detailed Progress Summary Report prior to the end of Phase 1 and Phase 2 to demonstrate that key project activities have been successfully completed. The Progress Summary Report must include requisite detail to demonstrate that the *Base Project* is ready to proceed to subsequent Phases of execution. The Progress Summary Report should include, but is not limited to, the status of permits, land acquisition, labor availability, commitment status of sources and sinks, NEPA reviews and determination, significant risks, cost and schedule comparison to the baseline, etc. This detail will be used to ascertain project readiness for subsequent phases of execution.”

Task 2.0 – Community Benefits Plan (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“The Recipient is also required to complete the commitments and milestones listed in the Community Benefits Plan (CBP) document, which is incorporated as an attachment to this award. The CBP contains four actionable sections: Community and Labor Engagement; Investing in Job Quality and a Skilled Workforce; Diversity, Equity, Inclusion, and Accessibility; and Justice40 Initiative. Funding spent on each section will be reported in the quarterly reports. In addition, the Recipient will undergo an Assistance & Validation (A&V) process after selection, at an interim review, and toward the end of the project. A&V is a cooperative effort between the Recipient and the DOE team administering the award. Each A&V effort will require the Recipient Team and the DOE to discuss the activities, performance metrics, baseline, and targets of the CBP and assess progress. Discussion will include opportunities for improvement. At the conclusion of each A&V effort, a report will be prepared with findings and recommendations and a summary of the report will be made public.

It is expected that key milestones associated with the CBP will be incorporated into the milestone log as part of the overall Project Management Plan and that there will be at least one milestone per year associated with each section of the CBP. The quarterly progress reports and the final technical report shall include updates on the progress and challenges throughout the course of the award.”

Subtask 2.1 – Community and Labor Engagement (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“This Subtask will include all activities necessary to fulfill the Community and Labor Engagement commitments and milestones in the CBP.”

Subtask 2.2 – Investing in Job Quality and a Skilled Workforce (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“This Subtask will include all activities necessary to fulfill the Investing in Job Quality and a Skilled Workforce commitments and milestones in the CBP.”

Subtask 2.3 – Diversity, Equity, Inclusion, and Accessibility (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“This Subtask will include all activities necessary to fulfill the DEIA commitments and milestones in the CBP.”

Subtask 2.4 – Justice40 Initiative (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES)

“This Subtask will include all activities necessary to fulfill the J40 commitments and milestones in the CBP.”

PHASE 1 – Detailed Project Planning & FEED Study Execution

Task 3.0 – Business Development and Management

This task should include activities necessary to execute Business Development and Management efforts in Phase 1. This should include, but is not limited to, development of the business plan, execution and updating of the financial plan, and evaluating the commitment status of sources and sinks.

Task 4.0 – Engineering, Procurement, Construction and Operations (EPCO)

This task should include the activities necessary to execute Engineering, Procurement, Construction, and Operations efforts in Phase 1. This task should include, but is not limited to, activities in support of developing the FEED study, updating the data table, and updating budgetary information.

Task 5.0 – Safety, Security, and Regulatory Requirements

This task should include the activities necessary to execute Safety, Security and Regulatory activities in Phase 1. This task should include, but is not limited to, executing and updating the regulatory plan, executing and updating the ES&H

analysis, submitting the cybersecurity plan, submitting the Environmental Information Volume, and completing the HAZOP study.

Task 6.0 – Risk Analysis and Mitigation

This task should include the activities necessary to execute Risk Analysis and Mitigation efforts in Phase 1. This task should include, but is not limited to, the efforts needed to execute and update both the risk management plan and risk register.

PHASE 2 – Project Development, Permitting, and Financing

Task 7.0 – Business Development and Management

This task should include the activities necessary to execute Business Development and Management efforts in Phase 2. This task should include, but is not limited to, updating and executing the business plan, executing and updating the financial plan, developing teaming and labor agreements, land acquisition activities, and evaluating the commitment status of CO₂ sources and sinks.

Task 8.0 – Engineering, Procurement, Construction and Operations (EPCO)

This task should include the activities necessary to execute Engineering, Procurement, Construction, and Operations efforts in Phase 2. This task should include, but is not limited to, developing detailed designs and plans that support procurement, construction, commissioning and operations, updating the data table, and updating the budget justification.

Task 9.0 – Safety, Security, and Regulatory Requirements

This task should include the activities necessary to execute Safety, Security and Regulatory efforts in Phase 2. This task should include, but is not limited to, efforts to execute and update the regulatory plan, the ES&H analysis, and the cybersecurity plan, secure permits for construction, support and obtain a NEPA decision, and complete the final HAZOP study.

Task 10.0 – Risk Analysis and Mitigation

This task should include all activities necessary to execute Risk Analysis and Mitigation efforts in Phase 2. This task should include, but is not limited to, the efforts needed to execute and update both the risk management plan and risk register.

PHASE 3 – Procurement, Construction and Commissioning

Task 11.0 – Business Development and Management

This task should include the activities necessary to execute Business Development and Management efforts in Phase 3. This should include, but is not limited to, updating and executing the business plan, executing and updating the financial plan, and evaluating the commitment status of sources and sinks.

Task 12.0 – Procurement

This task should include the activities necessary to execute Procurement efforts in Phase 3.

Task 13.0 – Construction

This task should include the activities necessary to execute Construction efforts in Phase 3.

Task 14.0 – Commissioning

This task should include the activities necessary to execute Commissioning efforts in Phase 3.

Task 15.0 – Safety, Security, and Regulatory Requirements

This task should include the activities necessary to execute Safety, Security and Regulatory efforts in Phase 3. This task should include, but is not limited to, efforts to report on the status of required permits and safety and security incident reporting and audits.

Task 16.0 – Risk Analysis and Mitigation

This task should include the activities necessary to execute Risk Analysis and Mitigation efforts in Phase 3. This task should include, but is not limited to, the efforts needed to execute and update both the risk management plan and risk register.

- D. Go/No-Go Decision Points (See Section VI.B.xii. for more information on the Go/No-Go Review): Provide a summary of project-wide Go/No-Go decision points at appropriate points in the project schedule. At a minimum, each project must have at least one project-wide Go/No-Go decision point for each phase (budget period) of the project.

The applicant should also provide the specific technical criteria to be used to evaluate the project at the Go/No-Go decision point.

E. DELIVERABLES (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES AND CONTINUE TO COMPLETE.)

The periodic and final reports shall be submitted in accordance with the “Federal Assistance Reporting Checklist” and the instructions accompanying the checklist. In addition to the reports specified in the “Federal Assistance Reporting Checklist”, the Recipient must provide the following to the NETL Project Manager (identified in Block 15 of the Assistance Agreement as the Program Manager).

A listing of engineering and design products generated under the project must be developed and maintained throughout the project (table 1). Throughout the life of the project, the Recipient must provide DOE access to available engineering and design products upon request ensuring this request does not impede ongoing or planned investigations.

Task/ Subtask Number	Deliverable Title	Due Date
1.1	Project Management Plan (PMP)	Update due 30 days after award. Revisions shall be submitted as requested by the DOE Project Manager.
1.1	Monthly Progress Report	Full report due at the end of each month of project execution.
1.2	Workforce Readiness Plan	Update due 30 days after award. Revisions shall be submitted as required by the DOE Project Manager.
1.3	Progress Summary Report	Full report due no later than 90 days prior to the end of Phase 1 and Phase 2.
2	Community Benefits Plan	As required per subtasks.
5	Environmental Information Volume (EIV)	EIV submitted no later than 120 days prior to the end of Phase 1.
1	Phase 1 Summary Report	Full report due no later than 90 days prior to the end of Phase 1.
9	NEPA	NEPA ROD/FONSI by the end of Phase 2.
1	Phase 2 Summary Report	Full report due no later than 90 days prior to the end of Phase 2.
1	Phase 3 Draft Summary Report	Draft report due no later than 90 days before the end of Phase 3.
1	Phase 3 Final Summary Report	Draft report due no later than 90 days after the end of Phase 3.

XXX	Applicant to Populate remaining Tasks/Subtasks and Deliverables	Applicant to Populate remaining Tasks/Subtasks and Deliverables
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F. BRIEFINGS/TECHNICAL PRESENTATIONS (REQUIRED; APPLICANT INSERT THE LANGUAGE PROVIDED BELOW IN QUOTES AND CONTINUE TO COMPLETE.)

“The Recipient shall prepare detailed briefings for presentation to the NETL Project Manager at their facility located in Pittsburgh, PA, Morgantown, WV, Albany, OR, or via WebEx. The Recipient shall make a presentation to the NETL Project Manager at a project kick-off meeting held within ninety (90) days of the project start date. At a minimum, annual briefings shall be given by the Recipient to explain the plans, progress, and results of the technical effort and a final project briefing at the close of the project shall also be given. In addition, the Recipient will participate in separate peer review meetings as required by DOE.”

At the Applicant’s discretion, other briefings/presentations may be added to Section E of the SOPO.

NOTE: If the application is selected for award, DOE may require the Recipient to include additional briefings/presentations, provided that such briefings/presentations are consistent with the budget, schedule, and scope of the project.

APPENDIX J – BASE PROJECT FEED STUDY

The FEED study shall include, but not necessarily be limited to:

1. **Project Scope and Summary** that includes business objectives and a summary of the proposed project. This document must describe whether the transport infrastructure will be common carrier infrastructure and how the proposed system(s) can help accelerate Carbon Capture and Storage/ Carbon Dioxide Removal development.
2. **Project Parameters** including, but not limited to:
 - a. Site characteristics and ambient conditions;
 - b. Carbon dioxide (CO₂) fluid compositions including maximum and minimum limits;
 - c. Land use, right-of-way, utility corridors, property boundaries, and title research; and
 - d. Project execution plan that details the timeline, critical items, decision points, and significant milestones necessary to advance the project through the stages of detailed design, procurement, construction, commissioning, and start-up.
3. **Engineering Design Package** that covers all proposed modes of transport within the system, including interconnection between modes (if applicable). The engineering design package shall include, but not be limited to:
 - a. **General (applicable to all transport modes)**
 - i. A route report and maps, complete with:
 1. A Geographic Information Systems database to house all route and survey information;
 2. Route map incorporating aerial photography, right-of-way and workspace, environmental features (waterways, streams, rivers, canals, lakes, wetlands, etc.), existing transportation infrastructure (roads, tunnels, highways, railroads, terminals), topography, elevation profiles, hydrological data, foreign crossings, and others;
 3. Crossing and right-of-way investigation or survey including elevation, crossing methods, constructability, proposed mitigation, land use, access, workspace configuration, and other relevant information at key locations;
 4. Geotechnical and hydrotechnical investigations (desktop or field) that consider extreme weather scenarios and other ground movement force considerations;
 5. Wetland and environmental survey or investigation information;
 6. Cultural and archeological survey or investigation information;
 7. Population density study along the transport route and a preliminary High Consequence Area determination;

8. Site selection for aboveground facilities;
 9. Locations of both existing and proposed CO₂ sources, transfer facilities, and storage/conversion facilities; and
 10. Landowner engagement and land acquisition plan along the proposed route.
- ii. A design basis document that covers:
1. Applicable codes, regulations, standards, and specifications that govern the civil, structural, mechanical, process, electrical, and automation/controls designs;
 2. If no codes, regulations, standards, or specifications exist, alternatives that demonstrate equivalency shall be identified;
 3. Transport distance, transport mode, transport capacity, CO₂ phase, and permissible composition of CO₂ transported between each receipt/delivery point;
 4. Route selection process, including alternatives considered;
 5. Basis for the selected mode of transport;
 6. Crossing design including waterways, roads, interstate highways, and railroads including horizontal directional drilling requirements;
 7. Integrity management and operation and maintenance plan(s);
 8. Supervisory Control and Data Acquisition (SCADA) System and Leak Detection System;
 9. Overpressure protection, venting during routine operations, and emergency venting;
 10. Building monitoring designs and equipment to detect and notify personnel of unsafe conditions;
 11. Metering and custody transfer;
 12. Operating and control philosophy;
 13. Infrastructure and/or rights of way intended for re-use;
 14. Provisions for future expansion; and
 15. A staffing plan for operation of the transport system.
- iii. Key design calculations and drawings that cover:
1. Pressure design and maximum operating pressure determination;
 2. Overpressure protection;
 3. Mass and energy balance, including justification for proposed equation of state;
 4. An estimate of annual CO₂ releases from normal and emergency operations;
 5. Transport system and equipment sizing;

6. Process flow diagram and utility flow diagram;
 7. Preliminary process and instrumentation diagrams;
 8. Power requirements, sources, costs, and timing;
 9. Preliminary material take-off;
 10. Tie-in list;
 11. Demolition/removal drawings; and
 12. Preliminary drawing list and estimated drawing count for the detailed engineering phase.
- iv. Technical specifications and datasheets for major materials, equipment, and activities, including but not limited to: rotating or static equipment, measurement facilities, leak detection, SCADA, controls, communications, buildings, electrical substations, construction, surveying, and others.
- v. Risk management plan, complete with a risk register, a preliminary hazard and operability analysis, and a preliminary cause and effect diagram.
- vi. If converting assets to CO₂ service, a preliminary conversion-to-service plan that includes an integrity assessment plan to demonstrate fitness for service and/or applicable regulatory compliance.
- vii. Additional critical safety and risk assessments:
1. Conducting an air dispersion and potential impact radius study including terrain and overland flow considerations for determining the effect on any populated areas;
 2. Providing an emergency response plan including training and outreach for emergency responders and local communities, as appropriate;
 3. Consideration of additional safety critical equipment (e.g., emergency shutdown system, braking) and redundant safety design;
 4. Consideration of odorant additives for CO₂; and
 5. Consideration of additional distance for setback in populated areas.
- viii. Constructability review and construction specifications to meet applicable codes, regulations, and standards.
- ix. Environmental specifications:
1. Monitoring;
 2. Structures, such as for waterbody crossings, to minimize construction damage to the environment;
 3. Wetland, river, lake, major stream crossings and horizontal directional drills; and

4. Soil erosion mitigation measures and structures and monitoring after construction for one year.
- x. Commissioning plans.
- xi. Procurement plan for long lead materials and equipment.
- xii. Plan for selection of contractors/subcontractors.
- xiii. Summary of lessons learned during FEED study execution.

b. Additional Deliverables for Pipelines

- i. A route report and maps, complete with:
 1. Geotechnical and hydrotechnical investigations (desktop or field) that consider extreme weather scenarios and other ground movement force considerations aligned with the Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA) integrity management program and relevant advisory bulletins for all pipelines such as the June 2022 bulletin (Docket PHMSA-2022-0063) titled “Pipeline Safety: Potential for Damage to Pipeline Facilities Caused by Earth Movement and Other Geological Hazards;”²⁷
- ii. A design basis document that covers:
 1. Pipe specifications including fracture toughness criteria;
 2. Design criteria including metallurgical requirements to address ductile fracture propagation including length for fracture arrest based upon material;
 3. Material and pipe coating specifications including specifications for fracture arrest (maximum arrest distance) and selection;
 4. Cathodic protection including location of ground beds;
 5. Integrity management including inline inspection of the pipeline;
 6. Location of mainline valves for isolation for public safety, waterbody crossings and rupture isolation and detection;
 7. SCADA system and leak detection system with pressure and flow monitoring including rupture mitigation valves that will isolate pipeline segments within 30 minutes or less;
 8. Determination of maximum operating pressure and minimum operating pressure including placement of overpressure safety devices; and

²⁷ [PHMSA Land Movement Advisory Bulletin.pdf \(dot.gov\)](https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/PHMSA%20Land%20Movement%20Advisory%20Bulletin.pdf) - <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/PHMSA%20Land%20Movement%20Advisory%20Bulletin.pdf>

9. Pipeline “venting design” and location options at pump stations, mainline valves, and laterals for public safety.
- iii. Key design calculations and drawings that cover:
 1. Experimentally verified thermo-hydraulic analysis (steady state and transient);
 2. Preliminary alignment sheets; and
 3. Pipeline facilities (additional deliverables for transfer facilities apply (Paragraph 3.g)).
 - iv. Technical specifications and datasheets for major materials and activities, including but not limited to: pumps, compressors, pigging facilities, pipe, and valves.
 - v. If converting a pipeline to CO₂ service, a preliminary conversion-to-service plan for DOT PHMSA regulatory compliance that includes an integrity assessment plan to demonstrate fitness for service and/or applicable regulatory compliance for offshore pipelines.
 - vi. Additional critical safety and risk assessments:
 1. Consideration of additional safety critical equipment and redundant safety design such as crack arrestors (or pipe toughness (Charpy Impact Value)) and enhanced shut off capabilities in the event of a catastrophic failure including mainline valve spacing and rupture mitigation valves locations.
 - vii. Construction Specifications to meet 49 CFR Part 195:
 1. Right of way clearing, grading, and ditching;
 2. Depth of soil cover and minimum spacing of right-of-way from private dwellings;
 3. Welding requirements;
 4. 100% Non-destructive testing of pipeline girth weld;
 5. Pressure testing per the requirements in 49 CFR 195.304;
 6. Coating;
 7. Backfill to protect the pipe and coating;
 8. Pipe bending requirements; and
 9. Clean-up of the right of way.

c. Additional Deliverables for Rail

- i. A design basis document that covers:
 1. Number of trains, length of each train, number of rail cars per train, round trip journey time (including loading, travel, and unloading), and total round-trip journeys per year;

2. A description of loading (filling), storage, and unloading (emptying) facilities and operations;
 3. Blocking, bracing, and segregation of product;
 4. A traffic study and reliability assessment;
 5. Restrictions on weight, width, curfews, noise; and
 6. Identification of High Threat Urban Areas (HTUA).
- ii. Technical Specifications and datasheets for major materials and activities, including but not limited to:
 1. Railways, railyards, switches and crossings;
 2. Rail cars; and
 3. Support systems such as handling and transfer systems, gaging systems, temperature and pressure control systems, boil off management, and instrumentation.
 - iii. Rail terminals (additional deliverables for transfer facilities apply (Paragraph 3.g)).

d. Additional Deliverables for Truck

- i. A design basis document that covers:
 1. Number of trucks, round trip journey time (including loading, travel, and unloading), and total round-trip journeys per year;
 2. A description of loading (filling), storage, and unloading (emptying) facilities and operations;
 3. Blocking, bracing, and segregation of product;
 4. A traffic study and reliability assessment; and
 5. Restrictions on weight, width, curfews, and noise.
- ii. Technical Specifications and datasheets for major materials and activities, including but not limited to:
 1. Trucks;
 2. Tanks or intermodal containers; and
 3. Support systems such as handling and transfer systems, gaging systems, temperature and pressure control systems, boil off management, and instrumentation.
- iii. Trucking terminals (additional deliverables for transfer facilities apply (Paragraph 3.g)).

e. Additional Deliverables for Barge

- i. A route report and maps, complete with a waterway navigation plan.
- ii. A design basis document that covers:
 - 1. Number of barges, number of cargo tanks or intermodal containers per barge, roundtrip journey time, and total round-trip journeys per year;
 - 2. A description of loading (filling), storage, and unloading (emptying) facilities and operations; and
 - 3. Stowage and segregation of product.
- iii. Technical Specifications and datasheets for major materials and activities, including but not limited to:
 - 1. Hull structure and general arrangement;
 - 2. Subdivision and stability;
 - 3. Cargo tanks or intermodal containers; and
 - 4. Cargo support systems such as: containment systems, handling and transfer systems, piping and hoses, ventilation, pump and compressor rooms, venting systems, gauging systems, temperature and pressure control systems, boil off management, instrumentation, fire suppression and other life safety equipment.
- iv. Marine terminals and jetties (additional deliverables for transfer facilities apply (Paragraph 3.g)).

f. Additional Deliverables for Ship

- i. A route report and maps, complete with a waterway navigation plan including any crossings between state, federal, and international waters.
- ii. A design basis document that covers:
 - 1. Number of ships, number of cargo tanks or intermodal containers per ship, roundtrip journey time, and total round-trip journeys per year;
 - 2. A description of loading (filling), storage, and unloading (emptying) facilities and operations; and
 - 3. Stowage and segregation of product.
- iii. Technical Specifications and datasheets for major materials and activities, including but not limited to:
 - 1. Hull structure and general arrangement;
 - 2. Subdivision and stability;
 - 3. Cargo tanks or intermodal containers;

4. Cargo support systems such as: containment systems, handling and transfer systems, piping, ventilation, pump and compressor rooms, venting systems, gauging systems, temperature and pressure control systems, boil off management, fire suppression and other life safety equipment;
 5. Dynamic positioning system for offshore injection; and
 6. CO₂ injection pumps and heaters onboard the ship.
- iv. Marine terminals and jetties (additional deliverables for transfer facilities apply (Paragraph 3.g)).

g. Additional Deliverables for Transfer Facilities

- i. A design basis document that covers:
 1. A description of loading (filling), storage, and unloading (emptying) facilities and operations;
 2. A description of upgrades or modifications to existing facilities;
 3. A coordination study outlining how the facility will address intermittent operation of CO₂ sources and sinks due to events such as maintenance, flow interruption, emergency shutdowns, etc.; and
 4. Site physical security and cybersecurity.
- ii. Key Design Calculations and Drawings that cover:
 1. Mechanical, electrical, and civil/structural plot plan drawings depicting the quantity, location, and arrangement of mechanical/processing equipment and piping, buildings and electrical equipment, utility systems, and civil/structural infrastructure;
 2. Preliminary P&IDs;
 3. Preliminary line list;
 4. Experimentally verified thermo-hydraulic analysis (steady state and transient);
 5. Power system load study, electrical load list, one-line diagrams, and instrument list; and
 6. Hazardous area classification drawings.
- iii. Technical Specifications and datasheets for major materials and activities, including but not limited to:
 1. Major mechanical/processing equipment;

2. Major buildings and electrical equipment; and
3. Civil/structural infrastructure.

iv. Preliminary facility 3D Model.

4. **Project cost estimate.** Design of the transport system shall support an itemized capital and operational cost estimate consistent with the Association of the Advancement of Cost Engineering (AACE) Class 3 with an expected accuracy range of -10% to -20% on the low side and +10% to +30% on the high side. The cost estimate should include a basis of estimate for each item. Applicants should provide a benchmark study for the overall cost estimate, if available. Applicants will be required to submit a transport buildout plan with a P-10, P-50 and P-90 project cost analysis based on the acquisition and installation of CO₂ transport networks that fulfill the Build America, Buy America Act provisions in the Bipartisan Infrastructure Law (BIL).
5. **Business case analysis.** The business case analysis must demonstrate an understanding of the current and project commercial viability of the proposed project. This business case analysis should include the addressable market, development scenarios, proposed business model structure, risk allocation, basic commercial terms, a revenue model, government incentives, financing costs, financial assumptions, and sensitivity analysis discussion. If the plan includes the use of current 45Q tax credits, the business case analysis shall include, at a minimum, details on the anticipated revenue and duration of the credits. Successful applicants should provide a projected use for the transport infrastructure over the next 50 years including types of CO₂ sources and sinks in the present and future that will be available to utilize the transport infrastructure. The business case analysis should conform to the format provided in Appendix F (Business Case Analysis).
6. **Environmental, Safety and Health (ES&H) analysis.** The ES&H analysis must assess the environmental friendliness of the system based on the materials and processes being proposed. ES&H analysis should include a discussion regarding emissions to air and water, solid waste streams, water use, and potential environmental and health impacts of the project. The E&SH analysis should conform to the format provided in Appendix Q (ES&H Analysis).
7. **Regulatory Plan.** The regulatory plan shall set forth the applicant's plans and actions to engage with local, state, and federal regulators and receive the necessary permits and regulatory approvals for the proposed project. The regulatory plan must demonstrate how the deployment of the proposed CO₂ transport system will meet or exceed local, state, and federal permitting and other regulatory requirements associated with construction and operation of the proposed CO₂ transport system. The regulatory plan shall identify if community and stakeholder support has been obtained or opposition has

been received. The regulatory plan shall comply with the requirements in Appendix P (Regulatory Plan).

APPENDIX K – EXPANDED PROJECT CONCEPT STUDY

An Expanded Project Concept Study must be a stand-alone document that provides a conceptual level design study of the project in its final, expanded configuration. The Expanded Project Concept Study shall integrate and build upon the Base Project FEED Study, as prescribed in Appendix J, and submitted as part of the application.

The concept study shall include, at a minimum, the following:

- Project scope and objectives;
- Project parameters, including site characteristics and ambient conditions;
- Location and description of carbon dioxide (CO₂) sources and sinks, including any commitment letters from sources and sinks if available;
- A comprehensive summary of how the project enables an increased flow capacity as compared to the base project;
- Preliminary route report and maps, including alternative routes under consideration. The route description should be of sufficient resolution to discern towns, cities, and counties in which it is located. The ranking criteria used to determine the optimum route must be discussed;
- A preliminary assessment of existing infrastructure proposed for re-use and existing rights-of-way that can be used;
- Preliminary land acquisition plan;
- Preliminary permitting list and reviewing agencies;
- Desktop review of environmentally, ecologically, and culturally sensitive areas, geotechnical hazards, high consequence areas, major crossings, other significant areas of concern, and proposed mitigation methods;
- Identification of project's major impacts to critical resources including but not limited to water, air, minerals, forests, wildlife, farmland, navigable waterways, and vulnerable communities subject to social and environmental injustice including disadvantaged communities;
- Design basis summary that includes a list of federal, state, and local codes, regulations, and standards that govern the design and construction of the transport system;
- Transport infrastructure sizing, hydraulic study, compression/pumping needs, power requirements, facilities, and major appurtenances;
- Preliminary process flow diagrams with process stream data (e.g., CO₂ phase, composition, temperature, pressure, mass flow rate);
- List and description of major mechanical, processing, and electrical equipment, required utility systems, and buildings;
- Preliminary operating plan, including the name of the entity that will operate the system and the operating history and qualifications of the entity; and

- Environmental, legal, social, and regulatory concerns identification.

APPENDIX L – EXPANDED PROJECT FEED STUDY

The Expanded project FEED study must be a stand-alone, comprehensive document that describes the project in its final, expanded configuration. The Expanded project FEED study shall integrate and build upon the concept study submitted as part of the application.

At a minimum, the Expanded project FEED study shall address requirements one through three of Appendix J (Base Project FEED Study). It is not necessary to address requirements four through seven of Appendix J (Base Project FEED Study) within the Expanded project FEED study as these will be addressed separately as part of the Phase 1 project deliverables.

The Expanded project FEED study will be advanced in Phase 2 (detailed design).

APPENDIX M – DETAILED DESIGN, PROCUREMENT, CONSTRUCTION, COMMISSIONING, AND OPERATING PLANS

The applicant shall submit all necessary documents to safely design, procure, construct, commission, and operate the transportation system. The following general requirements are applicable:

- Deliverables shall meet or exceed all relevant industry regulations, codes, standards, and recommended practices and must follow recognized and generally accepted good engineering practice;
- All drawings, plans, and procedures used to construct, commission, and operate the transportation system shall be prepared and professionally sealed and certified by an engineer licensed in the jurisdiction(s) where the transportation system will be operated;
- Commitments made in the Community Benefits Plan (e.g., use of Registered Apprenticeship, local hire requirements, air quality monitoring) will affect each phase of the project. Targets and commitments made by the recipient should be included in the earliest contracting discussions; and
- As the project progresses through the project phases, additional deliverables may be required, and if so, will be negotiated during the transition to the next project phase.

The following deliverables are required. The applicant may propose additional deliverables as necessary to safely design, procure, construct, commission, operate, and maintain the transportation system.

1. Engineering Design Package

a. All engineering disciplines:

- i. Updates to all drawings, calculations, specifications, plans, procedures, and reports submitted with the Expanded project FEED study (refer to Appendix L Expanded Project FEED Study);
- ii. Construction notes and specifications;
- iii. Material lists (bill of materials);
- iv. Vendor drawing packages;
- v. Standard detail drawings; and
- vi. An interface management plan including signal exchange with capture source(s) and storage/conversion source(s).

b. Process engineering:

- i. Control narrative; and
- ii. Final operating and maintenance procedures including startup, normal operations, shut-in, shut down, depressurization, etc.

- c. Civil and structural engineering:
 - i. Soil load analysis;
 - ii. Soil resistivity assessment;
 - iii. Storm water runoff plan;
 - iv. Erosion and sediment control drawings;
 - v. Spill containment assessment;
 - vi. Civil layout, earthwork specifications, and grading drawings;
 - vii. Site fencing, paving, and road layout plan;
 - viii. Building architectural drawings;
 - ix. Load calculations;
 - x. Foundation and containment location plans;
 - xi. Foundation and containment design drawings;
 - xii. Structural steel drawings;
 - xiii. Pipe support drawings;
 - xiv. Trenching drawings; and
 - xv. Ladder, platform, handrail, stair drawings.

- d. Mechanical engineering:
 - i. Plot plan drawings;
 - ii. Detailed 3D model;
 - iii. Orthographic and isometric drawings;
 - iv. Fire protection drawings;
 - v. HVAC drawings;
 - vi. Noise studies; and
 - vii. Insulation specifications.

- e. Electrical and controls engineering
 - i. Cathodic protection drawings;
 - ii. Instrument plans;
 - iii. Cable tray, conduit, and duct bank drawings and specifications;
 - iv. Lighting layout drawings;
 - v. Grounding layout drawings;
 - vi. Substation and switchgear building layout drawings;
 - vii. Heat trace drawings and calculations;
 - viii. Control system and communication system architecture;
 - ix. Input/Output list;
 - x. Panel layout drawings;
 - xi. Loop and logic diagrams;
 - xii. Wiring diagrams and schematics;

- xiii. Uninterruptible power supply drawings;
- xiv. Fire and gas detection drawings;
- xv. Emergency shutdown plan and emergency system location drawings; and
- xvi. Cable and conduit list.

2. Procurement, Construction, Commissioning, and Operating Plans:

- a. Project team organization structure;
- b. Contracting and purchasing strategy;
- c. Project controls plan to track cost and schedule performance and progress reporting;
- d. Approved vendors list;
- e. Approved subcontractors list;
- f. Work breakdown structure;
- g. Procurement and inspection plan;
- h. Quality management plan;
- i. Construction execution plan, including interface management with the capture source(s) and storage/conversion source(s);
- j. Construction safety plan;
- k. Construction survey plan;
- l. Construction specifications;
- m. Material and equipment handling procedure;
- n. Traffic and logistics plan;
- o. Lift plans;
- p. Welding procedures and qualifications;
- q. Coating procedures;
- r. Non-destructive evaluation procedures and qualifications;
- s. Hydrotest plans;
- t. Pre-commissioning, commissioning, and startup procedures;
- u. Operation and maintenance procedures; and
- v. Cleanup and restoration procedures.

APPENDIX N – PROCUREMENT, CONSTRUCTION AND COMMISSIONING,

The applicant shall complete all necessary procurement, construction, and commissioning activities necessary to prepare the system for startup and commercial operations. This include, but are not limited to the following:

1. Procurement of material
2. Environmental requirements as dictated by the authority having jurisdiction (i.e., state Department of Environmental Protection, Environmental Protection Agency, etc.):
 - a. Air emission permitting limitations and required control technologies;
 - b. Water discharge permitting limitations and required control technologies;
 - c. Waste disposal permitting limitations and required control technologies; and
 - d. State and federal specific fish and wildlife permitting.
3. Surveying
4. Pre-construction meetings
5. Mobilization of equipment and personnel
6. Fabrication and installation
7. Strength and leakage testing
8. Material and testing documentation
9. Inspections
10. Completion of discipline punch list
11. As-built drawings and documentation
12. Construction records handover
13. Inspection records handover
14. Project books handover
15. Lessons learned report
16. Demobilization of equipment and personnel
17. O&M qualification and training
18. Pre-commissioning
19. Commissioning
20. Pre-Start Up Safety Review

APPENDIX O – DATA TABLE

The data table shall be populated by the applicant and shall summarize the key attributes of the Base project and the Expanded project. Save the Data Table in a single file named “DataTable.xls or xlsx” and click on “Add Optional Other Attachment” to attach.

	Units	Base Project (LOI)	Base Project	Expanded Project
Location	—	—	—	—
State #1 and # of Counties	—			
State #2 and # of Counties	—			
State # and # of Counties (Continued)	—			
Other	—			
Total # CO2 Sources ⁽¹⁾	—			
Total CO2 Source Volume ⁽²⁾	tonne CO ₂ /yr			
Source #1	tonne CO ₂ /yr			
Source #2	tonne CO ₂ /yr			
Source # (Continued)	tonne CO ₂ /yr			
Total # CO2 Conversion Sites ⁽³⁾	—			
Total CO2 Conversion Volume	tonne CO ₂ /yr			
Conversion Site #1	tonne CO ₂ /yr			
Conversion Site #2	tonne CO ₂ /yr			
Conversion Site # (Continued)	tonne CO ₂ /yr			
Total # CO2 Storage Sites ⁽³⁾	—			
Total CO2 Storage Volume	tonne CO ₂ /yr			
Storage Site #1	tonne CO ₂ /yr			
Storage Site #2	tonne CO ₂ /yr			
Storage Site #2 (Continued)	tonne CO ₂ /yr			
Transport Infrastructure	—	—	—	—
Total Transport Network Length	miles			
Total Transport Network Volume	tonne CO ₂ /yr			
Total Pipeline Network Length	miles			

	Units	Base Project (LOI)	Base Project	Expanded Project
Total Pipeline Network Volume	tonne CO ₂ /yr			
Pipeline Route #1	—	—	—	—
Route	miles			
Diameter	inches			
Design Pressure Range	psig			
Design Temperature	°F			
Range				
Design Capacity	tonne CO ₂ /yr			
# of Facilities ⁽⁴⁾	—			
Pipeline Route #2	—	—	—	—
Route	miles			
Diameter	inches			
Design Pressure Range	psig			
Design Temperature	°F			
Range				
Design Capacity	tonne CO ₂ /yr			
# of Facilities ⁽⁴⁾	—			
Pipeline Route # (Continued)	—	—	—	—
Route	miles			
Diameter	inches			
Design Pressure Range	psig			
Design Temperature	°F			
Range				
Design Capacity	tonne CO ₂ /yr			
# of Facilities ⁽⁴⁾	—			
Total Rail Network Length	miles			
Total Rail Network Volume	tonne CO ₂ /yr			
Rail Route #1	—	—	—	—
Route (one-way)	miles			
# of Railcars	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature	°F			
Range				
# of Facilities ⁽⁴⁾	—			

	Units	Base Project (LOI)	Base Project	Expanded Project
Rail Route #2	—	—	—	—
Route (one-way)	miles			
# of Railcars				
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature				
Range	°F			
# of Facilities ⁽⁴⁾	—			
Rail Route # (Continued)	—	—	—	—
Route (one-way)	miles			
# of Railcars	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature				
Range	°F			
# of Facilities ⁽⁴⁾	—			
Total Truck Network Length	miles			
Total Truck Network Volume	tonne CO ₂ /yr			
Truck Route #1	—	—	—	—
Route (one-way)	miles			
# of Trucks	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature				
Range	°F			
# of Facilities ⁽⁴⁾	—			
Truck Route #2	—	—	—	—
Route (one-way)	miles			
# of Trucks	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature				
Range	°F			
# of Facilities ⁽⁴⁾	—			

	Units	Base Project (LOI)	Base Project	Expanded Project
Truck Route # (Continued)	—	—	—	—
Route (one-way)	miles			
# of Trucks	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature	°F			
Range	°F			
# of Facilities ⁽⁴⁾	—			
Total Barge Network Length				
	miles			
Total Barge Network Volume				
	tonne CO ₂ /yr			
Barge Route #1	—	—	—	—
Route (one-way)	miles			
# of Barges	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature	°F			
Range	°F			
# of Facilities ⁽⁴⁾	—			
Barge Route #2	—	—	—	—
Route (one-way)	miles			
# of Barges	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature	°F			
Range	°F			
# of Facilities ⁽⁴⁾	—			
Barge Route # (Continued)	—	—	—	—
Route (one-way)	miles			
# of Barges	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature	°F			
Range	°F			

	Units	Base Project (LOI)	Base Project	Expanded Project
# of Facilities ⁽⁴⁾	—			
Total Ship Network Length				
	miles			
Total Ship Network Volume				
	tonne CO ₂ /yr			
Ship Route #1				
	—	—		—
Route (one-way)	miles			
# of Ships	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature Range	°F			
# of Facilities ⁽⁴⁾	—			
Ship Route #2				
	—	—		—
Route (one-way)	miles			
# of Ships	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature Range	°F			
# of Facilities ⁽⁴⁾	—			
Ship Route # (Continued)				
	—	—		—
Route (one-way)	miles			
# of Ships	—			
Design Capacity	tonne CO ₂ /yr			
Design Pressure Range	psig			
Design Temperature Range	°F			
# of Facilities ⁽⁴⁾	—			
Facilities Infrastructure				
	—	—		—
Total # of Facilities ⁽⁴⁾	—			
Total Land Use	square miles			
Total Temporary Storage	tonne CO ₂			
Total Annual Electrical Energy Usage	GJ			
Total Annual Thermal Energy Usage	GJ			
Total Annual Water Usage	tonne/yr			

	Units	Base Project (LOI)	Base Project	Expanded Project
Total Annual Chemical Usage ⁽⁵⁾	tonne/yr			
Infrastructure Siting				
Transport Infrastructure ⁽⁶⁾	miles	—		—
Facilities Infrastructure ⁽⁷⁾	square miles			
# of Easements Required	—			
# of Landowners Impacted	—			
# of Permits Required	—			
Transport System Emissions				
	tonne CO ₂ e/yr			
Transport System Staffing				
	—	—		—
# of Part-time Jobs	—			
# of Full-time Jobs	—			
Costs				
Total Capital Expenditures	\$	—		—
Land Acquisition ⁽⁸⁾	\$			
Material/Equipment ⁽⁹⁾	\$			
Construction/Installation ⁽¹⁰⁾	\$			
Miscellaneous ⁽¹¹⁾	\$			
Total Operating Expenditures ⁽¹²⁾	\$/yr			
Total Levelized Transport Cost	\$/tonne CO ₂			
Schedule				
	—	—		—
Detailed Design Complete	Months after Award			
Land Use Agreements Complete	Months after Award			
Permitting Complete	Months after Award			
NEPA Complete	Months after Award			
Procurement Complete	Months after Award			

	Units	Base Project (LOI)	Base Project	Expanded Project
Construction Start	Months after Award			
Construction Complete	Months after Award			
Commissioning Complete	Months after Award			
Operations Start	Months after Award			
Decommissioning Start	Months after Award			

Notes:				
1. List total number. For each source, include: source name (company and facility name); location (state and county); industry (e.g., cement, DAC, etc.); and capture method (e.g., post combustion solvent, etc.)				
2. Tonnes refers to metric tonnes throughout data table.				
3. List total number. For each conversion/storage location, include: conversion/storage name (company and facility name); location (state and county); target reservoir (if applicable); and/or conversion method (if applicable).				
4. Facilities (not including capture, conversion, storage) may include: compressor stations, pumping stations, metering stations, pigging stations, mainline valve stations, interconnects, dehydration facilities, liquefaction facilities, terminals, loading/unloading facilities, substations, etc. Co-located facilities/operations count as one facility.				
5. List each chemical separately (e.g., glycol, refrigerant, etc.).				
6. Infrastructure sited within or adjacent to existing linear infrastructure corridors.				
7. Infrastructure sited within existing facility fencelines.				
8. Right of way easement, land compensation, crop damage, facility site purchase/lease, land agents, etc.				
9. Pipe, concrete, steel, static/rotating equipment, pressure vessels, meters, cables, conduit, SCADA, power supplies, transformers, instrumentation, hardware, software, etc.				
10. Labor, equipment, fuel, supplies, mobilization, site preparation, material transportation, storage, temporary facilities, site preparation, equipment installation, restoration, commissioning, etc.				
11. Professional services, safety, legal, permitting, engineering, survey, environmental services, inspection, quality control, etc.				
12. Salary, overhead, G&A, monitoring, inspection, maintenance, repairs, rent, storage yards, utilities, chemicals, tools/supplies, communications, safety, vehicles, permits, regulatory compliance, training, insurance, taxes, etc.				

APPENDIX P – REGULATORY PLAN

Applicants must submit a regulatory plan, as part of the initial application, that demonstrates how the deployment of the proposed carbon dioxide (CO₂) transport system will meet or exceed local, state, and federal regulatory requirements. The regulatory plan shall identify the regulatory approvals needed and permits required to construct and operate the proposed CO₂ transport system. Successful applicants will demonstrate the ability of a plan to exceed the minimum health, environment, and safety regulatory requirements. The regulatory plan shall identify any support or opposition to permits and regulatory approvals associated with, and for other projects connecting to, the proposed transportation infrastructure. If awarded, applicants must implement, evaluate, and update this plan throughout the life of the project. In addition, applicants will be required to report on regulatory approval progress and outcomes throughout the project lifecycle and the final report at the direction of the Department of Energy (DOE). The regulatory plan must include the following elements and may include additional elements as appropriate. Applicants must include:

1. **Background.** A description of prior and ongoing efforts by members of the project team to engage regulators relevant to this proposed project. Questions to consider consist of:
 - a. What regulatory proceedings have already occurred?
 - b. What regulatory approvals have been granted or denied?
 - c. What current regulatory proceedings are ongoing?
 - d. For ongoing proceedings, what is the regulatory request at issue (including legal criteria) and what is the estimated timeline for the process?
2. **Adverse Parties.** Identify any parties or groups that have been adverse to the proposed project in prior or ongoing regulatory proceedings with a brief summary of the relevant opposition.
3. **Regulatory Plan Analysis Summary.** A description of how regulatory requirements were identified. Include an assessment of existing community support for and/or opposition to this project; including a description of steps taken to gather this information.
4. **Regulator-focused Engagement Methods and Timeline.** Applicants should develop:
 - a. A permitting list with review and approval agencies, including estimated timeline for submitting permit applications and obtaining identified permits;
 - b. A plan for engaging regulators, as well as the objectives for the engagement. This should include a description of specific methods that will be used to engage regulators. Methods, which could include activities like pre-application presentations to regulators, should be matched to project phase. They should also be matched to goals, which may include learning about regulators' policy concerns and legal requirements, seeking input, addressing input and concerns, and providing information, depending on project stage; and

- c. The applicant should propose when they will begin implementing this plan which will be no later than 90 days into the project.
5. **Consent-Based Siting Statement.** This statement should include discussion of whether eminent domain is legally permissible in the jurisdiction of the proposed project and whether the applicant intends to pursue use of it, if allowed under law. This state should discuss: (1) whether the jurisdiction(s) in which the proposed project is located authorize the use of eminent domain for CO₂ infrastructure projects, and if so, (2) whether the applicant intends to use eminent domain to acquire land, at what point in the project, and under what circumstances. If the applicant intends to use eminent domain, it should explain how the use of eminent is consistent with two-way engagement and consent-based siting. Refer to Appendix D (Principles for an Effective Consent-Based Project Siting Process).
6. **Project Agreements Statement.** A brief statement describing any plans to negotiate a Community Benefits Agreement, Labor Agreement(s), Good Neighbor Agreement, or similar agreements, and whether those agreements will be used to seek regulatory approval.
7. **Resource Summary.** This is a summary of project resources dedicated to implementing the plan. The project should include information about staff (number, time on project, and experience), facilities, capabilities, and budget (both federal and cost share) that will support implementing the plan.
8. **Future work.** A description of potential regulatory activities for future work either under DOE awards or the lifecycle of the carbon transport system.

APPENDIX Q – BASIS FOR ENVIRONMENTAL, SAFETY, AND HEALTH (ES&H) ANALYSIS

The purpose of the ES&H activity is to assess the environmental friendliness and safety of any future process based on the materials and process being proposed under the subject Department of Energy (DOE) Funding Opportunity Announcement (FOA). The ES&H risk assessments shall be conducted by qualified and experienced organizations and professionals (e.g., environmental scientists, industrial hygienists, safety engineers). Unanticipated or uncontrolled ES&H risks will impede the demonstration and commercialization of Carbon Capture and Sequestration (CCS) and Carbon Dioxide Removal (CDR) technologies.

Required elements for the ES&H Assessment are:

1. All potential ancillary or incidental air and water emissions, and solid wastes produced from construction and operations of the proposed carbon dioxide (CO₂) transport technology shall be identified and their magnitude estimated. Short-term and long-term adverse effects on the environment, safety, and health of humans shall be described, including change due to climate change. This includes, but not limited to, impacts due to soil movement, drinking water, surface water, ecology, flora/fauna, air quality, wetlands, fisheries, and land use.
2. If possible, a concise but complete and comprehensible description of the various toxicological effects of the substances identified in (1) above shall be provided. A thorough literature search shall be conducted to examine potential human health effects and ecotoxicity. Where information is lacking for a particular material, it shall be compared to similar substances or classes of substances.
3. Properties related to volatility, flammability, explosivity, other chemical reactivity, and corrosivity shall also be collected from existing databases or if necessary, through direct measurement in cases where the substance is not in common use.
4. The compliance and regulatory implications of the proposed CO₂ transport technology shall be addressed with reference to applicable Federal Transportation Safety Regulations, United States ES&H laws, and associated standards including the Comprehensive Environmental Response and Liability Act of 1980, Toxic Substances Control Act, Clean Water Act, Clean Air Act, Superfund Amendments and Reauthorization Act Title III, and the Occupational Safety and Health Act.
5. An engineering analysis shall be conducted for any potentially hazardous materials identified to look for ways their use can be eliminated, mitigated, or minimized. Less hazardous materials should be substituted where possible. For any new materials being proposed, synthetic options shall be examined that may lead to similar, less-hazardous

compounds with the required functionality. Possible engineering controls and other mitigation strategies shall be described as appropriate.

6. Precautions for safe handling and conditions for safe storage shall be identified, including any incompatibilities with other materials that may be used in the process. Waste treatment and offsite disposal options shall be examined. Accidental release measures shall also be discussed.
7. An assessment shall be conducted for population density along the transport route and setback distances to dwellings (homes and/or businesses), including when additional safety measures may be required (e.g., installing extra depth of soil cover and stronger pipe).

APPENDIX R – PROJECT MANAGEMENT PLAN GUIDANCE

The Applicant’s Project Management Plan (PMP) is an approved document that defines how the Applicant will execute, monitor, and control the project to accomplish the objectives. The specific contents, level of detail, and inclusion of subsidiary planning documents are tailored according to the needs of the project. Consequently, every PMP will be different based on the risk, visibility, and/or complexity of the project and the Recipient's established processes, procedures, and systems.

PROJECT MANAGEMENT PLAN

{Insert Project Title}

{Date Prepared}

SUBMITTED BY

{Organization Name}

{Organization Address}

{City, State, Zip Code}

PRINCIPAL INVESTIGATOR

{Name}

{Phone Number}

{E-mail}

SUBMITTED TO

U.S. Department of Energy
National Energy Technology Laboratory

This plan should be formatted to include the following sections with each section to include the information as described below:

- A. **Executive Summary:** Provide a description of the project that includes the objective, project goals, and expected results. For purposes of the application, this information is included in the Technical Volume and should be simply copied to this document for completeness, so that the Project Management Plan is a stand-alone document.
- B. **Project Organization and Structure:** Provide the following information in this section:

- Organizational Chart(s): Include a complete project organizational chart and sub-organization charts (if applicable), accompanied by a discussion of how the organization structure will facilitate the performance of the Tasks and achievement of the objectives described in the SOPO within the time frame specified in the application.
- Roles and Responsibilities of Participants: Provide a discussion of key project team members, and the capacity in which each team member will assist in achieving the overall objective(s) of the proposed project. For multi-organizational or multi-investigator projects, describe the roles to be performed by each participant/investigator within the context of the Task/subtask structure contained in the SOPO. Include descriptions of any business agreements or intellectual property issues between the applicant and other members of the project team, and how these agreements will be integrated and managed.
- Decision-making and Communication Strategy: Provide a discussion of how communication and decision-making will occur within the context of the organizational structure, with particular emphasis on scientific/technical direction and mechanisms for controlling project scope, cost, and schedule. Include a discussion of how the project team will communicate with DOE and external stakeholders during the performance of the project.
- Management Capabilities and Prior Experience: Provide information relevant to the capabilities and experience of the PI and key project team members in managing technical projects of similar nature and complexity. If applicable, include examples that demonstrate the ability to successfully meet research objectives within scope, budget and schedule. The discussion should describe in detail the unique capabilities and expertise of the prime recipient and any major project partners or subrecipients, debt or equity sponsors, contractors/vendors (if known), and every other counterparty that the prime recipient believes will enable the project to be successful. In addition, the plan should summarize the prior experience of the prime recipient and any major project partners in similar undertakings to the proposed project (in both technical scope and financial size) and current or previous energy infrastructure projects. The plan should describe the following:
 - Examples of at least two projects in the energy infrastructure sector similar in nature and scope to the transport system being proposed that have

been completed (developed, financed, and managed construction) by the applicant or project partners.

- Examples of at least two projects in the energy infrastructure sector for which the applicant or project partners were responsible for managing the operations and maintenance of a similar project for a minimum of two years. Note, each project example must be a project for which construction has been completed. Applicants that are not able to include examples of two projects in their description of current and previous experience in the energy infrastructure sector should provide a detailed description of the facts that they believe are sufficient to demonstrate to DOE that they have the expertise that would be evidenced in current or previous experience in the energy infrastructure sector by including examples of two projects.
- Examples of at least two energy infrastructure projects where the applicant or project partners engaged and collaborated with a disadvantaged community to develop, finance, and manage construction (if available).

C. **Risk Management Plan:** Provide a summary description of the proposed approach to identify, analyze, and respond to perceived risks associated with the proposed project. Project risk events are uncertain future events that, if realized, impact the success of the project. Risk is inherent to all projects regardless of complexity, cost, or visibility. An effective Risk Management Plan will identify perceived risks and explain mitigation strategies for each risk. At a minimum, the Risk Management Plan shall include the initial identification of significant financial, cost/schedule, technical/scope, management, planning and oversight, ES&H, external factors, and management issues that have the potential to impede project progress and strategies to minimize impacts from those issues. The Risk Management Plan will be expanded upon throughout the project and may evolve into a standalone document.

The following table format is provided but is not required:

Perceived Risks and Mitigation Strategies				
Perceived Risk	Risk Rating			Mitigation/Response Strategy
	Probability	Impact	Overall	
	(Low, Med, High)			
Financial Risks:				

Cost/Schedule Risks:				
Technical/Scope:				
Management, Planning, and Oversight Risks:				
ES&H Risks:				
External Factor Risks:				

- D. **Milestone Log:** Provide milestones for each budget period of the project. Each milestone should be linked to a specific Task or Subtask and include a title, planned completion date, and a description of the method/process/measure used to verify completion. Milestones should be quantitative and show progress toward budget period and/or project goals. Conversely, periodic, mandatory progress reports are not considered to be Milestones.

Milestones are presumed to lie on the critical path of the project, i.e., unless all milestones are achieved, the Objectives as defined in the SOPO cannot be met completely. Applicants must provide at least two milestones per year throughout the course of the project. In addition, there must be at least one milestone per year for each of the four sections of the Community Benefits Plan.

Milestone Format

Task/Subtask	Milestone Title & Description	Planned Completion Date	Verification Method

[Note: During project performance, the Recipient will report the Milestone Status as part of the required quarterly progress report as prescribed under the Federal Assistance Reporting Checklist. The Milestone Status will present actual performance in comparison with Planned Milestones, and include:

1. the actual status and progress of the project,
2. specific progress made toward achieving the project's milestones, and,
3. any proposed changes in the project's schedule required to complete milestones.]

E. **Costing Profile:** Provide a table (the Spend Plan) that projects the expenditures of governments funds by fiscal year for each project team member.

Spend Plan by Fiscal Year Format

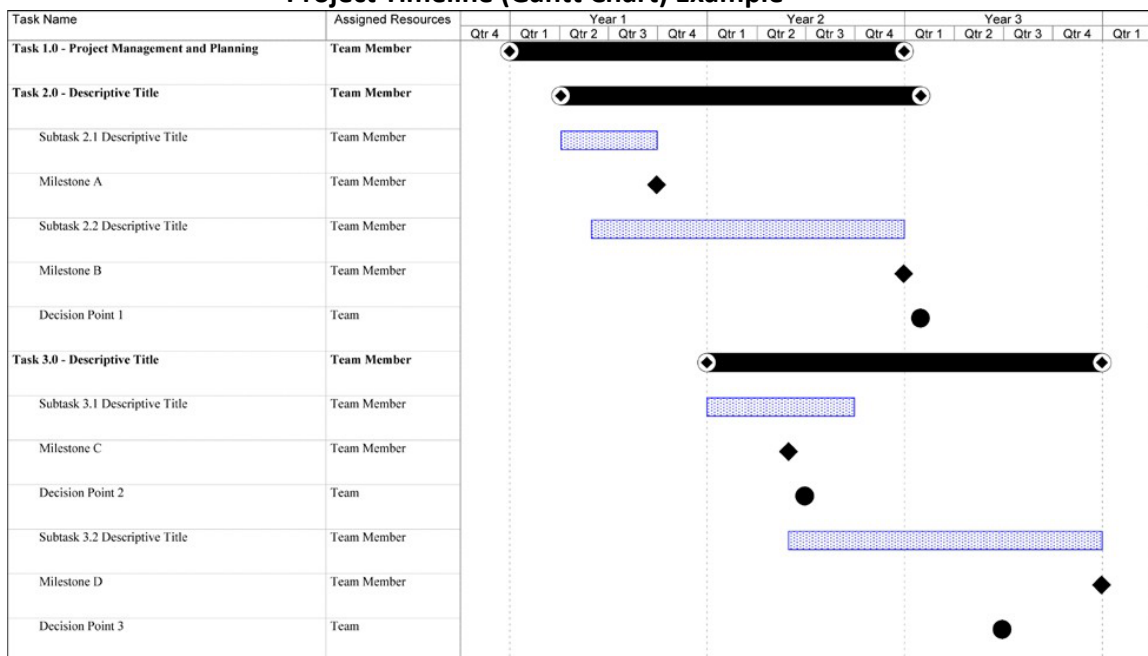
	FY 20XX		FY 20XX		FY 20XX		FY 20XX		FY 20XX	
	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share
Applicant										
Sub-recipient A, if proposed										
Sub-recipient B, if proposed										
FFRDC/NL, if proposed										
Total (\$)										
Total Cost Share %										

Additionally, provide a table (the Spend Plan) that projects the expenditures of funds for each task by fiscal year.

	FY 20XX		FY 20XX		FY 20XX		FY 20XX		FY 20XX	
	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share	DOE Funds	Cost Share
Task 1.0 Project Management and Planning										
Task 2.0 Community Benefits Plan										
Task 3.0 (Title)										
<i>Add additional tasks as necessary</i>										
Total (\$)										
Total Cost Share %										

- F. Project Timeline:** Provide a timeline of the project (similar to a Gantt chart) broken down by each task and subtask, as described in the Statement of Project Objectives. The timeline should include for each task, a start date, and end date. The timeline should show interdependencies between tasks and include the milestones that are identified in the Milestone Log (Section C) and the Deliverables and Go/No-Go decision points that are identified in the Statement of Project Objectives.

Project Timeline (Gantt Chart) Example



The schedule will be progressively elaborated throughout the project phases, with an increasing level of detail added at each phase. The following table may be used to guide schedule development. Please note that the below descriptions should be considered indicative of expectations and non-exhaustive.

Integrated Project Schedule Level of Detail Examples

Level 1	Summary schedule including major project milestones, deliverables, and related activities.
Level 2	A more detailed version of the Level 1 schedule that should include a breakdown into major project categories such as engineering, design, construction, procurement, permitting and regulatory, Community Benefits Plan implementation, and others as appropriate.
Level 3	Integrated roll up of Level 4 schedules. Should reflect breakout of activities underlying elements of the Level 2 schedule including

	anticipated start and finish dates for each activity. Often developed by the executing contractor using detailed information from project and/or construction managers and is used for project progress reporting.
Level 4	Detailed working schedule used to manage day-to-day activities or other near term work plans. Should be resource loaded. Often called Execution or Working schedule or similar.

- G. **Success Criteria:** Success criteria are used by the DOE to determine if specific goals and objectives were met at the end of budget period(s), go/no-go decision points, and/or project completion. The success criteria should be objective and stated in terms of specific, measurable, and repeatable data. Usually, the success criteria pertain to desirable outcomes, results, and observations from the project.

[Note: As the first task in the Statement of Project Objectives, successful applicants will revise the version of the Project Management Plan that is submitted with their applications by including details from the negotiation process. This Project Management Plan will be updated by the Recipient as the project progresses, and the Recipient must use this plan to report scope, schedule, and budget variances.]

APPENDIX S – NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

All federally funded projects are subject to review in accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321, *et seq.*), which requires federal agencies to integrate environmental values into their decision-making processes by considering the potential environmental impacts of their proposed actions. For additional background on NEPA, please see Section VI.B.vi. of this FOA and DOE's NEPA website <https://www.energy.gov/nepa>.

Recipients will be requested to submit to the NEPA process a wide array of information about the proposed transport system, options under consideration for the proposed project, reasonable alternatives to the proposed project for achieving similar objectives, the affected environment (to include both the natural environment and the human environment), the socio-economic setting of the proposed project and affected area surrounding the site, trends regarding changes in the surrounding environment (natural, socio-economic, human) and the potential impacts (both positive and negative) for the proposed project, its options and its reasonable alternatives. The Recipient will also be expected to cooperate fully with those who prepare the NEPA documents and implement the NEPA process.

Information will be submitted in the form of an [Environmental Information Volume \(EIV\)](#) that provides all initial environmental data and details about the proposed actions to take place at the host site(s). **An EIV for the transport system is due 90 days prior to the completion of Phase 1.**

Based on DOE's review of the [environmental questionnaire](#) (submitted with the Application) and EIV, and the sensitivity of the proposed work area, an [Environmental Assessment](#)/Finding of No Significant Impact or [Environmental Impact Statement](#)/Record of Decision may need to be prepared and issued by DOE during Phase 2. The target CO₂ storage formation and confining zone(s) should not contain drinking waters as defined by the Safe Drinking Water Act.

APPENDIX T – PREPARATION OF ENVIRONMENTAL INFORMATION VOLUME (EIV)

I. GENERAL

This volume must be completed during Phase 1 and is being provided here for information and planning purposes only. The Environmental Volume shall provide, in detail, all information as outlined in the following sections.

DOE is responsible for determining potential impacts associated with the proposed transport system. The information provided in this Environmental Information Volume will inform DOE's independent analysis. Additional information will likely be required to complete the NEPA review process.

II. CONTENT

A. ENVIRONMENTAL INFORMATION DESCRIBING THE TRANSPORT SYSTEM

This section of the Environmental Volume shall contain a detailed description that summarizes the proposed action, its alternatives, and, most importantly, the existing environment. It shall be prepared in the following format:

1. Summary

This section shall contain a succinct summary of the proposed transport system and its potential environmental, safety, health, and socioeconomic impacts. A brief description of the proposed construction and operation activities, including the duration and schedule shall also be provided. The summary shall focus on both beneficial and detrimental impacts, as well as any major risks associated with constructing, operating, maintaining, and decommissioning of proposed transport system, if applicable.

Proposed Transport System and Its Alternatives

a. Proposed Transport System

This section shall discuss the objectives of the proposed transport system, and shall describe the proposed site(s), system(s), and/or process(es). It shall also describe the work that would be performed, the schedule, associated requirements (e.g., land, natural resources), and any changes that would be necessary to the existing site, system, or process.

The description shall include a project site plan and topographic map of the area. Any off-site facility requirements shall also be identified in

this section. Additionally, any reasonably foreseeable additions or modifications to the transport system shall be described.

b. Alternatives to the Proposed Transport System

A complete description of likely alternatives to the project, as currently proposed shall be provided. The description shall address alternatives that have been considered but dismissed and those that are still being considered. Alternatives could include, but are not limited to alternative routes, alternative modes of transportation, etc.

2. Existing Environment

This section shall discuss the existing environment at the project location(s). The

prime applicant and all proposed subrecipients shall discuss the following:

a. Land use

This section shall provide a description of the affected land area and its dimensions; a discussion of current land usage (e.g., farming, industrial, etc.); and descriptions of nearby pipelines and transmission lines, as well as transportation access (rail, road, barge, etc.).

b. Atmospheric Conditions/Air Quality

This section shall identify the air quality control regions where the transport system would be located; and describe the local climate and existing air quality conditions in the immediate vicinity of the proposed site.

c. Hydrologic Conditions/Water Quality

This section shall identify any watersheds and downstream drainage, surface and groundwater quality (nearby aquifers and the depth of groundwater) in the proposed project area, existing floodplains, unique aquatic habitats, recreational areas, public water supplies; describe any constraints on water availability imposed by treaties, court decree, state and Federal water laws; and identify existing wastewater treatment and/or disposal facilities.

d. Geologic/Soil Conditions

This section shall describe the topographic stability (e.g., formations and/or faulting), the productivity of soil, any unique soil species, and the soil's susceptibility to erosion.

- e. Vegetation and Wildlife Resources
This section shall describe any indigenous flora and fauna, state and Federally listed endangered or threatened species and their habitats, and sensitive habitats such as wetlands, floodplains, or other ecologically sensitive terrain that could be impacted by any aspect of the proposed H2Hub.
- f. Socioeconomic Conditions
This section shall discuss the population in the project area(s) and shall describe the employment and labor mix.
- g. Historic/Cultural Resources
The section shall describe any historic and/or cultural places in the project area(s), as well as archeological sites.
- h. Visual Resources
This section shall describe any scenic vistas or existing aesthetic landscaping in the project area(s).
- i. Health and Safety Factors
This section shall discuss current emissions (toxic and non-toxic), effluents, and noise levels at the project area(s).

B. ENVIRONMENTAL IMPACTS OF THE WORK TO BE PERFORMED

This section of the Environmental Volume shall describe the anticipated environmental impacts from the proposed transport system. It shall describe all impacts and consequences of the transport system (at the selected site[s] and the alternative site[s], if appropriate). The existing environment (described in Section A.3) shall be evaluated in terms of the potential impacts from any construction, operation/testing, and disposition activities. Any mitigative measures that would address these impacts shall also be identified.

The description shall address the environmental categories listed below. Please ensure that all direct, indirect, short-term, and long-term impacts resulting from the transport system activities are identified clearly.

1. Land use

This section shall describe land use impacts from proposed construction and operation activities.

2. Atmospheric Conditions/Air Quality

This section shall discuss projections in air quality changes; estimated process emissions (e.g., stack emissions); construction emissions from land disturbance or the operation of machinery/equipment, solid waste disposal operations and handling, etc.; and the source, emission rate, duration, and frequency of all emissions.

3. Hydrologic Conditions/Water Quality

This section shall describe any changes in groundwater/surface water quality and quantity, stream diversion resulting from construction and operation.

4. Geologic/Soil Conditions

This section shall describe any subsidence that might be caused by construction and operation; any possible erosion, stream diversion, floodplain and wetland intrusion, and any increase or decreases in soil permeability and filtration.

5. Vegetation and Wildlife Resources

This section shall describe any potential impacts to indigenous flora and fauna, state and Federally listed endangered species and their habitats, and sensitive habitats such as wetlands, floodplains, or other ecologically sensitive terrain.

6. Socioeconomic Conditions

This section shall describe any increases/decreases in labor requirements or changes in labor mix.

7. Historic/Cultural Resources

This section shall describe any disturbance to historical or archaeological sites caused by construction, interference with Native American Tribal or other religious practices or sites; impacts on local community character.

8. Visual Resources

This section shall describe any impacts to scenic vistas or existing aesthetic landscaping.

9. Health and Safety Factors

This section shall discuss occupational hazards of project activities; exposure to toxic/hazardous substances; and increases in ambient noise, odor, and heat.

10. Solid and Hazardous Wastes

This section shall describe any and all waste material that is generated from project activities. This description shall include the source/type of any and all wastes produced, and the approximate weight, density, and volume of the waste, and its method of disposal, location, and any permitting requirements necessary.

11. Impacts on Regional or Local Plans

This section shall describe any impacts to regional or local plans for fuel, water resources, solid waste, land, air quality, and labor force; commitment of resources and opportunities to reuse and recycle resources (wastes, water).

12. Environmental Justice

This section shall describe potential impacts of construction and operation of the proposed transport system to communities with environmental justice concerns.

13. Greenhouse Gases/ Social Cost of Carbon

This section shall describe the impacts of GHG emissions in terms of the financial impacts of CO₂, CH₄ and N₂O emissions.

C. POTENTIAL LIABILITIES OF EXISTING CONDITIONS AT THE SITE(S)

This section shall detail any previous research, development, construction, and/or demonstration testing that could potentially have impacts on the existing project site(s) and therefore, the proposed project.

D. ABILITY TO MEET COMPLIANCE REQUIREMENTS AT THE SITE(S)

This section shall identify all of the environmental laws and regulations (Federal, state, and local) for which compliance would be necessary. It should include, but should not be limited to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, Toxic Substance Control Act, Water Pollution Control Act, Clean Air Act, and Occupational Safety and Health Act. Any necessary permits, manifest, etc., shall be discussed.

The strategy for meeting all compliance requirements shall be discussed in detail. Identify the best available control technology and feasible practices for compliance with Federal air, land use, and water quality statutes. In addition, whether the proposed site is in attainment or non-attainment with current standards shall be discussed.

APPENDIX U – COMMUNITY BENEFITS PLAN TEMPLATE FOR DEMONSTRATION AND DEPLOYMENT

Applicant should insert here:

FOA Number and FOA Title

Organization Name

Project Title

Instructions for Use of this Template:

The purpose of this document is to summarize the **specific** objectives the Applicant is committing to in its Community Benefits Plan (CBP).

Important information about using this template:

- **The instructional textboxes within each section can be removed when submitting the application. The information below the instructional textboxes is intended to provide examples of commitments that may be relevant to each section, proposed project, or program. Not all information provided may apply.**
- **All information included in this CBP Template must be consistent with other parts of the application.** The CBP should accurately define the work that is planned and the progress that will be expected throughout the project to be achieved.
- **Whenever possible, the objectives laid out in the CBP should be in quantifiable terms with SMART milestones: Specific, Measurable, Achievable, Relevant, and Timely – and include timelines.** The Community Benefits Plan may include multiple milestones but should have at least one SMART milestone per budget period as well as one SMART end of project goal.
- The information provided in the Community Benefits Objectives and Outcomes (CBOO) summary table in the final section should be consistent with the commitments made throughout the CBP Template and broader application.
- By submitting this form, Applicant acknowledges and agrees that the information provided may be distributed or made publicly available, without any restrictions or obligations to maintain confidentiality, as required by applicable laws, rules and regulations. If Applicant wishes to protect proprietary or trade secret information submitted with this CBP Template, every line and paragraph containing such information must be clearly marked as “CONFIDENTIAL” and designated with double brackets or highlighting to indicate the confidential information.

A. General Project Information

Instructions: This section asks for the applicant to provide general information on the project, including a high-level description of the CBP and how it integrates with the project, including critical information on the construction components, identification of potential risks, and the locations and communities affected. Applicant should also provide a description of the project personnel overseeing the community benefits plan, their qualifications, and time allocated for the activities proposed.

1. High-level description of the CBP and project

Please provide description here.

2. Construction Information

For each planned project location identified in the Location(s) of Work document (included with the application package), **please address each of the following:**

- a. any known construction risks that could cause delays to the schedule, such as availability of skilled workers, permitting delays, materials or supply delays, etc.:
- b. potential public and worker health and safety risks and hazards:
- c. known possibilities of labor disruption:
- d. plans for coordination among various employers (i.e., prime contractors and subcontractors):
- e. plans for resolution mechanism to avoid potential project delays (including issues that may arise among contractors and subcontractors as well as employees):
- f. the general contractor or Engineering, Procurement, and Construction contractor, if known:
- g. the primary business of the general contractor or EPC contractor:

3. Locations and Communities Affected

For each location identified in the Location(s) of Work document (included in the application package), **please identify each known location served or impacted by the project, including:**

- a. the location(s) of construction or alteration activity listed above,
- b. communities geographically near the Applicant's proposed project,
- c. communities that are part of the proposed project's supply or waste life cycle (e.g., where raw materials are being sourced and where waste is planned to be sent),

d. communities impacted that are Disadvantaged Communities.²⁸

Instructions for Sections B through E:

Sections B through E below should summarize the specific objectives the applicant is committing to, broken into specific commitments and tasks.

Wherever possible and relevant, each commitment or task should be stated in quantifiable or measurable terms and SMART (**S**pecific, **M**easurable, **A**chievable, **R**elevant, and **T**imely) milestones with timelines should be identified. The CBP may include multiple milestones but should have at least one SMART milestone per budget period as well as one SMART end of project goal.

If awarded, the progress towards meeting the objectives and milestones set forth in the CBPs will be included as part of the Go/No-go evaluation.

B. Community and Labor Engagement

1. Community and Labor Stakeholders Engaged to Date

Instructions: This section should describe the specific stakeholders and organizations already engaged by the project. Examples include local governments, tribal governments, labor unions, and community-based organizations that support or work with disadvantaged communities described in section A3 above.

If the project has received support from any of these stakeholder organizations, describe the nature of the support (e.g., verbal, written, financial, etc.) and commitments that the project has made to the organization that provided the support. For funded projects, funding recipients will be required to report on these activities.

[Example]

Name of Organization or Community of Interest Already Engaged:

²⁸ Justice40 directs that 40% of benefits from Covered Programs flow to “disadvantaged communities.” DOE’s working definition of “disadvantaged” is based on cumulative burden and includes data for 36 indicators collected at the U.S. Census tract level. See [“About Community Benefit Plans: What is a Disadvantaged Community”](#) for more information.

Type of Engagement (e.g., Meeting, Community-Engaged Project Development, Research & Design, Reporting, Project Decision Making, Community Input, Reporting Back, Technical Assistance, Other):

Date of Engagement:

Outcome of Engagement (e.g., Memorandums of Understanding, Letters of Support, concerns or opposition, ongoing discussion, survey data or other qualitative/quantitative data, other):

2. Community and Labor Stakeholders to be Engaged.

Instructions: This section should list stakeholders that the project has engaged or plans to engage. Examples include local governments, tribal governments, labor unions, and community-based organizations that support or work with Disadvantaged Communities described in section A3 above.

For funded projects, funding recipients will be required to report on these activities.

[Example]

Name of Organization or Community of Interest Engaged:

Type of Engagement (e.g., Meeting, Community-Engaged Project Development, Research & Design, Reporting, Project Decision Making, Community Input, Reporting Back, Technical Assistance, Other):

Frequency of Engagement:

Outcome of Engagement (e.g., Memorandums of Understanding, Letters of Support, concerns or opposition, ongoing discussion, survey data or other qualitative/quantitative data, other):

3. Workforce and Community Agreements

Instructions: This section should identify whether the applicant is committing to negotiate workforce and/or community agreements and what type of agreements the applicant is committing to negotiate. If the applicant is not committing to negotiate any workforce or community agreements, applicant should note that a Workforce Continuity Plan may be required and should refer to the Community Benefits Plan webpage. If applicant has no entries for this section, continue to section 4 below.

A non-exhaustive list of relevant optional examples of workforce and community agreements are listed below. The applicant should modify, add, or delete to reflect the specific agreements committed to. If negotiating multiple agreements, provide this detail for each agreement.

For each agreement:

- The summary should describe the intended parties to the agreement and the intended scope of the agreement in concrete and specific terms.
- List key tasks and sub-tasks involved in finalizing the agreement (Milestones), with associated budget periods.

[Example]

Agreement A: Good Neighbor Agreement or Community Benefits Agreement

Agreement Summary:

Examples of intended scope include:

The community benefits to be delivered, including those for Disadvantaged Communities (as discussed in the Justice40 section that follows)

- i. Access to jobs and business opportunities for local residents
- ii. Investments in training for local workers
- iii. Commitments to pay wages and benefits above the required prevailing rates for construction workers
- iv. Commitments to pay above average wages and benefits for hourly non-construction workers
- v. Remedies for non-compliance
- vi. Commitments to make investments in subsidies for caregiving (e.g., childcare subsidies) and/or in transportation services for workers to access the worksite
- vii. Other: [\[Describe\]](#)

Budget Period to be completed:

Milestones with timelines:

[Example]

Agreement B: Collective Bargaining Agreement (pertains to non-construction work)

If the project is in the operation phase, a summary of any existing collective-bargaining agreement(s), in specific terms, can be included here. Additionally, a copy of any applicable collective-bargain agreements can be attached to the applicant's CBP.

Agreement Summary:

Examples of intended scope include:

- i. Access to jobs and business opportunities for local residents
- ii. Investments in training for local workers
- iii. Wages, hours, working conditions
- iv. Guarantees against strikes, lockouts, and similar job disruptions
- v. Effective, prompt, and mutually binding procedures for resolving labor disputes arising during the term of the agreement
- vi. Mechanisms for labor-management cooperation on matters of mutual interest and concern, including productivity, quality of work, safety, and health
- vii. Utilization of registered apprentices
- viii. Other: [\[Describe\]](#)

Budget Period to be completed:

Milestones with timelines:

[Example]

Agreement C: Community Workforce Agreement

Agreement Summary:

Example of intended scope include:

- i. Access to jobs and business opportunities for local residents
- ii. Investments in training for local workers (e.g., support of registered apprenticeship programs, contributions to training institutions to assist in the provision of workforce training)
- iii. Commitments to make investments in subsidies for caregiving (e.g., childcare subsidies) and/or in transportation services for workers to access the worksite
- iv. Commitments to pay upper quintile wages and benefits for the industry
- v. Broad recruitment activities, particularly with strategies to reach under-represented demographic groups
- vi. Other: [\[Describe\]](#)

[Example]

Agreement D: Project Labor Agreement or Community Workforce Agreement (pertains to construction work)

Agreement Summary:

Examples of intended scope include:

- i. Access to jobs and business opportunities for local residents
- ii. Investments in training for local workers
- iii. Commitments to pay wages and benefits above required prevailing rates for construction
- iv. Guarantees against strikes, lockouts, and similar job disruptions
- v. Effective, prompt, and mutually binding procedures for resolving labor disputes arising during the term of the agreement
- vi. Provide mechanisms for labor-management cooperation on matters of mutual interest and concern, including productivity, quality of work, safety, and health
- vii. Utilization of registered apprentices
- viii. Other

Budget Period to be completed:

Milestones with timelines:

[Example]

Agreement E: Other Type of Agreement

Agreement Summary:

Scope:

Budget Period to be completed:

Milestones with timelines:

4. Other Community and Labor Engagement Goals, Commitments, and Milestones

Instructions: This section should describe any additional key goals and milestones.

If the applicant is not, at this stage, committing to negotiate any workforce or community agreements, this section should describe the overall goal of community and labor engagement and key milestones, with budget periods and timelines, that will be used to monitor progress toward successful community and labor engagement.

C. Investing in Quality Jobs

1. Worker Organizing and Collective Bargaining

Instructions: If the applicant plans to support worker organizing and collective bargaining beyond their legal obligations consistent with the National Labor Relations Act, those commitments should be listed below.

The applicant should add or delete commitments to reflect their specific plan.

Please describe the plan to support worker organizing and collective bargaining related to the following commitments:

[Examples]

Commitment C1.1: Commitment to negotiate a Project Labor Agreement (PLA) for construction activity (as summarized above in Section B)

Commitment C1.2: Pledge to remain neutral during any union organizing campaigns

Commitment C1.3: Intention or willingness to permit union recognition through card check (as opposed to requiring union elections)

Commitment C1.4: Intention to enter into binding arbitration to settle first contracts

Commitment C1.5: Pledge to allow union organizers access to appropriate onsite non-work spaces (e.g. lunch rooms)

Commitment C1.6: Pledge to refrain from holding captive audience meetings²⁹

Commitment C1.7: Other commitments or pledges:

2. Union support

Please list any unions supporting the project and any commitments made to unions that aren't listed above in C1.

3. Job Quality and Workforce Continuity

²⁹ "Captive audience" meetings refer to the practice among employers of meeting with employees during union organizing campaigns to express the employer's view of the possible negative effects that unionizing may have on the general workforce. Some employers have structured such meetings as mandatory and held them on company property during working hours.

Instructions: This section should stipulate commitments made regarding wages and benefits, education and training investments, and involvement of workers in health and safety committees. These commitments may also be covered by workforce agreements described in section B.

The applicant should add or delete commitments, provide quantitative values where appropriate, and re-number appropriately to reflect their specific plan.

Funding recipients will be required to report on job creation, wages, and benefits.

Please note that (a) pertains to ongoing operations and production jobs and (b) pertains to construction jobs.

Please describe the applicant's plan to ensure that jobs created by this project are good quality, to attract and retain a skilled workforce, including the following commitments to wages and benefits, education and training investments, and worker involvement in health and safety:

a. Ongoing Operations and Production Jobs

[Examples]

Commitment C3a.1: Applicant will provide above-average wages and benefits, benchmarked to industry and occupation reported by BLS:

- The minimum starting wage for production workers is \$_____ per hour compared to the [75th or 90th] percentile of \$____per hour for the [_____] industry.
- The minimum value of the following benefits offered to hourly workers is
 - Health insurance: \$_____ per ____
 - Retirement contributions: \$_____ per ____
 - PTO: _____hours per _____
 - Paid sick or family leave: _____ days per _____
 - Childcare or other caregiving financial assistance: \$_____per worker or provision of on/near-site care
 - Transportation assistance: \$ _____per worker_
 - Education/tuition reimbursement or financial contribution: \$ _____
 - Other: \$_____per worker____

Commitment C3a.2: Applicant will provide workforce education and training through:

- Establishment of or contribution to labor-management training partnership(s)³⁰
- [Insert minimum number of hours per worker] hours of paid on-the-job training
- Sponsoring registered apprenticeships: [insert goal number of apprentices]
- Covering costs and paid time for professional development and continuing education: [Enter certifications]
- Other:

Commitment C3a.3: Applicant will ensure workers are engaged in the design and implementation of workplace safety and health plans. Specifics include:

- [insert number of hourly workers] will participate in health and safety committee and will be paid [insert time and rate paid] for their time participating.
- Indicate which of the following, if any, the training provided will include:
 - worksite safety analysis
 - hazard prevention and control
 - safety and health training
 - anti-harassment and by-stander intervention training
 - Other: [Describe]
- Indicate the frequency of these health and safety committee planning meetings will be held.
- Indicate plans for how these safety and health plans will be considered by the company's management (e.g., when they will be reviewed and by when a decision to incorporate the recommendations will be made).

b. Construction Jobs

[Examples]

Commitment C3b.1 Applicant commits to pay competitive wage and benefit rates benchmarked against local Davis Bacon prevailing wages as follows:

- %___ above posted prevailing wage per hour for base wages
- Health insurance: \$___ per ___
- Retirement contributions: \$___ per ___
- PTO: ___ hrs per _____

Commitment C3b.2 Applicant will provide workforce education and training through:

- Utilization of registered apprentices at [insert percentage] of total project labor hours.

Commitment C3b.3: Recipient will ensure highest standards of construction site health and safety, including site free of harassment and discrimination. Specifics include:

- [insert percent] of onsite workers that will have OSHA 30 certification
- [insert percent] of onsite workers that will have OSHA 10 certification

³⁰ For more information on labor-management partnership, see [this resource](#).

- The training provided will include [indicate which applies]
 - worksite analysis
 - hazard prevention and control
 - safety and health training
 - anti-harassment training
 - Other: [Describe]_____

D. Diversity, Equity, Inclusion, and Accessibility

Instructions: This section should summarize the applicant’s plan to incorporate diversity, equity, inclusion, and accessibility (DEIA) objectives into the project. A non-exhaustive list of possible commitments is provided below.

Each commitment may include a brief summary of the plan and should enumerate specific elements as sub-commitments below.

The applicant should add or delete commitments to reflect their specific plan.

For funded projects, funding recipients will be required to report on partnerships described.

[Examples]

Commitment D1. The applicant commits to partnering with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, and Veteran Owned Businesses for contractor support needs.

Please describe your approach to partnering with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses and Veteran Owned Businesses.

Commitment D1.1: [Name of partnership]

Summary of scope of work: [insert here]

Contract amount: \$_____

Overall value of partnership: \$_____

Commitment D2. Applicant commits to implementing a plan to reduce barriers and improve access to jobs for local and underrepresented workers, including residents of Disadvantaged Communities, those with disabilities, returning citizens, opportunity youth, and veterans.

Commitment D2.1: Applicant will partner with quality pre-apprenticeship or apprenticeship readiness programs³¹ to foster improved access for underrepresented workers to career-track training and employment.

Please indicate how, if applicable, partnering programs specifically work to improve access for under-represented workers.

Name and description of readiness program(s): [insert here]

- Partnerships and financial contributions to community-based organizations to provide support services to workers or people in relevant training (e.g., childcare supports, transportation vouchers, employability skills training, etc.): [Describe]

Commitment D2.2: Applicant will partner with training and placement programs [other than pre-apprenticeship programs] for underrepresented workers.

Name of training and placement programs: [insert here]

Establishing and executing an inclusive recruitment strategy (e.g., a strategy to support broad recruitment for the apprenticeship programs, outreach to community-based organizations that work with prospective workers/apprentices): [Describe]

Commitment D2.3: Applicant will provide (\$_____) in supports/subsidies for workers to access affordable, reliable and high-quality childcare, or other types of care.

Description of services: [insert here]

Commitment D2.4: Applicant will provide flexible work schedules.

Description of flexible work schedule program: [insert here]

Commitment D2.5: Applicant will provide of (\$_____) in transportation assistance to and from work and training sites.

Description of assistance provided, including any cost to employee, contractor, or trainee: [insert here]

Commitment D2.6: Applicant will provide emergency cash assistance for items such as tools, work clothing, etc.

Commitment D2.7: Applicant will hire local, disadvantaged, or underrepresented workers for % [insert percent] of construction work hours.

Commitment D2.8: Applicant will adopt local and economic hiring preferences as follows: [insert description here]

³¹ [Explore Pre-Apprenticeship | Apprenticeship.gov](https://www.apprenticeship.gov/employers/explore-pre-apprenticeship) See <https://www.apprenticeship.gov/employers/explore-pre-apprenticeship>

E. Justice 40 Initiative

Instructions: This section should reflect the Justice40 benefits and plan for identifying and mitigating any anticipated negative impacts on Disadvantaged Communities. Justice40 benefits are grouped by category of benefit, with space to add additional benefits for benefits that do not fit in categories provided.

For each benefit, the applicant should indicate:

- which Disadvantaged Community is to benefit;
- how and when planned or anticipated benefits are expected to flow to communities;
- SMART milestones to indicate progress toward benefit delivery;
- metrics to be used to track and report on benefits; and
- community-based organizations involved in identifying, negotiating, or delivering benefits.¹

The applicant should add or delete commitments (and re-number accordingly) to reflect their specific plan.

[Examples]

E.1. A decrease in energy burden (energy costs for low-income households)

Benefit E1.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Unanticipated barriers and strategies to address barriers:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.2. A decrease in environmental exposure and burdens

Benefit E2.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.3. An increase in access to low-cost capital

Benefit E3.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.4. An increase in quality job creation, the clean energy job pipeline, and job training for individuals

This section should clarify any quality jobs-related commitments that are specific to a Disadvantaged Community and are distinct from more general quality jobs commitments noted in section C or D above.

Benefit E4.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.5. Increases in clean energy enterprise creation and contracting (e.g., minority-owned or diverse business enterprises)

Benefit E5.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.6. Increases in energy democracy, including community ownership of project assets

Benefit E6.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:

- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.7. Increased parity in clean energy technology access and adoption

Benefit E7.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.8. An increase in energy resilience

Benefit E8.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.9. Other: Please identify additional, measurable benefits here.

Benefit E9.1: [Description of benefit]

- Disadvantaged Community that will benefit:
- How benefit will be delivered (e.g., direct or indirect, who will deliver):
- When benefit will be delivered:
- Milestones toward benefit delivery:
- Metrics to track and report on benefits:
- Community-based organization(s) involved in identifying or negotiating benefit or developing plan for benefit delivery:

E.10. Anticipated or potential negative environmental impacts

Instructions: This section should summarize anticipated environmental impacts on Disadvantaged Communities, including projects geographically near the project or directly affected by project construction or operations, as well as known impacts upstream (in the supply chain, e.g., raw material extraction) or downstream (e.g., waste disposal).

This section should also summarize the applicant's plan to monitor and mitigate negative impacts.

F. Summary Table: Community Benefits Outcomes and Objectives

Instructions: This section should be filled in to reflect the commitments and relevant time-based milestones covered throughout this document.

The applicant should add or delete rows and columns so the table summarizes commitments and timelines from sections above. Red text indicates examples and should be deleted or modified to reflect applicant's plan. The following items should not be included in the CBOO:

- Specific dates (only include general time frames (i.e. Demonstrate XYZ result by Month 3, not Demonstrate XYZ by June 8th, 2013).
- Subcontractors, vendors or individuals by name. The award is with the prime and, as such, the CBOO should not generally reference the subcontractors.

Category and Commitment	Existing or Planned	Budget Period 1 milestone	Budget period 2 milestone	Budget period 3 milestone	Budget period 4 milestone
Community and Labor Engagement					
<i>Good neighbor/community benefits agreement</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Not at this time	<i>Parties and scope identified</i>	<i>Agreement signed</i>		
<i>Collective bargaining agreement (operating jobs)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Not at this time	<i>Parties and scope identified</i>	<i>Agreement signed</i>		
<i>Project Labor Agreement (construction jobs)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Not at this time	<i>Initial meeting</i>	<i>MOU signed</i>	<i>Agreement signed</i>	
<i>[Other community and labor engagement commitments, e.g. # and type of engagements, etc.]</i>					

<i>(applicant should take note if there is a requirement for Workforce Continuity Plan)</i>					
Community feedback and data incorporated into the project	<input type="checkbox"/> Yes <input type="checkbox"/> Not at this time (If “Not at this time”, please provide an explanation in this cell).				
Investing in Quality Jobs	Total Number of Permanent Operations Jobs: [#] Number of Construction phase jobs: [#]				
<i>Minimum starting wage for permanent hourly jobs:</i>	\$__/hr				
<i>Pay upper quintile wages for industry and occupation</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>Fringe Benefits</i>	<input type="checkbox"/> Employer-sponsored health insurance <input type="checkbox"/> Contributions to retirement <input type="checkbox"/> Transportation assistance <input type="checkbox"/> Childcare assistance				
<i>Training</i>	<input type="checkbox"/> Contributions to labor-management training partnership <input type="checkbox"/> Utilization of registered				

	apprentices for at least 15% of construction jobs <input type="checkbox"/> Paid training <input type="checkbox"/> Tuition support or reimbursement				
<i>Health and Safety Committee with Hourly Worker Representation</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Not at this time				
<i>Support for Worker Organizing/Collective Bargaining</i>	<input type="checkbox"/> Pledge to remain neutral during any union organizing campaigns <input type="checkbox"/> Pledge to permit union recognition through card check <input type="checkbox"/> Intention to enter into binding arbitration to settle first contracts <input type="checkbox"/> Pledge to allow union organizers access to appropriate onsite non-work spaces (e.g. lunch rooms) <input type="checkbox"/> Pledge to refrain from holding captive audience meetings ³²				
Other Job Quality and Workforce					

³² “Captive audience” meetings refer to the practice among employers of meeting with employees during union organizing campaigns to express the employer’s view of the possible negative effects that unionizing may have on the general workforce. Some employers have structured such meetings as mandatory and held them on company property during working hours.

Diversity, Equity, Inclusion, and Accessibility	<input type="checkbox"/> Local and/or targeted recruitment efforts <input type="checkbox"/> MWBE contracting <input type="checkbox"/> Partner with quality pre-apprenticeship or apprenticeship readiness program ³³	<i>Partnerships with community-based organizations and training providers for workforce needs planned.</i>			
Other DEIA					
Justice40 Initiative					
Identifies benefits/impacts to disadvantaged communities	<input type="checkbox"/> Yes (If yes, list communities here) <input type="checkbox"/> No				
<i>Reduction in energy costs</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>A decrease in environmental exposure and burdens</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>An increase in access to low-cost capital</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>An increase in quality job creation, the clean energy job pipeline, and job training for individuals</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>Increases in clean energy enterprise creation and contracting (e.g., minority-owned or diverse business enterprises)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>Increases in energy democracy, including</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				

³³ [Explore Pre-Apprenticeship | Apprenticeship.gov https://www.apprenticeship.gov/employers/explore-pre-apprenticeship](https://www.apprenticeship.gov/employers/explore-pre-apprenticeship)

<i>community ownership of project assets</i>					
<i>Increased parity in clean energy technology access and adoption</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<i>An increase in energy resilience</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
Other Justice40					

[END OF DEMONSTRATION AND DEPLOYMENT TEMPLATE]

APPENDIX V – COMPARATIVE BUDGET GUIDANCE

The purpose of the Comparative Budget is to demonstrate and define which project costs are applicable to the *Base Project* and *Expanded Project*. The Comparative Budget is required when the *Base Project* infrastructure would be **upsized or directly modified** by the *Expanded Project*. Additionally, the Comparative Budget should include any *Base Project* cost that is changed due to the addition of the *Expanded Project*. The Comparative Budget is not required for **standalone** infrastructure added under the *Expanded Project* that connects to the *Base Project*, i.e. a spur line (*Expanded Project*) that connects to a regional pipeline (*Base Project*).

The Comparative Budget must be created in Microsoft Excel® and include the quantitative formulas used to determine values within the workbook. The information should be in a condensed format that incorporates pertinent budgetary detail from the Applicant, subrecipient(s), and vendor(s). The Comparative Budget is supplemental to budget justification documents required under Section IV.C.iii. and IV.C.iv.

The following elements should be incorporated into this documentation:

1. A clear structure and rationale for both tangible and intangible costs, which includes labor, materials, supplies, contracts, easements, etc., that would have been incurred if only the *Base Project* was being built. These are costs that would have been incurred in the absence of an *Expanded Project*.
2. A clear structure and rationale for *Base Project* cost elements that would increase (or decrease) due to the proposed *Expanded Project*. These are costs that are incurred as a result of the *Expanded Project* and in addition to the original *Base Project* cost estimates. These costs should be sufficiently detailed such that each cost category can be clearly identified; see Section IV.C.iii. and IV.C.iv. budget justification documentation for more information on costs evaluated.
 - a. Scenario: A *Base Project* includes a 12” diameter pipeline that requires twenty automated isolation valves. The *Expanded Project* entails increasing the pipeline diameter to 18”, resulting in a need for larger automated isolation valves.
 - i. Example Costs Part 1: Twenty automated isolation valves for a 12” diameter pipe, which is the *Base Project* specification, are \$10,000 per valve. The 18” pipe under the *Expanded Project* requires the same number of isolation valves, but a larger size that costs \$20,000 per valve. The Comparative Budget documentation should reflect that the increase in cost per valve is \$10,000, with a total cost of \$200,000 to accommodate the *Expanded Project* pipeline diameter.
 - ii. Example Costs Part 2: The automated isolation valves for the 12” pipeline from the *Base Project* were originally estimated to require twelve man-hours to install and test per valve. The larger automated isolation valves for the 18” pipeline under the *Expanded Project* are estimated to require fifteen man-hours to install and test per valve, or an increase of three

hours per valve. Provided there are twenty automated isolation valves, this increases the overall labor by sixty hours. If loaded labor rates are \$75 per hour, then the Comparative Budget documentation should reflect that the labor increased by \$4,500 for the larger valve installation and testing.

- iii. Example Costs Part 3: The automated isolation valves for the 12" pipeline from the *Base Project* were originally going to be programmed and operated using Software A, which had a cost of \$150,000. The larger automated isolation valves required for the *Expanded Project* require Software B, which has a cost of \$190,000. The Comparative Budget documentation should reflect that software associated with programming and controlling the larger automated isolation valves under the *Expanded Project* will cost an additional \$40,000 with an explanation of why a different software is required.
 - iv. Example Costs Part 4: The shipping and handling associated for the twenty automated isolation valves for the 12" pipeline from the Base Project costs approximately \$400 per valve. The shipping and handling for the larger automated isolation valves for the 18" pipeline costs \$600 per valve due to increased pallet size and weight. The Comparative Budget documentation should reflect that the shipping and handling costs will increase by \$4,000 due to larger pallet sizes and a heavier shipment.
 - v. [Continue with applicable cost differences]
- 3. References to the more detailed budget support documentation (e.g. vendor quotes, material quotes, etc.). These references should provide DOE the ability to clearly discern where the condensed information contained in the Comparative Budget is derived from in the more detailed budget support documents.
 - 4. Additional detail if project materials and supplies are sourced from different vendors for the *Base Projects* and *Expanded Projects* if the sourcing origin impacts specifications, performance, or price. This level of detail should also include the justification why materials vary between the two projects.

Please note: If selected, this documentation will be used during project negotiation. As such, please make efforts to be detailed but concise and correlate information between Application documents.

APPENDIX W – LIST OF ACRONYMS

AOI	Area of Interest
AOR	Authorized Organizational Representative
BiCRS	Biomass Carbon Removal and Storage
BP	Business Plan
BIL	Bipartisan Infrastructure Law
CAPEX	Capital Expenditures
CBP	Community Benefits Plan
CCS	Carbon Capture and Storage
CDR	Carbon Dioxide Removal
CETs	Critical and Emerging Technologies
CEJST	Climate and Economic Justice Screening Tool
CFR	Code of Federal Regulation
CIFIA	Carbon Dioxide Infrastructure Finance and Innovation
COI	Conflict of Interest
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CSF	Cybersecurity Framework
DAC	Direct Air Capture
DBA	Davis-Bacon Act
DEC	Determination of Exceptional Circumstances
DEIA	Diversity, Equity, Inclusion, and Accessibility
DOE	Department of Energy
DOI	Digital Object Identifier
DOL	Department of Labor
EA	Environmental Assessment
E-Biz POC	Electronic Business Point of Contact
EIS	Environmental Impact Statement
EIV	Environmental Information Volume
EO	Executive Order
ES&H	Environmental Safety & Health Analysis
FAR	Federal Acquisition Regulation
FCOI	Financial Conflicts of Interest
FECM	Fossil Energy and Carbon Management
FEED	Front-End Engineering Design
FFATA	Federally Funding and Transparency
FFRDC	Federally Funded Research and Development Center
FGG	Future Growth Grant
FOA	Funding Opportunity Announcement
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impacts
FP	Financial Plan
FY	Fiscal Year

GHG	Green-House-Gas
HAZOP	Hazard and Operability
HBCUs	Historically Black Colleges and Universities
H2Hubs	Regional Clean Hydrogen Hubs Program
IJJA	Infrastructure Investment and Jobs Acts
IP	Intellectual Property
IRS	Institutional Revenue Service
LPO	Loan Program Office
MMT	Million Metric Tons
MPIN	Marketing Partner ID Number
MSI	Minority-Serving institution
NAICS	North American Industry Classification System
NDA	Non-Disclosure Acknowledgement
NEPA	National Environmental Policy Act
NETL	National Energy Technology Laboratory
NIST	National Institute of Standards and Technology's
NNSA	National Nuclear Security Agency
NSF	National Science Foundation
OCR	Office of Civil Rights
OCED	Office of Clean Energy Demonstrations
OIG	Office of Inspector General
OFCCP	Office of Federal Contractor Compliance Programs
OMB	Office of Management and Budget
OMI	Other Minority Institutions
OPEX	Operational Expenditures
PI	Principal Investigators
PII	Personal Identifiable Information
PLA	Project Labor Agreements
PMP	Project Management Plan
POC	Point of Contact
R&D	Research & Development
RMP	Risk Management Plan
ROD	Record of Decision
ROW	Rights of Way
SAM	System for Award Management
SciENCv	Science Experts Network Curriculum Vita
SMART	Specific, Measurable, Achievable, Relevant, and Timely
SOPO	Statement of Project Objectives
UCC	Uniform Commercial Code
UEI	Unique Entity Identifier
U.S.	United States
WP	Work Proposal