United States (U.S.) Department of Energy (DOE)
Office of Manufacturing and Energy Supply Chains (MESC)

Bipartisan Infrastructure Law (BIL): Advanced Manufacturing and Recycling Grant Program (Section 40209)

Funding Opportunity Announcement (FOA) Number: DE-FOA-0003294
FOA Type: Initial
Assistance Listing Number: 81.253

FOA Issue Date:	03/08/2024
Informational Webinar:	03/14/2024 3:30 p.m. ET
Submission Deadline for Concept Papers:	04/08/2024 5:00 p.m. ET
Submission Deadline for Full Applications:	06/24/2024 5:00 p.m. ET
Anticipated Dates for Pre-Selection Interviews:	08/26/2024 through 09/13/2024
Anticipated Date for DOE Selection Notifications:	November 2024
Anticipated Timeframe for Award Negotiations Kickoff:	November 2024

- Applicants must submit a Concept Paper by 5:00 p.m. ET on the due date listed above to be eligible to submit a Full Application.

- To apply to this FOA, applicants must register with and submit application materials through the Clean Energy Infrastructure (S3) eXCHANGE at: https://infrastructure-exchange.energy.gov, MESC's online application portal.

- Applicants must designate primary and backup points-of-contact in S3 eXCHANGE 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 Grants.gov, and register with FedConnect.net 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.

S3 Exchange: Applicants who experience technical difficulties with submission PRIOR to the FOA deadline should contact the S3 Exchange helpdesk for assistance: InfrastructureExchangeSupport@hq.doe.gov.

Grants.Gov: Register in Grants.gov (http://www.grants.gov) to receive automatic updates when Amendments to this FOA are posted. Please note that Concept Papers and Full Applications will not be accepted through Grants.gov.

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

FedConnect: In the event that an application is selected for negotiation of award, Applicants must be registered with FedConnect to receive the award. For more information regarding registration with FedConnect review the FedConnect Ready, Set, Go! Guide at: https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect_Ready_Set_Go.pdf.

BIL Section 40209 FOA Guide

DOE is providing this "FOA Guide to highlight helpful guidelines in the document for the reader. **Please read the entire document** and refer to the main body of the document for the official definitions and information. If there are any discrepancies between this Guide and the rest of the document, the rest of the document is the authoritative source.

Question	Where to look?
Why is DOE issuing this funding opportunity?	Information regarding the motivation for this funding opportunity can be found on **~Page(s) 1 through 10 (Background, Context, & Program Purpose).**
How do I apply?	To apply, applicants must: • Register in the Clean Energy Infrastructure (S3) eXCHANGE system (https://infrastructure-exchange.energy.gov); • Register in the System for Award Management (SAM) and obtain/have a Unique Entity Identifier (UEI) to apply for this funding; • Register in Grants.gov to receive automatic updates when Amendments to this FOA are posted; • Register in FedConnect to receive an Award if selected; • Submit a required initial "pitch" known as a Concept Paper; and • Submit a final complete project description in a Full Application. Details around applying for the award can be found on the **Cover Page, ~Page(s) 38 through 74 (Application Process, Forms, and Content)**.
When are the key deadlines?	Key deadlines for submitting information to DOE and anticipated timeline for the process can be found on the **Cover Page.**
What types of projects are DOE looking for with this funding?	DOE is seeking to build, retrofit or re-equip manufacturing facilities in one of two Areas of Interest (AOI): **1) Clean Energy Manufacturing and Recycling** or **2) Industrial Decarbonization**. Detailed AOI descriptions can be found on **~Page(s) 11 through 22 (AOI).**

How much DOE funding is available?	The total amount of DOE funding available approximately $425 million. DOE's share of an individual awards may vary between $2 million and $100 million. Details can be found on **~Page(s) 25 through 26 (Estimated Funding).**
Who can apply for this funding?	Small and medium-sized manufacturers that meet certain size, revenue, and other requirements with a proposed project within the restricted geographic locations are eligible. For details on eligibility, please review **~Page(s) 28 through 31 (Eligible Information).**
What is a Census Tract?	As part of the eligibility requirements, proposed project must be located in: (a) a census tract in which a coal mine closed after December 31, 1999; (b) a census tract in which a coal-fired electricity generating power plant unit closed after December 31, 2009; or (c) a census tract immediately adjacent to (a) or (b). OE has made a map showing relevant coal mine and coal-fired electricity generating power plant unit closures, as well as immediately adjacent census tracts which can be located here: Advanced Energy Manufacturing and Recycling Grants | Department of Energy **~Page 29 (Eligible Information).**
How much of a project will DOE fund?	DOE will fund **up to 50%** of allowable costs for awarded projects. The awarded entity will be responsible for the remaining costs for awarded projects, known as "cost share." For more information refer to **~Page(s) 31 through 34 (Cost Sharing) and Appendix A.**
What information should my "initial pitch" or Concept Paper include?	The concept paper is a short written initial summary of the proposed project and is a mandatory step. It typically includes a description of the project, the estimated cost, location, objectives, community impacts, how it will meet the required DOE goals, etc. Details around the Concept Paper can be found on **~Page(s) 38 through 41 (Content and Form of the Concept Paper) and the associated Review Criteria can be found on Page 86 (Technical Review Criteria - Concept Paper).**
What happens after I submit my Concept Paper?	DOE will review this initial information and provide an initial indication of whether the project appears well aligned with our goals "Encouraged" or not "Discouraged," please see more details on **Page 96 (Concept Paper Notifications).**

What should my Full Application include?	The Full Application typically includes technical details on the project, the organization, the management, the community benefits, impacts, financial viability, etc. Details around the Full Application content requirements can be found on **~Page(s) 42 through 74 (Content and Form of the Full Application) and the associated Review Criteria can be found on Page 86 (Technical Review Criteria – Full Application).**
What is a Community Benefits Plan and what should a Community Benefits Plan address?	A Community Benefits Plan typically relays the Applicant's approach to ensure that the federal investment in the project advances four goals: community and labor engagement, investing in job quality and workforce continuity, advancing diversity, equity, inclusion, and accessibility (DEIA), and contributing to the Justice40 Initiative. Further details on Community Benefits Plans can be found on **Page 22 through 23 and further, ~Page(s) 53 to 58 (Community Benefits Plan: Job Quality and Equity).**
What happens after I submit my Full Application?	DOE will have independent reviewers evaluate each project against the criteria, and then convene a federal panel that parallels an "investment committee" in the private sector. DOE may use Program Policy Factors to balance the portfolio among meritorious projects. For details on the review criteria for Full Applications **see ~Page(s) 88 through 93 (Full Applications)** and to read the Program Policy Factors **see ~Page(s) 94 through 95 (Program Policy Factors)**.
What does it mean to be invited for a preselection interview?	DOE may invite one or more applicants to a virtual or in person meeting to seek clarification and discuss the proposed project. Being invited to an interview **does not** mean the applicant is selected for an award. Information from the interview may help assist as part of the evaluation process, **see Page(s) 95 through 96 (Pre-selection Interviews**) for more details.
What does it mean to be selected for negotiations and do I get the money right away?	If an applicant is selected for negotiations at the end of this process, then DOE notifies the applicant has been selected to enter a negotiation phase. The applicant **does not** get the money right away. During negotiations DOE and the applicant work together to make sure project milestones, budget, and other key documents are agreed upon before DOE and the applicant sign an award. The DOE project officially starts once the agreement is signed and funding is made available based on the terms of the award. See **Page 98 through 99 (Applicants Selected for Award Negotiations)** for more information on this part of the process.

What ongoing reporting and documentation will I have to provide?	Reporting requirements will be identified on the Federal Assistance Reporting Checklist, which will be attached to the award agreement. Details around the reporting expectations can be found on **Page 106 (Reporting).**
What kind of environmental review will my project be subject to if it is selected for negotiations?	If an applicant is selected for negotiations, the project will be subject to a National Environmental Policy Act (NEPA) review that will be conducted prior to DOE deciding whether to issue the award. For further details on the NEPA process refer to **Page 102 (Environmental Review in Accordance with the National Environmental Policy Act).**
How do I get other questions answered?	Once the FOA is issued, DOE personnel are prohibited from communicating with applicants about the FOA except through a specified question and answer process. Details around the process and submitting questions can be found on **Page 115 (Questions/Agency Contacts)**.

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I. Funding Opportunity Description

A. Background and Context

The Office of Manufacturing and Energy Supply Chains (MESC) is issuing this Funding Opportunity Announcement (FOA). Awards made under this FOA will be funded, in whole or in part, with funds appropriated by the Infrastructure Investment and Jobs Act,[1] more commonly known as the Bipartisan Infrastructure Law (BIL).

BIL is a once-in-a-generation investment in modernizing and upgrading American infrastructure to enhance U.S. competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure strong access to economic, environmental, and other benefits for disadvantaged communities.[2] BIL appropriates more than $62 billion to the U.S. Department of Energy (DOE)[3] to invest in American manufacturing and workers; expand access to energy efficiency and clean energy; deliver reliable, clean, and affordable power to more Americans; and demonstrate and deploy the technologies of tomorrow through clean energy demonstrations.

DOE's BIL investments will support efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity system by 2035, and to put the U.S. on a path to achieve net-zero emissions economy-wide by no later than 2050[4] to benefit all Americans.

The BIL invests appropriations of $750 million over Fiscal Years (FYs) 2022 through 2026 to establish the Advanced Energy Projects Grant Program (the Program), which will support industrial projects in eligible energy communities.[5]

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[1] 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.

[2] Pursuant to E.O. 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021, and the Office of Management and Budget's Interim Justice40 Implementation Guidance M-21-28 and MN-23-09, DOE recognizes disadvantaged communities as identified by the White House Council of Environmental Quality's Climate and Economic Justice Screening Tool (CEJST), located at https://screeningtool.geoplatform.gov/. DOE's Justice40 Implementation Guidance is located at https://www.energy.gov/sites/default/files/2022-07/Final%20DOE%20Justice40%20General%20Guidance%20072522.pdf.

[3] 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

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

[5] As set forth in Section III.A.i. below, for purposes of this Program, an eligible energy community is defined as a census tract (a) in which, after December 31, 1999, a coal mine closed; (b) in which, after December 31, 2009, a coal-fired electricity generating unit had been retired; or (c) that is immediately adjacent to a census tract described in (a) or (b). BIL § 40209 (a)(2). A mapping tool displaying such census tracts is available here: MESC Energy Transitions (doe.gov). This map can also be found under Program Resources on the Program information page: Advanced Energy Manufacturing and Recycling Grants | Department of Energy.

Through the two (2) Areas of Interest (AOI) of this FOA, the Program will provide approximately $425 million in support of projects by small- and medium-sized manufacturing firms (SMMs)[6] as follows:

Note: A full description of eligible Advanced Energy Property can be found in Appendix I.

AOI 1: Clean Energy Manufacturing and Recycling:

The objective of this AOI is to increase domestic manufacturing and recycling capacity for materials, components, and systems needed for the clean energy transition.

DOE is seeking applications for projects in this AOI to establish new,[7] or re-equip[8] or expand,[9] an existing manufacturing or recycling facility for the production or recycling, as applicable, of advanced energy property.

AOI 2: Industrial Decarbonization:

The overall objectives for this AOI is to reduce Greenhouse Gas (GHG) emissions in the U.S manufacturing sector through substantial reductions in existing facilities and new builds that result in low carbon materials.

Subtopic AOI 2a: Re-equip an existing industrial or manufacturing facility with equipment designed to substantially[10] reduce the greenhouse gas emissions of that facility

Subtopic AOI 2b: Establish new, or re-equip or expand, an existing manufacturing or recycling facility that produces materials that result in substantially lower carbon intensity compared to an appropriate industry benchmark and are not derived from a primary feedstock of palm fatty acid distillates or fossil fuels including coal, natural gas, and petroleum.

[6] For purposes of this Program, a small- or medium-sized manufacturing firm (SMM) must have (1) gross annual sales of less than $100,000,000; (2) fewer than 500 employees at the plant site of the manufacturing firm; and (3) annual energy bills that total more than $100,000 but less than $2,500,000. BIL § 40209(a)(3).

[7] For the purposes of this Program, establishing a new manufacturing or recycling facility refers to a new construction project on vacant land. This would include the construction of a new facility by an entity with other existing facilities at other location(s).

[8] For the purposes of this Program, re-equipping an existing manufacturing or recycling facility may mean (i) repurposing a vacant or shuttered facility to produce or recycle a different product or material or (ii) altering current production or recycling lines for the purpose of producing or recycling a different product or material.

[9] For the purposes of this Program, expanding an existing manufacturing or recycling facility may mean (i) a physical expansion of an existing manufacturing or recycling facility to accommodate new or additional production or recycling lines; (ii) the addition of production or recycling lines to increase the output of a current facility; or (iii) any other demonstrated change to an existing facility that increases capacity through new or additional equipment at the project site.

[10] The term "substantially" is quantified in Section I.B.ii of this FOA.

The activities to be funded under this FOA support BIL section 40209 and the broader government-wide approach to reinvigorating and reinvesting in the American industrial base; establishing secure, resilient domestic energy supply chains; reducing industrial GHG emissions and revitalizing economies in energy communities to maximize the benefits of the clean energy transition as the nation works to curb the climate crisis, empower workers, and advance environmental justice.

i. Program Purpose

This FOA supports the administration goals laid out above given the U.S. is facing a climate crisis that threatens American communities, public health, and the economy.[11] In responding to this crisis, the nation has a once-in-a-generation economic opportunity to enhance its global competitiveness; create and sustain jobs (including well-paying union jobs); support a just transition to a more sustainable economy for American workers; strengthen America's communities; protect public health; and advance environmental justice.[12] This Program is part of an all-of-government approach to respond to the global climate crisis, while seizing upon the opportunities created by the transition to a carbon pollution-free electricity sector by 2035 and net-zero emissions economy-wide by no later than 2050.

Reinvigorating and Reinvesting in the American Industrial Base

The global market for clean energy and carbon reduction technologies is anticipated to reach a minimum of $23 trillion by 2030. Many proven clean energy technologies poised for significant market share in a global clean energy economy exist today. These include but are not limited to carbon capture utilization and storage (CCUS), electric vehicles, energy efficiency, energy storage, geothermal, bioenergy, hydropower, industrial decarbonization, nuclear, solar, and wind technologies. The U.S. can enhance its global competitiveness and national security by building supply chains for these and emerging technologies in America, built with American labor and materials.[13]

[11] Executive Order 14008, Tackling the Climate Crisis at Home and Abroad (January 27, 2021).
[12] Executive Order 14030, Climate-Related Financial Risk (May 20, 2021). Executive Order 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (December 8, 2021). Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice
[13] U.S. Department of Energy, *America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition: U.S. Department of Energy Response to Executive Order 14017, America's Supply Chains* (Feb. 24, 2022) ("*America's Strategy to Secure the Supply Chain*"). In the 1990s, for example, the U.S. pioneered and led commercial solar PV; but, in the absence of strong, systematic, and consistent policy to support the solar industry, other countries took over global leadership in solar PV manufacturing. See *America's Strategy to Secure the Supply Chain* at 5.

This Program seeks to ensure that the domestic industrial sector – and SMMs in particular – seize upon the opportunities at hand. SMMs account for approximately 99 percent of U.S. manufacturing enterprises, contribute more than $1 trillion in gross revenue, and provide more than five million U.S. jobs.[14] But SMMs often fall behind larger firms in technology and other capital investments due to financing and knowledge challenges. By providing financial assistance to SMMs to invest in projects to build new or transition existing facilities to take advantage of opportunities created by the clean energy economy, the Program seeks to catalyze follow-on private investment and contribute to a future that is led by, and made in, America.

In doing so, the Program also recognizes that responding to the climate crisis and seizing on the opportunities of the clean energy transition requires reconsideration of how the domestic industrial sector produces products.[15] The Program seeks projects that incorporate advanced manufacturing practices that apply innovative technologies to produce new products and improve production of existing products; train a highly skilled and diverse American workforce; create products through economically-sound processes that minimize negative environmental impacts while conserving energy and natural resources; and cut pollution and reduce carbon emissions to zero or near-zero via industrial decarbonization practices and technologies.[16] By increasing secondary use and supporting cleaner, more efficient manufacturing and recycling, the Program seeks to support projects that will reduce energy costs and emissions while increasing productivity, wages, and jobs.

Establishing Secure, Resilient Domestic Clean Energy Supply Chains

In deploying Program funds, the Program will further seek to invest in projects that will contribute to the establishment of secure, resilient domestic clean energy supply chains essential to providing affordable, reliable energy for the American people. The U.S. needs resilient, diverse, and secure clean energy supply chains to ensure economic prosperity and national security in the face of climate shocks, cyber-attacks, geopolitical and economic competition, and other threats.[17]

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[14] U.S. Small Business Administration Manufacturing Office, https://www.sba.gov/about-sba/organization/sba-initiatives/support-manufacturing-businesses .

[15] In this respect, the Program seeks to have a complementary impact with DOE's Industrial Decarbonization Roadmap, DOE's Industrial Decarbonization and Emissions Reduction Demonstration-to-Deployment Program, and the Federal Buy Clean Initiative, , all of which seek to reduce industrial emissions and rebuild U.S. leadership in manufacturing as countries, companies, and consumers around the world shift to low- to no-carbon commodities.

[16] Subcommittee on Advanced Manufacturing Committee on Technology, National Science and Technology Council, National Strategy for Advanced Manufacturing, October 2022.

[17] *America's Strategy to Secure the Supply Chain.*

Additionally, the Program seeks to increase domestic production capacity of advanced energy property[18] that will strengthen the national security and economic competitiveness of the U.S. and its allies by resolving current gaps and needs while reducing dependence of the domestic energy sector industrial base on vulnerable supply chains and foreign competitors.

On February 24, 2021, President Biden signed Executive Order (E.O.) 14017, "America's Supply Chains," in which he directed the U.S. government to undertake a comprehensive review of critical U.S. supply chains to identify risks, address vulnerabilities and develop a strategy to promote resilience. In response, DOE published "America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition," the first comprehensive U.S. government plan to build an Energy Sector Industrial Base. The report is supported by deep-dive supply chain assessments highlighting key risks and opportunities across the following supply chains:

- Carbon capture materials
- Electric grid, including transformers and High-Voltage Direct Current (HVDC)
- Energy storage
- Fuel cells and electrolyzers
- Hydropower, including pumped storage
- Neodymium magnets
- Nuclear energy
- Platinum group metals and other catalysts
- Semiconductors
- Solar photovoltaics
- Wind

In addition, the Administration has issued determinations under the Defense Production Act[19] citing the critical need to strengthen domestic production capacity of large-capacity batteries, to increase domestic mining and processing of critical materials for the large-capacity battery supply chain,[20] and to accelerate progress in establishing secure domestic supply chains for:

[18] See BIL § 40209(a)(1) (defining advanced energy property as including Property designed to be used to produce energy from the sun, water, wind, geothermal or hydrothermal resources, enhanced geothermal systems, or other renewable resources; fuel cells, microturbines, or energy storage systems and components; electric grid modernization equipment or components; property designed for use in carbon capture, transport, removal, use, or sequestration / storage; equipment designed to refine, electrolyze, or blend any fuel, chemical, or product that is renewable or low- carbon and low-emission; property designed to produce energy conservation technologies (including for residential, commercial, and industrial applications); light-, medium-, or heavy-duty electric or fuel cell vehicles, electric or fuel cell locomotives, electric or fuel cell maritime vessels, or electric or fuel cell planes; technologies, components, and materials of those vehicles, locomotives, maritime vessels, or planes; and charging or refueling infrastructure associated with those vehicles, locomotives, maritime vessels, or planes; hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds; and technologies, components, and materials for those vehicles; and other property designed to reduce greenhouse gas emissions).

[19] 50 U.S.C. § 4533.

[20] See Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended(Mar. 31, 2022).

(1) solar panel parts like photovoltaic modules and module components; (2) critical power grid infrastructure like transformers; (3) heat pumps; (4) building insulation; (5) equipment for making and using clean-electricity-generated fuels, including electrolyzers, fuel cells, and related platinum group metals; and (6) printed circuit boards and advanced packaging.[21] These determinations further signal the need to bolster these clean energy supply chains in order to strengthen U.S. national and climate security while also reducing energy costs for American families.

Reducing Industrial GHG Emissions

The American industrial sector represents a unique and complex challenge in decarbonizing the nation's economy due in part to the diversity of energy inputs into a wide array of industrial processes and operations. Using modeled data for 2020, DOE's Industrial Decarbonization Roadmap estimated the industrial sector accounted for about 33% of the nation's primary energy use[22] and around 30% of energy-related carbon dioxide (CO_2) emissions. The manufacturing portion of the industrial sector accounted for more than 75% of primary energy use and more than 80% of the CO_2 emissions of the entire industrial sector.[23]

Industrial emissions primarily arise from the combustion of fossil fuels on-site for direct use or for steam (e.g., for process heating), the generation of electricity on-site or off-site (e.g., for motor-driven systems), and non-energy-related process emissions (e.g., CO_2 emissions from calcination in the production of cement). More detailed manufacturing energy consumption survey (MECS) data from the U.S. Energy Information Administration (EIA) illustrates the energy- and process-related CO_2 equivalent (CO_2e) emissions for the major manufacturing sectors in 2018 (Figure 1).[24]

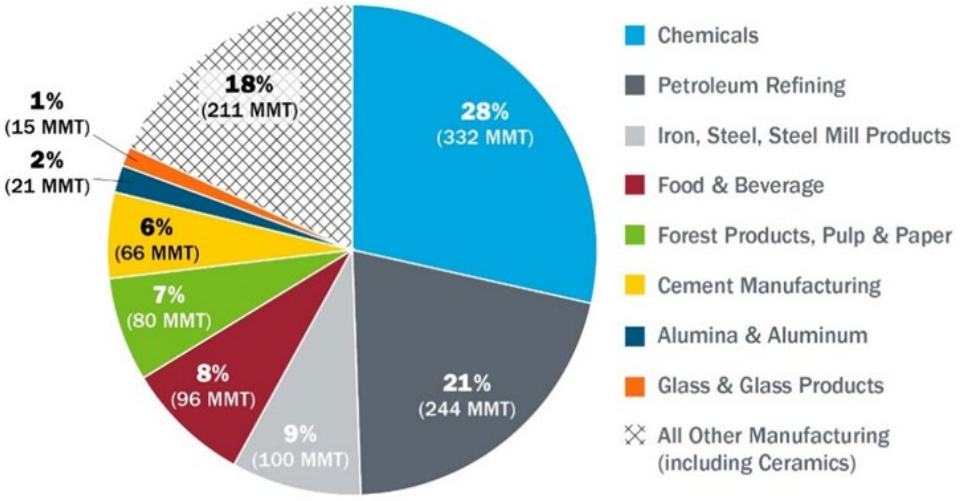
[21] See Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Solar Photovoltaic Modules and Module Components(June 6, 2022); Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Transformers and Electric Power Grid Components (June 6, 2022); Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Electric Heat Pumps (June 6, 2022); Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Insulation(June 6, 2022); Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Electrolyzers, Fuel Cells, and Platinum Group Metals (June 6, 2022); Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as amended, on Printed Circuit Boards and Advanced Packaging Production Capability (March 27, 2023).

[22] Primary energy includes energy that is consumed both offsite and onsite during the manufacturing process. Offsite energy consumption includes generation and transmission losses associated with bringing electricity and steam to the plant boundary. The roadmap includes fuels as feedstocks – fossil inputs to material production (e.g., natural gas as both fuel and feedstock for certain chemicals).

[23] "Industrial Decarbonization Roadmap," U.S. Department of Energy, September 2022, https://www.energy.gov/sites/default/files/2022-09/Industrial%20Decarbonization%20Roadmap.pdf, Figure 2. U.S. Primary Energy Consumption by End Use Sector and Figure 3. U.S. Primary Energy-Related CO_2 Emissions by End Use Sector. Note: These figures do not include non-energy related CO_2 emissions or other GHG emissions.

[24] "Manufacturing Energy and Carbon Footprints (2018 MECS)," U.S. Department of Energy, December 2021, https://www.energy.gov/eere/amo/manufacturing-energy-and-carbon-footprints-2018-mecs. Figure 1does not include fuel used as feedstock.

Figure 1



[25]

Figure 1. U.S. primary energy- and process- related CO_2e emissions (MMT CO_2e) for manufacturing industries (NAICS 31-33).

Transformative industrial decarbonization will require deployment of emerging and existing technologies that currently face commercial adoption challenges including lack of demand signals, and/or capital constraints. DOE anticipates that projects funded under this Program will result in significant GHG emissions reduction potential in nonpower[26] industrial sectors in support of the Biden-Harris Administration's decarbonization goals of a 50-52% reduction in GHG emissions from 2005 levels by 2030.

The goals also include a carbon-pollution-free power sector by 2035, and a net-zero GHG emissions economy by 2050[27,28,29] using one or more of these cross-cutting industrial decarbonization approaches: low or zero carbon process heat systems; carbon capture, transport, utilization and storage; energy and materials efficiency and other emerging industrial technologies.

25 Figure 1. U.S. primary energy- and process- related CO2e emissions (MMT CO2e) for manufacturing industries (NAICS 31-33). Energy-intensive industrial sectors, along with food and beverage, account for approximately 80% of manufacturing-related emissions. Figure derived from DOE's Manufacturing Energy and Carbon Footprints; source of data for footprints from DOE Energy Information Administration's 2018 Manufacturing Energy Consumption Survey.

26 "Nonpower" facility means a facility whose primary purpose is not power generation.

27 EO 14030, "Executive Order on Climate-Related Financial Risk (Executive Order 14030)," May 2021.

28 "FACT SHEET: President Biden sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good- Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies," The White House, April 2021.

29 "The U.S.' Nationally Determined Contribution. Reducing Greenhouse Gases in the U.S.: A 2030 Emissions Target," United Nations Climate Change Coalition, June 2022.

The approaches funded through this Program align with, but are not limited to, the DOE Industrial Decarbonization Roadmap and the Industrial Decarbonization Pathways to Commercial Lift-Off Reports.[30]

Clean Product Demand and Buy Clean Initiative:

Projects funded under this FOA, in particular AOI 2, should help establish the viability and competitiveness of domestically manufactured low-carbon products, which can be especially impactful as global consumers look for increased transparency on carbon intensity of their goods.[31] Relationships between buyers and sellers for early low-carbon products can speed this transition.

Moreover, the collective impact of aligned industries has the potential to shift entire ecosystems and enable new market structures for the offtake of goods produced by advanced industrial facilities. The private sector has started to prioritize these activities through groups like the First Movers Coalition,[32] which is designed to harness the purchasing power of companies to send market signals around the growing demand for cleaner products.

Projects funded through this FOA have the potential to capitalize on and accelerate progress within the following federal demand-side initiatives that coordinate federal procurement power. The U.S. government recognizes its role as the largest purchaser of goods and services in the world, with annual purchasing power of over $630 billion. To harness that procurement power to support acceleration toward a net-zero economy by 2050, President Biden's Executive Order 14057[33] on catalyzing American clean energy industries and jobs through federal sustainability and accompanying Federal Sustainability Plan[34] outlines an ambitious path to achieve net-zero emissions from federal procurement by 2050 while increasing the sustainability of federal supply chains.

[30] *PATHWAYS TO COMMERCIAL LIFTOFF REPORTS.* (n.d.). Energy.gov.
[31] 42 U.S.C. § 17113(b)(1)(B)
[32] "Launching the First Movers Coalition at the 2021 UN Climate Change Conference," U.S. Department of State, November 2021, https://www.state.gov/launching-the-first-movers-coalition-at-the-2021-un-climate-change-conference/.
[33] EO 14057, "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," December 2021.
[34] "Federal Sustainability Plan: Catalyzing America's Clean Energy Industries and Jobs," The White House, December 2021, https://www.sustainability.gov/federalsustainabilityplan/index.html.

These supply chain initiatives include major contractor GHG emission disclosures paired with science-based targets, the Buy Clean initiative for low-carbon materials,[35] and a sustainable products and procurement policy. In particular, the Buy Clean initiative prioritizes the U.S. government's purchase of steel, concrete, asphalt, and flat glass that have lower levels of embodied GHG emissions,[36] as these four construction materials account for nearly half of all U.S. manufacturing GHG emissions and represent 98% of the government's purchased construction materials.[37]

Federal agencies are also updating specifications to prioritize the procurement and funding of lower, and substantially lower, embodied emissions construction materials which will reduce GHG emissions from federally funded building, infrastructure, and construction projects. For example, the EPA sent an interim determination for low carbon materials to the Department of Transportation (DOT) and the General Services Administration (GSA) on their IRA-funded procurement of construction materials and products with substantially lower embodied GHG emissions.[38] The EPA plans to update the embodied carbon thresholds that the four construction materials must meet to qualify for funding under the cross-agency Buy Clean initiative.[39]

Revitalizing Economies in Energy Communities

On January 27, 2021, the President issued Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, to direct federal agencies to avoid the most catastrophic impacts of the climate crisis and seize the opportunity that tackling climate change presents. This Executive Order established an Interagency

[35] "Federal Buy Clean Initiative," U.S. Council on Environmental Quality, December 2021, https://www.sustainability.gov/buyclean/index.html.

[36] Embodied emissions refer to the amount of greenhouse gas (GHG) emissions associated with the extraction, production, transport, and manufacturing of material. Low embodied carbon materials have less climate impact associated with mining, manufacturing, and transportation. Traditionally, steel, concrete, asphalt, and flat glass contain a high quantity of embodied emissions due to the energy-intensive processes used to extract raw materials like limestone, taconite ore, and silica and then converting those raw materials via industrial processes to produce a product.

[37] "FACT SHEET: Biden-Harris Administration Announces New Buy Clean Actions to Ensure American Manufacturing Leads in the 21st Century," The White House, September 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-buy-clean-actions-to-ensure-american-manufacturing-leads-in-the-21st-century/.

[38] "Inflation Reduction Act Programs to Fight Climate Change by Reducing Embodied Greenhouse Gas Emissions of Construction Materials and Products," U.S. Environmental Protection Agency, January 2023, https://www.epa.gov/inflation-reduction-act/inflation-reduction-act-programs-fight-climate-change-reducing-embodied#federal.

[39] https://www.epa.gov/newsreleases/epa-seeks-input-new-program-label-cleaner-construction-materials-part-president-bidens

Working Group on Coal and Power Plant communities and Economic Revitalization (Interagency Working Group) to coordinate the identification and delivery of Federal resources to revitalize the economies of coal, oil and gas, and power plant communities. In doing so, it recognized that:

> *Mining and power plant workers drove the industrial revolution and the economic growth that followed and have been essential to the growth of the U.S.. As the Nation shifts to a clean energy economy, Federal leadership is essential to foster economic revitalization of and investment in these communities, ensure the creation of good jobs that provide a choice to join a union, and secure the benefits that have been earned by workers.*[40]

Projects supported under this Program and associated FOA must take place in energy communities—defined by statute as a census tract where a coal mine has closed since December 31, 1999, a coal- fired power plant has closed since December 31, 2009, or an immediately adjacent census tract.[41] Consistent with this geographic requirement included in the BIL, the Program will seek to invest in projects that strengthen place-based economic development strategies and that utilize existing assets in these communities. In doing so, DOE aims to contribute to restoration of local tax bases, stronger, more resilient communities, improved public health, and transition for dislocated workers.

As investment in the global clean energy economy continues to accelerate, regional economic development strategies and economic clusters are emerging that hold potential to augment and multiply the economic contributions of individual projects in energy communities. Working collaboratively with the Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization and with the U.S. Department of Commerce Economic Development Administration, DOE will seek to align investments made under this FOA with regional economic development priorities, recognizing that sustained economic revitalization is most likely to flow from long-term, place-based, coordinated, and collaborative economic development strategies that leverage Federal funding in coordination with other public and private sector resources.

ii. Teaming Partner List (Optional)

DOE is compiling a Teaming Partner List to facilitate the formation of project teams for this FOA. The Teaming Partner List allows organizations that may wish to participate on a project to express their interest to other applicants and

[40] Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021).

[41] BIL § 40209 (a)(2).

explore potential partnerships. Please note that while teaming is a viable approach, teams must name one "Prime" Applicant for each team and specify this Prime Applicant on their application.

The Teaming Partner List will be available on S3 eXCHANGE and will be regularly updated to reflect new teaming partners who provide their organization's information. The Teaming Partner List is for informational purposes only, and participation will have no bearing on the eligibility or evaluation of an application.

VIEWING/SUBMISSION INSTRUCTIONS: View the Teaming Partner List by visiting the S3 exchange homepage and clicking on "Teaming Partners" within the left-hand navigation pane. This page allows users to view published Teaming Partner Lists.

To join the Teaming Partner List, submit a request within the S3 exchange. Select the appropriate Teaming Partner List from the drop-down menu, and fill in the following information: Investigator Name, Organization Name, Organization Type, AOI, Background and Capabilities, Website, Contact Address, Contact Email, and Contact Phone.

DISCLAIMER: By submitting a request to be included on the Teaming Partner List, the requesting organization consents to the publication of the above-referenced information. By facilitating the Teaming Partner List, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are identifying themselves for placement on this Teaming Partner List. DOE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

B. Areas of Interest

All work for projects selected under this FOA must be performed in the U.S.. See Section IV.I.iii. and Appendix B.

Through this FOA, the Program will support projects by SMMs in two (2) AOIs:

AOI 1: Clean Energy Manufacturing and Recycling
AOI 2: Industrial Decarbonization (contains subtopics 2a and 2b)

In support of a resilient transition for energy communities, all projects should use and bring value from existing assets in energy communities. Those may include, but need not be limited to, efforts to turn idled properties, such as brownfields,[42] into new hubs for economic growth, and that utilize existing industrial sites and infrastructure. Projects should further invest in dislocated workers. Reinvigorating and reinvesting in the American industrial base in this moment of opportunity offers considerable benefits for American workers. Manufacturing jobs, and especially those in advanced technologies, provide better pay, more consistent hours, and stronger worker protection than the labor market as a whole and have broad impacts on jobs in other sectors.[43] Projects funded under this Program should include training dislocated workers for jobs in the new economy and creating family-sustaining jobs with high labor standards, including paying prevailing wages and offering the free and fair chance to join a union.

As part of the whole-of-government approach to advance equity and encourage worker organizing and collective bargaining,[44,45,46] and in alignment with BIL Section 40209, 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 Tribes.[47] Consistent with Executive Order 14008,[48] 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 be delivered to disadvantaged communities, as 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.

[42] Brownfields are sites where future development could be impeded by pollution, such as industrial waste. (EPA 2022a).

[43] Subcommittee on Advanced Manufacturing Committee on Technology, National Science and Technology Council, *National Strategy for Advanced Manufacturing*, October 2022.

[44] EO 13985, "Advancing Racial Equity and Support for Underserved Communities Through the U.S. government," January 20, 2021. EO 14091, "Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government," February 16, 2023.

[45] EO 14025, "Worker Organizing and Empowerment," April 26, 2021.

[46] EO 14052, "Implementation of the Infrastructure Investment and Jobs Act," November 18, 2021.[47] 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.

[47] 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.

[48] EO 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

i. Area of Interest 1: Clean Energy Manufacturing and Recycling

Introduction: Capital investments into the establishment of new, or the re-equipment or expansion of existing, manufacturing or recycling facilities for the production or recycling of advanced energy properties, are critical to the global competitiveness of the American clean energy industry.

Applicants are strongly encouraged to propose projects that incorporate advanced manufacturing and smart manufacturing practices that apply innovative technologies to: 1) produce new or improved products; 2) improve productivity; 3) increase safety; and/or 4) minimize negative environmental impacts through conservation of energy and natural resources.
The use of brownfield sites for new construction, or the reuse of existing building and infrastructure is strongly encouraged to conserve natural resources.

Objective: The objective of this AOI is to increase domestic manufacturing and recycling capacity for materials, components, and systems needed for the clean energy transition.

DOE is seeking applications for projects in this AOI to establish new, or re-equip or expand, an existing manufacturing or recycling facility for the production or recycling, as applicable, of advanced energy property.

The input material to a recycling facility or the primary output product of the facility must be eligible Specific Advanced Energy Property (SAEP) as defined below, pursuant to BIL Section 40209(a)(1):

- Property designed to be used to produce energy (e.g. electricity) from the sun, water, wind, geothermal deposits, or other renewable resources.
- Fuel cells, microturbines, or energy storage systems and components.
- Electric grid modernization equipment or components.
- Property designed to capture, transport, remove, use, or sequester carbon oxide emissions.
- Equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is renewable, or low-carbon and low-emission.
- Property designed to produce energy conservation technologies (including for residential, commercial, and industrial applications).
- Light-, medium-, or heavy-duty electric or fuel cell vehicles, as well as technologies, components, or materials for such vehicles, and associated charging or refueling infrastructure.

- Hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds as well as technologies, components, or materials for such vehicles.
- Other advanced energy property as may be determined by the Secretary.

Note: A full description of eligible Specific Advanced Energy Property (SAEP) can be found in Appendix I.

Based on analysis from the Department of Energy's Office of Manufacturing and Energy Supply Chains, this program has identified priority needs to bolster domestic clean energy supply chains in the following areas, in particular:

Electric Grid	• Grain oriented and other electric steel • Continuously transposed conductors • Carbon fiber • Copper wire • Large power and distribution transformers • High voltage direct current transmission lines (including underwater capable) • Power electronics
Wind	• Neodymium (Nd) and Dysprosium alloys • Neodymium (Nd) magnets • Large castings • Forged rings and shafts • Offshore and onshore wind turbine blades and other components
Electric or Fuel Cell Vehicle Technologies	• Charging equipment • Non-battery components
Critical Minerals and Materials	• Natural and synthetic graphite

Applicants to AOI 1 must complete all relative Sections in the 40209 Application Data Sheet and Workbook (refer to Section IV.D.xxiv.).

ii. Area of Interest 2: Industrial Decarbonization

Introduction: Industrial GHG emissions are generated through a wide variety of processes, and therefore no single technology solution exists to eliminate them.

This Program will take a broad, multifaceted approach to solving industrial decarbonization challenges across various industrial manufacturing subsectors. This Program seeks to fund industrial decarbonization projects of commercial-scale for full facility builds and facility-wide upgrades, as well as for critical units or individual process lines. Categorically, approaches to industrial GHG emissions reductions can include: energy efficiency upgrades; electrification; use of low-carbon fuels, feedstocks and energy sources; materials efficiency and substitutions; alternative processes, carbon capture utilization and storage and other existing best practices.

For the purposes of this FOA:

- "Industrial decarbonization" means reducing greenhouse gas emissions from the manufacturing of industrial materials and products, typically NAICS 31-33.

- Gases that trap heat in the atmosphere are called greenhouse gases (GHG), and references to "GHG emissions" include but are not limited to: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG emissions are represented in carbon dioxide equivalents.

- GHG emissions are represented in carbon dioxide equivalents (CO2e), a unit of measurement that is used to assess global warming impacts relative to carbon dioxide CO2 by use of Global Warming Potentials.

- "Total annual GHG emissions" means total facility GHG emissions emitted from on-site operations and primary energy generation in a calendar year.

- "Carbon intensity" is the amount of GHG in CO2e emitted per "functional unit" or unit output (e.g., mass, volume, or other measurement of product) in an industrial process for normalized emissions and calculated on a life cycle basis. Carbon intensity per product and facility is to be substantiated through Life Cycle Analysis (LCA).

- "Low-carbon material" is a material that either has lower carbon intensity itself or enables a lower carbon intensity.[49]

[49] "Industrial Decarbonization Roadmap," U.S. Department of Energy, September 2022, https://www.energy.gov/sites/default/files/2022-09/Industrial%20Decarbonization%20Roadmap.pdf.

- "On-site" refers to an eligible facility's property boundary

- A "baseline" is an evaluation at a certain point in time at an operating facility.

- A "benchmark" is an assessment relative to an industry-standard best practice representing commercially available off-the-shelf technology, referred to as "state-of-the-art." The benchmark should be justified and documented using widely recognized U.S. and/or international reference documents.[50]

- "Energy Intensity" refers to the amount of energy input required to generate a unit output of a facility (BTU/$ or BTU/MT of output).

DOE aims to maximize GHG emission reductions and prioritizes projects in the highest emitting, hardest-to-abate industries where rapidly deployed decarbonization technologies can have the greatest impact: iron, steel, steel mill products, aluminum, cement, concrete, glass, pulp, paper, industrial ceramics, chemicals, and other energy intensive industrial processes.

AOI 2 is targeting solutions that are technically proven TRL (7-9) at relevant commercial scale and are commercially viable. DOE's Industrial Decarbonization Pathways to Commercial Lift-Off Reports[51] provide examples of cost-effective and technically mature solutions across eight major subsectors.

Facilities funded through this FOA have an opportunity to provide thought leadership in emissions reductions throughout U.S. manufacturing. As such, proposed projects are strongly encouraged to use facility-specific, material/product-specific cradle-to-gate Type III (third-party verified) Environmental Product Declarations (EPDs) to report embodied emissions, in line with the specifications found in EPA's interim determination for the Buy Clean initiative for those relevant products.[52]

[50] Widely recognized U.S. and international reference documents include, but are not limited to, U.S. Environmental Protection Agency Available and Emerging Technologies for Reducing GHG Emissions; U.S. DOE National Laboratory Reports on World Energy Intensity Best Practices (and similar); International Energy Agency Best Practice Technologies; European Union Integrated Pollution Prevention and Control Best Available Techniques; refereed journal articles, etc.

[51] *PATHWAYS TO COMMERCIAL LIFTOFF REPORTS*. (n.d.). Energy.gov.

[52] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf

Proposed projects are also strongly encouraged to consider the ways in which their efforts can help enable standard setting for the U.S. industrial sector, including, but not limited to, increased transparency in (EPDs), and sound business cases for decarbonized technology.

For reference, the National Renewable Energy Laboratory Materials Flows through Industry modeling tool, the National Energy Technologies Laboratory LCA of Energy Technology and Pathways, and Techno-economic, Energy, & Carbon Heuristic Tool for Early-Stage Technologies (TECHTEST)[53] provide examples of the types of analysis and considerations that should be included in application narratives and calculations.
DOE encourages applicants to leverage common approaches and data structures where possible, such as those in the Federal LCA Commons.

Objective: The overall objectives for this AOI is to reduce GHG emissions in the U.S manufacturing sector through substantial reductions in existing facilities and new builds that result in low carbon materials.

While the focus of this FOA is on GHG emissions reductions, other pollutants and wastes are also relevant considerations for the projects and awards. These may include criteria air pollutants,[54] hazardous air pollutants,[55] and other pollutants or wastes subject to federal, state, or local regulations due to their ability to produce harmful environmental and health effects in the areas surrounding industrial facilities.

Projects under AOI 2 are expected to maintain parity or reduce energy intensity with commercially available state-of-the-art technology unless otherwise justified by enabling deeper decarbonization, e.g., process electrification in preparation for a clean grid. Fundamentally, projects should not substantially increase the use of energy onsite, without an overall lifecycle benefit.

Similarly, proposed projects under AOI 2 are expected to reduce environmental lifecycle emissions and not increase environmental burdens to local communities. DOE will prioritize projects that lead to a reduction in environmental impact.

[53] https://www.energy.gov/eere/iedo/techno-economic-energy-carbon-heuristic-tool-early-stage-technologies-techtest-tool
[54] "Criteria Air Pollutants," U.S. Environmental Protection Agency, last updated August 2022, https://www.epa.gov/criteria-air-pollutants.
[55] "Hazardous Air Pollutants," U.S. Environmental Protection Agency, last updated February 2022, https://www.epa.gov/haps.

This AOI contains two (2) subtopics: AOI 2a and 2b.

AOI 2a includes projects to re-equip an existing facility with equipment to reduce GHG emissions substantially below the GHG emissions under current best practices, in accordance with BIL 40209 Section (a)(6)(A)(ii).
AOI 2b includes projects to establish new, re-equip, or expand existing manufacturing or recycling facilities to produce materials that result in substantially lower carbon intensity compared to an appropriate industry benchmark. These "low-carbon materials" by their comparatively lower carbon intensity to their conventional alternatives, are property that will result in lower greenhouse gas emissions, in accordance with BIL 40209 Section (a)(1)(I).

Collectively, both of these types of projects are considered "Industrial Decarbonization" projects under this FOA and included under AOI 2.

Subtopic AOI 2a: **Re-equip an existing industrial or manufacturing facility with equipment designed to substantially reduce the greenhouse gas emissions of that facility through the installation of:**

- Low- or zero-carbon process heat systems;
- Carbon capture, transport, utilization and storage systems;
- Technology relating to energy efficiency and reduction in waste from industrial processes; or
- Any other industrial technology that significantly reduces greenhouse gas emissions such as:
    - electrification,
    - use of alternative feedstocks or fuel switching that incorporates, or is "ready" for, no emissions fuels (e.g. hydrogen blended fuels or hydrogen ready system with a reasonable pathway to access clean hydrogen),
    - material efficiency or substitutions,
    - or changes to process unit operations and/or chemistry.

Projects proposed under AOI 2a **must** demonstrate a minimum total annual GHG emissions reduction of **at least 5,000 metric tons of CO2e/yr.**[56]

[56] Based on 20% of the US Environmental Protection Agency's Greenhouse Gas Reporting Program threshold of 25,000 MT CO2e.

Proposed projects **should** demonstrate a project cost benefit of **<$2000/metric ton of CO2e/yr.** If the cost benefit metric cannot be reasonably achieved, applicants must provide a clear explanation of why and how the proposed project aligns to the goals of the FOA and will have substantial impact that justifies DOE funding.

The cost benefit metric is related to the specific proposed project cost and is not comparable to other marginal cost of abatement analysis, as it does not include operational costs or consider the lifetime operations of the facility. The cost benefit target is the overall cost of the proposed project (federal and non-federal share) compared to the emissions impact and a measure to ensure maximum impact of federal funding to achieve the goals of the FOA. The target is based on analysis of available data on similar types of emissions reductions projects.

For AOI 2a, DOE will prioritize projects with:

1) higher total projected annual GHG emissions reductions compared to baseline operations (MT CO_2e/yr);
2) lower ratio of project cost to GHG abated or avoided per year ($/MT CO_2e/yr)); and
3) greater reductions in the product carbon intensity compared to appropriate industry benchmarks, with a preference for projects that use cradle-to-gate Type III EPDs to report embodied emissions and that result in products in the lowest 20 percent of embodied greenhouse gas emissions when compared to similar products, in line with EPA's interim determination for what constitutes "substantially lower" embodied emissions for the Buy Clean initiative for those relevant materials.[57]

Proposed projects for AOI 2a impacts should be aligned to reduce direct facility emissions (e.g., Scope 1 emissions in the GHG Protocol)[58] and emissions from energy inputs generated beyond the facility fence-line (e.g., scope 2 emissions in the GHG Protocol)[59]. Applicants to AOI 2a must complete all relative Sections in the 40209 Application Data Sheet and Workbook (refer to Section IV.D.xxiv.).

[57] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf
[58] Greenhouse Gas Protocol, Homepage | GHG Protocol
[59] Greenhouse Gas Protocol, Homepage | GHG Protocol

DOE's Industrial Decarbonization Pathways to Commercial Lift-Off Reports[60] provide examples of cost-effective and technically mature solutions across eight major subsectors.

Subtopic AOI 2b: **Establish a new, or re-equip, or expand a manufacturing or recycling facility that produces materials that result in substantially lower carbon intensity compared to an appropriate industry benchmark and are not derived from a primary feedstock of palm fatty acid distillates or fossil fuels including coal, natural gas, and petroleum.**

Examples include but are not limited to:

- cement, concrete or components such as supplementary cementitious materials;
- iron and steel;
- aluminum;
- glass;
- ammonia or
- organic chemicals,

These materials are eligible as "other advanced energy property designed to reduce greenhouse gas emissions" pursuant to a determination under 42 U.S.C. § 18742(a)(1)(I). Facilities producing these materials have been placed in this AOI, rather than in the AOI with other clean manufacturing projects eligible under 42 U.S.C. § 18742(a)(1), because of their importance to industrial decarbonization and the selection criteria they naturally share with AOI 2a.

Proposed projects **should** reduce carbon intensity on a life cycle basis **by at least 30%** compared to an appropriate industry benchmark. If the carbon intensity metric cannot be reasonably achieved, applicants must provide a clear explanation of why and how the proposed project aligns to the goals of the FOA and will have substantial impact that justifies DOE funding (such as magnitude of the overall potential annual emissions avoided).

Proposed projects **should** demonstrate a project cost benefit of **<$2000/metric ton of CO2e/yr.** If the cost benefit metric cannot be reasonably achieved, applicants must provide a clear explanation of why and how the proposed project aligns to the goals of the FOA and will have substantial impact that justifies DOE funding.

[60] *PATHWAYS TO COMMERCIAL LIFTOFF REPORTS.* (n.d.). Energy.gov.

The cost benefit metric is related to the specific proposed project cost and is not comparable to other marginal cost of abatement analysis, as it does not include operational costs or consider the lifetime operations of the facility. The cost benefit target is the overall cost of the proposed project (federal and non-federal share) compared to the emissions impact and a measure to ensure maximum impact of federal funding to achieve the goals of the FOA. The target is based on analysis of available data on similar types of emissions reductions projects.

For AOI 2b, DOE will prioritize projects with:

1) greater reductions in carbon intensity compared to appropriate industry benchmarks, with a preference for projects that use cradle-to-gate Type III EPDs to report embodied emissions and that result in materials in the lowest 20 percent of embodied greenhouse gas emissions when compared to similar materials, in line with EPA's interim determination for what constitutes "substantially lower" embodied emissions for the Buy Clean initiative for those relevant materials.[61];

2) lower ratio of total project cost to the reduction in carbon intensity ($/(MT CO2e/kg of material); and

3) higher total projected annual avoided emissions (the reduction in carbon intensity multiplied by the facility annual production level).

DOE will consider all responsive project proposals and will seek to construct a diversified portfolio focused on low carbon material production in combination with other funding opportunities and incentives.

Proposed projects for AOI 2b impacts should be aligned to reduce direct facility emissions (e.g. Scope 1 emissions in the GHG Protocol)[62] and emissions from electricity consumed that is generated offsite (e.g. scope 2 emissions in the GHG Protocol) and may also need to consider scope 3 emissions for an accurate accounting[63]. Applicants to AOI 2b must complete all relative Sections in the 40209 Application Data Sheet and Workbook (refer to Section IV.D.xxiv.).

[61] https://www.epa.gov/system/files/documents/2023-01/2022.12.22%20Interim%20Determination%20on%20Low%20Carbon%20Materials%20under%20IRA%2060503%20and%2060506_508.pdf
[62] Greenhouse Gas Protocol, Homepage | GHG Protocol
[63] Greenhouse Gas Protocol, Homepage | GHG Protocol

Proposed projects under AOI 2b may have a material output from the facility that is directly lower carbon intensity or may be a part of a supply chain for a carbon intensive material. If the product of the facility is a part of the supply chain for a carbon intensive material, the reductions need to be shown on an appropriate lifecycle basis compared to an appropriate industry benchmark. Applicants must show the total annual GHG emissions reduction impact for the final product with demonstrated offtake agreements and/or engineering specifications to validate the calculated carbon intensity reduction impact. For example, if a proposed project will make a lower carbon supplementary cementitious material (SCM) as a substitute for carbon intensive clinker, the applicant must demonstrate that the SCM will be used and result in a lower carbon intensity cement or concrete.

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):

- Applications that fall outside the parameters specified in Sections I.B., I.C., or III.A. of the FOA, including applications from firms that do not qualify as eligible entities, applications for projects that do not take place in eligible energy communities, and applications that do not propose production or recycling of eligible advanced energy property or the substantial reduction in GHG emissions as defined pursuant to BIL Section 40209 and this FOA.
- Applications for proposed technologies that are not based on sound scientific principles (e.g., violates the laws of thermodynamics).
- Applications that are focused on research, development, or pilot-scale activities.
- Applications that propose the purchase or donation of land in the scope of the federal award or as part of the proposed cost share contribution.
- Applications that propose the value of previously acquired equipment as cost share.
- Applications that do not have a substantial impact on securing domestic clean energy supply chains or reducing greenhouse gas emissions.

D. Community Benefits Plan: Job Quality and Equity

To support the goal of building a clean and equitable energy economy, 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).[64, 65] 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.D.iii. for the Community Benefits Plan content requirements.

E. Authorizing Statutes

The programmatic authorizing statute is:

Section 40209 of the BIL (codified at 42 U.S.C. § 18742).

Awards made under this announcement will fall under the purview of 2 CFR Part 200 as amended by 2 CFR Part 910.

[64] The Justice40 initiative, established by E.O. 14008, sets a goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities. The Justice40 Interim Guidance provides a broad definition of disadvantaged communities (page 2): https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf.

[65] Pursuant to E.O. 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021, and the Office of Management and Budget's Interim Justice40 Implementation Guidance M-21-28 and MN-23-09, DOE recognizes disadvantaged communities as identified by the White House Council of Environmental Quality's Climate and Economic Justice Screening Tool (CEJST), located at https://screeningtool.geoplatform.gov/. DOE's Justice40 Implementation Guidance is located at https://www.energy.gov/sites/default/files/2022-07/Final%20DOE%20Justice40%20General%20Guidance%20072522.pdf.

F. Notice of Bipartisan Infrastructure Law–Specific Requirements

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

- Reporting, tracking, and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Requiring all of the iron, steel, manufactured goods, and construction materials used in the infrastructure activities of applicable projects are produced in the U.S.;
- 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;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- 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 $425 million of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making approximately 5-25 awards under this FOA. Individual awards may vary between $2,000,000 and $100,000,000 which is as follows:

Area of Interest	Anticipated Number of Awards		Anticipated Minimum Award Size for Any One Individual Award (Fed Share)	* Anticipated Maximum Award Size for Any One Individual Award (Fed Share)	Approximate Total Federal Funding Available for All Awards	Anticipated Period of Performance (months)
1) Clean Energy Manufacturing and Recycling	2-10		*$2,000,000*	*$100,000,000*	$125,000,000	36
	*** Small Awards*	*1-7*	*$2,000,000*	*$10,000,000*		
	*** Large Awards*	*1-3*	*$10,000,000*	*$100,000,000*		
2) Industrial Decarbonization	3-15		$2,000,000	$100,000,000	$300,000,000	36
	*** Small Awards*	*2-12*	*$2,000,000*	*$10,000,000*		
	*** Large Awards*	*1-3*	*$10,000,000*	*$100,000,000*		

*Applications that propose a DOE share in excess of the maximum limits will not be evaluated and will be considered noncompliant to the FOA.

** For reference, since the range of anticipated individual minimum and maximum award size (Federal Share) is so large ($2,000,000 - $100,000,000), the DOE is providing transparency that Applicants may propose what is considered a "smaller" proposal(s) ranging from $2,000,000 - $10,000,000 but may also propose what is considered a "larger" proposal(s) ranging from $10,000,000 - $100,000,000, as well. Regardless of the proposed award "size," the DOE can only estimate the "anticipated number of awards" of which the small and large award sizes shall receive. Regardless of the proposed "size," all applications are subject to the same Merit Review Criteria listed in Section V.A.ii. of the FOA. The DOE does not assist Applicants with decisions regarding proposed award size as it lies solely with the Applicant.

Therefore, DOE may issue awards in one, multiple, or none of the AOIs and subcategories (e.g. small / large) as proposed in the chart above.

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 run up to 36-months in length, comprised of one or more budget periods. ***The Awardees must complete their projects not later than three years after the date of receipt of federal funds***.[66] 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.xiv.

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.

Note: Applicants who previously submitted Concept Paper(s) and/or Application(s) that were not funded under other DOE FOAs, are eligible to apply as long as the Concept Papers and/or Applications are aligned with the current goals, eligibility requirements, etc. of 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 U.S. government.

i. Cooperative Agreements

DOE generally uses cooperative agreements to provide financial and other support to prime recipients. DOE anticipates that Cooperative agreements will be issued under this FOA.

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.

[66] BIL § 40209(d)(1)(A).

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

ii. Funding Agreements with Federally Funded Research and Development Center (FFRDCs)[67]

In most cases, FFRDCs are funded independently of the remainder of the project team. The FFRDC then executes an agreement with any non-FFRDC project team members to arrange work structure, project execution, and any other matters. Regardless of these arrangements, the entity that applied as the prime recipient for the project will remain the prime recipient for the project. See Section III.E.i.

[67] FFRDCs are public-private partnerships that conduct research for the U.S. government. A listing of FFRDCs can be found at http://www.nsf.gov/statistics/ffrdclist/.

III. Eligibility Information

A. Eligible Applicants

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.

i. Restricted Eligibility

The proposed prime recipient must be a small- or medium-sized manufacturing firm as defined by BIL Section 40209[68]. At the time of the application, applicants must provide a "Required Eligibility Certification Form and Addendum" to demonstrate they meet the following eligibility criteria:

1. Principal business of the prime recipient falls within the North American Industry Classification System (NAICS) codes 31-33;
2. Gross annual sales of less than $100,000,000;
3. Fewer than 500 employees at the plant site of the manufacturing firm; and
4. Annual energy bills that total more than $100,000 but less than $2,500,000.

In meeting the eligibility criteria above, the prime recipient is defined to include its affiliates, as affiliation is defined in 13 CFR § 121.702(c).

5. The proposed project must be located in:
    (a) a census tract in which a coal mine closed after December 31, 1999;
    (b) a census tract in which a coal-fired electricity generating power plant unit closed after December 31, 2009; or
    (c) a census tract immediately adjacent to (a) or (b).

Regarding Eligibility Certification:

At the time of Full Application, a prime applicant will be required to submit a "*Required Eligibility Certification Form and Addendum*" which will certify and demonstrate that an applicant is eligible.

For further details, an Applicant should utilize the details and instructions set forth in *Section IV.D.xxiv. and Appendix F.*

[68] BIL § 40209(a)(3)

Regarding Census Tract:
To assist potential applicants in identifying eligible project locations, DOE has made a map showing relevant coal mine and coal-fired electricity generating power plant unit closures, as well as immediately adjacent census tracts. Potential applicants can access this map under Program Resources here: Advanced Energy Manufacturing and Recycling Grants | Department of Energy.

There may be instances where a qualified census tract is not represented in the Mapping Tool. As part of the Concept Paper content requirements set forth in Section IV.C., an applicant must provide, "the project location, including the address of the project location and the census tract(s) of the project location". Should an applicant receive a Concept Paper Notification which discourages the Concept Paper based on the proposed census tract location, an applicant must submit a "Census Tract Evidence of Filing Addendum" during the Full Application phase. A determination of eligibility regarding the proposed census tract location will be provided through the "Full Application Notification" process.

If applicable, an applicant must utilize the "*Census Tract Evidence of Filing Addendum*" instructions set forth above and in *Section IV.D.xxii.*

See *Section VI.A.* for further details regarding Award Notices.

ii. Individuals

U.S. citizens and lawful permanent residents are eligible to apply for funding as a prime recipient or subrecipient.

iii. Prioritization of Firms Owned or Controlled by Members of Underserved Communities

Priority will be given to firms at least 50% owned or controlled by members of underserved communities, as that term is defined in Executive Orders 13985 and 14020.[69] This priority will be implemented as a program policy factor.

Per Section V.C.i., of the FOA, the Selection Official may consider implementing program policy factors for a variety of reasons in determining which Full Applications to select for award negotiations. Program policy factors may only be utilized towards applications that were deemed responsive, compliant, and technically acceptable.

[69] Executive Orders (EO) 13985 and Executive Orders (EO) 14020

Applications from firms owned or controlled by members of underserved communities are highly encouraged.

iv. 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. Institutions of higher education;
2. For-profit entities;
3. Nonprofit entities; and
4. 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 U.S., or Federally recognized Indian Tribe; have majority domestic ownership and control; and have a physical place of business in the U.S..

DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient.

The National Energy Technology Laboratory (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 U.S. 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.

v. 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 50% of the total project costs[70] ***for demonstration projects***.[71] The cost share must come from non-federal sources unless otherwise allowed by law.

To help applicants calculate proper cost share amounts, DOE has included a cost share information sheet and sample cost share calculation as Appendix A to this FOA.

DOE understands that projects selected under this FOA may require the use of existing data. For purposes of this FOA, DOE will consider data that is commercially available at an established market price to be an allowable cost under the project (either as DOE share or non-federal cost share) but DOE will not consider in-kind data (e.g., data, owned by an entity, that is not routinely sold commercially but is instead donated to the project and assigned a value) to be an allowable cost under the project, including as Recipient cost share.

[70] Total project costs is the sum of the government share, including FFRDC costs if applicable, and the recipient share of project costs.
[71] 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.

Estimation methods used by the Recipient to assign a value to in-kind data cannot be objectively verified by DOE and therefore will not be accepted by DOE as an allowable cost under any project selected from this FOA. Consequently, DOE will not recognize in-kind data costs in any resulting approved DOE budget.

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 entire project is met.

iii. Cost Share Types and Allowability

Every cost share contribution must be allowable under the applicable federal cost principles, as described in Section IV.I.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 U.S. government did not provide the funding to the state or local government.

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

- Revenues or royalties from the prospective operation of an activity beyond the project period;
- Proceeds from the prospective sale of an asset of an activity;
- Federal funding or property (e.g., federal grants, equipment owned by the U.S. government); or
- 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 U.S. 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.

vi. Cost Share Payment

DOE requires prime recipients to contribute to the cost share amount during each billing period over the life of the award. Specifically, the prime recipient's cost share for each billing period must always reflect the cost share ratio negotiated by the parties for that billing period (i.e., the total amount of cost sharing on each invoice when considered cumulatively with previous invoices must reflect, at a minimum, the cost sharing percentage negotiated).

In limited circumstances, and where it is in the government's interest, the DOE Contracting Officer may approve a request by the prime recipient to meet its cost share requirements on a less frequent basis than the agreed billing period, such as monthly or quarterly. Regardless of the interval requested, the prime recipient must be up to date on cost share at each interval. Such requests must be sent to the Contracting Officer during award negotiations and include the following information: (1) a detailed justification for the request; (2) a proposed schedule of payments, including amounts and dates; (3) a written commitment to meet that schedule; and (4) such evidence as necessary to demonstrate that the prime recipient has complied with its cost share obligations to date. The Contracting Officer must approve all such requests before they go into effect.

C. Compliance Criteria

Concept Papers and Full Applications must meet all compliance criteria listed below or they will be considered noncompliant. MESC will not review or consider noncompliant submissions.

All Concept Papers must:

- Comply with the applicable content and form requirements listed in Section IV. of the FOA;
- Include all required documents;
- Be successfully uploaded to: S3 eXCHANGE, including clicking the "Submit" button; and
- Be submitted by the deadline stated in the FOA.

All Full Applications must:

- Submit a compliant Concept Paper;
- Comply with the maximum DOE share of the Individual Award Size in Section II.A of the FOA;
- Comply with the applicable content and form requirements listed in Section IV. of the FOA;
- Include all required documents, including the Required Certification Form and Addendum and Census Tract Evidence of Filing Addendum (if applicable);
- Be successfully uploaded in/to S3 eXCHANGE, including click 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 S3 eXCHANGE, submissions submitted after the applicable deadline, or incomplete submissions.

Applicants are strongly encouraged to submit their Concept Papers and Full Applications at least 48 hours in advance of the submission deadline. Under normal conditions (i.e., at least 48 hours before the submission deadline), applicants should allow at least one (1) hour to submit a Concept Paper or Full Application. Once the Concept Paper or Full Application is submitted in S3 eXCHANGE, 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 Concept Paper or Full Application 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

A review of all submitted documents and information is performed to determine if the submissions are responsive to the FOA requirements.

All submitted information and documents must meet all of the Responsiveness Criteria listed below to be eligible for review or the submission will be considered non-responsive. DOE will NOT review or consider non-responsive submissions.

Full Applications are deemed responsive if:

- The application meets the technical requirements as described in the "Areas of Interest / Objectives" contained in Section I.B of the FOA; and
- The Applicant/application meets the Eligibility Criteria in Section III. of the FOA.

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

Only compliant/responsive applications will be eligible for a comprehensive merit review.

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:

a. *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.

b. *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.

c. *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.

d. *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.

e. *Limit on FFRDC Effort*
The scope of work to be performed by the FFRDC may not be more significant than the scope of work to be performed by the applicant.

F. Limitation on Number of Concept Papers and Full Applications Eligible for Review

An entity may submit more than one Concept Paper and Full Application to this FOA, provided that each application describes a unique, scientifically distinct project and provided that an eligible Concept Paper was submitted for each Full Application.

G. Questions Regarding Eligibility

DOE will not make eligibility determinations for potential applicants prior to the date on which applications to this FOA must be submitted. The decision whether to submit an application in response to this FOA lies solely with the applicant.

IV. Application and Submission Information

A. Application Process

The application process includes two submission phases: a Concept Paper phase, and a Full Application phase. **Only applicants who have submitted a responsive and compliant Concept Paper will be eligible to submit a Full Application**.

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" 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. Footnotes and endnotes are counted toward the maximum page requirement;
- A **control number** will be issued when an applicant begins the S3 eXCHANGE application process. The control number must be included with all application documents. Specifically, the control number must be prominently displayed on the upper right corner of the header of every page and included in the file name (i.e., *Control Number_Applicant Name_Full Application*);
- Page numbers must be included in the footer of every page; and
- 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.

i. Additional Information on S3 eXCHANGE

S3 eXCHANGE is designed to enforce the deadlines specified in this FOA. The "Apply" and "Submit" buttons will automatically disable at the defined submission deadlines.

Applicants who experience technical difficulties with submission PRIOR to the FOA deadline should contact the S3 eXCHANGE helpdesk for assistance (InfrastructureExchangeSupport@hq.doe.gov). The S3 eXCHANGE helpdesk and/or the S3 eXCHANGE System Administrators will assist applicants in resolving issues.

B. Application Forms

To access application forms and instructions available on S3 eXCHANGE, go to https://infrastructure-exchange.energy.gov and select the appropriate funding opportunity number.

Note: The maximum file size that can be uploaded to the S3 eXCHANGE website is 50MB. Files larger than 50MB cannot be uploaded and hence cannot be submitted for review. If a file is larger than 50MB 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 50MB.

C. Content and Form of the Concept Paper

Each Concept Paper must be limited to a single project. The Concept Paper must conform to the requirements listed below, including the stated page limits.

Section	Page Limit	Description
Cover Page	1 page maximum	The cover page should include the project title, the specific announcement AOI being addressed, both the technical and business points of contact, names of all team member organizations, the project location(s), and any statements regarding confidentiality.
Project Description	3 pages maximum	Applicants are required to describe succinctly: **Project Scope and Objectives:** The overall scope and project objectives. (AOI 2) Industrial Decarbonization projects should include a description of the technical approach, the initial estimated baseline for current or industry best practices, and the proposed emissions reductions resulting from the project.

		Project Output: The product to be manufactured or recycled, the targeted annual capacity of the proposed project,[72] and any information or data to support the selection of the targeted annual manufacturing or recycling capacity such as demand and market size. **Engineering and Construction:** The conceptual design for the construction/modification of the facility of the purposed project. **Impacting Domestic Industry:** The impact the project will have in: (i) bolstering the relevant domestic supply chain and; (ii) decarbonizing the domestic industrial sector, including evidence to support the targeted annual reduction. **Risks and Mitigation:** Any key technical risks associated with the proposed project and mitigation strategies identified to address those risks. **Impact of DOE Funding:** The impact of DOE funding on the proposed project; how the DOE funding is necessary to achieve project objectives relative to other public and private sectors; and how, if successful, the project will unlock follow-on funding from the private sector to continue and/or expand operation at the end of federal funding. **Innovation:** Any innovative aspects of the project such as whether the project will, as compared to the current market baseline, measurably: (i) reduce the production cost, pollution, and/or carbon intensity of the project output and; (ii) improve the performance of the project output in the end market as measured by, for example, reducing the levelized cost of energy stored or generated.[73]
Community Benefits Plan: Job Quality and Equity	1 page maximum	Applicants are required to succinctly describe their approach to the Community Benefits Plan, addressing the four core elements:

[72] The annual manufacturing / recycling capacity of the proposed project represents projected (not peak) annual product output of the project. The applicant will be required to justify the claimed production by providing yield loss and throughput data wherever applicable and possible. In particular, applicants should discuss previous production experience on similar or identical production equipment.

[73] "Levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) represent the average revenue per unit of electricity generated or discharged that would be required to recover the costs of building and operating a generating plant and a battery storage facility, respectively, during an assumed financial life and duty cycle." See U.S Energy Information Administration, Levelized Costs of New Generation Resources in the Annual Energy Outlook, (March 2022).

		• Community and labor engagement leading to negotiated agreements; • Investing in job quality and workforce continuity; • Advancing diversity, equity, inclusion, and accessibility; and • Contributing to the Justice40 Initiative goal that 40% of the overall benefits of climate and clean energy investments flow to disadvantaged communities.
Addendum	1 page maximum	Applicants are required to succinctly describe the qualifications, experience, and capabilities of the proposed project team, including: • Whether the Lead Project manager [LPM] and project team have the skill and expertise needed to successfully execute the project plan; • Whether the applicant has prior experience which demonstrates an ability to perform tasks of similar risk and complexity; • Whether the applicant has worked together with its teaming partners on prior projects or programs; • Whether the applicant has adequate access to equipment and facilities necessary to accomplish the effort and/or clearly explain how it intends to obtain access to the necessary equipment and facilities; and • Applicants may provide graphs, charts, or other data to supplement their Project Description, including, for example, a summary schematic (e.g., Process Flow Diagram) that depicts the project, a high-level Gantt Chart for the schedule, and/or a chart depicting market analysis of the relevant energy supply chain and the project's intended impact on the supply chain.
Concept Paper Worksheet	4	Applicants are required to complete the Concept Paper Worksheet located at: https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES".

DOE makes an independent assessment of each Concept Paper based on the criteria in Section V. of the FOA. DOE will encourage a subset of applicants to submit Full Applications. Other applicants will be discouraged from submitting a Full Application. Discouraged applicants can still submit a Full Application but would be well-served by a careful review of the rationale for discouragement. See Section VI.A.

D. Content and Form of the Full Application

Applicants must complete the following application forms found on the S3 eXCHANGE website at https://infrastructure-exchange.energy.gov/.

Applicants will have approximately 55 days from receipt of the Concept Paper Encourage/Discourage notification on S3 eXCHANGE to prepare and submit a Full Application. Regardless of the date the applicant receives the Encourage/Discourage notification, the submission deadline for the Full Application remains the date and time stated on the FOA cover page.

All Full Application documents must be marked with the control number issued to the applicant.

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. Below is an overview of each of the application components, followed by a detailed definition and overview of each component.

Component	File Format	Page Limit	File Name
Technical Volume	PDF	30	ControlNumber_LeadOrganization_TechnicalVolume
Community Benefits Plan: Job Quality and Equity	PDF	N/A	ControlNumber_LeadOrganization_CBP
Community Benefits Plan Budget Justification	MS Excel	N/A	ControlNumber_LeadOrganization_CBP_Budget_Justification
Environmental Considerations Summary	PDF	N/A	ControlNumber_LeadOrganization_EnvSum
Resumes	PDF	3 pages each	ControlNumber_LeadOrganization_Resumes
Letters of Commitment (includes Offtake Arrangements)	PDF	1 page each	ControlNumber_LeadOrganization_LOCs
Community Partnership Documentation	PDF	10	ControlNumber_LeadOrganization_PartnerDocs
Statement of Project Objectives	MS Word	10	ControlNumber_LeadOrganization_SOPO
SF-424: Application for Federal Assistance	PDF	N/A	ControlNumber_LeadOrganization_App424
Budget Justification Workbook	MS Excel	N/A	ControlNumber_LeadOrganization_Budget_Justification
Summary for Public Release	PDF	1	ControlNumber_LeadOrganization_Summary

Summary Slides	MS PowerPoint	4	ControlNumber_LeadOrganization_Slide
Subrecipient Budget Justification	MS Excel	N/A	ControlNumber_LeadOrganization_Subrecipient_Budget_Justification
Authorization from Cognizant Contracting Officer for FFRDC, if applicable	PDF	N/A	ControlNumber_LeadOrganization_FFRDCAuth
SF-LLL Disclosure of Lobbying Activities	PDF	N/A	ControlNumber_LeadOrganization_SF-LLL
Foreign Entity Waiver Requests and Foreign Work Waiver Requests, if applicable	PDF	N/A	ControlNumber_LeadOrganization_Waiver
Current and Pending Support	PDF	N/A	ControlNumber_LeadOrganization_CPS
Location(s) of Work	Excel	N/A	ControlNumber_LeadOrganization_LOW
Transparency of Foreign Connections	PDF	N/A	ControlNumber_LeadOrganization_BusinessSensitive_TFC
Potentially Duplicative Funding Notice	PDF	N/A	ControlNumber_LeadOrganization_PDFN
Census Tract Evidence of Filing Addendum (*if applicable*)	PDF	N/A	ControlNumber_LeadOrganization_ Census Tract.pdf
Required Eligibility Certification Form and Addendum	PDF	3	ControlNumber_LeadOrganization_EligibilityCert
Underserved Business Ownership Certification Form (*if applicable*)	PDF	N/A	ControlNumber_LeadOrganization_UnderservedBusinessCert
40209 Application Data Sheet and Workbook	Excel	N/A	ControlNumber_LeadOrganization_Workbook
Gantt Chart (*Optional*)	PDF	N/A	ControlNumber_LeadOrganization_Gantt
Life Cycle Assessment (*Optional*)	PDF	10	ControlNumber_LeadOrganization_LCA

Note: The maximum file size that can be uploaded to the S3 eXCHANGE website is 50MB. See Section IV.B.

Detailed guidance on the content and form of each application component is provided below. Per Section V., and Section V.D.ii., Pre-Selection Interviews, and Section V.D.iii., Pre-Selection Clarifications, MESC reserves the right to request, from applicants, additional information required to verify and/or validate technical or economic claims made in application materials.

ii. Technical Volume

The Technical Volume must conform to the following content and form requirements. This volume must address requirements described in Section I.B. and the technical review criteria as discussed in Section V. of the FOA.

Save the Technical Volume in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_TechnicalVolume".

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 30 pages***, including the cover page, table of contents, and all citations, charts, graphs, maps, photos, or other graphics, and must include all information in the table below. The applicant should consider the weighting of each of the technical review criteria (see Section V. of the FOA) when preparing the Technical Volume.

The Technical Volume should clearly describe and expand upon information provided in the Concept Paper.

Technical Volume Content Requirements	
SECTION/PAGE LIMIT	**DESCRIPTION**
Cover Page	The cover page should include the project title, the specific FOA AOI being addressed, both the technical and business points of contact, names of all team member organizations, names of project managers, Senior/Key Personnel and their organizations, the project location(s), and any statements regarding confidentiality.
Project Overview (Approximately 30% of the Technical Volume)	The Project Overview should include the information set forth below, as well as clear, unambiguous and quantified data and measure to support any included analysis and projected impacts. Information provided in the Project Overview should be consistent with and supported by other sections of the application including the Business Development & Management Plan; Engineering, Procurement, Construction, & Operations Documents, Workplan, Integrated Project Schedule; and Community Benefits Plan. **Scope and Objectives:** The overall scope and objectives of the proposed project, including the ways in which the proposed project location and related infrastructure, skilled workforce, community benefits, etc. will contribute to the success of the project.

Project Location: A detailed description of the project location including the address of the project location, the census tract(s) of the project location, and a map of the project location.

Project Output: A detailed description of the product to be produced (and, for AOI 1, the eligible SAEP category the product falls under) and the targeted annual manufacturing / recycling capacity of the proposed project. The annual manufacturing / recycling capacity of the proposed project must represent projected (not peak) annual product output of the project. The applicant will be required to justify the claimed projected production by providing yield loss and throughput data wherever applicable and possible. In particular, applicants should discuss previous production experience, including current production scale (quantity/year), operational run time, and provide the scaling factor from current to proposed production resulting from the project. Applicants should define and justify the technology readiness level (See Appendix D), on similar or identical production equipment.

For GHG emissions reduction projects, applicants should describe and provide evidence that the proposed solution has been commercially used or successfully demonstrated at commercial scale (include information on the size of facility, operational run time, and the scaling factor from that reference case to the proposed project).

Impact on GHG Emissions: Applicants should provide data and analysis to demonstrate any measurable impact the project is anticipated to have in avoiding or reducing air pollutants or anthropogenic emissions of greenhouse gases at an existing industrial facility.

NOTE: Applicants applying under AOI 2 must go into greater detail regarding their impact on GHG Emissions, and must:

- define at what scale the proposed strategy for GHG reduction has been proven and utilized in industry;
- complete the 40209 Application Data Sheet and Workbook as described in Section IV.D.xxiv;
- provide and justify the selection of an industry benchmark for GHG emissions and their proposed project's GHG emission reductions relative to that benchmark;
- for new facilities, applicants must clearly describe the baseline state-of-the-art best practices the applicant is utilizing for emissions comparison;
- if the product of the facility is a part of the supply chain for a carbon intensive material, show the GHG reduction impact for the project on a lifecycle basis for the final product with demonstrated offtake and/or engineering specifications to validate the calculated GHG reduction impact.

	Market Overview: An overview of the market for the project output, including the market segment(s) the project will support, the stability of that market segment(s), the growth potential of that market segment(s), and the competitiveness of the product in the market segment. **Domestic Supply Chain Impact:** A detailed analysis accompanied by clear, unambiguous, and quantified measures of the impact that the project will have in bolstering the relevant domestic supply chain, including analysis of how the project will impact or improve the current domestic supply chain baseline by increasing capacity to meet current or projected demand and/or by onshoring capacity to enhance domestic security, resilience, and economic competitiveness. **Innovation:** Any innovative aspects of the project, such as whether the project demonstrates potential to, as compared to the current market baseline, (i) measurably reduce the production cost, reduce environmental impact (water, waste, air pollution) or carbon intensity of the product and/or (ii) measurably improve the performance of the product in the end market as measured by, for example, reduction of the levelized cost of energy stored or generated. **Economic Development Impact:** A specific and detailed analysis of how the project will identify, make use of, enhance, and/or create regional assets that will support regional economic growth; how the project will catalyze economic growth in alignment with specific state, local, regional, and/or Tribal economic development plans; and how the project will otherwise contribute to long-term economic recovery, revitalization, and diversification and economic revitalization in the vicinity of the project (including, for example, as indicated by clear, unambiguous, and quantified measures of, for example, projected tax revenue increases). **Constraints on Resources:** The applicant should identify any potential long-term constraints the project will have on the community's access to natural resources (e.g., water) and Tribal cultural resources. If applicable, 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, drought, wildfire, and floods.
Business Development & Management Plan (Approximately 20% of the Technical Volume)	The Business Development & Management Plan should address the items listed below, as well as any other pertinent information to understand the proposed business, management, and financial plans.

Information provided in the Business Development & Management Plan should be consistent with and supported by other sections of the application, including the Project Overview; Engineering, Procurement, Construction, & Operations Documents; Workplan; Integrated Project Schedule; and Community Benefits Plan.

BUSINESS PLAN

Site Selection: The plan should include (i) the rationale for selection of the project site; (ii) evidence of control over the site or the plan to establish control over the site; (iii) information on condition of the site, including potential or existing environmental contamination and remediation progress if applicable; (iv) specific information about how the project will leverage existing facilities and regional assets, including regional economic development plans, infrastructure, workforce, and workforce training assets, to foster commercial viability, sustainability, and future growth of the project; and (v) discussion of climate impacts and extreme weather patterns (such as tornadoes, hurricanes, heat and freezing temperatures, drought, wildfire, and floods) that may impact the resilience/sustainability of the project.

Feedstock and Supply Arrangements: The plan should provide analysis of the relevant markets for and plans to ensure an adequate supply of feedstock and essential supplies needed for successful operation of the project. This analysis should include the strategy to leverage existing U.S. supply chains and support growth of domestic capabilities in keeping with U.S. job creation goals. If available, the application should provide letters of commitment or term sheets for prospective or current feedstocks and other suppliers.

Market Analysis: The plan should include an analysis of the current and projected target market for the project, including the sufficiency of the existing target market(s) for the project; the stability of the target market; prevailing trends in the target market; projected market growth; the competitiveness of the project output in the target market (including price and the strength of current and potential competitors); the market entry strategy (e.g., product differentiation, barriers to entry, intellectual property rights, first mover advantage, etc.) if applicable; and the plan for marketing the project output; and any potential for sale of the project output into multiple markets. The plan should also include justification for revenue and cost projections (price and volume) for the project production.

Offtake Arrangements: Offtake contracts, term sheets or letters of commitment or term sheets from binding or prospective customers and/or offtakers should be provided, if available.

These should be submitted as a separate attachment in S3 Exchange (see Section IV.D.vii. "Letters of Commitment" for more information). The business plan should indicate the percentage of annual manufacturing / recycling capacity that is covered by binding offtake arrangements.

For AOI 2 and production of lower carbon materials, applicants must demonstrate through offtake agreements, industry recognized standards and specifications, or other documentation that there is a demand for the proposed products and the produce will be a new formulation for a material, that it has been validated in relevant end use applications.

The proposed project must establish the potential to be cost competitive with commercially available state-of-the-art technology, or a justification must be provided to show there would be broad market uptake at a premium cost. In addition, the applicant must explicitly identify their strategy for managing commercial risk exposure. For example, if the proposed project is to electrify a process heating operation, then the applicant would indicate they will manage rate structure risks through energy storage technologies, power purchase agreements or other contracts, or process operation flexibility. These strategies and their impacts on costs and operations should be evident through the business case discussion.

Growth Plan: The plan should demonstrate the strength of the project's economic viability, sustainability, and potential growth beyond DOE funding, including the ability to achieve follow-on investments beyond the award performance period. The plan should include a calculated Return on Investment (ROI) to determine the profitability of the proposed project.

MANAGEMENT PLAN

- **Organizational Structure:** The plan should include an organizational chart of key entities and senior/key personnel for the project. The organizational chart and related description should show the prime recipient and any major project partners, subsidiaries, affiliates, parent organizations, or joint ventures associated with the project as well as an explanation of the legal structure (e.g., corporation, partnership, LLC) and the roles and responsibilities held by each organization. The level of participation by project participants should be supported by letter(s) of commitment and integrated into the Workplan. The application should also identify any foreign owned entities involved in the project and how the applicant will request a waiver, if needed, per Section III.A.v.

Management: The plan should describe management and operations strategies for the project including ability to track scope, cost, schedule progress, and changes. The management plan should include the names, positions or titles, and percentage of time that will be dedicated to the project by senior/key personnel. If any key management and staff are not expected to spend 100 percent of their time executing on the project, the plan should provide a brief description of their other responsibilities or other activities outside of the project.

Experience: The plan should detail the unique capabilities and expertise of the applicant and any major project partners or subrecipients, debt or equity sponsors, contractors/vendors (if known), and any other counterparty that the applicant believes will enable the project to be successful. In addition, the plan should summarize the prior experience of the applicant and any major project partners in similar undertakings to the proposed project.

Pending Investigations: The plan should provide a summary of any pending or threatened (in writing) action, suit, proceeding, or investigation, including any action or proceeding by or before any governmental authority, that relates to the senior/key personnel, and the status of any appeals.

PROJECT FINANCIAL PLAN

The financial plan should include the proposed budget and spend plan covering both DOE funding and non-federal cost share. It may reference the Budget Justification Workbook (see Sections IV.D.xi and IV.D.xiv). It should include: (i) the amount of cost share proposed in proportion to the Federal award requested; (ii) the proposed cost share and initial capital stack, including the availability, credibility, and risk/terms of non-federal cost share sources; (iii) the plan and schedule to achieve long-term financial viability, beyond federal funding; and (iv) the ability to provide contingency funding to meet unexpected project cost overruns, including the source of such funding (See Appendix G).

Total Project Cost: Applications should include a current Total Project Cost (TPC) estimate that covers the entirety of the project, including construction, capital, labor, and finance costs associated with the Community Benefits Plan, and other cost categories as appropriate for individual project plans. Cost estimates should meet industry standards for the size and complexity of the proposed project and should explain what assumptions were used and why they were deemed appropriate. DOE may require use of standard cost estimating assumptions, including escalation assumptions in future project activities. An overview of the project's current TPC estimate should be included in the Financial Plan. Supporting itemized data can be provided as part of the "Budget Justification Workbook" (see Sections IV.D.xi and IV.D.xiv). During award negotiations, DOE may conduct a third-party review of the project TPC.

	Applicant and Project Partners: In line with the Management Plan section, 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 is expected to contribute debt or equity financing and any person, organization, or entity who owns or will own five percent (5%) or more of the facility funded by the project. The plan should indicate the applicant, 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 plan should describe the financial strength of the applicant and major project partners, as well as the project's financial significance to the prime recipient and major project partner involved. Information to justify claims of financial strength of the applicant could include vertical, horizontal, or ratio analyses (liquidity ratios, solvency ratios, profitability ratios) over the past 3+ years. **Other Federal Support:** Federal financing, such as grants, or loan guarantees from federal agencies, cannot be leveraged by applicants to provide the required project cost share or to otherwise support the same scope of the project. However, an award under this FOA does not preclude the prime recipient or subrecipients from obtaining other forms of federal support for projects with separate scope. **Non-Federal Support:** The plan should identify other non-federal governmental (including state or local) incentives or other assistance on which the proposed project relies, including grants, and loan guarantees to support the financing, construction, and operation of the project. 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 clawback and the circumstances under which a clawback could occur.
Engineering, Procurement, Construction, and Operations (Approximately 15% of the Technical Volume)	Applications should include initial versions of Engineering, Procurement, Construction and Operations (EPC&O) project documents. These documents should be consistent with data, information, and assumptions provided in other sections of the application, including the Project Summary, Business Development, and Technical Data and Analysis sections. The EPC&O project documents should provide detailed technical data and/or information to show how the targeted annual manufacturing / recycling capacity of the proposed project could be met.

	DOE expects applications will reflect a spectrum of project maturities. Applicants should define and justify the Front-End Loading (FEL) level of the proposed project and at a minimum, the applications should include a comprehensive conceptual design that reflects initial engineering studies such as pre-FEED or FEED (Front End Engineering Design) studies. Engineering information should provide a conceptual description of the type of technology, system integration, and connective infrastructure needed. Key facilities, systems, and technical components should be described in detail. Key technologies should be described, as well as a path to secure any required intellectual property rights if applicable. Projects selected for award negotiation will further develop this set of documents. Engineering designs will evolve and be revised during project negotiations of the project and will be monitored and reviewed as part of Go/No-Go decisions between budget periods.
Risk Analysis and Mitigation (Approximately 10% of the Technical Volume)	DOE expects award recipients to understand and actively manage risks. The applicant should provide a comprehensive Risk Management Plan (RMP) that is accompanied by a corresponding risk register that can be used for ongoing risk management. The RMP should describe commercial, technical, construction, schedule, regulatory, permitting, safety, scale-up, infrastructure, financial, management, organizational, and market-related risks. It should also include consideration of climate impacts and extreme weather patterns (such as tornadoes, hurricanes, heat and freezing temperatures, drought, wildfire, and floods); supply chain risks (including supply chain visibility, single points of failure, timely procurement, and inventory redundancy); and any long-term constraints the project will have on the community's access to natural resources (e.g., water) and Tribal cultural resources, and, if applicable, a long-term cleanup strategy that ensures communities and neighborhoods remain healthy and safe and not burdened with cleanup costs and waste. Each identified risk in the RMP should be clearly described, including its probability of realization, potential impacts, and proposed mitigations. As appropriate, identified risks should be incorporated into other project documentation, such as execution schedules, cost estimate maturity, and contingency. The risk management plan and risk register will be revised and updated as needed throughout the project life cycle. At a minimum, they will be reviewed and assessed for accuracy and adequacy as part of each budget period. Where and when appropriate, quantitative risk analyses may be required and subsequently incorporated into relevant risk management plans and contingency evaluations and will be used to inform negotiations with DOE.

Workplan (Approximately 25% of the Technical Volume)	The Workplan should include a summary of the Project Objectives, Technical Scope, Work Breakdown Structure (WBS), and Project Schedule. A detailed SOPO is separately requested but must align with this Workplan. The Workplan should contain the following information: **Project Objectives**: The applicant should provide a clear and concise (high-level) statement of the goals and objectives of the project as well as the expected outcomes. **Technical Scope Summary:** The applicant should provide a summary description 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. The applicant should describe the specific expected end result of each performance period, including milestones in the Community Benefits Plan. **WBS and Task Description Summary:** The Workplan should describe the work to be accomplished and how the applicant will achieve the milestones, will accomplish the final project goal(s), and will produce all deliverables. The Workplan is to be structured with a hierarchy of performance period (approximately annual), task and subtasks, which is typical of a standard WBS for any project. The Workplan shall contain a concise description of the specific activities to be conducted over the life of the project. The description shall be a full explanation and disclosure of the project being proposed (i.e., a statement such as "we will then complete a proprietary process" is unacceptable). It is the applicant's responsibility to prepare an adequately detailed task plan to describe the proposed project and the plan for addressing the objectives of this FOA. Task descriptions should be well defined and provide detail around roles and responsibilities for any members of the project team, including project partners (if applicable). The summary provided should be consistent with the SOPO. **Integrated Project Schedule (IPS):** The applicant should provide a schedule for the entire project, including task and subtask durations, milestones, and Go/No-Go decision points in alignment with the SOPO. The applicant should provide clear detail of project schedule for facility construction/modification (as applicable) and include operations and production to be conducted prior to project completion. It is the expectation that prior to award completion, the facility will be completed, and operations will be conducted. The initial IPS should include all major project activities and milestones (consistent with the overall Workplan), including engineering, design, procurement construction, and Community Benefits Plan activities. This IPS will be revised, expanded, and updated in future project activities. By the end of award negotiation, it is expected that the IPS will be execution ready and reflect comprehensive schedule risk and uncertainty analyses.

	During each budget period, projects will report actual progress against their execution schedule or schedules as part of regular project management reporting requirements. The applicant may choose to separately submit a Gantt chart in order to display their project schedule. For further guidance, refer to Section IV.D.xxv. **Note:** If an applicant is selected for negotiations, the project will be subject to a National Environmental Policy Act (NEPA) review that will be conducted prior to the DOE deciding whether to issue the award. **Earned Value Management Plan:** The applicant shall include the sufficiency of the Earned Value Management Plan to use total project costs and schedule to enable timely and accurate project performance monitoring and prediction as a means to make project adjustments. **Buy America Requirements for Infrastructure Projects**: Within the first two pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the U.S.. See Appendix C for applicable definitions and other information to inform this statement.

iii. 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 should consider pursuing multiple agreements.

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 Community Benefits Plan Template is available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES".

For the Community Benefits Plan:

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

It must be submitted in PDF format using the following naming convention for the title: "Control Number_LeadOrganization_CBP."

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.

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, including communities that work with Disadvantaged Communities as defined for purposes of the Justice40 Initiative. Facilitating community input and holding applicant's accountable to communities to improve 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:
    i) wages, benefits, and other worker supports to be provided benchmarking against prevailing wages for construction and local median wages for other occupations;
    ii) 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
    iii) efforts to engage employees in the design and execution of workplace safety and health plans.

b. It is the policy of the U.S. 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. Applicant 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. DEIA: The Community Benefits Plan must include a section describing how 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 partnering with firms at least 50% owned or controlled by members of underserved communities, including veteran-owned businesses, for contractor support needs;

B) To fill open positions for the DOE-funded project, partner with workforce training organizations serving underrepresented communities and those facing systemic barriers to quality employment, such as those with disabilities, women, returning citizens, opportunity youth, and veterans;

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. Applicants should use the Climate and Economic Justice Screening Tool (CEJST), a geospatial mapping tool by the White House Council on Environmental Quality, to identify geographically defined disadvantaged communities. Applicants may also discuss potential benefits to Federally

Recognized Tribes or Tribal entities, which are recognized as disadvantaged communities, whether or not they have land.[74]

Specifically, the Justice40 Initiative section must include:

1. Identification of applicable disadvantaged communities to which the anticipated project benefits will flow. Any project which has clear impact to Indian Tribes is required to submit documents demonstrating Tribal support (refer to Section IV.D.viii. for further details on Community Partnership Documentation).

2. Identification of Applicable Benefits that are quantifiable, measurable, and trackable, including, at a minimum, a discussion of the relevance of each of the eight 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 energy burden; (2) a decrease in environmental exposure and burdens; (3) an increase in access to low-cost capital; (4) an increase in high-quality job creation, the clean energy job pipeline, and job training for individuals; (5) increases in clean energy enterprise creation and contracting (e.g., firms at least 50% owned or controlled by members of underserved communities); (6) increases in energy democracy, including community ownership; (7) increased parity in clean energy technology access and adoption; and (8) an increase in energy resilience. Applicants should also discuss how the project will maximize all of the benefits listed in #4 above.

3. 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 identified in the Justice40 Initiative section, or another way; whether the benefits will flow during project development or after project completion, and how will applicant track benefits delivered.

4. A discussion of anticipated negative and cumulative environmental impacts on ,as identified by the CEJST disadvantaged communities.

[74] For additional information, see M-23-09 (whitehouse.gov).

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 may also use 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.

iv. Community Benefits Plan Budget Justification

Applicants must provide a separate budget justification identifying the Community Benefit 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.

Save the Community Benefits Plan Budget Justification in a Microsoft Excel file using the following naming convention for the title: "ControlNumber_LeadOrganization_CBP_Budget_Justification".

v. Environmental Considerations Summary

See Appendix E for information to include in the Environmental Considerations Summary.

Save the Environment Considerations Summary in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_EnvSum.pdf" and click on "Add Optional Other Attachment" to attach.

vi. Resumes

A resume provides information reviewers can use to evaluate an individual's relevant skills and the experience of the key project personnel. Applicants must submit a resume (*limited to three pages*) 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 10 years or since age 18, whichever period is shorter.

Save the resumes in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_Resumes".

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 one page.

Save the letters of commitment in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_LOCs".

An Applicant will utilize the details set forth in Section IV.D.ii. - Technical Volume: Content Requirements – Business Development & Management Plan – "Offtake Arrangements" to build *Offtake Letters of Commitment*. Multiple Letters may be submitted.

Each letter must not exceed 1 page.

Save each Offtake Agreement or Letter of Commitment in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_OT 1_LOC", "ControlNumber_LeadOrganization_OT 2_LOC", etc.

Note: Per the above Section IV.D.iii. "Community Benefits Plan", the Letters of Support are separate from the Letters of Commitment.

Letters of Support are endorsements in support of the project. It is desired that Letters of Support are from entities that have a substantive role in the project and are impacted by its outcome. Letters of Support are not included in the 12-page limitation of the required "Community Benefits Plan: Job Quality and Equity".

Letters of support or endorsement for the project from entities that do not have a substantive role in the project will not be 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 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 a partner's letterhead outlining the planned partnership and signed by an officer of the entity, a Memorandum of Understanding, or another 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.

Any project which has clear impacts to Indian Tribes is required to submit documents demonstrating Tribal support. This includes Federally recognized Indian Tribes, Alaska Native regional and village corporation(s). These requirements still apply when the impacted Tribe(s) is the applicant.

Documents may include either:

- A letter of support from Tribal leadership. The letter should be signed by an authorized representative of the Indian Tribe, typically an elected official (e.g., Chief, Chairperson, Governor, Nation Representative, President, Chief Executive Officer, Chief Financial Officer, Speaker of the Council, Speaker of the Congress). The signer must be holding their position at the time the award is open for applications.
- A Tribal Council Resolution, Board resolution, or act from a relevant legislative body of the Tribe, expressing support for the project.

Applicants are encouraged to reference or include any applicable community benefits agreements in the Tribal support documentation, and to integrate the Tribal support documentation in the community benefits plan as appropriate (covered in Section [IV.D.iii]). Applicants are encouraged to reach out to Tribes as early as possible in the application process to give Tribes ample time to evaluate and respond.

The following resources may be useful to help determine if a project may impact Indian Tribes and the appropriate contacts at Tribes. These resources are not exhaustive, and many Tribes have reserved rights which extend beyond their Tribal lands, or are covered within treaties, statutes, or case-law. Applicants are encouraged to do additional research:

- Map of Indian Lands: https://bia-geospatial-internal.geoplatform.gov/indianlands/
- Tribal Treaties Database: https://treaties.okstate.edu/
- Directory of federally recognized Tribes and Tribal leaders: https://www.bia.gov/service/tribal-leaders-directory
- Best Practices for Identifying and Protecting Tribal Treaty Rights, Reserved Rights, and other similar rights in federal regulatory actions: https://www.bia.gov/sites/default/files/dup/inline-files/best_practices_guide.pdf

Applicants are required to document any efforts taken to identify any potential impacts to Indian Tribes, including Alaska Native regional and village corporations, Indian lands, Alaska Native regional and village land, traditional homelands, Tribal rights, or historic or sacred sites. This includes any correspondence with Indian Tribes and Alaska Native regional or village corporation(s). These documents should be available on request to DOE.

An applicant's failure to submit a letter of support, when required as described above, may constitute grounds for determining an application ineligible, non-responsive to the FOA, not subject to further review and/or not otherwise subject to selection or award.

Any application that may potentially impact Indian Tribe(s), including Alaska Native regional and village corporations, may be shared with the potentially impacted Tribes. Applicants should include a Notice of Restriction on Disclosure and Use of Data identifying any business sensitive, trade secrets, proprietary, or otherwise confidential information. Such information shall be used or disclosed only for evaluation of the application or to determine whether the proposed project affects an Indian Tribe(s).

Each letter must not exceed one page.

In total, the partnership documentation *must not exceed 10 pages.*

Save the partnership documentation in a single PDF file using the following naming convention for the title:
"ControlNumber_LeadOrganization_PartnerDoc".

ix. Statement of Project Objectives (SOPO)

Applicants must complete a SOPO. A SOPO template is available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES".

The SOPO, including the Milestone Table, *must not exceed 10 pages* when printed using standard 8.5" x 11" paper with 1" margins (top, bottom, left, and right) with font not smaller than 12-point (except in figures or tables, which may be 10-point font).

Save the SOPO in a single Microsoft Word file using the following naming convention for the title: "ControlNumber_LeadOrganization_SOPO".

x. SF-424: Application for Federal Assistance

Applicants can find the 424 application at the following location:
https://www.grants.gov/forms/forms-repository/sf-424-mandatory-family
under "SF424 Mandatory Form".

The list of certifications and assurances in Field 21 can be found at:
http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms, under Certifications and Assurances.

Note: The dates and dollar amounts on the SF-424 are for the complete project period and not just the first project year, first phase, or other subset of the project period.

Save the SF-424 in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_424".

xi. Budget Justification Workbook

Applicants must complete the Budget Justification Workbook, available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES" Applicants must complete each tab of the Budget Justification Workbook for the project, 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.

Save the Budget Justification Workbook in a single Microsoft Excel file using the following naming convention for the title: "ControlNumber_LeadOrganization_Budget_Justification".

xii. 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 includes:

- the name of the applicant;
- the lead project manager/principal investigator(s);
- the project title;
- the project location;
- 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), such as:
  - Output of the facility;
  - Reduction in GHG emissions; and
  - Number of jobs created/retained;
- major participants and partners (for collaborative projects); and
- the project's commitments and goals described in the Community Benefits Plan.

This document must not include any proprietary or business-sensitive information, as DOE may make it available to the public after selections are made. The summary *must not exceed one 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: "ControlNumber_LeadOrganization_Summary".

xiii. Summary Slide

Applicants must provide four slides summarizing the proposed project. The Summary Slide template is available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES" and must include the following information and may include illustrations, charts, maps, and/or tables:

- SLIDE ONE:
  - Project title;
  - Name of prime recipient
  - Lead Project Manager, and senior/key personnel information;
  - Proposed project duration (years and months);
  - Requested DOE Funds and proposed applicant cost share; and
  - Key project goals or metrics

- SLIDE TWO:
  - Eligibility information regarding prime recipients, as set forth in Section III.A.i (gross annual sales, number of employees at existing site(s), and annual energy costs);
  - Statement of ownership or control by a member of an underserved community as set forth in Section III.A.iii., if applicable; and
  - Project location, including address and eligible census tract as set forth in Section III.A.i.

- SLIDE THREE:
  - Description of the product to be produced;
  - Annual manufacturing /recycling capacity;
  - Annual GHG reduction (as both a percent reduction and total tons avoided)
  - Statement of the supply chain supported
  - Any key innovative aspects of the project

- SLIDE FOUR:
    - Community Benefits Plan, including an overview of actions in each of the four pillars and including specific information about direct and indirect high quality job creation in disadvantaged communities.
    - Specific information about direct and indirect high quality job creation for dislocated workers who were previously employed in manufacturing, coal power plants, or coal mining.

Save the Summary Slide in a single Microsoft PowerPoint file using the following naming convention for the title: "ControlNumber_LeadOrganization_Slide".

xiv. 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% of the total work effort, whichever is less.

Note: FFRDCs/NLs are treated as subrecipients and should be included on the "Contractual" line item of the Prime Budget. FFRDCs must provide a separate Subrecipient Budget Justification if they meet, or are in excess of the threshold noted above.

The budget justification must include the same justification information described in the "Budget Justification" section above.

Save each subrecipient budget justification in a Microsoft Excel file using the following naming convention for the title: "ControlNumber_LeadOrganization_Subrecipient_Budget_Justification".

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: "ControlNumber_LeadOrganization_FFRDCAuth".

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"

Applicants can find the "SF-LLL" Form at the following location: https://www.grants.gov/forms/forms-repository/sf-424-mandatory-family under "Disclosure of Lobbying Activities (SF-LLL)" 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.

Save the SF-LLL in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_SF-LLL".

xvii. Waiver Requests (if applicable)

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.

Foreign Work Waiver Request

As set forth in Section IV.I.iii., all work for projects selected under this FOA must be performed in the U.S.. 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: "ControlNumber_LeadOrganization_Waiver".

xviii. 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 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 period of performance of the award should circumstances change which impact the responses provided above.

The information may be provided in the approved common disclosure format available at Common Form for Current and Pending (Other) Support (nsf.gov)

Save the Current and Pending Support in a single PDF file using the following Naming convention for the title:
"ControlNumber_LeadOrganization_CPS".

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 physically relocate to the foreign state for the above purpose. Some programs allow for or encourage continued employment at U.S. 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.

Senior/key personnel – An individual who contributes in a substantive, meaningful way to the development or execution of a project proposed to be carried out with a DOE award.[75]

xix. Locations of Work

Applicants must complete the Locations of Work Documentation, available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ which can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES".

The applicant must complete the supplied template by listing the city, state, and zip code + 4 digits for each location where project work will be performed by the prime recipient or subrecipient(s).

Save the completed template as a Microsoft Excel file using the following naming convention for the title: "Control Number_LeadOrganization_LOW."

[75] 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.

xx. 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. U.S. National Laboratories, domestic government entities, and institutions of higher education are only required to respond to items 1, 2 and 9, and if applying as to serve as the prime recipient, must provide complete responses for project team members that are not U.S. National Laboratories, domestic government entities, or institutions of higher education.

1. Entity name, website address, and physical 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, including the People's Republic of China;
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 U.S. 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 your entity, including all equity interests (including 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; and
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.

DOE reserves the right to request additional or clarifying information based on the information submitted.

Save the Transparency of Foreign Connections information in a single PDF file using the following convention for the title:
"ControlNumber_LeadOrganization_BusinessSensitive_TFC."

xxi. Potentially Duplicative 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:
"ControlNumber_LeadOrganization_PDFN."

xxii. Census Tract Evidence of Filing (if applicable)

Should a potential qualified census tract not be represented in the Mapping Tool, an applicant must provide evidence that demonstrates the closure should be included as an eligible location. An applicant must provide clear and credible data or resources so that the DOE can straightforwardly affirm eligibility.

There is no page restriction. If applicable, save the Census Tract Evidence of Filing in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_CensusTract.pdf"

xxiii. Required Eligibility Certification Form and Addendum

A prime applicant will be required to submit a "Required Eligibility Certification Form and Addendum" which will certify and demonstrate that an applicant is eligible **at the time of Full Application.**

An applicant must complete the "Required Eligibility Certification Form and Addendum" located in Appendix F.

The Required Eligibility Certification Form, including the Addendum, *must not exceed 3 pages* when printed using standard 8.5" x 11" paper with 1" margins (top, bottom, left, and right) with font not smaller than 12-point (except in figures or tables, which may be 10-point font).

Save the Required Eligibility Certification Form in a single PDF file using the following convention for the title:
"ControlNumber_LeadOrganization_EligibilityCert.pdf"

xxiv. Underserved Business Ownership Certification Form (if applicable)

Priority will be given to firms at least 50% owned or controlled by members of underserved communities, as that term is defined in Executive Orders 13985 and 14020. This priority will be implemented as a program policy factor. Per Section V.C.i., of the FOA, the Selection Official may consider implementing program policy factors for a variety of reasons in determining which Full Applications to select for award negotiations. Program policy factors may only be utilized toward applications that were deemed responsive, compliant, and technically acceptable.

Applications from firms owned or controlled by members of underserved communities are highly encouraged.

In order to be eligible for this priority, a prime applicant will be required to submit an "Underserved Business Ownership Certification Form" which will demonstrate and certify that an applicant is an entity At least 50% owned or controlled by a member of an underserved community.

An "Underserved Business Ownership Certification Form" template is located in Appendix H.

Save the Underserved Business Ownership Certification Form in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_UnderservedBusinessCert".

xxv. 40209 Application Data Sheet and Workbook

All Applicants are required to complete the appropriate sections of the 40209 Application Data Sheet and Workbook specific to the applicable AOI of the proposed project.

Applicants must complete the 40209 Application Data Sheet and Workbook, which is available on S3 eXCHANGE at https://infrastructure-exchange.energy.gov/ and can be found under the respective FOA # and Section titled "APPLICATION FORMS AND TEMPLATES".

Save the 40209 Application Data Sheet and Workbook in a single Microsoft Excel filing using the following naming convention for the title: "ControlNumber_LeadOrganization_Workbook".

xxvi. Gantt Chart (optional separate attachment)

Applicants may choose to use a separate file with a Gantt Chart to serve as a display of the integrated project schedule of the proposal. There is no Template nor page limit and is completely optional. It shall be noted that the chart may be used in the Merit Review process.

Save the Gantt Chart in a single PDF file using the following naming convention for the title:"ControlNumber_LeadOrganization_Gantt"

xxvii. Life Cycle Assessment (optional separate attachment)

Applicants may choose to use a separate file with a Life Cycle Assessment to serve as a reference to the proposed project impact of GHG reductions. There is no Template provided. There is a 10-page limit and submission is completely optional. It shall be noted that the Life Cycle Assessment may be used in the Merit Review process.

Save the Life Cycle Assessment in a single PDF file using the following naming convention for the title: "ControlNumber_LeadOrganization_LCA"

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 list of examples of information that may be required:

- Personnel proposed to work on the project and collaborating organizations (See Section VI.B.xx. Participants and Collaborating Organizations);
- Information related to Section III.A.i.;
- Ownership and organizational structure of the prime recipient and subrecipients;
- Justification for, revised modeling and additional supporting information around the GHG emissions reductions estimates and life cycle assessments of products;
- Current and Pending Support (See Sections IV.B.xviii. and VI.B.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
- Cybersecurity Plan;
- Environmental / NEPA Questionnaire;
- Project Management Plan;

- Information related to Foreign National Participation, Foreign Government-Sponsored Talent Recruitment Programs, Foreign Entity Participation, and Foreign Entities of Concern;

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**. 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 in S3 eXCHANGE 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 (selectee) 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 its 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 overrides 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 U.S. (Foreign Work Waiver)

1. Requirement

All work performed under awards issued under this FOA must be performed in the U.S.. 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 U.S. requirement, DOE may deny reimbursement for the work conducted outside the U.S. 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 U.S., 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

If international travel is proposed for your project, please note that your organization must comply with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. § 40118), commonly referred to as the "Fly America Act," and implementing regulations at 41 CFR 301-10.131 through 301-10.143. The law and regulations require air transport of people or property to, from, between, or within a country other than the U.S., the cost of which is supported under this award, to be performed by or under a cost-sharing arrangement with a U.S. flag carrier, if service is available. Foreign travel costs are allowable only with the written prior approval of the Contracting Officer assigned to the award.

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. Build America 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 U.S.; and

- All construction materials used in the infrastructure work are manufactured in the U.S..

Whether a given project must apply this requirement is project-specific and dependent on several factors, such as the recipient's entity type, whether the work involves "infrastructure," as defined in Section 70914 of the BIL, and whether the infrastructure in question is publicly owned or serves a public function.

Applicants are strongly encouraged to consult Appendix C of this FOA to determine whether their project may have to apply this requirement, both to make an early determination as to the need of a waiver, as well as to determine what impact, if any, this requirement may have on the proposed project's budget.

Please note that, based on implementation guidance from the Office of Management and Budget issued on April 18, 2022, the Buy America requirements of the BIL do not apply to DOE projects in which the prime recipient is a for-profit entity; the requirements only apply to projects whose prime recipient is a "non-Federal entity," e.g., a State, local government, Indian tribe, Institution of Higher Education, or nonprofit organization. Subawards should conform to the terms of the prime award from which they flow; in other words, for-profit prime recipients are not required to flow down these Buy America requirements to subrecipients, even if those subrecipients are non-Federal entities as defined above. Conversely, prime recipients which are non-Federal entities must flow the Buy America requirements down to all subrecipients, even if those subrecipients are for-profit entities. 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 to: (1) fulfill the commitments made in its application regarding the procurement of U.S.-produced products and (2) fulfill the commitments made in its application regarding the procurement of other key component metals and domestically manufactured products 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 BIL. 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, U.S. Code commonly referred to as the Davis-Bacon Act (DBA).

Applicants shall provide written assurance acknowledging the DBA requirements above, 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, U.S. Code (Davis-Bacon Act).

Applicants acknowledge that they will comply with all 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 three years after the completion of the project and making those payrolls available to DOE or the U.S. 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 DOE;

(7) Cooperating with any authorized representative of DOL in its 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; and

(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 maintain competency in Davis-Bacon Act compliance. The Contracting Officer will notify the recipient of any DOE-sponsored Davis-Bacon Act compliance trainings. 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.

NOTICE TO APPLICANTS: Applicants should take these requirements into consideration when developing an application as they will be applicable to the Awards stemming from this FOA.

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-mandatory-family) under "Disclosure of Lobbying Activities (SF-LLL)" 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;
5. The applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-federal entities; and

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 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 U.S. 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. As part of the research, technology, and economic security risk review, DOE may contact the applicant and/or proposed project team members for additional information to inform the review.

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 the Davis-Bacon Act 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 U.S. 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, Equal Employment Opportunity:

(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 Guide[76] to gain an understanding of the requirements and possible 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) 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, organizations, and governments. The recipient will be required to provide DOE with advanced written notification of any potential collaboration with foreign entities, organizations, 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, organizations, or government regarding the potential collaboration or negotiating the terms of any potential agreement.

b. Existing collaborations with foreign entities, organizations, and governments. The recipient will be required to provide DOE with a written list of all existing foreign collaborations in which it 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

[76] 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

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 policies and procedures.

V. Application Review Information

A. Technical Review Criteria

i. Concept Papers

Concept Papers are evaluated based on consideration the following factors. All sub-criteria are of equal weight.

Concept Paper Criterion: Overall FOA Responsiveness and Viability of the Project (Weight: 100%)
This criterion involves consideration of the following factors:

- The proposed work, if successfully accomplished, would clearly meet the objectives as stated in the FOA for the AOI identified;
- The applicant clearly describes the proposed project and use of technology, how the project is innovative, and how the benefits of the proposed project and use of technology will advance the current state-of-the-art;
- The applicant has identified high level risks to the project including technical, regulatory and financial aspects with possible mitigation strategies,
- The applicant has shown the impact that MESC funding and the proposed project would have related to the objectives of the FOA; and
- The applicant has the qualifications, experience, capabilities and other resources necessary to complete the proposed project.

ii. Full Applications

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

In assessing projects against the review criteria, the following will be considered: (a) the comprehensiveness, specificity, and accuracy of the information and plans provided; and (b) the reasonableness of assumptions used in making estimations and projections.

Criterion 1 differs for AOI 1 and AOI 2 for this FOA. All other Criteria are the same and apply to both AOIs.

Criterion 1: Technical Merit, Innovation, and Impact (25%) for AOI 1

This criterion **FOR AOI 1** involves consideration of the following factors:

- The technical feasibility of the proposed project to achieve the objectives of the FOA with highest priority for AOI 1 to deliver market-ready SAEP product at the projected annual capacity;
- The extent to which the project resolves important current or projected gaps in secure, resilient domestic clean energy supply chains by increasing domestic availability of the product through recycling or domestic production capacity of the SAEP;
- The extent to which the project supports the security and resilience of domestic clean energy supply chains by (i) using materials sourced from domestic suppliers, (ii) prioritizing materials sourced using high environmental and social standards, (iii) securing binding offtake agreements and Letters of Commitment with domestic entities, (iv) relying on North American intellectual property, and/or (v) where contracts with non-domestic entities are required, working with reliable foreign partners to the greatest extent possible and excluding participation of any foreign entities of concern;
- The level of technical innovation of the project, including the extent to which the project will for the identified SAEP, as compared to the current baselines, (i) reduce cost, (ii) increase yield, (iii) enhance performance, (iv) reduce or avoid anthropogenic greenhouse gas emissions and/or (v) address legacy air, water or other pollution and result in a net environmental benefit;
- The degree to which the proposed project is likely to lead to increased high-quality jobs for (i) workers from disadvantaged communities and (ii) dislocated workers previously employed in manufacturing, coal power plants, and coal mines.
- The quality of the technical project risk identification and mitigation plans.

Criterion 1: Technical Merit, Innovation, and Impact (25%) for AOI 2

This criterion **FOR AOI 2** involves consideration of the following factors:

- The technical feasibility of the proposed project to achieve the objectives of the FOA with highest priority to substantially reduce or avoid anthropogenic greenhouse gas emissions at an existing facility or through production of low carbon materials in a new facility at the projected annual capacity; lower project cost benefit ($/$CO_2$e reduced or $/(MT

CO_2e/kg of material)); and greater reductions in the product carbon intensity compared to industry benchmarks.

- The level of technical innovation of the project, including the extent to which the project will for the facility output, as compared to current baselines, (i) reduce cost, (ii) increase yield, (iii) enhance performance of the product including by reducing the levelized cost of energy or storage[77] in the clean energy market relevant to the product; (iv) reduce energy consumption and/or (v) address legacy air, water or other pollution and result in a net environmental benefit;
- The extent to which the project supports the security and resilience of domestic supply chains by (i) using materials sourced from domestic suppliers, (ii) prioritizing materials sourced using high environmental and social standards, (iii) securing binding offtake agreements and Letters of Commitment with domestic entities, (iv) relying on North American intellectual property, and/or (v) where contracts with non-domestic entities are required, working with reliable foreign partners to the greatest extent possible and excluding participation of any foreign entities of concern;
- The degree to which the proposed project is likely to lead to increased high-quality jobs for (i) workers from disadvantaged communities and (ii) dislocated workers previously employed in manufacturing, coal power plants, and coal mines.
- The quality of the technical project risk identification and mitigation plans.

Criterion 2: Financial and Market Viability (25%) - AOI's 1 and 2

This criterion involves consideration of the following factors:

- The degree to which the application justifies the proposed project's economic viability, sustainability, and potential growth beyond DOE funding, including achieving market liftoff and follow-on investments;
- The extent to which the applicant demonstrates that the project output will be competitive on a sustainable basis based on a data-based market assessment, including with respect to average selling prices, competition, and forward-looking market trends;

[77] As defined by the US Energy Information Administration , "levelized cost of electricity (LCOE) and levelized cost of storage (LCOS) represent the average revenue per unit of electricity generated or discharged that would be required to recover the costs of building and operating a generating plant and a battery storage facility, respectively, during an assumed financial life and duty cycle."

- The extent to which the proposed project is integrated into long-term, place-based, coordinated, and collaborative regional economic development strategies;
- The reasonableness of the proposed project budget and spend plan for the proposed project and objectives, including the level of contingency proposed to address risk;
- The ability to leverage state and local incentives and private financing in addition to DOE funding, including the availability, credibility, capability, strength, and risk/terms of non-federal cost share sources;
- The extent to which the business plan adequately describes the content of and the maturity of key project agreements such as financing, acquisition strategies, power purchase agreements, offtake (sales) agreements, and other relevant project documents; and
- The quality of the identification of financial and market risks and mitigation plans.

Criterion 3: Project Workplan (15%) – AOI's 1 and 2

This criterion involves consideration of the following factors:

- The extent to which the proposed site and facilities are suited for the proposed project, with details around site status and site control status (including letters of commitment, if applicable);
- The overall reasonableness of the project schedule, metrics and proposed Workplan to complete all project objectives within the proposed time period while considering the complexity and risks of the proposed project;
- The adequacy of proposed project management systems including the ability to track scope, cost, and schedule progress and changes;
- The degree to which the task descriptions are clear, detailed, timely, and reasonable;
- The adequacy, reasonableness, and strength of deliverables, metrics, milestones and Go/No-Go decision points as defined in the application and SOPO;
- The soundness of a plan to address environmental, siting, and other regulatory requirements for the project in a timely manner, including evaluation of resilience to climate change;
- The extent to which the Community Benefits Plan is integrated into the project management schedule and provides mechanisms with measurable actions that enable impacts to project direction in a timely manner; and

- The quality of the identification of project execution risks and risk mitigation plans including risks and mitigation strategies to ensure a safe workplace environment

Criterion 4: Management Team and Project Partners (15%) – AOI's 1 and 2

This criterion involves consideration of the following factors:

- The capability of the project team to address all aspects of the proposed work with a high probability of success, including the qualifications, relevant experience and expertise, and time commitment of the individuals on the team;
- The extent of evidence of the project team's and key personnel experience and success in industry and/or in similar projects;
- The level of participation by project participants as evidenced by letter(s) of commitment and how well they are integrated into the Workplan; and
- The degree to which the application defines a project management structure and plan, including clear and appropriate roles for team members, that gives confidence in a high likelihood of success.

Criterion 5: Community Benefits Plan (20%) – AOI's 1 and 2
This criterion involves consideration of the following factors:

Community and Labor 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 affected stakeholders;
- Extent to which the applicant has considered accountability to affected workers, Tribes, and community stakeholders, including those most vulnerable to project activities with a plan to publicly share SMART community benefits plan 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 they are 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 Community Benefits Plan 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 Community Benefits Plan identifies: specific, measurable benefits for disadvantaged communities, how the benefits 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 flow to disadvantaged communities.

B. Standards for Application Evaluation

Applications that are determined to be eligible will be evaluated in accordance with this FOA, by the standards set forth in EERE's Notice of Objective Merit Review Procedure (76 Fed. Reg. 17846, March 31, 2011) 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:

- The extent to which the project would be performed by eligible entities that are at least 50% owned or controlled by members of underserved communities;
- The degree to which the proposed project incorporates access, information, and outreach to potential applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/other Minority Institutions), and partnerships with firms at least 50% owned or controlled by members of underserved communities, including veteran-owned businesses or Indian tribes;
- The degree to which the proposed project collectively represents a diversity of applicant types and sizes of applicant organizations.
- The degree to which the proposed project exhibits technological diversity when compared to the existing DOE project portfolio and other projects selected from the subject FOA;
- The degree to which the proposed project, including proposed cost share, optimizes the use of available DOE funding to achieve programmatic objectives;
- The potential for the project to contribute to a portfolio that shifts an industry or market ecosystem toward a low-carbon product;
- The level of industry involvement and demonstrated ability to accelerate demonstration and commercialization and overcome key market barriers;
- The degree to which the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty;
- The degree to which the proposed project, or group of projects, represent a desired geographic distribution (considering past awards and current applications);
- 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;

- The degree to which the proposed project will employ procurement of U.S. iron, steel, manufactured products, and construction materials;
- The degree to which the proposed project has broad public support from the communities most directly impacted by the project;
- The degree to which the proposed project avoids duplication/overlap with other publicly or privately funded work;
- The degree to which the proposed project supports complementary efforts or projects, which, when taken together, will best achieve the research goals and objectives;
- The degree to which the proposed project enables new and expanding market segments;
- The degree to which the project's solution or strategy will maximize deployment or replication; and
- The degree to which the project promotes increased coordination with nongovernmental entities for demonstration of technologies and research applications to facilitate technology transfer.

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 and risk reviews, 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. below). 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 (see 41 U.S.C. § 2313).

The applicant, at its option, may review information in the entity information domain in 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.

DOE will consider any written comments by the applicant, in addition to the other information in the entity information domain in 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, risk reviews, and the amount of funds available in arriving at selections for this FOA.

E. Anticipated Notice of Selection and Award Negotiation Dates

MESC 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 Concept Papers and 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 in S3 eXCHANGE. The notification letter will state the basis upon which the Concept Paper or the Full Application is ineligible and not considered for further review.

ii. Concept Paper Notifications

DOE will notify applicants of its determination to encourage or discourage the submission of a Full Application. DOE will post these notifications to S3 eXCHANGE. DOE will send a notification letter by email to the technical and administrative points of contact designated by the applicant on the Concept Paper cover page.

Applicants may submit a Full Application even if they receive a notification discouraging them from doing so. By discouraging the submission of a Full Application, DOE intends to convey its lack of programmatic interest in the proposed project. Such assessments do not necessarily reflect judgments on the merits of the proposed project. The purpose of the Concept Paper phase is to save applicants the considerable time and expense of preparing a Full Application that is unlikely to be selected for award negotiations.

A notification encouraging the submission of a Full Application does not authorize the applicant to commence performance of the project.

iii. 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 S3 eXCHANGE. 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.

iv. Successful Applicants (Applicants Selected for Award Negotiations)

Successful applicants will receive written notification that they have been selected for award negotiations.

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 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.I.ii. of the FOA for guidance on pre-award costs.

v. 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, which means 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.

vi. 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. **S3 Funding Opportunity Exchange (eXCHANGE)**
   Register and create an account on S3 eXCHANGE at https://infrastructure-exchange.energy.gov. This account will allow the user to apply to any open MESC FOAs in S3 eXCHANGE.

   To access S3 eXCHANGE, potential applicants must have a Login.gov account. As part of the eXCHANGE registration process, new users will be directed to create an account in Login.gov. Please note that the email address associated with Login.gov must match the email address associated with the eXCHANGE account. For more information, refer to the eXCHANGE Multi-Factor Authentication (MFA) Quick Guide in the Manuals section of eXCHANGE.

   Each organization or business unit, whether acting as a team or a single entity, should use only one account as the contact point for each submission. Applicants must also designate backup points of contact. **This step is required to apply to this FOA.** The eXCHANGE registration does not have a delay; however, **the remaining registration requirements below could take several weeks to process and are necessary for a potential applicant to receive an award under this FOA.**

2. **System for Award Management**
   Register in SAM (https://www.sam.gov). Please update your SAM registration annually.

3. **FedConnect**
   Register in FedConnect (https://www.fedconnect.net). 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.

4. **Grants.gov**
   Register in Grants.gov (http://www.grants.gov) to receive automatic updates when Amendments to this FOA are posted. Please note that Concept Papers and Full Applications will **not** be accepted through Grants.gov.

5. **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 S3 eXCHANGE and 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. A "foreign national" is defined as any person who is not a United States citizen by birth or naturalization. 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.

DOE may elect to deny foreign national's participation in the award. Likewise, DOE may elect to deny a foreign national's access to 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 applicants selected for negotiation 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 that certain analyses must be prepared to complete the NEPA review process (e.g., biological evaluations or environmental assessments), DOE may require the applicant to prepare the analyses, but DOE will remain responsible for the accuracy, contents, and integrity of the analyses in accordance with Sections 102(2)(D) of NEPA, 42 U.S.C. 4332(2)(D). The costs to prepare the necessary analyses may be included as part of the project costs.

Note: If an applicant is selected for negotiations, the project will be subject to a National Environmental Policy Act (NEPA) review that will be conducted prior to DOE deciding whether to issue the award.

vii. Flood Resilience

Applications should indicate whether the proposed project location(s) is within a floodplain, how the floodplain was defined, and how future flooding will factor into the project's design. The base floodplain long used for planning has been the 100-year floodplain, that is, a floodplain with a 1.0 percent chance of flooding in any given year. As directed by Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (2015), Federal agencies, including DOE, continue to avoid development in a floodplain to the extent possible. When doing so is not possible, Federal agencies are directed to "expand management

from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended." The higher flood elevation is based on one of three approaches: climate-informed science (preferred), freeboard value, or 0.2 percent annual flood change (500-year floodplain). EO 13690 and related information is available at https://www.energy.gov/nepa/articles/eo-13690-establishing-federal-flood-risk-management-standard-and-process-further.

viii. 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 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 U.S. [but not foreign corporations]. It includes both for-profit and non-profit organizations.

3. Nondisclosure and Confidentiality Agreements Representations

In submitting an application 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 contactors 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 U.S. 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 U.S. 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.

ix. 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.

x. 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:

1. DOE shares responsibility with the recipient for the management, control, direction, and performance of the project.

2. DOE may intervene in the conduct or performance of work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities.

3. DOE may redirect or discontinue funding the project based on the outcome of DOE's evaluation of the project at the Go/No-Go decision point(s).

4. DOE participates in major project decision-making processes.

xi. 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.

xii. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, 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: advancing 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:
    - Firms at least 50% owned or controlled by members of underserved communities (including Minority Owned Businesses, Woman Owned Businesses, and Veteran Owned 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
- Funding leveraged, follow-on-funding, Intellectual Property (IP) Generation and IP Utilization

xiii. 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 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 application;[78] 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.

[78] A continuation application is a non-competitive application for an additional budget period within a previously approved project period. At least ninety (90) days before the end of each budget period, the recipient must submit its continuation application, which 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.

xiv. 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 U.S. government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the U.S. government would otherwise exceed $20,000, thereby circumventing the required notification 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.

xv. Indemnity

Awards resulting from this FOA will contain the following provision reminding Recipients of DOE's right of indemnification.

The Recipient shall indemnify the Government and its officers, agents, or employees for any and all liability, including litigation expenses and attorney's fees, arising from suits, actions, or claims of any character for death, bodily injury, or loss of damage to property or to the environment, resulting from the project, except to the extent that such liability results from the direct fault or negligence of Government officers, agents, or employees, or to the extent such liability may not be covered by applicable allowable costs provisions.

xvi. 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.

xvii. 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 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.

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.

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

States, local governments, and other public entities may not condition subawards in a manner that would discriminate against or otherwise disadvantage subrecipients based on their religious character.

xix. 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.

xx. 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.xviii.

xxi. Interim Conflict of Interest Policy for Financial Assistance

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)[79] 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 its 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

[79] 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.

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.

xxii. 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 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 (currently FAPIIS). 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.

xxiii. Human Subjects Research

Research involving human subjects, biospecimens, or identifiable private information conducted with DOE funding is subject to the requirements of DOE Order 443.1C, Protection of Human Research Subjects, 45 CFR Part 46, Protection of Human Subjects (subpart A which is referred to as the "Common Rule"), and 10 CFR Part 745, Protection of Human Subjects.

Additional information on the DOE Human Subjects Research Program can be found at: HUMAN SUBJECTS Human Subjects Pr... | U.S. DOE Office of Science (SC) (osti.gov).

xxiv. Cybersecurity Plan

In accordance with BIL section 40126, applicants selected for award negotiations must submit a cybersecurity plan to DOE prior to receiving funding.[80] These plans are intended to foster a cybersecurity-by-design approach for BIL efforts. The Department will 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.

DOE recommends using open guidance and standards, such as the National Institute of Standards and Technology's (NIST) Cybersecurity Framework (CSF) and the DOE Cybersecurity Capability Maturity Model (C2M2).[81] 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.

[80] 42 U.S.C. § 18725

[81] 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).

- 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.[82]

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

xxv. Bonding Requirements

If selected for award negotiations, the selectee must submit documentation supporting compliance with 2 CFR 200.326, Bonding Requirements.

xxvi. Material Supply Plan

If selected for award negotiations, the selectee must submit a Material Supply Plan to DOE within 60 days of notice of selection for award negotiations. The Material Supply Plan must set out the selectee's strategy and approach for materials supply, including a new supply chain for North American and European suppliers, in form and substance satisfactory to DOE. During the life of the award, the recipient must meet the stated objectives set forth in its Material Supply Plan. The recipient must notify the Department of any revisions to the Material Supply Plan. A report on the recipient's progress towards meeting the objectives and milestones set forth in the Material Supply Plan must be included in any continuation application. The Material Supply Plan and any revisions to the plan and all related deliverables must be emailed securely to the point of contact designated by DOE.

xxvii. Technology Maturation Plan

If selected for award negotiations, the selectee must submit a Technology Protection Plan within 60 days of award setting out the selectee's policies and procedures for identifying, accessing, handling, controlling, and releasing the following under the proposed award: (1) the selectee's proprietary information, including non-public technical information, trade secrets and other confidential business information, including but not limited to information, know-how, methods or processes that give the selectee a competitive advantage in the marketplace; (2) information that is subject to U.S. export control laws or

[82] 42 U.S.C. § 18725

regulations; (3) information that has been designated as classified or controlled unclassified information (CUI) by DOE; (4) any other information designated by DOE as sensitive throughout the period of performance. The recipient must meet the stated objectives set forth in its Technology Protection Plan. The recipient must notify the Department of any revisions to the Technology Protection Plan or the proposed security approach. A report on the recipient's progress toward meeting the objectives and milestones set forth in the Technology Protection Plan must be included in any continuation application. The Technology Protection Plan and any revisions to the plan and all related deliverables must be emailed securely to the point of contact designated by DOE. Any DOE and/or National Laboratory review comments or feedback provided to the recipient does not constitute an endorsement or approval of any specific elements within the Technology Protection Plan or the proposed security approach.

Therefore, such feedback should not be referenced or used in marketing or promotional materials.

xxviii. Threat Briefing

Selectees may be required to participate in threat briefing to discuss, at an unclassified level, the current threat environment related to economic espionage, intellectual property theft, insider threats, and other relevant topics.

xxix. Research Technology and Economic Security Officer

Selectees may be required to appoint an employee as a Security Officer who will be responsible for ensuring compliance the terms and conditions related to research, technology, and economic security (RTES).

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 described below. Questions regarding this FOA must be submitted to: MESC_FOA3294@netl.doe.gov no later than three (3) business days prior to the application due date and time. 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. 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 S3 eXCHANGE at https://infrastructure-exchange.energy.gov. **You must first select the appropriate FOA Number (DE-FOA-0003294) to view the questions and answers specific to this FOA**. All questions and answers relating to the content of this FOA will be posted in OCED exchange. Specifically, under the FOA Documents, there will be an Excel file labeled "FOA3294 Q&A" which will contain questions and responses that have been released to date. MESC will attempt to respond to a question within three (3) business days unless a similar question and answer has already been posted on the website.

NOTE: Please be as clear and concise when asking a question about the FOA and be as specific as possible about the AOI to which your question refers. If it is not clear DOE will be required to ask for additional information and clarity on the question to provide an accurate response which will take additional time.

Questions related to the registration process and use of the S3 eXCHANGE website should be submitted to InfrastructureExchangeSupport@hq.doe.gov.

VIII. Other Information

A. FOA Modifications

Amendments to this FOA will be posted on S3 eXCHANGE and the Grants.gov system. However, you will only receive an email when an amendment or a FOA is posted on these sites if you register for email notifications for this FOA in Grants.gov. MESC 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 U.S. 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 U.S. government's right to use the information if it is obtained from another source.

If an applicant chooses to submit trade secrets or business-sensitive, 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 trade secrets or business-sensitive, 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 U.S. 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 containing trade secrets or business-sensitive, proprietary, or otherwise confidential information:

> **Notice of Restriction on Disclosure and Use of Data:**
> Pages [list applicable pages] of this document may contain trade secrets or business-sensitive, 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 agreement 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 trade secrets or business-sensitive, proprietary, or otherwise confidential information must be marked as follows: "Contains Business Sensitive Information, Trade Secrets, or 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 that 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 U.S. 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 U.S. government retains unlimited rights in technical data produced under government financial assistance awards, including the right to distribute to the public.

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.

L. Export Control

The U.S. government regulates the transfer of information, commodities, technology, and software considered to be strategically important to the U.S. 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 U.S. Export Control laws and regulations relating to any work performed under a resulting award.

The selected applicant 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 use *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-07-16 dated May 22, 2007, found at: https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2007/m07-16.pdf

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, nonprofit 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, 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.

P. Informational Webinar

DOE will conduct one informational webinar during the FOA process. It will be held after the initial FOA release but before the due date for Concept Papers.

Attendance is not mandatory and will not positively or negatively impact the overall review of any applicant submissions. The webinar will be open to all applicants who wish to participate. Applicants should refrain from asking questions or communicating information that would reveal confidential and/or proprietary information specific to their project. The webinar date is listed on the cover page of the FOA.

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 terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses "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 million 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 two 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, it is allowable as cost share. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, it is not allowable as cost share. In addition, costs may not be counted as cost share if they are paid by the U.S. 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 they 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 above regulations, other factors may come into play, such as timing of donations and length of the project period. For example, the value of 10 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, or equipment for their company with organizational resources. If the cost of the item or service is reimbursed, 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, and 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. Consult your DOE contact if you have questions 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 incur only 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 U.S. 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 U.S. national and economic security.[83] 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 U.S.; have majority domestic ownership and control; and have a physical location for business operations in the U.S.. 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 U.S. industry and U.S. 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 U.S. 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 U.S. 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.xxi.); and
e. The foreign entity will satisfy other conditions that may be deemed necessary by DOE to protect U.S. 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

[83] See Critical and Emerging Technologies List Update (whitehouse.gov).

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 U.S. economy;
    - How the project will benefit the U.S., including manufacturing, contributions to employment in the U.S. and growth in new markets and jobs in the U.S.;
    - How the project will promote manufacturing of products and/or services in the U.S.;
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 U.S., 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 U.S. (Foreign Work Waiver)

As set forth in Section IV.I.iii., all work funded under this FOA must be performed in the U.S.. To seek a waiver of the Performance of Work in the U.S. 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 U.S..

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 U.S. to perform work outside of the U.S.. A request for a foreign work waiver must include the following:

1. The rationale for performing the work outside the U.S. ("foreign work");
2. A description of the work proposed to be performed outside the U.S.;
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 U.S. 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 U.S., including manufacturing, contributions to employment in the U.S. and growth in new markets and jobs in the U.S.;
7. How the foreign work will promote manufacturing of products and/or services in the U.S.;
8. A description of the likelihood of 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, and information about the entity(ies) involved in the work proposed to be conducted outside the United States (i.e., the entity seeking a waiver and the entity(ies) that will conduct the 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 REQUIREMENTS FOR INFRASTRUCTURE PROJECTS

A. Definitions

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

Construction materials includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives[84]—that is or consists primarily of:

- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Lumber; or
- Drywall.

Infrastructure includes, at a minimum, the structures, facilities, and equipment for, in the U.S., 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. Infrastructure includes facilities that generate, transport, and distribute energy.

Moreover, according to the OMB guidance document:

> When determining if a program has infrastructure expenditures, Federal agencies should interpret the term "infrastructure" broadly and consider the definition provided above as illustrative and not exhaustive. When determining if a particular construction project of a type not listed in the definition above 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. Projects with the former qualities have greater indicia of infrastructure, while projects with the latter quality have fewer. Projects consisting solely of the

[84] BIL, § 70917(c)(1).

purchase, construction, or improvement of a private home for personal use, for example, would not constitute an infrastructure project.

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.

Project means the construction, alteration, maintenance, or repair of infrastructure in the U.S..

B. Buy America Requirements 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 U.S.--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the U.S.;

(2) all manufactured products used in the project are produced in the U.S.—this means the manufactured product was manufactured in the U.S.; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the U.S. 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 materials[85] are produced in the U.S.—this means that all manufacturing processes for the construction material occurred in the U.S..

The Buy America requirements 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 requirements apply to equipment and furnishings, such as movable chairs, desks, and portable 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.

These requirements must flow down to all sub-awards, all contracts, subcontracts, and purchase orders for work performed under the proposed project, except where the prime

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

recipient is a for-profit entity. Based on guidance from the Office of Management and Budget (OMB), the Buy America requirements of the BIL do not apply to DOE projects in which the prime recipient is a for-profit entity; the requirements only apply to projects whose prime recipient is a State, local government, Indian tribe, Institution of Higher Education, or nonprofit organization.

For additional information related to the application and implementation of these Buy America requirements, please see OMB Memorandum M-22-11, issued April 18, 2022: https://www.whitehouse.gov/wp-content/uploads/2022/04/M-22-11.pdf

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 domestically manufactured products that are deemed available in sufficient and reasonably 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 requirements 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 U.S. 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 U.S. will increase the cost of the overall project by more than 25%.

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 PSC and 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 – DEFINITION OF TECHNOLOGY READINESS LEVELS

TRL 1:	Basic principles observed and reported
TRL 2:	Technology concept and/or application formulated
TRL 3:	Analytical and experimental critical function and/or characteristic proof of concept
TRL 4:	Component and/or breadboard validation in a laboratory environment
TRL 5:	Component and/or breadboard validation in a relevant environment
TRL 6:	System/subsystem model or prototype demonstration in a relevant environment
TRL 7:	System prototype demonstration in an operational environment
TRL 8:	Actual system completed and qualified through test and demonstrated
TRL 9:	Actual system proven through successful mission operations

APPENDIX E – ENVIRONMENTAL CONSIDERATIONS SUMMARY

DOE's decision whether and how to distribute federal funds under this FOA is subject to the National Environmental Policy Act (NEPA) (42 U.S.C. 4321, *et seq.*). Your responses will assist DOE in determining the appropriate level of NEPA review (if your proposal is selected for negotiation) and in preparing an environmental impact statement (EIS) or an environmental assessment (EA), if needed. While not all information may be available at the proposal state, please provide as much detail and information as is currently available. Consultation with experts or advisors in your organization to assist with your responses is highly recommended.

1. **Please provide a brief summary of the proposed project**. *Describe proposed activities (not goals and objectives) and specify if this project is part of a larger project or connected to another project.*

2. **Is there ongoing or anticipated U.S. government involvement in any aspect of this project (e.g., funding, permitting, technical assistance, project located on federally administered land)?** *If "yes," please list the agency and describe the nature of the involvement.*

3. **Is the project fully defined (i.e., all sites and activities are known)?** *If "no", please describe the sites and/or activities/tasks that are yet to be defined.*

4. **Complete the table below for each location where the proposed project activities would take place:**

Proposed location (physical address or coordinates)	Setting of the proposed (e.g., urban, industrial, suburban, agricultural, university campus, manufacturing facility, etc.) and the current condition or use of the site	General description of the proposed activities	Land administration (e.g., federal [specify BLM, USFS, etc.], Tribal, state, local, private)

5. **Attach a map showing the location(s) of the proposed project, and a site layout map showing the proposed facilities and associated infrastructure.** *(A GIS shapefile is preferable, if available.)*

6. **Describe new facilities to be constructed, any modifications of existing facilities, and any new infrastructure or facilities necessary for the construction or operation of the proposed project.** *(e.g., access roads, laydown areas, off-site parking areas, railroad links, docks, water outfalls and intakes, pipelines, electrical transmission, waste treatment facilities, etc.)*

7.**Identify and describe any existing, modifications to, or new permits, licenses, or authorizations that would be required to perform project activities.** *(e.g., environmental permits, operating permits, or drilling permits)*

8. **Provide a brief description of the existing environmental burdens at the proposed project location(s) and surrounding areas, including those contributed to or exacerbated by existing facilities the project will leverage or modify.** *Existing environmental burdens can be identified using available tools, such as the Climate and Economic Screening Tool.*[86] *Applicants may also wish to consult as additional information on environmental and energy burdens: DOE's Energy Justice Dashboard (beta) (https://www.energy.gov/diversity/energy-justice-dashboard-beta) or the U.S. Environmental Protection Agency's EJSCREEN (*https://www.epa.gov/ejscreen*).*

9. **Would any of the following have the potential to be impacted (directly or indirectly) by the proposed project?** *If "yes", provide a detailed description of: (1) the resources that could be affected, and (2) how project activities may affect those resources (including potential direct and indirect [visual, noise, etc.] impacts).*

a) Tribal lands or resources of Tribal Interest and/or sensitivity
b) Disadvantaged Communities or other communities with Environmental Justice (EJ) Populations (EJ concerns
c) Historic, archeological, or cultural resources (includes listed and eligible resources over 50 years old or of cultural significance)
d) Areas having a special designation (e.g., federal and state designated wilderness areas, national parks, national natural landmarks, wild and scenic rivers, state and federal wildlife refuges, and marine sanctuaries)
e) Threatened or endangered species (whether proposed or listed by state or U.S. governments), including their habitat
f) Land resources (e.g., prime farmland, unique farmland, or other

[86] Explore the map - Climate & Economic Justice Screening Tool (geoplatform.gov)

farmland of statewide or local importance, tundra, rainforests)
g) Floodplains
h) Wetlands
i) Air quality (indoor and/or outdoor)
j) Greenhouse gas emissions
k) Water quality (surface and/or ground water and/or special sources of water including sole source aquifers)
l) Ocean resources (e.g., coral reefs)
m) Coastal zones
n) Marine or mammal or essential fish
o) Land use
p) Socioeconomic conditions
q) Sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing)
r) Navigable Airspace
s) Transportation Infrastructure

10. **Please describe:**

a) any coordination or discussions that have been initiated or the plan to coordinate with state and/or federal agencies *(e.g., State Historic Preservation Office, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Nuclear Regulatory Commission, etc.)*
b) any coordination or discussions that have been initiated with any Tribal Governments
c) any issues that would generate public controversy regarding proposed project
d) any studies, reviews, and/or plans that have been completed for the proposed project *(e.g., environmental site assessments, waste management plans, health and safety plans, cultural resource surveys, identification of prime or unique farmland, wildlife surveys, etc.)*
e) any environmental considerations and/or mitigation strategies that have been incorporated into the proposed project *(e.g., measures to reduce and/or avoid greenhouse gas emissions, and/or impacts to cultural resources, historic properties, state or federally protected species, wetlands, floodplains, traffic, ambient noise, etc.)*
f) any discussions with affected communities

APPENDIX F – REQUIRED ELIGIBILITY CERTIFICATION FORM AND ADDENDUM

1. ***At the time of Full Application***, I, as the undersigned, am certifying and demonstrating that we, as the prime recipient, defined herein to include its affiliates (as per 13 CFR § 121.702(c)), meet the required eligibility criteria set forth in Section III.A.i. of the FOA. The eligibility criteria are as follows:

The prime recipient is a small- or medium-sized manufacturing firm as defined by BIL Section 40209 where;

(i) The principal business of the prime recipient falls within the North American Industry Classification System (NAICS) codes 31-33;
(ii) The prime recipient has gross annual sales of less than $100,000,000;
(iii) The prime recipient has annual energy bills that total more than $100,000 but less than $2,500,000;
(iv) The prime recipient has fewer than 500 employees at the plant site of the manufacturing firm, with the number of employees counted using the principles set forth in 13 CFR § 121.106 where:
    a. if the prime recipient has more than one plant site, each plant site has fewer than 500 employees; and
(v) The proposed project must be located in (a) a census tract in which a coal mine closed after December 31, 1999, (b) a census tract in which a coal-fired electricity generating power plant unit closed after December 31, 2009, or (c) a census tract immediately adjacent to (a) or (b).

2. I, the undersigned, certify that all factual representations made by the prime recipient to the U.S. Department of Energy (DOE) to demonstrate the eligibility requirements are true and accurate.

3. I, the undersigned, acknowledge that the information provided herein as an Addendum is supportive demonstration that we, as the prime recipient, meet the required eligibility criteria set forth in Section III.A.i. of the FOA.

4. I declare under penalty of perjury that the information and all representations contained herein are true and correct. The documents and information submitted herein, as well as the associated Full Application documents are true, accurate, and complete. I am aware of the significant penalties for submitting false or materially inaccurate information, including the possibility of fine and imprisonment, civil administrative penalties, and/or the denial, revocation, or termination of any award for which the prime recipient may be seeking approval or now hold.

The certifications above shall be signed by the owner or chief executive officer or equivalent, authorized organizational representative (AOR), for the prime recipient.

_____
(Signature)

_____
(Title)

_____
(Name, please print)

_____
(Date)

ADDENDUM TO THE REQUIRED ELIGIBILITY CERTIFICATION FORM

*An Applicant must utilize this section to demonstrate eligibility.

Prime Recipient NAICS Code _____

Prime Recipient Gross Annual Sales _____

Prime Recipient number of employees at the plant site _____

Census Tract of the Proposed Project _____

Prime Recipient Annual Energy Bills _____

Prime applicants must utilize this space to demonstrate eligibility of annual energy bill consumption. Methods for verification can include:

(i) Total energy bills over a consecutive one-year period that occurred during the 16-month period preceding submission of the Application associated with this FOA;

(ii) Most recent month of energy bills extended and summed over a 12-month period;

(iii) Anticipated annual energy bills based on the proposed project facility design and associated equipment and their energy use requirements; or

(iv) Estimated annual energy bills using an appropriate industry benchmark facility of similar size, output, and product (benchmark, justification, and any assumptions must be included below).

APPENDIX G – LIST OF ACRONYMS

BIL	Bipartisan Infrastructure Law
CETs	Critical and Emerging Technologies
CEJST	Climate and Economic Justice Screening Tool
COI	Conflict of Interest
CRADA	Cooperative Research and Development Agreement
DEC	Determination of Exceptional Circumstances
DEIA	Diversity, Equity, Inclusion, and Accessibility
DMP	Data Management Plan
DOE	Department of Energy
DOI	Digital Object Identifier
DOL	Department of Labor
EERE	Energy Efficiency and Renewable Energy
FAR	Federal Acquisition Regulation
FCOI	Financial Conflicts of Interest
FFATA	Federal Funding and Transparency Act of 2006
FOA	Funding Opportunity Announcement
FOIA	Freedom of Information Act
FFRDC	Federally Funded Research and Development Center
GAAP	Generally Accepted Accounting Principles
HBCUs	Historically Black Colleges and Universities
IPMP	Intellectual Property Management Plan
IRB	Institutional Review Board
M&O	Management and Operating
MESC	Office of Manufacturing and Energy Supply Chains
MFA	Multi-Factor Authentication
MPIN	Marketing Partner ID Number
MSI	Minority-Serving institution
MYPP	Multi-Year Program Plan
NDA	Non-Disclosure Acknowledgement
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
NSF	National Science Foundation
OFCCP	Office of Federal Contractor Compliance Programs
OIG	Office of Inspector General
OMB	Office of Management and Budget
OSS	Open-Source Software
OSTI	Office of Scientific and Technical Information
OTA	Other Transactions Authority
PII	Personal Identifiable Information
RD&D	Research, Development, and Demonstration

RFI	Request for Information
RFP	Request for Proposal
SAM	System for Award Management
SciENcv	Science Experts Network Curriculum Vita
SMART	Specific, Measurable, Attainable, Realistic, and Timely
SOPO	Statement of Project Objectives
SPOC	Single Point of Contact
STEM	Science, Technology, Engineering, and Mathematics
TAA	Technical Assistance Agreement
TIA	Technology Investment Agreement
TRL	Technology Readiness Level
UCC	Uniform Commercial Code
UEI	Unique Entity Identifier
WBS	Work Breakdown Structure
WP	Work Proposal

APPENDIX H – UNDERSERVED BUSINESS OWNERSHIP CERTIFICATION FORM

1. ***At the time of Full Application***, I, as the undersigned, am providing evidence we, as the prime recipient meet the eligibility criteria set forth in Section III.A.iii. of the FOA. The eligibility criteria is as follows:

The prime recipient is an entity at least 50% owned or controlled by members of underserved communities, as that term is defined in Executive Orders 13985 and 14020.[87]

2. I, the undersigned, certify that all factual representations made by the prime recipient to the U.S. Department of Energy (DOE) to demonstrate the eligibility requirements are true and accurate.

3. I, the undersigned, acknowledge that we, as the prime recipient, meet the required eligibility criteria set forth in Section III.A.iii. of the FOA and describe the type of underserved community in which our organization meets the criteria as (e.g. women owned, minority-owned, etc.) _____.

4. I declare under penalty of perjury that the information and all representations contained herein are true and correct. The documents and information submitted herein, as well as the associated Full Application documents are true, accurate, and complete. I am aware of the significant penalties for submitting false or materially inaccurate information, including the possibility of fine and imprisonment, civil administrative penalties, and/or the denial, revocation, or termination of any award for which the prime recipient may be seeking approval or now hold.

The certifications above shall be signed by the owner or chief executive officer or equivalent, authorized organizational representative (AOR), for the prime recipient.

_____
(Signature)

_____
(Title)

_____
(Name, please print)

_____
(DATE)

[87] Executive Orders (EO) 13985 and Executive Orders (EO) 14020

APPENDIX I – ELIGIBLE SAEP GUIDANCE

1. *Property designed to be used to produce energy from the sun, water, wind, geothermal deposits (within the meaning of 26 U.S.C. § 613 (e)(2)), or other renewable resources.*

   - Examples of eligible property include
     - solar panels and their specialized support structures;
     - wind turbines, towers, floating offshore platforms, and related equipment;
     - power electronics designed for use with eligible solar or wind property;
     - equipment to concentrate sunlight to generate heat for industrial processes or to convert it to electricity;
     - geothermal turbines and heat pumps;
     - hydropower turbines;
     - other products directly used to generate electrical and/or thermal energy from renewable resources; and
     - specialized components, subcomponents, and materials incorporated into any such eligible property, including critical materials and equipment for sensing, communication, and control.

   - Examples of ineligible property include gas turbine generators, or boilers which burn fossil fuels or natural gas.

2. *Fuel cells, microturbines, or energy storage systems and components.*
   - Examples of eligible property include:
     - Stationary batteries;
     - Stationary hydrogen fuel cells;
     - Hydrogen storage vessels;
     - Microturbines for combined heat and power systems;
     - Pumps and turbines for pumped hydropower storage systems;
     - Specialized components of any such equipment, including critical materials and equipment for sensing, communication, and control.

- Examples of ineligible property include heavy gas turbines

- For electric vehicle batteries and fuel cells for vehicles, see the "light-, medium-, or heavy-duty electric or fuel cell vehicles" project type.

3. *Electric grid modernization equipment or components.*

   - Examples of eligible property includes:
     - Grid equipment for electricity delivery;
     - Power flow control and conversion such as transformers, power electronics, advanced cables and conductors;
     - Advanced meters;
     - Breakers;
     - Switchgears;
     - Composite poles;
     - Converters;
     - MVDC and HVDC lines;
     - Grid enhancing technologies;
     - Electrical steel or alloys used in transformer cores;
     - Specialized components of any such grid modernization equipment, including critical materials and components for sensing, communication, and control.

   - Storage technologies for grid applications qualify under the "fuel cells, microturbines, or energy storage systems and components" project types.

   - Electric vehicle supply equipment qualifies under the "light-, medium-, or heavy-duty electric or fuel cell vehicles" project types.

4. *Property designed to capture, transport, remove, use, or sequester carbon oxide emissions.*

   - Examples of eligible property include:
     - Carbon capture equipment necessary to compress, treat, process, liquefy, pump, or perform some other physical action to capture carbon oxides, including:

- Solvents, membranes, sorbents, chemical processing equipment, compressors, monitoring equipment, and injection equipment;
- Well components such as packers, casing strings, steel tubulars, well head, valves, and sensors suitable for use in Underground Injection Control (UIC) Class VI wells.
- Transportation equipment, as in a system of gathering and distribution pipelines, including pipelines that collect carbon oxide captured from an industrial facility or multiple facilities for the purpose of transporting that carbon oxide.
- Equipment to convert carbon oxides through mineralization, thermochemical, electrochemical, photochemical, plasma-assisted, or other catalytic process approaches to carbon-based products such as synthetic fuels, chemicals, solid carbon products, and inorganic materials.

- Examples of *ineligible* property include:
  - Scrubbers for conventional air pollutants, except those that are required to remove pollutants upstream of the carbon capture equipment for technical performance reasons;
  - Energy generation equipment, except as related to energy recovery at carbon capture systems; and
  - Refining equipment.

5. *Equipment designed to refine, electrolyze, or blend any fuel, chemical, or product which is renewable, or low-carbon and low-emission.*

- The eligible property described in this section means that the equipment for refining, electrolyzing, or blending is the output of the manufacturing facility, not the fuel, chemical, or product.

- To be considered eligible property under this section, the property must be intended for use to refine, electrolyze, or blend a renewable or low-carbon and low-emission fuel, chemical, or product, as demonstrated through engineering specifications or offtake agreements.

- Examples of renewable or low-carbon and low-emission fuels include:
    - Renewable transportation fuel which:
        - is suitable for use as a fuel in a vehicle, marine vessel, or aircraft,
        - is derived from or co-processed with:
            - a biomass feedstock, or
            - hydrogen produced from renewable energy and inputs, and
        - is not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum.

          A qualifying advanced energy project does not include any portion of a project for the production of any property which is used in the refining or blending of any transportation fuel (other than renewable fuels, as described herein).
    - Clean hydrogen produced with a well-to-gate carbon intensity of less than 4 kgCO2e/kgH2, in accordance with the definition of qualified clean hydrogen under the § 45V tax credit program
    - Other fuel which:
        - is derived from or co-processed with a renewable feedstock or achieves at least a 50 percent lifecycle greenhouse gas emissions reduction in comparison with the conventional alternative,
        - is not a transportation fuel, and
        - is not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum
    - Product or chemical which:
        - is derived from or co-processed with a renewable feedstock or achieves at least a 50 percent lifecycle greenhouse gas emissions reduction in comparison with the conventional alternative,
        - is suitable for use as an industrial feedstock, and

▪ is not derived from palm fatty acid distillates or fossil fuels, including coal, natural gas, and petroleum. • Examples of *eligible* property include: ○ Electrolyzers; ○ Mixing devices; ○ Pumps; ○ Separation devices; ○ Bioprocessing equipment; ○ Biomass preprocessing equipment; and ○ Reactors
6. *Property designed to produce energy conservation technologies (including for residential, commercial, and industrial applications).* • Examples of eligible energy conservation property include: ○ Technologies and grid-interactive devices eligible for residential or commercial efficiency improvements for purposes of the § 25C credit or the § 179D tax deduction; and ○ Equipment that directly reduces net energy use in industrial applications, such as ▪ ultra- efficient heat pumps; ▪ insulation; ▪ ultra-efficient hot water systems; and ▪ sensors, controls, and similar advanced efficiency technologies. • Examples of ineligible energy conservation property include those that reduce electricity usage by increasing direct natural gas or other fossil fuel use and/or lead to increased system-level emissions.
7. *Light-, medium-, or heavy-duty electric or fuel cell vehicles, as well as technologies, components, or materials for such vehicles, and associated charging or refueling infrastructure.* • Examples of eligible property include ○ battery electric, plug-in hybrid electric, or fuel cell cars, trucks, and buses; ○ Specialized components of those vehicles, such as

▪ electric drive systems ▪ fuel cells, and ▪ materials and subcomponents therein (including critical materials) ○ electric vehicle supply equipment (EVSE) ○ components from the grid connection to the vehicle ○ components used in hydrogen refueling stations (e.g., hydrogen, compressors, pumps, storage vessels, and dispensing equipment), and ○ bidirectional charging equipment. • Examples of ineligible equipment include: ○ internal combustion engine vehicles of all sizes ○ non-plug-in hybrid vehicles of less than 14,000 pounds gross vehicle weight rating, and their components; ○ associated refueling infrastructure, such as petroleum gas, liquefied or compressed natural gas, or ethanol refueling stations; ○ components of charging or refueling stations, such as signage, that are not directly involved in the transfer of fuel or power to the vehicle.
8. *Hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds as well as technologies, components, or materials for such vehicles.* Examples of *eligible* property include: ○ traction batteries ○ converters, ○ power electronics, ○ and assembled hybrid vehicles themselves, Components and materials must be designed for large hybrid vehicles with a gross vehicle weight rating of not less than 14,000 pounds, as demonstrated through engineering specifications and/or offtake agreements.
9. *Other advanced energy property as may be determined by the Secretary.*

Examples of eligible advanced energy property include:

- specialized components and equipment for nuclear power reactors or their fuels,
- and equipment used to reduce the emissions of industrial processes not otherwise defined above.