



**U.S. Department of Energy (DOE)
Office of Manufacturing and Energy Supply Chains (MESC)
Office of State and Community Energy Programs (SCEP)**

**Bipartisan Infrastructure Law: Industrial Assessment Center
(IAC) Program – IACs at Trade Schools, Community Colleges,
and Union Training Programs; and Building Training and
Assessment Centers (BTAC) Program**

Funding Opportunity Announcement (FOA) Number: DE-FOA-0002940

FOA Type: Initial

Assistance Listing Number: [81.117]

FOA Issue Date:	4/7/23 10:00am ET
Informational Webinar:	4/18/23 2:00pm ET
Submission Deadline for Concept Papers:	5/25/23 5:00pm ET
Submission Deadline for Full Applications:	7/31/23 5:00pm ET
Expected Date for DOE Selection Notifications:	Fall 2023
Expected Timeframe for Award Negotiations:	Fall – Winter 2023-24

- Applicants must submit a Concept Paper by 5:00pm 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 Clean Energy Infrastructure eXCHANGE at <https://infrastructure-exchange.energy.gov/>, MESC and SCEP's online application portal.¹
- Applicants must designate primary and backup points-of-contact with whom DOE will communicate to conduct award negotiations. If an application is selected for award negotiations, it is not a commitment to issue an award. It is imperative that the applicant/selectee be responsive during award negotiations and meet negotiation deadlines. Failure to do so may result in cancelation of further award negotiations and rescission of the selection.

¹ Note that if applicants already are registered at EERE eXCHANGE or another DOE eXCHANGE portal, they will still need to register with Clean Energy Infrastructure eXCHANGE to respond to this FOA. Note that this is a change from the Notice of Intent released in December 2022.

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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 a 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 a 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 a UEI for subaward reporting.

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



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

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

In addition:

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

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

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

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



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

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

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



Table of Contents

Table of Contents.....	v
I. Funding Opportunity Description	1
A. Background and Context	1
i. Program Purpose	2
ii. Strategic Goals	5
B. Topic Areas	14
i. Topic Area 1: IACs at Community Colleges and Trade Schools	14
ii. Topic Area 2: IACs at Union Training Programs	18
iii. Topic Area 3: Building Training and Assessment Centers Program	20
C. Teaming Partner List	24
D. Applications Specifically Not of Interest.....	25
E. Authorizing Statutes	25
F. Notice of Bipartisan Infrastructure Law-Specific Requirements	26
II. Award Information	26
A. Award Overview	26
i. Estimated Funding.....	26
ii. Period of Performance	27
iii. New Applications Only	27
B. DOE Funding Agreements	27
i. Cooperative Agreements.....	28
ii. Funding Agreements with Federally Funded Research and Development Center (FFRDCs)	28
III. Eligibility Information	28
A. Eligible Applicants	28
i. Domestic Entities	28
ii. Foreign Entities.....	30
iii. Incorporated Consortia	31
iv. Unincorporated Consortia	31
B. Cost Sharing.....	32
i. Legal Responsibility	32
ii. Cost Share Allocation.....	32
iii. Cost Share Types and Allowability.....	32
iv. Cost Share Contributions by FFRDCs	33
v. Cost Share Verification	34
vi. Cost Share Payment.....	34
C. Compliance Criteria	34
D. Responsiveness Criteria.....	35
E. Other Eligibility Requirements	35
i. Requirements for DOE/NNSA and non-DOE/NNSA FFRDCs Included as a Subrecipient.....	35
F. Limitation on Number of Concept Papers and Full Applications Eligible for Review	36
G. Questions Regarding Eligibility.....	36
IV. Application and Submission Information	37
A. Application Process	37
i. Additional Information on Infrastructure eXCHANGE	37
B. Application Forms	38
C. Content and Form of the Concept Paper	38
D. Content and Form of the Full Application	40

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i.	Full Application Content Requirements.....	40
ii.	Technical Volume	41
iii.	Resumes	46
iv.	Letters of Commitment	47
v.	Community Partnership Documentation	47
vi.	Statement of Project Objectives (SOPO)	47
vii.	SF-424: Application for Federal Assistance.....	48
viii.	Budget Justification Workbook	48
ix.	Summary for Public Release	48
x.	Summary Slide	49
xi.	Subrecipient Budget Justification (if applicable)	49
xii.	Budget for DOE/NNSA FFRDC (if applicable)	49
xiii.	Authorization for non-DOE/NNSA or DOE/NNSA FFRDCs (if applicable)	50
xiv.	SF-LLL: Disclosure of Lobbying Activities (required)	50
xv.	Waiver Requests (if applicable)	50
xvi.	Current and Pending Support.....	51
xvii.	Locations of Work.....	54
xviii.	Transparency of Foreign Connections	54
xix.	Potentially Duplicative Funding Notice	55
E.	Post Selection Information Requests	55
F.	Unique Entity Identifier (UEI) and System for Award Management (SAM)	57
G.	Submission Dates and Times	57
H.	Intergovernmental Review	57
I.	Funding Restrictions	57
i.	Allowable Costs	57
ii.	Pre-Award Costs	58
iii.	Performance of Work in the United States (Foreign Work Waiver).....	59
iv.	Construction	59
v.	Foreign Travel	59
vi.	Equipment and Supplies.....	59
vii.	Buy America Requirements for Infrastructure Projects	60
viii.	Davis-Bacon Act Requirements	61
ix.	Lobbying	63
x.	Risk Assessment.....	63
xi.	Invoice Review and Approval	64
xii.	Prohibition related to Foreign Government-Sponsored Talent Recruitment Programs	65
xiii.	Affirmative Action and Pay Transparency Requirements.....	66
xiv.	Foreign Collaboration Considerations	67
V.	Application Review Information	67
A.	Technical Review Criteria	67
i.	Concept Papers.....	67
ii.	Full Applications	68
B.	Standards for Application Evaluation	72
C.	Other Selection Factors	72
i.	Program Policy Factors	72
D.	Evaluation and Selection Process	73
i.	Overview.....	73
ii.	Pre-Selection Interviews.....	73
iii.	Pre-Selection Clarification	74
iv.	Recipient Responsibility and Qualifications.....	74
v.	Selection	75
E.	Anticipated Notice of Selection and Award Negotiation Dates	75

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Problems with Infrastructure Exchange? Email InfrastructureExchangeSupport@hq.doe.gov
Include FOA name and number in subject line.



VI. Award Administration Information.....	75
A. Award Notices	75
i. Ineligible Submissions.....	75
ii. Concept Paper Notifications.....	75
iii. Full Application Notifications.....	76
iv. Applicants Selected for Award Negotiations	76
v. Alternate Selection Determinations	77
vi. Unsuccessful Applicants	77
B. Administrative and National Policy Requirements.....	77
i. Registration Requirements.....	77
ii. Award Administrative Requirements	78
iii. Foreign National Participation.....	78
iv. Subaward and Executive Reporting.....	79
v. National Policy Requirements	79
vi. Environmental Review in Accordance with National Environmental Policy Act (NEPA)	79
vii. Applicant Representations and Certifications	80
viii. Statement of Federal Stewardship	81
ix. Statement of Substantial Involvement.....	82
x. Intellectual Property Provisions.....	82
xi. Reporting	82
xii. Go/No-Go Review	84
xiii. Conference Spending.....	85
xiv. Uniform Commercial Code (UCC) Financing Statements	85
xv. Real Property and Equipment	85
xvi. Implementation of Executive Order 13798, Promoting Free Speech and Religious Liberty	86
xvii. Participants and Collaborating Organizations	86
xviii. Current and Pending Support.....	86
xix. U.S. Manufacturing Commitments	87
xx. Interim Conflict of Interest Policy for Financial Assistance	88
xxi. Fraud, Waste and Abuse.....	88
xxii. Human Subjects Research	89
xxiii. Cybersecurity Plan	90
VII. Questions/Agency Contacts	91
VIII. Other Information	91
A. FOA Modifications	91
B. Government Right to Reject or Negotiate.....	91
C. Commitment of Public Funds	91
D. Treatment of Application Information	91
E. Evaluation and Administration by Non-Federal Personnel	93
F. Notice Regarding Eligible/Ineligible Activities	93
G. Notice of Right to Conduct a Review of Financial Capability.....	93
H. Requirement for Full and Complete Disclosure	93
I. Retention of Submissions.....	94
J. Title to Subject Inventions.....	94
K. Government Rights in Subject Inventions.....	95
L. Copyright.....	95
M. Export Control	96
N. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment	96
O. Personally Identifiable Information (PII)	96
P. Annual Independent Audits	97
Q. Informational Webinar	97

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Problems with Infrastructure Exchange? Email InfrastructureExchangeSupport@hq.doe.gov

Include FOA name and number in subject line.



Appendix A – Cost Share Information	98
Appendix B – Sample Cost Share Calculation for Blended Cost Share Percentage	103
Appendix C – Waiver Requests For: 1. Foreign Entity Participation; and 2. Foreign Work	105
Appendix D - Required Use of American Iron, Steel, Manufactured Products, and Construction Materials	108
Appendix E – Detail on Smart Manufacturing	112
Appendix F – List of Acronyms	113



I. Funding Opportunity Description

A. Background and Context

The U.S. Department of Energy (DOE) Office of Manufacturing and Energy Supply Chains (MESC) and the DOE Office of State and Community Energy Programs (SCEP) are jointly issuing this Funding Opportunity Announcement (FOA) to establish Industrial Assessment Centers (IACs) at trade schools, community colleges, and union training programs (including joint labor-management training programs), as well as to establish Building Training and Assessment Centers (BTACs). Awards made under this FOA will be funded, in whole or in part, with funds appropriated by the Infrastructure Investment and Jobs Act², more commonly known as the Bipartisan Infrastructure Law (BIL).

The BIL is a once-in-a-generation investment in infrastructure, designed to modernize and upgrade American infrastructure to enhance United States competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure stronger access to economic, environmental, and other benefits for disadvantaged communities.³ The BIL appropriates more than \$62 billion to the Department of Energy (DOE)⁴ 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.

As part of and in addition to upgrading and modernizing infrastructure, DOE's BIL investments will support efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity system by 2035, and to put the United States on a path to achieve net-zero emissions economy-wide by no later than 2050⁵ to benefit all Americans.

² Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021).

<https://www.congress.gov/bill/117th-congress/house-bill/3684>. This FOA uses the more common name "Bipartisan Infrastructure Law".

³ Pursuant to E.O. 14008 and the Office of Management and Budget's Addendum to the Interim Justice40 Implementation Guidance M-23-09 (https://www.whitehouse.gov/wp-content/uploads/2023/01/M-23-09_Signed_CEQ_CPO.pdf), DOE defines disadvantaged communities as the communities identified by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST), which can be 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>.

⁴ 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>

⁵ [Executive Order \(EO\) 14008](#), "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

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The BIL will invest appropriations of up to \$150 million for the five (5) year period encompassing Fiscal Years (FYs) 2022 through 2026 to expand DOE's Industrial Assessment Center (IAC) Program and up to \$10M until expended to establish BTACs. Through this FOA, DOE makes available \$54 million to support IACs at community colleges and trade schools, IACs at union training programs (including joint labor-management programs), and BTACs.⁶

The activities to be funded under this FOA support BIL section 40521(b), which amended the Energy Independence and Security Act of 2007 (EISA 2007) by adding a new section 457; BIL section 40512; and the broader government-wide approach to strengthening domestic manufacturing, reducing industrial emissions, and developing the clean energy workforce as the nation works to curb the climate crisis, empower workers, and advance environmental justice. These sections focus on establishing IACs at trade schools, community colleges, and union training programs (including joint labor-management programs) and establishing BTACs to support the Administration's broader efforts to:

- Support inclusive workforce development efforts to strengthen America's competitive advantage in the clean energy economy; and
- Enhance performance and reduce emissions at small- and medium-sized manufacturing facilities (SMMs)⁷ and commercial buildings.

i. Program Purpose

a. Industrial Assessment Centers Program

The Industrial Assessment Centers (IAC) Program supports the Administration's goals laid out above by creating opportunities for more American students and workers to step into high-quality career pathways that empower workers and develop a diverse, nationally-representative workforce that is well-qualified to build and maintain the country's energy infrastructure. The IAC program also will aid in the growth of domestic clean energy manufacturing, helping to put the United States on a path to achieve net-zero emissions economy-wide by no later than 2050.

The Federal Government has funded the IAC Program since 1976. Currently, DOE supports IACs at 37 four-year institutions of higher education (IHEs) across the nation. These current IACs serve two purposes: first, they bolster

⁶ See Section III.A. for definitions and eligibility.

⁷ For purposes of the IAC Program, SMMs are defined as manufacturing firms with: (A) gross annual sales of less than \$100,000,000; (B) fewer than 500 employees at the plant site of the manufacturing firm; and (C) annual energy bills that total more than \$100,000 but less than \$3,500,000. 42 U.S.C. § 17116(a)(6). Manufacturing firms are defined at North America Industry Classification System (NAICS) 31-33. For purposes of the IAC Program, SMMs are further defined to include water and wastewater treatment facilities, as well as federally owned manufacturing facilities. See 42 U.S.C. § 17116(b)(2).



U.S. manufacturing competitiveness by providing small- and medium-sized manufacturers (SMMs) with assessments and recommendations to improve energy efficiency and productivity, and thereby enhance the competitiveness of American manufacturing in a net-zero economy; and second, they train the next generation of energy-savvy engineers through on-site involvement in these assessments.

The IAC Program has long been characterized by its ability to adapt to changing needs of manufacturers and to incorporate advancing technologies, a capability that will remain crucial as the program expands and evolves to address the quickly changing opportunities and challenges presented by technological change and the climate crisis.

More specifically, as set forth in EISA 2007 as amended, the purposes of these IACs include:

- To provide in-depth assessments of SMM plant site facilities, services, and operations;
- To identify opportunities for SMMs to optimize energy efficiency and environmental performance, including, for example, through the implementation of:
 - smart manufacturing;
 - energy management systems;
 - sustainable manufacturing;
 - information technology advancements for supply chain analysis, logistics, system monitoring, industrial and manufacturing processes, and other purposes; and
 - waste management systems;
- To promote applications of emerging concepts and technologies in small- and medium-sized manufacturers;
- To promote research and development for the use of alternative energy sources to supply heat, power, and new feedstocks for energy-intensive industries;
- To coordinate with appropriate Federal and State research offices;
- To provide a clearinghouse for industrial process and energy efficiency technical assistance resources; and
- To coordinate with accredited technical training centers and community colleges, while ensuring appropriate services to all regions of the United States.⁸

⁸ 42 U.S.C. § 17116(b)(2).



The BIL appropriates \$550 million for the five (5) year period encompassing Fiscal Years (FYs) 2022 through 2026 for the IAC Program.⁹ Of these funds, \$150 million are appropriated to expand the IAC Program itself, including through (i) the establishment of up to five regional Centers of Excellence at existing IACs, (ii) the creation of a Clearinghouse of expertise, tools, and resources to support IACs and assist SMMs, (iii) increased coordination with and outreach to governmental and non-governmental entities, (iv) establishment of IACs at community colleges, trade schools, and union training programs, and (v) federal support for related internship and registered apprenticeship programs. The BIL also appropriates \$400 million over FYs 2022 through 2026 for the establishment of a grant program to provide up-to-50-percent cost-share grants of no more than \$300,000 each to SMMs to implement recommendations made by IACs, Combined Heat and Power Technical Assistance Programs (CHP TAPS) in conjunction with IACs, and other assessments deemed equivalent by the Secretary of Energy (note that these cost-share grants are not part of this FOA).

b. Building Training and Assessment Centers (BTAC) Program

The BTAC Program, for which the BIL allocates \$10 million¹⁰, shares common elements with the IAC Program but focuses on commercial and institutional buildings. DOE intends for the program: (1) to train building energy efficiency professionals in energy-efficient design and operation to meet local and regional workforce demand, and (2) to provide critical energy efficiency assessments and upgrades to improve the environmental performance of commercial and institutional buildings, especially those in areas that have been historically underserved (including K-12 schools and small commercial buildings that are 50,000 sq. ft. or less). With this funding, DOE seeks to catalyze a diverse pipeline of skilled building energy workers and deploy energy efficiency building upgrades that reduce the energy burden and provide benefits for small businesses, nonprofit organizations, K-12 schools, and other underserved entities operating commercial and institutional buildings.

As part of the whole-of-government approach to advance equity and encourage worker organizing and collective bargaining,^{11,12,13} and in alignment with BIL sections 40521 and 40512, this FOA and any related activities will seek to encourage meaningful engagement and participation of

⁹ Sec. 40521 of BIL

¹⁰ Sec. 40512 of BIL.

¹¹ EO 13985, "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government," January 20, 2021.

¹² EO 14025, "Worker Organizing and Empowerment," April 26, 2021.

¹³ EO 14052, "Implementation of the Infrastructure Investment and Jobs Act," November 18, 2021.

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workforce organizations, including labor unions, as well as underserved communities and underrepresented groups, including consultation with Tribal Nations.¹⁴ Consistent with Executive Order 14008,¹⁵ this FOA is designed to help meet the goal that 40% of the overall benefits of the Administration's investments in clean energy and climate solutions flow to disadvantaged communities, as defined by the Department pursuant to the Executive Order. This FOA also supports the creation of accessible good-paying jobs with the free and fair chance for workers to join a union.

ii. Strategic Goals

This FOA seeks applications to address the strategic goals below. Detailed technical descriptions of the specific Topic Areas are in the sections that follow.

a. Developing and Delivering Hands-On Training for High-Quality Clean Energy Jobs

Strengthening prosperity – by expanding good, safe union jobs and supporting job growth through investments in domestic manufacturing and the built environment – are key goals set by President Biden, discussed in depth in his Executive Orders on Ensuring the Future Is Made in All of America by All of America's Workers (EO 14005), Tackling the Climate Crisis at Home and Abroad (EO 14008), Worker Organizing and Empowerment (EO 14025), Boosting Quality of Federal Construction Contracts (EO 14063), Promoting Competition in the American Economy (EO 14036), and Implementing the Infrastructure Investment and Jobs Act (EO 14052).

In keeping with the Administration's goals, and as an agency whose mission includes strengthening our country's energy prosperity, DOE strongly supports investments that expand well-paying, high-quality jobs.¹⁶ DOE specifically supports investments in jobs that offer workers the free and fair choice to form, join, or assist a union; improve job quality through the adoption of strong labor standards and labor-management partnerships; and support responsible employers. DOE also supports opportunities that foster safe, healthy, and inclusive workplaces and communities, as well as

¹⁴ 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. Likewise, the "Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships," January 26, 2021, reaffirms the Federal Government's commitment to that consultation, including requiring each agency to have a detailed plan in place for implementing EO 13175 and submit annual progress reports to the Director of the Office of Management and Budget.

¹⁵ EO 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

¹⁶ See the U.S. Department of Commerce and Department of Labor's recent guidance on the definition of high-quality jobs: <https://www.dol.gov/general/good-jobs/principles>

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strategies that develop a diverse workforce that is well-qualified to build and maintain the country's energy infrastructure, grow domestic manufacturing, and improve commercial and institutional building performance.

Expanding access to these career pathways is crucial to meeting climate goals and addressing industry demand. Growth in energy sector jobs is outpacing that of overall U.S. employment: energy jobs grew 4.0% in 2021 vs. total US employment growth of 2.8%.¹⁷ Occupations like solar photovoltaic installers and wind turbine service technicians are projected to be among the fastest-growing jobs economy-wide in the coming years, and others crucial to energy efficiency and management – including electricians and industrial machinery installation, repair, and maintenance workers – are also projected to grow much more quickly than overall U.S. employment.¹⁸

Through this FOA, DOE seeks applications that will provide hands-on learning opportunities for clean energy pathways leading to well-paying, high-quality jobs. Applicants are encouraged to incorporate on-the-job earn-as-you-learn opportunities (if compensation for these activities is intended to be provided through award funds, applicants should explain why this is necessary).

Applicants are additionally encouraged to include letters of support from local employers where possible affirming their interest in the training program and making commitments to hire IAC and BTAC program graduates, detailing the minimum number and types of openings; the minimum wages, benefits, and conditions of work; and minimum contributions for worker training.

All applicants must affirm their interest in working with MESC and SCEP, other DOE workforce awardees and programs, and other relevant stakeholders to share program results, disseminate resources, and promote best practices in a way that will support the overall success of DOE's workforce development strategy. This includes licensing curricula developed with this funding through Creative Commons or pursuing another DOE-approved plan suitable to the sharing of curricula that is developed under this grant.

b. Enhancing Performance and Reducing Emissions

i. The Industrial Sector

¹⁷ [USEER 2022 National Report \(energy.gov\)](https://www.energy.gov/eere/energy-efficiency/USEER-2022-National-Report), U.S. Department of Energy, see page 6.

¹⁸ [Occupational projections and worker characteristics: U.S. Bureau of Labor Statistics \(bls.gov\)](https://www.bls.gov/news.release/archives/oproj20210901.pdf), see Table 1.7.

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The industrial sector is a backbone of the U.S.'s economy, producing goods critical to everyday life and employing millions of Americans in high-quality jobs, many of which do not require a four-year degree. Yet the energy and carbon-intensity of the sector contributes nearly one third of the nation's primary energy-related carbon dioxide emissions, posing a challenge as the economy transitions towards net-zero.

Using modeled data for 2020, DOE's [Industrial Decarbonization Roadmap](#) estimated the industrial sector accounted for ~33% of the U.S.'s primary energy use and around 30% of energy-related carbon dioxide (CO₂) emissions. The manufacturing portion of the industrial sector accounted for more than 75% of primary energy use and more than 80% of the CO₂ emissions of the entire industrial sector.

By creating new opportunities for American students, apprentices, and workers to develop skills aligned to clean energy pathways, this FOA supports U.S. government-wide efforts to solidify a "first-mover" advantage for U.S. industry, bolstering its competitiveness globally for decades into the future.¹⁹ Activities funded under this FOA are further expected to increase access to good-paying jobs for American workers that do not require a four-year degree, and enable a clean, more equitable future for all Americans.

The IAC Program is a crucial tool to deploy emerging energy efficiency and environmental performance technologies, tools, and practices that align with the Industrial Decarbonization Roadmap, per the table below.

Roadmap Pillar	Ex. Priorities for SMMs
<u>Energy Efficiency</u> Energy efficiency saves costs for manufacturers and is the most cost-effective option for reducing GHG emissions in the near term. Energy efficiency advancements minimize industrial energy demand, directly reducing the GHG emissions associated with fossil fuel combustion.	<ul style="list-style-type: none">• Strategic energy management to optimize performance of industrial processes and of the thermal heat from manufacturing process heating and combined heat and power sources that can or could be retrofitted to use clean fuels;• Smart manufacturing and advanced data analytics²⁰ to increase energy productivity in manufacturing processes.
<u>Industrial Electrification</u> Industrial process technologies that utilize electricity for energy, rather than combusting fossil fuels directly, enable the sector to leverage	<ul style="list-style-type: none">• Electrification of process heat using induction, radiative heating, or advanced heat pumps;• Electrification of high-temperature range processes such as those found in iron, steel, and cement making;

¹⁹ "Accelerating Decarbonization in the United States Energy Sector," National Academies of Sciences, Engineering, and Medicine, Feb. 2021. Low-carbon products from SMMs assisted through the IAC Program also will be better positioned to meet standards for transparency in reporting a product's embodied emissions – see Appendix D.

²⁰ Smart Manufacturing is the use of emerging and advanced technologies to increase the efficiency of the traditional manufacturing process. See Appendix E for more detail.

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advancements in low-carbon electricity from both grid and onsite generation sources.	<ul style="list-style-type: none"> • Electrification of hydrogen production for industrial process use; • Replacing thermally driven processes with electrochemical ones.
<p><u>Low-Carbon Fuels, Feedstocks, and Energy Sources (LCFFES)</u></p> <p>Substitution of low- and no-carbon fuels and feedstocks for fossil fuels can further reduce combustion-associated emissions for industrial processes.</p>	<ul style="list-style-type: none"> • Fuel-flexible processes; • Integration of clean hydrogen fuels and feedstocks into industrial applications; • The use of biofuels and biofeedstocks; • On-site renewable energy generation, especially solar power.
<p><u>Carbon Capture, Utilization, and Storage (CCUS)</u></p> <p>The multi-component strategy of capturing CO₂ from a point source and utilizing the captured CO₂ to make value added products or storing it long-term to avoid release.</p>	<p>This remains a particularly innovative and often-experimental area for SMMs. Possible emergent areas for small- and medium-sized manufacturers include:</p> <ul style="list-style-type: none"> • Carbon capture and utilization in perishable good packing; • Carbon capture for chemicals or fuel production, or diversification of products away from combustible fuels

Demonstrating the commercial viability of advanced manufacturing and industrial decarbonization will provide market confidence and competition necessary to attract additional investments and promote widespread technology implementation. These activities are expected to drive a U.S. competitive edge in low- and net-zero carbon manufacturing while helping to substantiate a market for low-carbon products.

ii. The Buildings Sector

U.S. businesses and organizations own, operate, and occupy 5.9 million commercial buildings representing approximately 96.4 billion square feet of U.S. real estate, with \$238 billion in energy bills.²¹ Commercial buildings account for 17.3 percent of U.S. energy use.²² Commercial buildings also consume 17.2 percent of purchased electricity in the U.S.²³ and emit 15.4 percent of all energy-related CO₂ pollution (including direct fuel use and electricity-related emissions).²⁴ Energy improvements in commercial buildings can have a tremendous positive impact on reducing carbon emissions, saving owners and occupants money, improving indoor air quality, providing resilient places of shelter, creating jobs, and supporting local economies. In order to improve our national building

²¹ U.S. Department of Energy—Energy Information Administration. *Annual Energy Outlook 2022. Table 5 and Table 3. Commercial Sector Key Indicators and Consumption.* <https://www.eia.gov/outlooks/aeo>. Accessed April 6, 2023.

²² U.S. Department of Energy—Energy Information Administration. *Annual Energy Outlook 2022. Table 2 Energy Consumption by Sector and Source.* <https://www.eia.gov/outlooks/aeo/>. Accessed April 6, 2023.

²³ Op. cit., *Annual Energy Outlook 2020*. Table 5.

²⁴ U.S. Department of Energy—Energy Information Administration. *Annual Energy Outlook 2023. Table 18. Energy-Related Carbon Dioxide Emissions by Sector and Source.* <https://www.eia.gov/outlooks/aeo>. Accessed April 6, 2023.

stock and meet climate goals, the U.S. needs to further develop a skilled and diverse commercial buildings workforce.

Small buildings that are 50,000 square feet or less represent approximately 94% of all commercial buildings and consume 45 percent of energy in the sector.²⁵ These small buildings often house the organizations that anchor our communities such as houses of worship, schools, community centers, local retail, restaurants, and offices. Yet, small buildings tend to be the hardest to reach with energy efficiency solutions. Small building owners, operators, or occupants often face barriers such as lack of awareness of the opportunities and benefits of energy improvements, lack of capacity to prioritize energy efficiency, and split incentives for upgrades.²⁶ The 100,000 public K-12 schools across the United States (U.S.) contain the classrooms, libraries, cafeterias, playgrounds, and gyms where 50 million students learn, eat, build friendships, and exercise. As the second largest sector of public infrastructure spending in the U.S., public K-12 schools are also a center of our communities, serving as voting and polling locations, emergency shelters, and community gathering places.²⁷ The significant underinvestment in energy improvements at American schools, however, results in unnecessarily high utility costs and contributes to unhealthy and uncomfortable environments for students, teachers, and staff. Restaurants are among the highest energy-use-per-square-foot segments of the commercial sector, accounting for 2% of commercial floor space and 6% of primary energy consumption.²⁸ Electrifying commercial kitchens can lower their energy and carbon intensity and improve conditions for restaurant workers.

Programs that assist small building owners and operators from the assessment stage through energy efficiency project implementation and involve partnerships with trusted community entities have been successful in reaching small buildings.²⁹ Energy upgrades can help small businesses lower their operating costs and increase their bottom line. These investments can make classrooms more comfortable and preserve

²⁵ U.S. Energy Information Administration, <https://www.eia.gov/consumption/commercial/reports/2012/buildstock/>.

²⁶ Langner, R., Hendron, B., Pless, S., Huppert, M., and Cochrane, R., (2013) [Industry Research and Recommendations for Small Buildings and Small Portfolios](#). NREL and National Trust for Historic Preservation.

²⁷ Mary Filardo. (2021) 2021 State of Our Schools: America's PK-12 Public School Facilities. Washington, D.C.: 21st Century School Fund.

²⁸ U.S. Department of Energy. <https://betterbuildingssolutioncenter.energy.gov/beat-blog/decarbonizing-kitchens-opportunities-food-service-sector>.

²⁹ Some successful program models include: Michigan Saves, BlocPower, Southface GoodUse, Commonwealth Edison, Duke Energy Small Business Saver Program, and many others.

taxpayer resources. Energy and utility bill savings for community-serving institutions can free up funds for them to reinvest into community services, which can particularly help those with limited resources serving marginalized communities.³⁰ Owners of electrified restaurants can reinvest cost savings into their facilities, workers, and services for community members (e.g., allowing their space to be used as a business incubator for disadvantaged communities).

c. Demand-Driven Impact

This FOA seeks applications that demonstrate knowledge and awareness of industry³¹ needs both at the national level and in the proposed region of focus. Applicants are encouraged to provide a relevant overview of local industry trends, including areas of expected acute demand and growth, impacts of state or local policies and/or local licensing requirements, client needs and demand as they relate to technical services provided through the proposed project, and workforce needs that suggest training programs will create pathways to high-quality clean energy jobs. Applicants are encouraged to include any available client needs assessments and/or gap analysis, as well as specific ways in which the proposed project will address these needs.

d. Commitment to Collaboration and Coordination

DOE seeks responses to this FOA that expand ecosystems of technical assistance for SMMs and commercial building owners and operators. Applicants are encouraged to coordinate with, leverage, and build upon existing programs and entities, including:

- The [Better Buildings/Better Plants](#) program, including Combined Heat and Power Technical Assistance Partnerships and the ISO 50001 program. Applicants are also encouraged to explore collaboration with the forthcoming [Onsite Energy Technical Assistance Partnerships](#) and DOE's Building Technologies Office
- [Existing IACs](#) and forthcoming Centers of Excellence
- [Federal Energy Management Program](#)
- [Battery Workforce Initiative](#)
- Projects of DOE's [Loan Programs Office](#) (many of which may be working to strengthen the regional manufacturing workforce)

³⁰ Drehobl, A. and K. Tanabe. (2019). Extending the Benefits of Nonresidential Energy Efficiency to Low-Income Communities. American Council for an Energy-Efficient Economy. <https://www.aceee.org/research-report/u1910>.

³¹ For purposes of this FOA, the term "industry" refers to manufacturing (NAICS 31-33) for the IAC Program and commercial building construction and maintenance for the BTAC Program. Similarly, the term "client" refers to small- and medium-sized manufacturers for the IAC Program and commercial building owners and operators for the IAC Program.



- [Manufacturing USA Institutes](#)
- [National Institute of Standards and Technology's Manufacturing Extension Partnerships \(MEPs\)](#)
- [National Laboratories](#) (e.g., the National Energy Technology Laboratory's [Regional Workforce Initiative](#))
- [State Energy Offices and Programs](#)
- Trade associations and regional energy efficiency organizations
- Energy services providers and utility efficiency programs and
- Other related Federal, State, and Tribal efforts

Such coordination may take the form of sharing client referrals or others' resources, or by providing mutual technical assistance to clients who can benefit from multiple sources.

DOE is compiling a "Teaming Partner List" to facilitate the formation of new project teams for this FOA (see Section I.B.iv below for more details and Section III for more information on consortium eligibility. Note that the total project cost must fit within the range in Section II.A.i).

e. Leveraging Federal and Other Efforts and Funds

DOE also seeks responses that leverage existing training infrastructure and resources developed by other local, state, and federal programs, or that leverage public or private partnerships or funding sources. Strong responses will demonstrate knowledge and awareness of relevant existing programs and describe how the proposed programming will leverage this existing infrastructure to create broader, more equitable, and more numerous pathways to careers in this sector (though cost share, Federal or otherwise, is not required). This is particularly important for programs supported or certified by other Federal agencies, such as the U.S. Department of Labor's engagement with regional workforce boards and American Jobs Centers.

Additionally, strong responses will provide a vision for sustaining the training and SMM services enabled by creation of new IACs and BTACs beyond BIL funding, such as through strategic dissemination of lessons; public, private, and industry partnerships to sustain IAC and BTAC activities; coordination to achieve economies of scale with other centers; or other means.

f. Community Benefits: Job Quality and Equity

To support the goal of building a clean and equitable energy economy, all BIL-funded projects are expected to (1) support meaningful community and labor engagement; (2) create good jobs and a skilled workforce; (3) advance diversity, equity, inclusion, and accessibility; and (4) contribute to the President's goal that 40% of the overall benefits of certain federal

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investments flow to DACs (the Justice40 Initiative). As set forth in the technical volume requirements, the applicant should provide specific detail on how to ensure the delivery of measurable community and jobs benefits, including at least one Specific, Measurable, Achievable, Relevant and Timely (SMART) milestone per budget period in order to measure progress on the proposed actions.

i. Community and Labor Engagement

Applications must describe the applicant's actions to date and future plans to engage with labor unions and community stakeholders – such as local governments, Tribal governments, and community-based organizations that support or work with underserved communities, including Disadvantaged Communities as defined for purposes of the Justice40 Initiative (described below). By facilitating community input, social buy-in, and accountability, such engagement can substantially enhance project success and reduce or eliminate risks associated with project implementation.

Applicants also are encouraged to 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 development of a skilled workforce; diversity, equity, inclusion, and accessibility; and the Justice40 Initiative detailed below.

ii. Investing in Job Quality and Workforce Continuity

High-quality jobs are critical to attracting and retaining a qualified workforce. Applications should describe how their approach to training new and incumbent workers will support upward mobility in the labor market through registered apprenticeship, stackable credentials, targeted upskilling, or more specialized training programs leading to jobs of sufficient quality to attract and retain skilled workers in clean energy industries. Applicants can reference the Department of Commerce and Department of Labor Good Jobs Principles as a guiding framework for high-quality jobs.³²

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

³² [The Good Jobs Initiative | U.S. Department of Labor \(dol.gov\)](#)

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assurances of project efficiency, continuity, and multiple public benefits. To that end, applications should support efforts to attract, train, and retain skilled and well-qualified workforces in conjunction with collective bargaining agreements, labor-management partnerships, or other similar agreements. Applications should also support efforts to attract, train, and retain skilled and well-qualified workforces as indicated through employer wages, benefits, and other worker supports that meet or exceed relevant prevailing wage benchmarks; employer commitments to invest in workforce education and training to reduce attrition, increase productivity from a committed and engaged workforce, and support the development of a resilient, skilled, and stable workforce; and employer efforts to engage employees in the design and execution of workplace safety and health plans.

The application should describe the applicant's approach to balancing employer needs with a worker-centered approach that empowers workers, including through employees' ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them.

iii. Diversity, Equity, Inclusion, and Accessibility (DEIA)

IACs and BTACs will be expected to work together with DOE, labor unions, and industry to ensure that the training provided offers access for students, apprentices, and other trainees (and particularly those from underrepresented backgrounds and disadvantaged communities) to credentials along existing and emerging clean energy pathways supporting high-quality jobs and safe, healthy, and inclusive workplaces. Applications should detail how diversity, equity, inclusion, and accessibility objectives (DEIA) will be incorporated into the project. This includes detailing how the project will serve under-represented communities and those facing systemic barriers to quality employment such as those with disabilities, returning citizens, opportunity youth, and veterans; providing individuals with comprehensive support services to overcome specific barriers to employment as needed, including through the provision of industry- or partner-enabled support services (e.g., childcare, transportation costs); career mapping, mentoring, and coaching, and skills development needed for individuals from underrepresented backgrounds to build successful careers through a variety of career pathways; as well as commitments to partner with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, and Veteran Owned Businesses as clients or contractors.



iv. Justice40 Initiative

Applicants must provide an overview of benefits to disadvantaged communities that the project can deliver, supported by measurable milestones. This consideration includes identifying applicable disadvantaged communities to which the anticipated project benefits will flow (e.g., those in the organization's catchment area, per the Council on Environmental Quality's [Climate & Economic Justice Screening Tool](#)), benefits that are quantifiable and measurable as well as how they might be tracked, a description of how and when those benefits are expected to flow to disadvantaged communities (e.g., directly or indirectly, and during or after the grant period), and discussion of any anticipated negative and cumulative environmental impacts on disadvantaged communities (and how they will be mitigated).

B. Topic Areas

All work for projects selected under this FOA must be performed in the United States. See Section IV.I.iii. and Appendix C.

i. Topic Area 1: IACs at Community Colleges and Trade Schools

This topic area will support the establishment of new IACs at community colleges and trade schools that will build upon the demonstrated success of the applied learning environment and hands-on training approach of the traditional IACs, while simultaneously drawing on the unique strengths, geographic reach, and faculty/student composition of trade schools and community colleges.

DOE intends that these new IACs will use innovative solutions to develop and deliver hands-on technical training necessary for high-quality clean energy jobs and career pathways while concurrently bolstering the nation's small- and medium-sized manufacturing base by promoting best practices for reducing industrial emissions and enhancing energy efficiency and productivity.

Applications are invited from individual community colleges or trade schools or entities that comprise multiple eligible entities such as State community college systems. Applicants are also encouraged to explore teaming opportunities, as stated in Section I.A.ii.d. above.

Applications should describe how the organization will develop and deliver effective technical assistance for regional SMMs consistent with the purposes of the IAC Program set forth in Section I.A.i. above but adjusted to the context of applying institutions and their surrounding communities, while concurrently offering training, hands-on experience, and career supports for students.



Applicants should describe in detail the industry-recognized credentials or degrees that students will achieve or progress toward them by participating in IAC programming.

MESC will consider proposals that align with the technical areas and objectives set forth in this FOA, and with current and anticipated regional needs. Technical areas of interest include but are not limited to:

- **Additive Manufacturing**
- **Advanced Manufacturing**
- **Battery Energy Storage**
- **Carbon Capture Utilization and Sequestration (CCUS)**
- **Combined Heat and Power (if net-zero aligned)**
- **Energy Efficiency**
- **Energy Management**
- **Geothermal Technologies**
- **Heating, Ventilation, and Air Conditioning with focus on Heat Pump Technologies**
- **Hydrogen and Fuel Cell Technologies**
- **Solar Energy**
- **Smart Manufacturing**
- **Sustainable Manufacturing**
- **Water and Wastewater Management**

MESC also will consider innovative proposals that incorporate other IAC-supported areas, such as cybersecurity, supply chain management, or industrial and manufacturing processes, provided that they incorporate elements of optimizing operations and reducing emissions consistent with the objectives of the IAC program.

Illustrative examples of IAC models and activities may include:

- **Expanding or creating credential, degree, and certificate programs** in partnership with regional SMM associations, labor unions, nonprofits, and/or workforce intermediaries (e.g., state, regional and local workforce development boards) that recruit more students into manufacturing efficiency, productivity, or decarbonization-relevant pathways with high job quality and demonstrable employer demand. These programs should provide opportunities for students to gain hands-on experience through supporting regional SMMs with no-cost assessments to improve energy efficiency and performance through adapted versions of the existing IAC assessment protocol template.
(<https://iac.university/assessmentProtocol>)



- For instance, students in smart building technology, energy management, electrician, or HVAC programs might help identify opportunities to improve manufacturing facility efficiency.
- Likewise, machine operator, electrician, and machinist programs might help battery and vehicle component manufacturers with supply chain analysis, logistics, system monitoring, energy management systems, and information technology advancements.
- **Working with SMMs and labor unions to build more hands-on opportunities for students and industry-recognized credentials into existing programs** that also enable more customized no-cost assessments of manufacturing facilities and processes leading to enhanced participation by SMMs in the [Buy Clean Initiative](#) and in use of environmental product declarations (EPDs) and other programs to identify and label materials and products with substantially lower levels of embodied greenhouse gas emissions (e.g., ISO 50001 Certification, WELL Certification Prep, Building Operator Certification Prep. Level 1 & 2, G|PRO Operations & Maintenance Essentials Certificate, Commercial Energy Auditor, etc.).
- **Designing or expanding energy-related Associates in Science programs and associated outreach**, and recruiting SMMs interested in no-cost energy audits or initial installation or maintenance of recommended tools and technologies, along with employer and union partnerships that expand on-site learning opportunities, job placement opportunities, and SMMs' access to skilled candidates (e.g., Machine Operator and Manufacturing Technology A.S., Numerical Control Technician A.S., Manufacturing Technology Track I CAM Systems Programming A.S., etc.).
- **Establishing tiered entry-level energy efficiency and management training credentialing and micro-credential programs** (e.g., weatherization, HVAC, energy auditing) to pipeline trainees from vocational schools to community colleges, from community colleges to four-year colleges, or from one career to another through reskilling, with opportunities for students to participate in and enhance no-cost assessments of SMMs provided by students and faculty at the next institution in the pathway (i.e., community colleges for vocational school students, four-year colleges for community college students).
- **Designing energy- and manufacturing-related pathway programs that address the needs of, and target outreach to, specific groups (e.g., displaced workers, women) and partner with community-based organizations to tackle barriers to participation and employment.**

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Supports might include (but are not limited to) bilingual trainings, earn and learn models, transportation, childcare, housing, mentoring, support groups, peer networking, and/or enhanced technology support to diverse students who participate in IAC activities, while also expanding SMMs' workforce pipeline. Partners trusted among key groups and communities may be helpful to enable impactful outreach.

- **Partnering with university-based IACs, IAC Centers of Excellence, and labor unions to provide assessment shadowing opportunities** for students – ideally including opportunities for employees of SMMs that have received IAC assessments to gain knowledge – and installation or initial operation support for SMMs based on assessment results related to energy efficiency, productivity, and management.
- **Convening and coordinating regional efforts to improve clean energy and manufacturing career pathways and manufacturing services** in partnership with the Centers of Excellence, Federal and State research offices, State energy offices and programs, trade associations, utility efficiency programs, workforce intermediaries, labor unions, or others. These efforts might seek to build an integrated ecosystem of workforce training and pathways in areas such as smart manufacturing, energy management systems, sustainable manufacturing, information technology advancements for supply chain analysis, logistics, system monitoring, industrial and manufacturing processes, or waste management, and include assessments or other support for SMMs as part of the training.
- **Developing cross-functional and/or virtual assessment methodologies** that connect faculty and students in different areas to provide more holistic performance and emissions reduction assessments at SMMs, to identify areas for deeper-dive assessments and technical assistance by particular pathway teams or other programs at university-based IACs, Manufacturing USA institutes (<https://www.manufacturingusa.com/institutes>), Manufacturing Extension Partnership centers (<https://www.nist.gov/mep>), or elsewhere. Innovative approaches to virtual energy and productivity assessments, or that leverage new technology tools (e.g., cloud-based platforms for data gathering and use) are of strong interest.
- **Other innovative ideas** that address the strategic goals in Section I.A.ii., including all four elements of community benefits (community and labor engagement, job quality and development of a skilled workforce, DEIA, and Justice40) as well as both (1) developing and delivering hands-on

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training for high-quality clean energy jobs and (2) enhancing performance and reducing emissions of SMMs. A demand-driven focus; commitments to collaboration, coordination, and leverage; and consideration of sustainability and replicability also should be included. Ideas that help diversify the workforce in relevant high-quality pathways, support those with particular barriers to employment, or recruit individuals from transitioning energy industries or who have been out of the labor force are especially encouraged.

Topic Area 2, below, has additional ideas that also may be relevant to this topic. New IACs also will be able to work with the forthcoming regional Centers of Excellence to develop and disseminate their programming.

ii. Topic Area 2: IACs at Union Training Programs

This topic area will support the establishment of new IACs at union training programs (including joint labor-management programs) that will build upon the demonstrated success of the applied learning environment and hands-on training approach of the traditional IACs, while simultaneously drawing on the unique strengths, geographic reach, and incumbent worker-focused orientation of union training programs and joint labor-management training programs to support small and medium-sized manufacturers.

As with the IACs discussed in Topic Area 1, DOE intends that these new IACs will use innovative solutions to develop and deliver hands-on technical training necessary for high-quality clean energy jobs and career pathways while concurrently bolstering the nation's small- and medium-sized manufacturing base by promoting best practices for reducing industrial emissions and enhancing energy efficiency and productivity.

MESC will consider proposals that align with the technical areas and objectives set forth in this FOA, and with current and anticipated regional needs. Technical areas of interest include but are not limited to:

- **Additive Manufacturing**
- **Advanced Manufacturing**
- **Battery Energy Storage**
- **Carbon Capture Utilization and Sequestration (CCUS)**
- **Combined Heat and Power (if net-zero aligned)**
- **Energy Efficiency**
- **Energy Management**
- **Geothermal Technologies**
- **Heating, Ventilation, and Air Conditioning with focus on Heat Pump Technologies**
- **Hydrogen and Fuel Cell Technologies**

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- **Solar Energy**
- **Smart Manufacturing**
- **Sustainable Manufacturing**
- **Water and Wastewater Management**

MESC also will consider innovative proposals that incorporate other IAC-supported areas, such as cybersecurity, supply chain management, or industrial and manufacturing processes, provided that they incorporate elements of optimizing operations and reducing emissions consistent with the objectives of the IAC program.

In addition to the ideas under Topic Area 1 above, illustrative examples of IAC models and activities may include:

- **Creating new or expanded labor-management training programs, such as to expand registered apprenticeships** in high-demand pathways (e.g., electrician, plumber/pipefitter, sheet-metal worker, welder, machine operators, wastewater systems operator, etc.), possibly in partnership with institutions of higher education and/or private sector partners, that enable opportunities for students to gain experience by supporting SMMs through no-cost assessments, installation, or maintenance. The industrial sector has few registered apprenticeship programs outside of the trades, but many more labor-management training partnerships. To reach non-trades industrial workers, these programs could be expanded. (Note that funded apprenticeship programs should result in credentials that are widely recognized by the relevant industry.)
- **Building partnerships with union and nonprofit pre-apprenticeship / apprenticeship readiness programs** that facilitate entry into a defined registered apprenticeship program and that recruit and prepare individuals with barriers to employment. Engagement with SMMs can provide opportunities for simulated experiences that are crucial to quality pre-apprenticeship programs.³³ It may also be valuable to partner with community-based organizations that can provide support services to participants such as childcare, transportation, car repair, and housing assistance; stipends for program application fees, tools, and work clothes; mentoring; peer networking etc.
- **Expand continuing education and journey upgrade classes for incumbent industrial workers** to create opportunities for employees of SMMs that have received IAC assessments and other incumbent SMM

³³ See [Explore Pre-Apprenticeship | Apprenticeship.gov](#) for more information on key elements for high-quality pre-apprenticeship programs.

workers to gain knowledge on engineering practices and processes. These programs might also help skilled workers in transitioning industries develop adjacent skills for new manufacturing opportunities to advance decarbonization (e.g., process technology workers at small and medium oil and gas refineries that are moving to manufacturing of durable goods that can support clean energy supply chains [e.g., graphite for batteries]).

- **Forming implementation and outreach partnerships with university-based IACs** that connect those IACs' assessments with opportunities for joint labor-management training program participants to gain experience by helping SMMs implement the recommendations that emerge, and to build university-based IACs' understanding of how best to partner with unions in improving manufacturing performance and career opportunity.
- **Drafting new competency frameworks and curricula** as part of creating or strengthening labor-management training program (as well as for use in community colleges and trade schools) for emerging fields (e.g., CCUS) in partnership with DOE, the U.S. Department of Labor, SMMs, and institutes of higher education, and piloting them to help SMMs achieve breakthrough efficiency and emissions reductions benefits.
- **Other innovative ideas** that address the strategic goals in Section I.A.ii., including all four elements of community benefits (community and labor engagement, job quality and development of a skilled workforce, DEIA, and Justice40) as well as both (1) developing and delivering hands-on training for high-quality clean energy jobs and (2) enhancing performance and reducing emissions of SMMs. A demand-driven focus; commitments to collaboration, coordination, and leverage; and consideration of sustainability and replicability also should be included. Ideas that help diversify the workforce in relevant high-quality pathways, support those with particular barriers to employment, or recruit individuals from transitioning energy industries or who have been out of the labor force are especially encouraged.

iii. **Topic Area 3: Building Training and Assessment Centers Program**

This topic area will provide grants to institutions of higher education to establish building training and assessment centers (BTACs) to educate and train building technicians and engineers on implementing modern building technologies. To the greatest extent practicable, BTACs should be co-located with IACs. Applicants for funding should address how they intend to advance workforce development and one or more of the following:

- **Identify opportunities for optimizing energy efficiency and environmental performance in buildings**

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- **Promote the application of emerging concepts and technologies in commercial and institutional buildings**
- **Train engineers, architects, building scientists, building energy permitting and enforcement officials, and building technicians in energy-efficient design and operation**
- **Assist institutions of higher education and Tribal Colleges or Universities in training building technicians**
- **Promote research and development for the use of alternative energy sources and distributed generation to supply heat and power for buildings, particularly energy-intensive buildings**
- **Coordinate with and assist State-accredited technical training centers, community colleges, Tribal Colleges or Universities, and local offices of the National Institute of Food and Agriculture and ensure appropriate services are provided under this section to each region of the United States.**

The funding for Building Training and Assessment Centers is provided solely by the Bipartisan Infrastructure Law. Applicants should detail how they plan to use this seed funding to launch a program that can be sustained absent DOE funding. Applicants may want to explore partnering with state workforce development entities or utility energy efficiency programs that may have funding to supplement the funding being awarded by DOE.

BTACs will be responsible for training program participants in topics centered on building energy efficiency and environmental performance. Training programs may be geared toward trainees at any career stage including, but not limited to students, entry-level workers, mid-career workers, transitioning workers, or a combination. BTACs will establish partnership agreements with local entities, recruit small commercial and institutional building clients, hire and train participants, conduct energy efficiency assessments of small commercial and institutional buildings in their locale, and work with partners to connect building clients with financing and energy efficiency upgrade support. Interfacing with small commercial and institutional building clients will require a broad skillset spanning technical and non-technical skills. As such, a diverse mix of participants studying or training in technical building science-related topics as well as other topics including, but not limited to sustainability management, business or social and behavioral sciences is acceptable for participation in BTAC programs.

Proposed BTAC curricula is encouraged to focus on a range of commercial and institutional building topics including, but not limited to: Portfolio- and Site-level Decarbonization plans, energy audits with decarbonization focus, benchmarking (Energy Star or other), HVAC (controls, electrification of space heating, electrification of water heating, high efficiency equipment retrofit, use of waste

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heat, thermal storage), HVAC ventilation (demand control ventilation (DCV), exhaust fan control), window retrofits or replacement, cool roofs, roof insulation, reducing roof infiltration, lighting (LEDs, reducing lighting levels), lighting controls (occupancy sensors, daylight dimming), occupant engagement, Energy Management and Information Systems/Analytics, plug and process loads (plug load controls, appliance/electronics efficiency and power management, kitchen/process equipment efficiency and operations, smart electric vehicle charging), jurisdiction modeling analysis to scale up energy improvements, cybersecurity, greenhouse gas inventory (scope 1 and 2), onsite renewables, offsite renewables, power purchase agreements including utility offerings, battery storage, demand flexibility, fuel switching, and refrigeration (leak maintenance and low global warming potential refrigerant selection).

Specialized curricula may be supplemented with an existing credentialing program (i.e., the Better Buildings Workforce Guidelines for building energy auditor and building commissioning professional [BBWG Job Task Analyses | National Institute of Building Sciences \(nibs.org\)](#)). Job tasks and skills competencies from the residential building sector may also be useful for some commercial building assessments. Some relevant job tasks, competencies, and curricula from the residential building sector are outlined on the following sites: [Standard Work Specifications \(NREL\)](#), [Current Building Performance Institute Certification Standards](#), [Building America Solution Center \(DOE\)](#), and [Better Buildings Assessor Resources \(DOE\)](#).

Applications with some or all of the following elements are encouraged:

- Community organization and/or local government partnerships, especially partnerships with organizations that work directly with disadvantaged communities.
- Partnerships with training providers, relevant certification bodies, and local/regional clean energy workforce employers.
- Partnerships with regional utilities, contractors, local grant or lending agencies to assist with financing and implementation of assessment recommendations.
- Trade unions, public employee unions, service sector unions and joint labor-management training programs, including registered apprenticeships.
- Programs that target small businesses or organizations owned or led by individuals from underrepresented groups in client outreach.
- Innovative ideas for partnership structure, training, and methods to bring energy efficiency upgrades to underserved commercial building clients.
- Coordination with the state workforce development agency or plan.



Table 1 summarizes some example roles and responsibilities for different partners in the BTAC program structure. However, applicants are encouraged to think through the needs of their own communities and develop innovative partnership programs to better reach small commercial buildings and meet local clean energy workforce demand. Applicants are also encouraged to consider leveraging existing local/regional structures when developing their partnership programs.

Partner	Role and Responsibilities
Higher Education Institution (including Tribal Colleges or Universities)	<p><u>Prime applicant</u> – Central hub of the Center, recruits and hires students, provides training, manages project budget, manages partners, can receive building assessments.</p> <p><u>Sub-applicant or partner</u> – Institutions of higher education may also partner with each other. While not required, it may be helpful for institutions that are first-time FOA applicants to partner with another institution to develop their BTAC program. For this type of partnership, allocation of project funds that reasonably aligns with the level of involvement of each institution is highly encouraged.</p>
Industrial Assessment Center (IAC)	<u>Sub-applicant or partner</u> – While not required, applicants in regions where there is an existing IAC are encouraged to partner or collaborate. Can receive building assessments.
Local Utility	<u>Sub-applicant or partner</u> – Provide direct install, retrofit programs, or incentive programs for implementation of assessment recommendations
Chambers of Commerce, Business Associations, local branch of National Institute of Food and Agriculture, other local entities	<u>Sub-applicant or partner</u> – Assist with recruitment and outreach to commercial building clients, assist clients with financing applications/paperwork for project implementation

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Local/regional energy efficiency or clean energy employer	<u>Sub-applicant or partner</u> – Assist with participant training, hire trained program participants
Trade Unions, Public Employee Unions, Service Sector Unions, and Joint Labor-Management Training Programs	<u>Sub-applicant or partner</u> – Implement assessment recommendations, provide implementation training to program participants

Table 2 summarizes some examples of innovative partnerships that could potentially further the reach of the centers.

Partner	Role and Responsibilities
State and Local Governments	<u>Sub-applicant or partner</u> – Assist with recruitment and outreach to underserved commercial and institutional building clients; provide connections to federal, state, and local financing and incentive programs
Non-profit Coalitions	<u>Sub-applicant or partner</u> – Receive building assessments, assist with recruitment and outreach to underserved commercial building clients, assist with engagement and resource development
K-12 Schools	<u>Sub-applicant or partner</u> – Receive building assessments, work with the main BTAC to engage K-12 students in energy efficiency assessment process, develop clean energy curricula to teach k-12 students about career opportunities in clean energy

C. Teaming Partner List

DOE encourages eligible entities to team up on a single application in order to (1) ease the administrative burdens associated with managing a federal grant, (2) maximize the scope, reach, and level of ambition for the proposed projects and programs, and (3) encourage sharing of capacity, knowledge, expertise, lessons learned and best practices across jurisdictions.

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DOE is compiling a “Teaming Partner List” to facilitate the formation of new project teams for this FOA. The Teaming Partner List allows organizations who may wish to participate on an application to express their interest to other applicants and to explore potential partnerships.

Updates to the Teaming Partner List will be available in the Infrastructure eXCHANGE website. The Teaming Partner List will be regularly updated to reflect new teaming partners who provide their organization’s information.

SUBMISSION INSTRUCTIONS: Users will see a new section, “Teaming Partners”, within the left-hand navigation in eXCHANGE. This page allows users to view published Teaming Partner Lists and any interested party that would like to be included on this list should submit a request within eXCHANGE to join the teaming partner list. Select the appropriate Teaming Partner List from the dropdown and fill in the following information: Investigator Name, Organization Name, Organization Type, Topic Area, 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 self-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.

D. 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 technical parameters specified in Sections I.A. and I.B. of the FOA.
- Applications to fund construction activities such as the expansion or modification of a facility.
- Applications that promote vendor-specific technologies.
- Applications that utilize prototype technologies or include R&D activities related to prototype software or technology development.

E. Authorizing Statutes

The programmatic authorizing statutes are:

Section 40521 of the BIL (codified at 42 U.S.C. § 17116), and

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Section 40512 of the BIL (codified at 42 U.S.C. § 18801).

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

F. Notice of Bipartisan Infrastructure Law-Specific Requirements

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

- 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 United States;
- 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 \$54 million of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making approximately 21-90 awards under this FOA. DOE may issue one, multiple, or no awards. Individual awards may vary between \$450,000 and \$3,000,000 for Topic Area 1 (with awards toward the larger end of that range, if made, especially likely to be to entities, such as State-

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wide community college systems, that comprise multiple institutions in a region), between \$450,000 and \$9,000,000 for Topic Area 2 (with awards toward the larger end of that range, if made, especially likely to be national entities that work in multiple geographies), and between \$950,000 and \$1,100,000 for Topic Area 3).

DOE may issue awards in one, multiple, or none of the following topic areas:

Topic Area Number	Topic Area Title	Anticipated Number of Awards	Anticipated Minimum Award Size for Any One Individual Award	Anticipated Maximum Award Size for Any One Individual Award	Approximate Total Federal Funding Available for All Awards	Anticipated Period of Performance (months)
1	IACs at Community Colleges and Trade Schools	12-65	\$450,000	\$3,000,000	\$35 million	36 months
2	IACs at Union Training Programs	1-15	\$450,000	\$9,000,000	\$10 million	36 months
3	BTACs Program	8-10	\$950,000	\$1,100,000	\$9 million	36 months

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 from 2 to 3 years in length, comprised of one or more budget periods. Project continuation will be contingent upon several elements, including satisfactory performance and DOE's Go/No-Go decision. For a complete list and more information on the Go/No-Go review, see Section VI.B.xii.

iii. New Applications Only

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

B. DOE Funding Agreements

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



i. Cooperative Agreements

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

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

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

ii. Funding Agreements with Federally Funded Research and Development Center (FFRDCs)³⁴

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.

III. Eligibility Information

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

A. Eligible Applicants

i. 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 recipients of this FOA, per the Topic Area as follows:

³⁴ Federally Funded Research and Development Centers (FFRDC) - FFRDCs are public-private partnerships which conduct research for the United States government. A listing of FFRDCs can be found at <http://www.nsf.gov/statistics/ffrdclist/>.



Topic Area 1: Only the following entities are eligible to apply as prime recipients under this Topic Area:

1. **Community colleges**, which are defined for purposes of this FOA as open-access, primarily associate degree-granting educational institutions that are accredited by a regional accreditation agency recognized by the U.S. Secretary of Education under the Higher Education Act of 1965, as amended. These institutions also may offer other credentials (e.g., shorter-term and longer-term certificate programs) in addition to associate degrees.
2. **Community College Systems**, which are defined for purposes of this FOA as County-wide or State-wide community college systems. These systems can apply on behalf of constituent colleges, but must include a letter of commitment from each participating college that will be a subrecipient (per Section IV.D.iv.).
3. **Trade schools**, which are defined for purposes of this FOA as educational institutions, other than community colleges and union training programs, that offer career and technical education leading to industry-recognized credentials or degrees up to, but not including, bachelor's degrees, and that are accredited by an accreditation agency recognized by the U.S. Secretary of Education under the Higher Education Act of 1965, as amended. Trade schools include entities that are nested within larger institutions that grant bachelor's or graduate degrees (e.g., extension schools), but proposed projects must focus on students who are seeking non-bachelor's or graduate credentials.

Topic Area 2: Only the following entities are eligible to apply as prime recipients under this Topic Area:

1. **Union Training Programs**, which are defined for purposes of this FOA as credential-granting training programs (including joint labor-management training programs) administered by (a) a union or group of unions certified by the National Labor Relations Board or (b) a Joint Apprenticeship and Training Committee composed of an equal number of representatives of relevant employer(s) and employees represented by a collective bargaining agreement.

Topic Area 3: Only the following entities are eligible to apply as prime recipients under this Topic Area:

1. **Institutions of higher education**; which for purposes of this FOA means as an institution of higher education as defined under 20 U.S.C. § 1001.
2. **Tribal colleges or universities**, which are defined for purposes of this FOA as Tribal Colleges or Universities serving Indian students, as recognized in 20 U.S.C. § 1059c(b).



The following types of domestic entities are eligible to participate as a subrecipient of this FOA:

1. Any institution eligible to be a prime recipient
2. Other institutions of higher education;
3. For-profit entities;
4. Non-profit entities; and
5. State and local governmental entities, and Indian tribes.

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

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

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

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

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

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

ii. **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 C 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.

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iii. Incorporated Consortia

Domestic incorporated consortia are eligible to participate as a prime recipient or subrecipient. For consortia incorporated (or otherwise formed) under the laws of a state or territory of the United States, please refer to “Domestic Entities” above. For consortia incorporated (or otherwise formed) in a foreign country, please refer to the requirements in “Foreign Entities” above.

Each consortium must have an internal governance structure and a written set of internal rules. Upon request, the consortium must provide a written description of its internal governance structure and its internal rules to the DOE Grants Officer.

If the consortium includes foreign members, the applicant must submit a separate explicit written waiver request in the Full Application for each foreign member. See Appendix C.

iv. Unincorporated Consortia

Unincorporated Consortia must designate one member of the consortium to serve as the prime recipient/consortium representative. The prime recipient/consortium representative must qualify as a domestic entity.

Upon request, unincorporated consortia must provide the DOE Grants Officer with a collaboration agreement, commonly referred to as the articles of collaboration, which sets out the rights and responsibilities of each consortium member. This agreement binds the individual consortium members together and should include the consortium’s:

- Management structure;
- Method of making payments to consortium members;
- Means of ensuring and overseeing members’ efforts on the project;
- Provisions for members’ cost sharing contributions; and
- Provisions for ownership and rights in intellectual property developed previously or under the agreement.

If the consortium includes foreign members, the applicant must submit a separate explicit written waiver request in the Full Application for each foreign member. See Appendix C.



B. Cost Sharing

Cost sharing is not required under this FOA. However, per Section V.C., an applicant's ability to leverage outside funding to ensure and enhance the success of the program, as well as its sustainability following the federal award period, may be considered.

In the event an applicant intends to propose voluntary committed cost share, DOE has included a cost share information sheet as Appendix A in this FOA to assist applicants in calculating proper cost share amounts.

v. 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.

vi. Cost Share Allocation

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

vii. 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.

Project teams may provide cost share in the form of cash or in-kind contributions. 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 funding was not provided to the state or local government by the federal government.

The recipient may not use the following sources to meet its cost share obligations including, but not limited to:

- 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 federal 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 Grants 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.

viii. Cost Share Contributions by FFRDCs

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



ix. 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.

x. Cost Share Payment

DOE requires prime recipients to contribute the cost share amount incrementally over the life of the award. Specifically, the prime recipient's cost share for each billing period must always reflect the overall cost share ratio negotiated by the parties (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 Grants Officer may approve a request by the prime recipient to meet its cost share requirements on a less frequent basis, 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 Grants 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 Grants Officer must approve all such requests before they go into effect.

C. Compliance Criteria

All applicant submissions must:

- Comply with the applicable content and form requirements listed in Section IV. of the FOA;
- Include all required documents;
- Be successfully uploaded in Infrastructure Exchange (<https://InfrastructureExchange.energy.gov>), including clicking the "Submit" button; and
- Be submitted by the deadline stated in the FOA.

DOE will not review or consider submissions submitted through means other than Infrastructure 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 in advance of the submission deadline), applicants should allow at least 1 hour to submit a Concept Paper or Full Application. Once the Concept Paper or Full Application is submitted in Infrastructure 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

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

E. Other Eligibility Requirements

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

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

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

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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 utilizing 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 phases: a Concept Paper phase and a Full Application phase. **Only applicants who have submitted an eligible 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 Infrastructure 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 Infrastructure eXCHANGE

Infrastructure eXCHANGE is designed to enforce the deadlines specified in this FOA. The "Apply" and "Submit" buttons will automatically disable at the defined submission deadlines. Should applicants experience problems with Infrastructure eXCHANGE, the following information may be helpful.

Applicants that experience issues with submission **PRIOR** to the FOA deadline: In the event that an applicant experiences technical difficulties with a submission, the applicant should contact the Infrastructure eXCHANGE helpdesk for

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assistance (InfrastructureExchangeSupport@hq.doe.gov). The Infrastructure Exchange helpdesk and/or the Infrastructure eXCHANGE system administrators will assist applicants in resolving issues.

B. Application Forms

The application forms and instructions are available on Infrastructure eXCHANGE. To access these materials, 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 Infrastructure eXCHANGE website is 50MB. Files in excess of 50MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 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 one IAC or BTAC project, either of which could include multiple institutions, or an IAC and BTAC co-located with one another. 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 Topic Area being addressed (1. IACs at community colleges and trade schools, 2. IACs at union training programs, or 3. BTACs program), 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	5 pages maximum	Applicants are required to describe succinctly: <ul style="list-style-type: none"> • Project overview: The proposed IAC or BTAC project, including its goals, model, technical training area focus, and how it is relevant to the regional context, unique, and innovative; • Activities: Services that will be provided to IAC or BTAC clients, how clients will be sourced, and how the services provided will improve upon current national and/or regional baselines;

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		<ul style="list-style-type: none"> • Impact: The potential impact that the proposed project would have on the strategic goals discussed in Section I.A.ii.; • Community Benefits Plan, addressing the following four core elements: <ul style="list-style-type: none"> ○ engaging affected communities and labor (both engagement to date and planned); ○ investing in job quality and development of a skilled workforce; ○ advancing diversity, equity, inclusion, and accessibility; and ○ contributing to the Justice40 Initiative goal that 40% of the benefits of climate and clean energy investments flow to disadvantaged communities. • Risks: The key technical, practical, regulatory, and/or financial risks and issues associated with the proposed project; • Leverage: Any opportunities to leverage existing programs or other funding sources; • Team structure: Brief description of planned team makeup and organization (e.g., titles, major workstreams); and • DOE funding impact: The impact that DOE funding would have on the proposed project.
Addendum	2 pages maximum	<p>Applicants are required to describe succinctly the qualifications, experience, and capabilities of the proposed Project Team, including:</p> <ul style="list-style-type: none"> • 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 also may provide graphs, charts, or other data to supplement their Project Description.

DOE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.i. of the FOA. DOE will encourage a subset of applicants to submit Full Applications. Other applicants will be discouraged from submitting a Full Application. See Section VI.A.

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D. Content and Form of the Full Application

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

Applicants will have approximately 30 days from receipt of the Concept Paper Encourage/Discourage notification on Infrastructure 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.

Component	File Format	Page Limit	File Name
Technical Volume	PDF	25	ControlNumber_LeadOrganization_TechnicalVolume
Resumes	PDF	3 pages each	ControlNumber_LeadOrganization_Resumes
Letters of Commitment	PDF	1 page each	ControlNumber_LeadOrganization_LOCs
Community Partnership Documentation	PDF	10	ControlNumber_LeadOrganization_PartnerDoc
Statement of Project Objectives	MS Word	5	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 Slide	MS PowerPoint	1	ControlNumber_LeadOrganization_Slide
Subrecipient Budget Justification	MS Excel	n/a	ControlNumber_LeadOrganization_Subrecipient_Budget_Justification
DOE Work Proposal for FFRDC, if applicable (see DOE O 412.1A, Attachment 2)	PDF	n/a	ControlNumber_LeadOrganization_WP
Authorization from cognizant Contracting Officer for FFRDC	PDF	n/a	ControlNumber_LeadOrganization_FFRDCAuth
SF-LLL Disclosure of Lobbying Activities	PDF	n/a	ControlNumber_LeadOrganization_SF-LLL

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Foreign Entity Waiver Requests and Foreign Work Waiver Requests	PDF	n/a	ControlNumber_LeadOrganization_Waiver
Current and Pending Support	PDF	n/a	ControlNumber_LeadOrganization_CPS
Locations of Work	PDF	n/a	ControlNumber_LeadOrganization_LOW
Transparency of Foreign Connections (if applicable)	PDF	n/a	ControlNumber_LeadOrganization_TFC
Potentially Duplicative Funding Notice (if applicable)	PDF	n/a	ControlNumber_LeadOrganization_PDFN

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

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

ii. Technical Volume

The Technical Volume must conform to the following content and form requirements. This volume must address the technical review criteria as discussed in Section V.A.ii. of the FOA. Save the Technical Volume in a single PDF file using the following 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 25 pages, including the cover page, table of contents, and all citations, charts, graphs, maps, photos, or other graphics, and must include all of the information in the table below. The applicant should consider the weighting of each of the technical review criterion (see Section V. 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 Topic Area being addressed (1. IACs at community colleges and trade schools, 2. IACs at union

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	training programs, or 3. BTACs), the name of the business point of contact, the name(s) of the project manager(s), the names of all team member organizations, the names of all senior/key personnel, the project location(s), and any statements regarding confidentiality.
Project Overview (Approximately 10% of the Technical Volume)	<p>The Project Overview should contain the following information:</p> <ul style="list-style-type: none"> • Background: The applicant should discuss the background of their organization, including the history, successes, and current focus of the organization relevant to the project. • Project Goal: The applicant should explicitly identify the objectives of the program and the critical success factors in achieving the goals of the project, including the ways in which community and labor engagement, proposed facilities and equipment, and proposed project partners will contribute to the success of the overall project. • DOE Impact: The applicant should discuss the impact that DOE funding would have on the proposed project. Applicants should specifically explain (1) why DOE funding is necessary to achieve the project objectives and (2) steps the applicant has taken and will take in the future to secure funding from other public and private sources to support the project.
Project Description, Innovation, Impact, and Community Benefits Plan (Approximately 50% of the Technical Volume)	<p>The Project Description, Innovation, and Impact section should include the following information:</p> <ul style="list-style-type: none"> • Technical Training Area: The applicant should provide a detailed description of the technical training area proposed in the project. This should include descriptions of (a) the technical training that will be provided to participants, (b) curricula, equipment, and other resources that the applicant intends to use to conduct this training, (c) technical services that will be provided to clients during on-site training, and (d) strategies by which students will encourage clients to pursue recommended upgrades. • Regional Context: The applicant should briefly describe the region to be served by the proposed project, with a focus on (a) clean energy workforce trends and opportunities, (b) the needs of potential IAC or BTAC clients in the region, and (c) the ways in which the project aligns with place-based economic development strategies and plans relevant to the region. • Innovation and Impact for Trainees: The applicant should describe the current regional baseline for training in the applicable technical area and the advantages of the proposed project in improving upon that baseline (e.g., improving the quality of training in the relevant technical area, scaling training in the relevant technical area to make it broadly available, or increasing accessibility of training in the relevant technical area in a particular geography or for a particular group of trainees).

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	<ul style="list-style-type: none">• Client Impact and Outreach: The applicant should describe plans for reaching out to clients – SMMs for the IAC program and small commercial buildings (50,000 square feet or less) or K-12 schools for the BTAC program—and how they program will facilitate client investment in recommended improvements.• Collaboration and Coordination: The applicant should describe how the project will coordinate with, leverage, and build upon existing programs (e.g., Better Buildings/Better Plants, existing IACs, etc.) and how existing training infrastructure and resources developed by other local, state, utility, and federal programs, or other public or private funding sources and financing, will be leveraged.• Community Benefits Plan<ul style="list-style-type: none">○ Community and Labor Engagement: The applicant should describe its actions to date and future plans to engage with labor unions, Tribal entities, and community-based organizations that support or work with disadvantaged communities and other high-risk, under-represented, or under-served populations, as well as how this engagement will lead the project to deliver high-quality jobs and other project benefits for these stakeholders. Applicants are also encouraged to provide Community and Labor Partnership Documentation from representative organizations reflecting substantive engagement and feedback on applicant’s approach to community benefits.○ Job Quality and Development of a Skilled Workforce: The applicant should describe how the project will improve job quality through workforce partnerships that include high-road employers (i.e., those that invest in workers to compete on quality) and union partners, and in which employment opportunities include the highest standards of workplace health and safety and the affirmative assurance of employees’ free ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in workplace decisions that affect them. The applicant should also identify and describe plans for connecting students with pathways to employment.○ Diversity, Equity, Inclusion, & Accessibility: The applicant should describe how DEIA objectives will be incorporated into the project. This section should include how the applicant will recruit diverse participants and ensure access for students and trainees with barriers to employment. It should mention any plans to provide comprehensive support services that might increase disadvantaged community participation in the project’s activities and any plans to partner with underrepresented businesses, educational institutions, community-based organizations, and training organizations that
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	<p>serve workers who face barriers to accessing quality jobs, and/or other project partners to help address DEIA.</p> <ul style="list-style-type: none"> ○ Justice40 Initiative: The applicant should provide an overview of the benefits to disadvantaged communities that the project can deliver. The applicant should identify the specific disadvantaged communities to which anticipated benefits will flow, as well as which of the following quantifiable, measurable, and trackable benefits are anticipated to flow to these 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., minority-owned or disadvantaged business enterprises); (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. The applicant should further describe how and when anticipated benefits are expected to flow from the project to disadvantaged communities.
<p>Workplan (Approximately 20% of the Technical Volume)</p>	<p>The Workplan should include Project Objectives, Project Schedule, Milestones, Go/No-Go Decision Points, End of Project Goal, and Project Management Plan, as set forth below. A detailed SOPO is separately requested. Information provided in the Workplan should be consistent with the SOPO.</p> <ul style="list-style-type: none"> ● 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 (see below for more information on Go/No-Go decision points). The applicant should describe the specific expected end result of each performance period, including milestones in the Community Benefits Plan. ● Project Schedule (Gantt Chart or similar): The applicant should provide a schedule for the entire project, including task and subtask durations, milestones, and Go/No-Go decision points. ● Task Descriptions: The Workplan should describe the work to be accomplished and how the applicant will achieve the milestones and accomplish the final project goals. The Workplan should contain a concise description of the specific activities to be conducted over the life of the project. ● Milestones: The applicant should propose milestones throughout the project to demonstrate success. The workplan must include at least one milestone (which can be an activity-based progress measure) per



	<p>quarter. Additionally, the workplan should propose at least one SMART milestone per year for the duration of the project in each of the following areas: (1) Innovation and Impact for Trainees, (2) Innovation and Impact for Clients, (3) Community and Labor Engagement, (4) Job Quality and Development of a Skilled Workforce, (5) DEIA, and (6) Justice40. SMART milestones should be Specific, Measurable, Achievable, Relevant, and Timely, and should measure an outcome rather than simply completion of a task. The applicant should also explain how each milestone will be verified.</p> <ul style="list-style-type: none"> • Go/No-Go Decision Points: The applicant should provide at least one proposed SMART milestone as a project-wide Go/No-Go decision point for each budget period. See Sections VI.B.xi-xii, and note that DOE will evaluate recipients' progress on community benefits milestones as part of Go/No-Go review, as well. • End of Project Goal: The applicant should provide at least one SMART end-of-project goal. • Buy America Requirements for Infrastructure Projects: Within the first 2 pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the United States. See Appendix D for applicable definitions and other information to inform this statement. • Project Management: The Workplan should discuss the team's proposed project management plan, including: <ul style="list-style-type: none"> ○ The overall approach to and organization for managing the work. ○ The role of each project team member. ○ Technical and management systems and practices that will be utilized, such as financial and project management practices. ○ The approach to risk management, including a list of significant risks and mitigation strategies. ○ A description of how project changes will be handled.
<p>Technical Qualifications and Resources (Approximately 20% of the Technical Volume)</p>	<p>Technical Qualifications and Resources should include the following information:</p> <ul style="list-style-type: none"> • Describe the project team's relevant qualifications, expertise, and experience, including those of key subrecipients. • Include relevant previous work efforts, demonstrated innovation and impact, and how those will enable the applicant to achieve the project objectives. • Describe the project team's existing equipment and facilities that will facilitate the successful completion of the proposed project, include a justification of any new equipment or facilities requested as part of the project.

	<ul style="list-style-type: none">• Describe the time commitment of the key team members to support the project.• Describe the technical services to be provided by DOE/NNSA FFRDCs, if any.• For multi-organizational projects, describe succinctly:<ul style="list-style-type: none">○ The roles and the work to be performed by the Project Manager and senior/key personnel at the prime- and sub-levels;○ Business agreements between the applicant and any subs; and○ How efforts will be integrated and managed.
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iii. Resumes

A resume provides information that can be used by reviewers to evaluate the individual's relevant skills and experience of the key project personnel. Applicants must submit a resume limited to three pages for each project manager and key personnel that includes the following:

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

As an alternative to a resume, it is acceptable to use the biographical sketch format approved by the National Science Foundation (NSF). The biographical sketch format may be generated by the Science Experts Network Curriculum Vita (SciENcv), a cooperative venture maintained at <https://www.ncbi.nlm.nih.gov/sciencv/>, and is also available at <https://nsf.gov/bfa/dias/policy/nsfapprovedformats/biosketch.pdf>. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats.



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

iv. Letters of Commitment

Submit letters of commitment from all subrecipient and third-party cost share providers. If applicable, the letter must state that the third party is committed to providing a specific minimum dollar amount or value of in-kind contributions allocated to cost sharing. The following information for each third party contributing to cost sharing should be identified: (1) the name of the organization; (2) the proposed dollar amount to be provided; and (3) the proposed cost sharing type – (cash-or in-kind contributions). Each letter must not exceed 1 page. Save the letters of commitment in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_LOCs".

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

v. 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, such as organizations that carry out workforce development programs, labor unions, Tribal organizations, and community-based organizations that work with disadvantaged communities. The Partnership Documentation could be in the form of a letter on the partner's letterhead outlining the planned partnership signed by an officer of the entity, a Memorandum of Understanding, or other similar agreement. Such letters must state the specific nature of the partnership and must not be general letters of support. If the applicant intends to enter into a Workforce and Community Agreement as part of the Community Benefits Plan, please include letters from proposed partners as appropriate. Each letter must not exceed 1 page. In total, the partnership documentation must not exceed 10 pages. Save the partnership documentation in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_PartnerDoc".

vi. Statement of Project Objectives (SOPO)

Applicants must complete a SOPO. A SOPO template is available on Infrastructure eXCHANGE at <https://infrastructure-exchange.energy.gov/> under this FOA posting. The SOPO, including the Milestone Table, must not exceed five 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 convention for the title
“ControlNumber_LeadOrganization_SOPO”.

vii. SF-424: Application for Federal Assistance

Applicants must complete the SF-424 Application for Federal Assistance which is available under this FOA posting in Infrastructure eXCHANGE. Complete all required fields in accordance with the instructions on the 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 convention for the title
“ControlNumber_LeadOrganization_App424”.

viii. Budget Justification Workbook

Applicants must complete the Budget Justification Workbook, which is available on Infrastructure eXCHANGE at <https://infrastructure-exchange.energy.gov/> under this FOA posting. Applicants must complete each tab of the Budget Justification Workbook for the project as a whole, including all work to be performed by the prime recipient and its subrecipients and contractors. Applicants should include costs associated with implementing the various BIL-specific requirements (e.g., Buy America requirements for infrastructure projects, Davis Bacon, Community Benefits Plan, reporting, oversight) and with required annual audits and incurred cost proposals in their proposed budget documents. Such costs may be reimbursed as a direct or indirect cost. The “Instructions and Summary” included with the Budget Justification Workbook will auto-populate as the applicant enters information into the Workbook. Applicants must carefully read the “Instructions and Summary” tab provided within the Budget Justification Workbook. Save the Budget Justification Workbook in a single Microsoft Excel file using the following convention for the title “ControlNumber_LeadOrganization_Budget_Justification”.

ix. Summary for Public Release

Applicants must submit a one-page summary of their project that is suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the project director(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (e.g., benefits, outcomes), major participants (for collaborative projects), and the project’s commitments and goals described in the Community Benefits Plan. This document must not include



any proprietary or sensitive business information as DOE may make it available to the public after selections are made. The summary must not exceed 1 page when printed using standard 8.5" x 11" paper with 1" margins (top, bottom, left, and right) with font not smaller than 12 point. Save the Summary for Public Release in a single PDF file using the following naming convention "ControlNumber_LeadOrganization_Summary".

x. Summary Slide

Applicants must provide a single slide summarizing the proposed project. The Summary Slide template must include the following information:

- A project summary;
- A summary of proposed client services;
- A description of the proposed workforce pathway supported, including certificates, credentials, and/or degrees offered;
- Proposed project goals;
- Any key graphics (illustrations, charts and/or tables);
- The project's key idea/takeaway;
- Topline community benefits;
- Project title, prime recipient, Project Director, and senior/key personnel information; and
- Requested DOE funds and proposed applicant cost share.

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

xi. Subrecipient Budget Justification (if applicable)

Applicants must provide a separate budget justification for each subrecipient that is expected to perform work estimated to be more than \$250,000 or 25 percent of the total work effort (whichever is less). The budget justification must include the same justification information described in the "Budget Justification" section above. Save each subrecipient budget justification in a Microsoft Excel file using the following convention for the title "ControlNumber_LeadOrganization_Subrecipient_Budget_Justification".

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

If a DOE/NNSA FFRDC is to perform a portion of the work, the applicant must provide a DOE WP in accordance with the requirements in DOE Order 412.1A, Work Authorization System, Attachment 2, available at:

<https://www.directives.doe.gov/directives-documents/400-series/0412.1->



[BOrder-a-chg1-AdmChg](#) Save the WP in a single PDF file using the following convention for the title “ControlNumber_LeadOrganization_WP”.

xiii. 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 convention for the title “ControlNumber_LeadOrganization_FFRDCAuth”.

xiv. 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” a template can be found under this FOA posting or <https://www.grants.gov/web/grants/forms/sf-424-individual-family.html> 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 convention for the title “ControlNumber_LeadOrganization_SF-LLL”.

xv. Waiver Requests (if applicable)

Foreign Entity Participation

For projects selected under this FOA, 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 C lists the information that must be included in a waiver request.

Foreign Work Waiver Request

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As set forth in Section IV.I.iii., all work for projects selected under this FOA must be performed in the United States. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application.

Appendix C lists the information that must be included in a foreign work waiver request.

Save the Waivers in a single PDF file using the following convention for the title "ControlNumber_LeadOrganization_Waiver".

xvi. 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 – end date); and
- The person-months of effort per year being dedicated to the award or activity.

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

Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to

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

Save the Current and Pending Support in a single PDF file using the following 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 relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to United States entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

Senior/key personnel – an individual who contributes in a substantive, meaningful way to the scientific development or execution of a research, development and demonstration (RD&D) project proposed to be carried out with DOE award.³⁵

³⁵ 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.

xvii. Locations of Work

The applicant must complete the supplied template by listing the city, state, and zip code + 4 for each location where project work will be performed by the prime recipient or subrecipient(s). Save the completed template as a MS Excel file using the following convention for the title "Control Number_LeadOrganization_LOW."

xviii. Transparency of Foreign Connections

Applicants must identify the following as they relate to the proposed recipient and subrecipients:

1. Entity name, website address and mailing address;
2. The identity of all owners, principal investigators, project managers, and senior/key personnel who are a party to any *Foreign Government-Sponsored Talent Recruitment Program* of a foreign country of risk (i.e., China, Iran, North Korea, and Russia);
3. The existence of any joint venture or subsidiary that is based in, funded by, or has a foreign affiliation with any foreign country of risk, 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. The percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who has a foreign affiliation with any foreign country of risk;
8. Any technology licensing or intellectual property sales to a foreign country of risk, during the 5-year period preceding submission of the proposal;
9. Any foreign business entity, offshore entity, or entity outside the United States related to the proposed recipient or subrecipient;
10. Complete list of all directors (and board observers), including their full name, citizenship and shareholder affiliation, date of appointment, duration of term, as well as a description of observer rights as applicable;
11. Complete capitalization table for 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 five percent;

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_TFC.”

xix. 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 under 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 Grants 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 convention for the title “ControlNumber_LeadOrganization_PDFN.”

E. Post Selection Information Requests

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

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- Personnel proposed to work on the project and collaborating organizations (See Section VI.B.xvii. Participants and Collaborating Organizations);
- Current and Pending Support (See Sections IV.D.xvi. and VI.B.xviii. 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;
- Information related to Davis-Bacon Act Requirements;
- Information related to any proposed Workforce and Community Agreement that applicants may have made with the relevant community; and
- Environmental Questionnaire.



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

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

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the [HELP](#) feature on [SAM.gov](https://www.sam.gov). SAM.gov 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 Infrastructure 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 Grants 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 Grants 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 Grants Officer, the applicant is doing so at risk of not receiving federal funding for their project and such costs may not be recognized as allowable cost share. Nothing contained in the pre-award cost reimbursement regulations or any pre-award costs approval letter from the Grants Officer overrides the requirement to obtain the written authorization from the Grants 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 Grants Officer in advance of DOE completing a NEPA review, the prime



recipient is doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

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

1. Requirement

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

2. Failure to Comply

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

3. Waiver

To seek a foreign work waiver, the applicant must submit a written waiver request to DOE. Appendix C 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 Grants Officer before incurring any major construction costs.

v. Foreign Travel

Foreign travel costs are not allowable under this FOA.

vi. Equipment and Supplies

Property disposition may be required at the end of a project if the current fair market value of property exceeds \$5,000. For-profit entity disposition requirements are set forth at 2 CFR 910.360. Property disposition requirements for other non-federal entities are set forth in 2 CFR 200.310 – 200.316.



vii. Buy America Requirements for Infrastructure Projects

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

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

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 that term is defined in Section 70914 of the Bipartisan Infrastructure Law, and whether the infrastructure in question is publicly owned or serves a public function.

Applicants are strongly encouraged to consult Appendix D 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 (OMB) 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 non-profit 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: (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

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regarding the procurement of other key component metals and manufactured products domestically that are deemed available in sufficient and reasonably available quantities or of a satisfactory quality at the time of award negotiation. Applicants may seek waivers of these requirements in very limited circumstances and for good cause shown. Further details on requesting a waiver can be found in Appendix D and the terms and conditions of the applicant's award.

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

viii. Davis-Bacon Act Requirements

Projects awarded under this FOA will be funded under Division D of the Bipartisan Infrastructure Law. Accordingly, per Section 41101 of that law, all laborers and mechanics employed by the recipient, subrecipients, contractors or subcontractors in the performance of construction, alteration, or repair work funded in whole or in part under this FOA shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code commonly referred to as the "Davis-Bacon Act" (DBA).

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

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

- (1) ensuring that the wage determination(s) and appropriate Davis-Bacon clauses and requirements are flowed down to and incorporated into any applicable subcontracts or subrecipient awards.
- (2) ensuring that if wage determination(s) and appropriate Davis-Bacon clauses and requirements are improperly omitted from contracts and subrecipient awards, the applicable wage determination(s) and clauses are retroactively incorporated to the start of performance.
- (3) being responsible for compliance by any subcontractor or subrecipient with the Davis-Bacon labor standards.



- (4) receiving and reviewing certified weekly payrolls submitted by all subcontractors and subrecipients for accuracy and to identify potential compliance issues.
- (5) maintaining original certified weekly payrolls for 3 years after the completion of the project and must make those payrolls available to the DOE or the United States Department of Labor (DOL) upon request, as required by 29 CFR 5.6(a)(2).
- (6) conducting payroll and job-site reviews for construction work, including interviews with employees, with such frequency as may be necessary to assure compliance by its subcontractors and subrecipients and as requested or directed by the DOE.
- (7) cooperating with any authorized representative of the DOL in their inspection of records, interviews with employees, and other actions undertaken as part of a DOL investigation.
- (8) posting in a prominent and accessible place the wage determination(s) and DOL Publication: WH-1321, Notice to Employees Working on Federal or Federally Assisted Construction Projects.
- (9) notifying the Grants Officer of all labor standards issues, including all complaints regarding incorrect payment of prevailing wages and/or fringe benefits, received from the recipient, subrecipient, contractor, or subcontractor employees; significant labor standards violations, as defined in 29 CFR 5.7; disputes concerning labor standards pursuant to 29 CFR Parts 4, 6, and 8 and as defined in FAR 52.222-14; disputed labor standards determinations; DOL investigations; or legal or judicial proceedings related to the labor standards under this Contract, a subcontract, or subrecipient award.
- (10) preparing and submitting to the Grants 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 Grants Officer.

Recipients of funding under this FOA will also be required to undergo Davis-Bacon Act compliance training and to maintain competency in Davis-Bacon Act compliance. The Grants Officer will notify the recipient of any DOE sponsored Davis-Bacon Act compliance trainings. The DOL offers free Prevailing Wage Seminars several times a year that meet this requirement, at



<https://www.dol.gov/agencies/whd/government-contracts/construction/seminars/events>.

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

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

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/web/grants/forms/sf-424-individual-family.html>) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

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

x. Risk Assessment

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

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

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

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

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

Further, as DOE invests in critical infrastructure and funds critical and emerging technology areas, DOE also considers possible vectors of undue foreign influence in evaluating risk. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant.

xi. Invoice Review and Approval

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

- Summary of costs by cost categories;
- Timesheets or personnel hours report;
- Proof of compliance with Davis-Bacon and electronic submittals of certified payroll reports;
- Invoices/receipts for all travel, equipment, supplies, contractual, and other costs;
- UCC filing proof for equipment acquired with project funds by for-profit recipients and subrecipients;
- Explanation of cost share for invoicing period;

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- Analogous information for some subrecipients; and
- Other items as required by DOE.

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

a. Prohibition

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

b. Definitions

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

future compensation, or other types of remuneration or consideration, including in-kind compensation.

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

xiii. Affirmative Action and Pay Transparency Requirements

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

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

- (1) Recipients, subrecipients, and contractors 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 must 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 and contractors.
- (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 contractors for compliance evaluations. OFCCP's Technical Assistance Guide³⁶ should be consulted to gain an understanding of the requirements and possible actions the recipients, subrecipients, contractors and subcontractors must take.

³⁶ 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>

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xiv. Foreign Collaboration Considerations

Consideration of new collaborations with foreign entities and governments. The recipient will be required to provide DOE with advanced written notification of any potential collaboration with foreign entities or governments in connection with its DOE-funded award scope. The recipient will then be required to await further guidance from DOE prior to contacting the proposed foreign entity or government regarding the potential collaboration or negotiating the terms of any potential agreement.

Existing collaborations with foreign entities and governments. The recipient will be required to provide DOE with a written list of all existing foreign collaborations in which has entered in connection with its DOE-funded award scope.

Description of collaborations that should be reported: In general, a collaboration will involve some provision of a thing of value to, or from, the recipient. A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the DOE award, regardless of whether or not they have monetary value. Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students). In-kind contributions not intended for direct use on the DOE award but resulting in provision of a thing of value from or to the DOE award must also be reported. Collaborations do not include routine workshops, conferences, use of the recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the recipient's standard 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:

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- The applicant clearly describes the proposed project; explains how it is impactful, unique, and innovative; and provides a compelling approach to ensuring community benefits;
- The applicant has identified risks and challenges, of the technical, practical, regulatory, and financial aspects of the proposal including possible mitigation strategies, and has shown the impact that DOE funding and the proposed project would have on the relevant field and application;
- The applicant has the qualifications, experience, capabilities and other resources necessary to complete the proposed project; and
- The proposed work, if successfully accomplished, would clearly meet the strategic goals as stated in the FOA.

ii. **Full Applications**

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

Criterion 1: Merit, Innovation, and Impact (40%)

This criterion involves consideration of the following factors:

General

- The extent to which the proposed project supports the strategic goals set forth in Section I.A.i. and the topic area objectives;
- The extent to which the proposed project is innovative;
- The extent to which the proposed project is replicable; and
- The degree to which the applicant clearly describes its currently existing programs and convincingly demonstrates how the project will be an improvement over existing programs.

Impact for Trainees

- The adequacy of the application in demonstrating that the proposed curricula, including both on- and off-site training components, are feasible and viable technically and pedagogically;
- The extent to which the applicant sets forth a detailed, viable, and robust plan for increasing, as compared to an identified baseline, the quality and quantity of available training in the proposed technical area;
- The adequacy of the application in demonstrating that the proposed project will provide training, certificates, credentials, and degrees along pathway(s) leading high quality jobs with the free and fair chance to join a union; and
- The extent to which the applicant demonstrates direct and immediate pipelines to high-quality jobs, including through registered apprenticeship programs and industry partnerships.

Client Impact and Outreach

- The adequacy of the application (including supporting data, analysis, and discussion) in demonstrating that the proposed technical work is feasible;
- The extent to which the applicant has engaged and demonstrates plans to engage effectively with SMMs and other technical stakeholders (including utilities, research institutions, and others) in the proposed technical area;
- The extent to which the applicant sets forth a detailed, viable, and robust plan for increasing, as compared to an identified baseline, client adoption of best practices in the proposed technical area; and
- The extent to which the applicant's plan demonstrates an understanding of barriers to client adoption of best practices in the proposed technical area.

Collaboration and Coordination

- The extent to which the project would coordinate with, leverage, and build upon existing programs; and
- The extent to which the project would amplify its impact by aligning with, or making use of, existing training infrastructure and resources developed by other local, state, and federal programs.

Criterion 2: Community Benefits Plan (30%)

This criterion involves consideration of the following factors³⁷:

Community and Labor Engagement

- The extent to which the applicant demonstrates community and labor engagement to date that results in support for the proposed project;
- The extent to which the applicant has a clear and appropriately robust plan to engage with labor unions, Tribal entities, and community-based organizations that support or work with DACs and other high-risk, under-represented, or under-served populations; and
- The extent to which the applicant demonstrates that community and labor engagement will lead to the delivery of high-quality jobs and allocation of project benefits to disadvantaged communities.

Job Quality and Development of a Skilled Workforce

- The extent to which the project supports high-quality jobs, including career-track pathways, healthy and safe workplaces, above-average wages, benefits, and affirmative opportunities for union membership;

³⁷ To learn more about specific actions to take on each of these topics, see DOE's Community Benefits Plan Frequently Asked Questions: <https://www.energy.gov/clean-energy-infrastructure/community-benefits-plan-frequently-asked-questions-faqs>.

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- The quality and manner in which the proposed project will support creation and/or retention of high-quality, good-paying jobs with employer-sponsored benefits for all classifications and phases of work, including through industry partnerships;
- The extent to which the project will, including through industry partnerships, support creation and/or retention of jobs with the ability to organize, bargain collectively, and participate, through labor organizations of workers' choosing, in decisions that affect them and that contribute 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; and
- The extent to which any industry partner critical to the project's success 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

- The extent to which the project includes specific and high-quality actions to meet DEIA goals, which may include partnerships with minority-, women-, or veteran-owned businesses; DEIA recruitment procedures; and other DEIA commitments; and
- The quality of any partnerships and agreements with apprenticeship readiness programs or community-based workforce training and support organizations that support workers facing systematic barriers to employment, including those that offer wrap-around and supportive services to reduce systemic barriers to employment and participation in the program activities.

Justice40 Initiative

- The extent to which the project identifies specific, measurable benefits for disadvantaged communities, how the benefits will flow to disadvantaged communities, and any ways in which the project will mitigate or abate negative environmental impacts affecting disadvantaged communities; and
- The extent to which the project would contribute to meeting the objective that 40% of the overall benefits of climate and clean energy investments will flow to disadvantaged communities.

Criterion 3: Project Management and Approach (20%)

This criterion involves consideration of the following factors:

Project Management

- The adequacy and reasonableness of the project schedule, including periodic Go/No-Go decisions, interim milestones, and metrics to track process;

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- Reasonableness of budget and spend plan as detailed in the budget justification workbook for proposed project and objectives;
- The adequacy of proposed project management systems, including the ability to track progress and any changes to the scope, cost, or schedule.

Project Approach, Workplan, and SOPO

- The degree to which the project approach and proposed Workplan are clearly described and have been thoughtfully considered;
- The degree to which task descriptions are clear, detailed, timely, and reasonable; and
- The likelihood that the proposed Workplan and SOPO will succeed in meeting the project goals.

Identification of Risks

- The degree to which the application demonstrates understanding of the key areas of technical risk involved in the proposed project;
- The degree to which the application demonstrates understanding of any additional key areas of risk (e.g., labor and community opposition or disputes; supply chain risks related to the technical area);
- The quality of mitigation strategies put forth to address the risks identified.

Baseline, Metrics, and Deliverables

- The clarity of the baseline, metrics, and milestones; and
- The strength of the metrics, milestones, and mid-point deliverables defined in the application, as compared to the initial project baseline.

Criterion 4: Team and Resources (10%)

This criterion involves consideration of the following factors:

- The capability of the Project Manager(s) and the proposed team to address all aspects of the proposed work with a high probability of success;
- The expertise and perspectives of the team and the inclusion of industry partners that will amplify impact;
- The qualifications, relevant expertise, and time commitment of the individuals on the team;
- The sufficiency of the facilities and equipment proposed to support the work;
- 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 reasonableness of the budget and spend plan for the proposed project and objectives.



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 MESC'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 October 2021, which is available at: [DEPARTMENT OF ENERGY GUIDE TO FINANCIAL ASSISTANCE October 2021](#)

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 degree to which the proposed project exhibits a diversity of applicant types and sizes of applicant organizations and represents diversity in the technical area when compared to the existing DOE project portfolio and other projects selected from this FOA.
- The degree to which the proposed project, including any proposed cost share, optimizes the use of available DOE funding to achieve programmatic objectives.
- The level of industry involvement and demonstrated ability to accelerate demonstration and commercialization and overcome key market barriers.
- The opportunity to integrate IAC and BTAC activities for unique impact.
- The degree to which the proposed project is likely to lead to increased high-quality employment and manufacturing in the United States.
- The degree to which the project focuses on repurposing, reusing, or decarbonizing existing industrial infrastructure and/or facilities.
- 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), including whether the project is in a community facing job loss in the energy transition.
- The degree to which the proposed project is consistent with the goals of achieving a zero-carbon electricity system by 2035 and putting the United States on a path to achieve net-zero emissions economy-wide by no later than 2050.

- The degree to which the proposed project incorporates applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/Other Minority Serving Institutions); and partnerships with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or tribal nations.
- The degree to which the proposed project, when compared to the existing DOE project portfolio and other projects to be selected from the subject FOA, contributes to the total portfolio meeting the goals reflected in the Community Benefits criteria (i.e., community and labor engagement, job quality and development of a skilled workforce, DEIA, and Justice40).
- 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 collectively represents diverse types and sizes of applicant organizations.
- 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 statute's goals, objectives, and direction.
- For 40512 (BTAC program): To the maximum extent practicable, building, training, and assessment centers established under this section shall be colocated with industrial research and assessment centers (as defined in section 40521).

D. Evaluation and Selection Process

i. Overview

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

ii. Pre-Selection Interviews

As part of the evaluation and selection process, DOE may invite one or more applicants to participate in pre-selection interviews. Pre-selection interviews are distinct from and more formal than pre-selection clarifications (See Section V.D.iii. of the FOA). The invited applicant(s) will meet with DOE representatives to provide clarification on the contents of the Full Applications and to provide

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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

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consider any responsibility and qualification information about the applicant that is in the entity information domain in [SAM.gov](https://sam.gov) (see 41 U.S.C. § 2313).

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

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

v. Selection

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

E. Anticipated Notice of Selection and Award Negotiation Dates

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

VI. Award Administration Information

A. Award Notices

i. Ineligible Submissions

Ineligible Concept Papers and Full Applications will not be further reviewed or considered for award. The Grants Officer will send a notification letter by email to the technical and administrative points of contact designated by the applicant in Infrastructure 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 Infrastructure eXCHANGE. DOE may include general comments provided from



reviewers on an applicant's Concept Paper in the encourage/discourage notifications.

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.

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 Infrastructure 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. 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 nor is it a guarantee of Federal Government funding. Applicants do not receive an award unless and until award negotiations are complete and the Grants 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 Infrastructure eXCHANGE 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. As an alternate, DOE may consider the Full Application for federal funding in the future. A notification letter stating the Full Application is designated as an alternate does not authorize the applicant to commence performance of the project. DOE may ultimately determine to select or not select the Full Application for award negotiations.

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. Infrastructure Exchange

Register and create an account on Infrastructure eXCHANGE at <https://infrastructure-exchange.energy.gov/>. This account will then allow the user to register for any open FOAs that are currently in Infrastructure eXCHANGE.

To access Infrastructure eXCHANGE, potential applicants are required to 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.

It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission. Applicants should also designate backup points of contact so they may be easily contacted if deemed necessary. **This step is required to**



apply to this FOA. The Infrastructure 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 with the SAM at <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called a Marketing Partner ID Number (MPIN) are important steps in SAM registration. Please update your SAM registration annually.

3. FedConnect

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

4. Grants.gov

Register in Grants.gov (<http://www.grants.gov>) to receive automatic updates when Amendments to this FOA are posted. However, 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 Infrastructure 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

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, may be required to provide DOE with specific information about each foreign national to satisfy requirements for foreign national participation. 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.

DOE may elect to deny foreign national's participation in the award. Likewise, DOE may elect to deny a foreign national's access to a DOE sites, information, technologies, equipment, programs or personnel.

iv. Subaward and Executive Reporting

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

v. National Policy Requirements

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

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

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

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



vii. Applicant Representations and Certifications

1. Lobbying Restrictions

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

2. Corporate Felony Conviction and Federal Tax Liability Representations

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

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

For purposes of these representations the following definitions apply:

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

3. Nondisclosure and Confidentiality Agreements Representations

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

- a. It **does not and will not** require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contractors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a federal department or agency authorized to receive such information.



- b. It **does not and will not** use any federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:

(1) *“These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive Order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive Orders and statutory provisions are incorporated into this agreement and are controlling.”*

(2) The limitation above shall not contravene requirements applicable to Standard Form 312 Classified Information Nondisclosure Agreement (<https://fas.org/sgp/othergov/sf312.pdf>), Form 4414 Sensitive Compartmented Information Disclosure Agreement (<https://fas.org/sgp/othergov/intel/sf4414.pdf>), or any other form issued by a federal department or agency governing the nondisclosure of classified information.

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

viii. Statement of Federal Stewardship

DOE will exercise normal federal stewardship in overseeing the project activities performed under DOE awards. Stewardship Activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing assistance and/or temporary intervention in unusual circumstances to correct

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deficiencies that develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.

ix. Statement of Substantial Involvement

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

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.

x. Intellectual Property Provisions

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

xi. Reporting

Reporting requirements are identified on the Federal Assistance Reporting Checklist, attached to the award agreement.

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

- New manufacturing production, or recycling capacity enabled
- Jobs data
 - BTAC and IAC participants per BTAC or IAC per year

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- Number and types of degrees or credentials conferred, including any apprenticeship completions
- Trainee wage rates and hours worked as part of the program
- Number of full-time jobs secured by graduating students, including name of employer, wages, benefits paid, and opportunities for advancement
- Demographics of students and those securing high-quality jobs, including those coming from jobs that may be affected by the energy transition, from disadvantaged communities, and/or that face unique barriers to employment (e.g., workers with disabilities, returning citizens, opportunity youth)
- Partnerships with unions, community-based organizations, employers, local utilities, and others
- Justice and Equity data
 - Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses and Veteran Owned Businesses who receive IAC or BTAC services or who serve as sub-contractors for bids on supplies, services and equipment.
 - Value, number, and type of partnerships with minority-serving institutions (MSIs)
 - Stakeholder engagement events
 - Partnership and outreach plans to increase program efficacy in reaching underserved commercial buildings and manufacturers
 - Types of partnerships and partner roles
 - Other relevant indicators from the Community Benefits Plan
- Energy efficiency and clean energy project data
 - Number and type of energy efficient and clean energy equipment recommended or installed through the IAC or BTAC programs, including the types of buildings or facilities served (e.g., SMMs for the IAC program and small commercial buildings (50,000 square feet or less) or K-12 schools for the BTAC program)
 - Estimated energy savings, cost savings, and other non-energy benefits from completed projects
 - Assessment and implementation reports for each building
 - Number of assessments and recommendations implemented in DACs
- New tools, case studies, and educational resources created from IAC or BTAC activities
- Funding leveraged, follow-on-funding, Intellectual Property (IP) Generation and IP Utilization

xii. Go/No-Go Review

Each project selected under this FOA will be subject to a periodic project evaluation referred to as a Go/No-Go Review. A Go/No-Go Review is a risk management tool and a project management best practice to ensure that, for the current phase or period of performance, technical success is definitively achieved and potential for success in future phases or periods of performance is evaluated, prior to actually beginning the execution of future phases. At the Go/No-Go decision points, DOE will evaluate project performance, project schedule adherence, the extent milestone objectives are met, compliance with reporting requirements, and overall contribution to the program goals and objectives. Federal funding beyond the Go/No-Go decision point (continuation funding) is contingent upon (1) availability of federal funds appropriated by Congress for the purpose of this program; (2) the availability of future-year budget authority; (3) recipient's technical progress compared to the Milestone Summary Table stated in Attachment 1 of the award; (4) recipient's submittal of required reports; (5) recipient's compliance with the terms and conditions of the award; (6) DOE's Go/No-Go decision; (7) the recipient's submission of a continuation application³⁸; and (8) written approval of the continuation application by the Grants 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

³⁸ 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.



take appropriate action, including but not limited to, redirecting, suspending or terminating the award.

xiii. Conference Spending

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant or cooperative agreement was awarded that would defray the cost to the United States government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the United States government would otherwise exceed \$20,000, thereby circumventing the required notification by the head of any such Executive Branch department, agency, board, commission, or office to the Inspector General (or senior ethics official for any entity without an Inspector General), of the date, location, and number of employees attending such conference.

xiv. Uniform Commercial Code (UCC) Financing Statements

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

Properly record, and consent to the Department's ability to properly record if the recipient fails to do so, UCC financing statement(s) for all equipment in excess of \$5,000 purchased with project funds. These financing statement(s) must be approved in writing by the Grants 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 Grants 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 Grants Officer may direct.

xv. 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 Grants 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.

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

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

xvii. 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.

xviii. 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.xvi.

xix. U.S. Manufacturing Commitments

A primary objective of DOE's multi-billion dollar research, development, and demonstration investments is to cultivate new research and development ecosystems, manufacturing capabilities, and supply chains for and by United States industry and labor. Therefore, in exchange for receiving taxpayer dollars to support an applicant's project, the applicant must agree to a U.S. Competitiveness provision requiring that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States unless the Recipient can show to the satisfaction of DOE that it is not commercially feasible. Award terms, including the specific U.S. Competitiveness Provision applicable to the various types of recipients and projects, are available at <https://www.energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>.

Please note that a subject invention is any invention conceived or first actually reduced to practice in performance of work under an award. An invention is any invention or discovery which is or may be patentable. The recipient includes any awardee, recipient, sub-awardee, or sub-recipient.

As noted in the U.S. Competitiveness Provision, if an entity cannot meet the requirements of the U.S. Competitiveness Provision, the entity may request a modification or waiver of the U.S. Competitiveness Provision. For example, the entity may propose modifying the language of the U.S. Competitiveness Provision in order to change the scope of the requirements or to provide more specifics on the application of the requirements for a particular technology. As another example, the entity may request that the U.S. Competitiveness Provision be waived in lieu of a net benefits statement or United States manufacturing plan. The statement or plan would contain specific and enforceable commitments that would be beneficial to the United States economy and competitiveness. Examples of such commitments could include manufacturing specific products in the United States, making a specific investment in a new or existing United States manufacturing facility, keeping certain activities based in the United States or supporting a certain number of jobs in the United States related to the technology. DOE may, in its sole discretion, determine that the proposed modification or waiver promotes commercialization and provides substantial United States economic benefits, and grant the request. If granted, DOE will modify the award terms and conditions for the requesting entity accordingly.

More information and guidance on the waiver and modification request process can be found in the DOE Financial Assistance Letter on this topic, available at <https://www.energy.gov/management/pf-2022-09-fal-2022-01-implementation->

[doe-determination-exceptional-circumstances-under](#). Additional information on DOE's Commitment to Domestic Manufacturing for DOE-funded R&D is available at <https://www.energy.gov/gc/us-manufacturing>.

The U.S. Competitiveness Provision is implemented by DOE pursuant to a Determination of Exceptional Circumstances (DEC) under the Bayh-Dole Act and DOE Patent Waivers. See Section VIII.J. Title to Subject Inventions of this FOA for more information on the DEC and DOE Patent Waivers.

xx. Interim Conflict of Interest Policy for Financial Assistance

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)³⁹ is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under the DOE financial assistance award. The term "Investigator" means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. Recipients must flow down the requirements of the interim COI Policy to any subrecipient non-federal entities. Further, for DOE funded projects, the recipient must include all financial conflicts of interest (FCOI) (i.e., managed and unmanaged/ unmanageable) in their initial and ongoing FCOI reports.

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

xxi. 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

³⁹ 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](#).

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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.gov. 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.

xxii. 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 \(SC\) \(osti.gov\)](#).

xxiii. Cybersecurity Plan

In accordance with BIL Section 40126, applicants selected for award negotiations must submit an acceptable cybersecurity plan to DOE prior to receiving funding.⁴⁰ These plans are intended to foster a cybersecurity-by-design approach for BIL efforts. The Department will also use these plans to ensure effective integration and coordination across its research, development, and demonstration programs. **A cybersecurity plan is NOT required as part of the application submission for this FOA, but all projects selected under this FOA will be required to submit a cybersecurity plan during the award negotiation phase.**

The Department recommends using open guidance and standards such as the National Institute of Standards and Technology's (NIST) Cybersecurity Framework (CSF) and the DOE Cybersecurity Capability Maturity Model (C2M2).⁴¹ The cybersecurity plan created pursuant to BIL Section 40126 should document any deviation from open standards, as well as the utilization of proprietary standards where the awardee determines that such deviation is necessary.

- Cybersecurity plans should be commensurate to the threats and vulnerabilities associated with the proposed efforts and demonstrate the cybersecurity maturity of the project.
- Cybersecurity plans may cover a range of topics relevant to the proposed project, e.g., software development lifecycle, third-party risks, and incident reporting.
- At a minimum, cybersecurity plans should address questions noted in BIL section 40126 (b) 'Contents of Cybersecurity Plan'.⁴²

A draft version of supplementary guidance on the cybersecurity plan requirement will be available at <https://www.energy.gov/ceser/bipartisan-infrastructure-law-implementation>.

⁴⁰ 42 U.S.C. § 18725

⁴¹ 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).

⁴² 42 U.S.C. § 18725

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VII. Questions/Agency Contacts

Upon the issuance of a FOA, DOE personnel are prohibited from communicating (in writing or otherwise) with applicants regarding the FOA except through the established question and answer process as described below. Specifically, questions regarding this FOA must be submitted to: IACProgram@doe.gov. Questions must be submitted not later than 3 business days prior to the application due date and time. 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 Infrastructure Exchange at: <https://infrastructure-exchange.energy.gov/>. **You must first select this specific FOA Number to view the questions and answers specific to this FOA.** MESC will attempt to respond to a question within 3 business days, unless a similar question and answer has already been posted on the website.

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

VIII. Other Information

A. FOA Modifications

Amendments to this FOA will be posted on the Infrastructure eXCHANGE website 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. DOE recommends that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any amendments or other FOAs.

B. Government Right to Reject or Negotiate

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

C. Commitment of Public Funds

The Grants 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 Grants Officer, either express or implied, is invalid.

D. Treatment of Application Information

Applicants should not include business sensitive (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential information in their application unless such information is

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

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

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

Notice of Restriction on Disclosure and Use of Data:

Pages [list applicable pages] of this document may contain business sensitive, trade secrets, proprietary, or otherwise confidential information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance 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 business sensitive, trade secrets, proprietary, or otherwise confidential information must be marked as follows: “Contains Business Sensitive, Trade Secrets, Proprietary, or Otherwise Confidential Information Exempt from Public Disclosure,” and (2) every line or paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

E. Evaluation and Administration by Non-Federal Personnel

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

F. Notice Regarding Eligible/Ineligible Activities

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

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

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

H. Requirement for Full and Complete Disclosure

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

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

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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. Title to Subject Inventions

Ownership of subject inventions is governed pursuant to the authorities listed below:

- Domestic Small Businesses, Educational Institutions, and Nonprofits: Under the Bayh-Dole Act (35 U.S.C. § 200 et seq.), domestic small businesses, educational institutions, and nonprofits may elect to retain title to their subject inventions;
- All other parties: The Federal Non-Nuclear Energy Act of 1974, 42 U.S.C. § 5908, provides that the government obtains title to new inventions unless a waiver is granted (see below);
- Advance and Identified Waivers: For an applicant not covered by a Class Patent Waiver or the Bayh-Dole Act, the applicant may request a patent waiver that will cover subject inventions that may be invented under the award, in advance of or within 30 days after the effective date of the award. Even if an advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver for identified inventions, i.e., individual subject inventions that are disclosed to DOE within the timeframes set forth in the award's intellectual property data terms and conditions. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.
- DEC: On June 07, 2021, DOE approved a DETERMINATION OF EXCEPTIONAL CIRCUMSTANCES (DEC) UNDER THE BAYH-DOLE ACT TO FURTHER PROMOTE DOMESTIC MANUFACTURE OF DOE SCIENCE AND ENERGY TECHNOLOGIES. In accordance with this DEC, all awards, including sub-awards, under this FOA shall include the U.S. Competitiveness Provision in accordance with Section VI.B.xix. U.S. Manufacturing Commitments of this FOA. A copy of the DEC can be found at <https://www.energy.gov/gc/determination-exceptional-circumstances-decs>. Pursuant to 37 CFR 401.4, any nonprofit organization or small business firm as defined by 35 U.S.C. § 201 affected by any DEC has the right to appeal it by providing written notice to DOE within 30 working days from the time it receives a copy of the determination.
- DOE may issue and publish on the website above further DEC's prior to the issuance of awards under this FOA. DOE may require additional submissions or requirements as authorized by any applicable DEC.

K. Government Rights in Subject Inventions

Where prime recipients and subrecipients retain title to subject inventions, the United States government retains certain rights.

Government Use License

The United States government retains a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world. This license extends to contractors doing work on behalf of the government.

March-In Rights

The United States government retains march-in rights with respect to all subject inventions. Through “march-in rights,” the government may require a prime recipient or subrecipient who has elected to retain title to a subject invention (or their assignees or exclusive licensees), to grant a license for use of the invention to a third party. In addition, the government may grant licenses for use of the subject invention when a prime recipient, subrecipient, or their assignees and exclusive licensees refuse to do so.

DOE may exercise its march-in rights only if it determines that such action is necessary under any of the four following conditions:

- The owner or licensee has not taken or is not expected to take effective steps to achieve practical application of the invention within a reasonable time;
- The owner or licensee has not taken action to alleviate health or safety needs in a reasonably satisfied manner;
- The owner has not met public use requirements specified by federal statutes in a reasonably satisfied manner; or
- The United States manufacturing requirement has not been met.

Any determination that march-in rights are warranted must follow a fact-finding process in which the recipient has certain rights to present evidence and witnesses, confront witnesses and appear with counsel and appeal any adverse decision. To date, DOE has never exercised its march-in rights to any subject inventions.

L. 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. Any copyrightable work related to program results, disseminated resources, and promotion of best practices including any curricula developed with this funding shall be licensed through Creative Commons or another DOE-approved plan suitable to the sharing of curricula that is developed under this grant.

M. Export Control

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

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

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

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

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

O. 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,

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biometric records, alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual, such as date and place of birth, mother's maiden name. (See OMB Memorandum M-17-12 dated January 3, 2017).

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).

P. Annual Independent Audits

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

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

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

Q. 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. As 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. Specific dates for the webinar can be found 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 of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term “cost sharing,” as it conveys the concept that non-federal share is calculated as a percentage of the Total Project Cost. An exception is the State Energy Program Regulation, 10 CFR 420.12, State Matching Contribution. Here “cost matching” for the non-federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

How Cost Sharing Is Calculated

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

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

What Qualifies For Cost Sharing

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

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

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

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

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

General Cost Sharing Rules on a DOE Award

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

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

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

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(A) Acceptable contributions. All contributions, including cash contributions and third party in-kind contributions, must be accepted as part of the prime recipient's cost sharing if such contributions meet all of the following criteria:

- (1)** They are verifiable from the recipient's records.
- (2)** They are not included as contributions for any other federally-assisted project or program.
- (3)** They are necessary and reasonable for the proper and efficient accomplishment of project or program objectives.
- (4)** They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:
 - a.** For-profit organizations. Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A-122 is determined in accordance with the for-profit cost principles in 48 CFR Part 31 in the FAR, except that patent prosecution costs are not allowable unless specifically authorized in the award document. (v) Commercial Organizations. FAR Subpart 31.2—Contracts with Commercial Organizations; and
 - b.** Other types of organizations. For all other non-federal entities, allowability of costs is determined in accordance with 2 CFR Part 200 Subpart E.
- (5)** They are not paid by the federal government under another award unless authorized by federal statute to be used for cost sharing or matching.
- (6)** They are provided for in the approved budget.

(B) Valuing and documenting contributions

- (1)** Valuing recipient's property or services of recipient's employees. Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:



- a. The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or
 - b. The current fair market value. If there is sufficient justification, the Grants 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 Grants 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 Grants 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 – SAMPLE COST SHARE CALCULATION FOR BLENDED COST SHARE PERCENTAGE

The following example shows the math for calculating required cost share for a project with \$2,000,000 in federal funds with four tasks requiring different non-federal cost share percentages:

Task	Proposed Federal Share	Federal Share %	Recipient Share %
Task 1 (R&D)	\$1,000,000	80%	20%
Task 2 (R&D)	\$500,000	80%	20%
Task 3 (Demonstration)	\$400,000	50%	50%
Task 4 (Outreach)	\$100,000	100%	0%

Federal share (\$) divided by federal share (%) = Task Cost

Each task must be calculated individually as follows:

Task 1

\$1,000,000 divided by 80% = \$1,250,000 (Task 1 Cost)

Task 1 Cost minus federal share = non-federal share

\$1,250,000 - \$1,000,000 = \$250,000 (non-federal share)

Task 2

\$500,000 divided 80% = \$625,000 (Task 2 Cost)

Task 2 Cost minus federal share = non-federal share

\$625,000 - \$500,000 = \$125,000 (non-federal share)

Task 3

\$400,000 / 50% = \$800,000 (Task 3 Cost)

Task 3 Cost minus federal share = non-federal share

\$800,000 - \$400,000 = \$400,000 (non-federal share)

Task 4

Federal share = \$100,000

Non-federal cost share is not mandated for outreach = \$0 (non-federal share)



The calculation may then be completed as follows:

Tasks	\$ Federal Share	% Federal Share	\$ Non-Federal Share	% Non-Federal Share	Total Project Cost
Task 1	\$1,000,000	80%	\$250,000	20%	\$1,250,000
Task 2	\$500,000	80%	\$125,000	20%	\$625,000
Task 3	\$400,000	50%	\$400,000	50%	\$800,000
Task 4	\$100,000	100%	\$0	0%	\$100,000
Totals	\$2,000,000		\$775,000		\$2,775,000

Blended Cost Share %

Non-federal share (\$775,000) divided by Total Project Cost (\$2,775,000) = 27.9% (non-federal)

Federal share (\$2,000,000) divided by Total Project Cost (\$2,775,000) = 72.1% (federal)

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

1. Waiver for Foreign Entity Participation

Many of the technology areas DOE funds fall in the category of critical and emerging technologies (CETs). CETs are a subset of advanced technologies that are potentially significant to United States national and economy security.⁴³ For projects selected under this FOA, all recipients and subrecipients must be organized, chartered or incorporated (or otherwise formed) under the laws of a state or territory of the United States; have majority domestic ownership and control; and have a physical location for business operations in the United States. To request a waiver of this requirement, an applicant must submit an explicit waiver request in the Full Application.

Waiver Criteria

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

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

Content for Waiver Request

A Foreign Entity waiver request must include the following:

- a. Information about the entity(ies) involved in the work proposed to be conducted outside the U.S. (i.e., entity seek a waiver and the entity(ies) that will conduct the work): name, point of contact, and proposed type of involvement in the project;

⁴³ See [Critical and Emerging Technologies List Update \(whitehouse.gov\)](https://www.whitehouse.gov/critical-emerging-technologies/).

- b. Country of incorporation, the extent of the ownership/level control by foreign entities, whether the entity is state owned or controlled, a summary of the ownership breakdown of the foreign entity and the percentage of ownership/control by foreign entities, foreign shareholders, foreign state or foreign individuals;
- c. The rationale for proposing a foreign entity participate (must address criteria above);
- d. A description of the project's anticipated contributions to the United States economy;
 - How the project will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
 - How the project will promote manufacturing of products and/or services in the United States;
- e. A description of how the foreign entity's participation is essential to the project;
- f. A description of the likelihood of Intellectual Property (IP) being created from the work and the treatment of any such IP; and
- g. Countries where the work will be performed (Note: if any work is proposed to be conducted outside the United States, the applicant must also complete a separate request foreign work waiver).

DOE may also require:

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

DOE may require additional information before considering the waiver request.

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

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

As set forth in Section IV.I.iii., all work under funding under this FOA must be performed in the United States. To seek a waiver of the Performance of Work in the United States requirement, the applicant must submit an explicit waiver request in the Full



Application. A separate waiver request must be submitted for each entity proposing performance of work outside of the United States.

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

1. The rationale for performing the work outside the United States (“foreign work”);
2. A description of the work proposed to be performed outside the United States;
3. An explanation as to how the foreign work is essential to the project;
4. A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the United States economy;
5. The associated benefits to be realized and the contribution to the project from the foreign work;
6. How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
7. How the foreign work will promote manufacturing of products and/or services in the United States;
8. A description of the likelihood of Intellectual Property (IP) being created from the foreign work and the treatment of any such IP;
9. The total estimated cost (DOE and recipient cost share) of the proposed foreign work;
10. The countries in which the foreign work is proposed to be performed; and
11. The name of the entity that would perform the foreign work.
12. Information about the entity(ies) involved in the work proposed to be conducted outside the United States. (i.e., 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 D - REQUIRED USE OF AMERICAN IRON, STEEL, MANUFACTURED PRODUCTS, AND CONSTRUCTION MATERIALS BUY AMERICA REQUIREMENTS FOR INFRASTRUCTURE PROJECTS; EFFORTS TO INCREASE EMISSIONS TRANSPARENCY

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 additives⁴⁴—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 United States, 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.

⁴⁴ BIL, § 70917(c)(1).



Projects consisting solely of the 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 United States.

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 United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;

(2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and

(3) all construction materials⁴⁵ are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

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.

⁴⁵ Excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

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 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 non-profit 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 manufactured products domestically 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 United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

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



- A detailed justification for the use of “non-domestic” iron, steel, manufactured products, or construction materials to include an explanation as to how the non-domestic item(s) is essential to the project
- A certification that the applicant or recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with potential suppliers;
- Applicant/Recipient name and Unique Entity Identifier (UEI)
- Total estimated project cost, DOE and cost-share amounts
- Project description and location (to the extent known)
- List and description of iron or steel item(s), manufactured goods, and construction material(s) the applicant or recipient seeks to waive from Domestic Content Procurement Preference requirement, including name, cost, country(ies) of origin (if known), and relevant 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 [\[DOE Buy America Requirement Waiver Requests | Department of Energy\]](#).

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

Increasing Emissions Transparency - As noted in Section 1, low-carbon products from SMMs assisted through by IACs will be better positioned to meet standards for transparency in reporting a product’s embodied emissions. Multiple efforts are currently underway to establish norms for environmental product declarations (EPDs), including: The U.S. Environmental Protection Agency’s (EPA) Request for Information for a program to identify and label construction materials and products that have substantially lower levels of embodied greenhouse gas emissions associated with all relevant stages of production, use, and disposal, as compared to estimated industry averages of similar materials or products; and a proposed U.S. Securities and Exchange Commission rule change that would require climate-related disclosures, including a registrant’s GHG emissions.

Further, SMMs receiving assistance from the IAC Program will have the potential to capitalize on and accelerate progress within the [Buy Clean Initiative](#) and other federal demand-side initiatives that coordinate federal procurement power.

APPENDIX E – DETAIL ON SMART MANUFACTURING

As covered in Section 1, Smart Manufacturing is a top priority for increasing the efficiency of SMMs. Smart Manufacturing refers to the use of emerging and advanced technologies to increase the efficiency of the traditional manufacturing process. These technologies span information, automation, monitoring, computation, sensing, modeling, artificial intelligence (AI), analytics, and networking. They can digitally perform functions such as: simulating manufacturing production lines; operating computer-controlled manufacturing equipment; monitoring and communicating production line status; and managing and optimizing energy productivity and cost throughout production.

These technologies increase energy efficiency and performance by modeling, simulating, and optimizing energy efficiency and performance of buildings and plants; and modeling, simulating, and optimizing the design of efficient and sustainable products, including through digital prototyping and additive manufacturing to enhance product design. Further, smart manufacturing can connect manufactured products to optimize performance of automated network operations and digitally connect supply chain networks. BIL § 40531(7). Leveraging AI, for example, enables manufacturers to make fast, actionable decisions, resulting predictive maintenance, predictive quality, increased yield/throughput, demand and inventory forecasting, and other improvements. These changes can lead to reduced downtime of manufacturing lines, cost savings, and higher product quality. Note that National Institute for Standards and Technology, *Artificial Intelligence in Manufacturing: Real World Success Stories and Lessons Learned*. implementation should be paired with training to enhance skills for current workforce aligned with new technologies.

For more, see: National Institute for Standards and Technology, *Artificial Intelligence in Manufacturing: Real World Success Stories and Lessons Learned*.



APPENDIX F – 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	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

Questions about this FOA? Email IACProgram@doe.gov
Problems with Infrastructure Exchange? Email InfrastructureExchangeSupport@hq.doe.gov
Include FOA name and number in subject line.



RFI	Request for Information
RFP	Request for Proposal
SAM	System for Award Management
SCEP	State and Community Energy Programs
SciENCv	Science Experts Network Curriculum Vita
SMART	Specific, Measurable, Achievable, Relevant, 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

Questions about this FOA? Email IACProgram@doe.gov
Problems with Infrastructure Exchange? Email InfrastructureExchangeSupport@hq.doe.gov
Include FOA name and number in subject line.