FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

ADVANCED RESEARCH PROJECTS AGENCY – ENERGY (ARPA-E)
U.S. DEPARTMENT OF ENERGY

SEEDING CRITICAL ADVANCES FOR LEADING ENERGY TECHNOLOGIES WITH UNTAPPED POTENTIAL 2019 (SCALEUP)

Announcement Type: ~~Initial Announcement~~ Modification 1
Funding Opportunity No. DE-FOA-0002166
CFDA Number 81.135

Timeline for SCALEUP:

Funding Opportunity Announcement (FOA) Issue Date:	December 17, 2019
First Deadline for Questions to ARPA-E-CO@hq.doe.gov:	5 PM ET, Tuesday, February 4, 2020
Submission Deadline for Preliminary Application:	9:30 AM ET, Friday, February 14, 2020
Submission Deadline for Preliminary Replies to Reviewer Comments:	5 PM ET, Monday, March 23, 2020
Expected Date for Semi-Finalist Notifications:	Monday, April 20, 2020
Expected Date for SCALEUP Workshop:	Wednesday, May 20, 2020
Second Deadline for Questions to ARPA-E-CO@hq.doe.gov:	5 PM ET, Friday, July 10, 2020
Submission Deadline for Full Application:	9:30 AM ET, Monday, July 20, 2020
Submission Deadline for Final Replies to Reviewer Comments:	5 PM ET, Tuesday, September 8, 2020
Expected Date for Finalist Notifications:	October 2020
Completion of Oral Presentation:	October 2020
Expected Date for Final Award Selection Notifications:	November 2020
Total Amount to Be Awarded:	Approximately $50 million, subject to the availability of appropriated funds.
Anticipated Awards:	ARPA-E may issue one, multiple, or no awards under this FOA. Awards may vary between $2 million and $20 million (including cost share).

Timeline for Small Business Support Grant (OPTIONAL):

Small Business Support Grant Issue Date:	December 17, 2019
Submission Deadline for Application:	9:30 AM ET, Friday, February 14, 2020
Expected Date for Grant Notifications:	Monday, April 20, 2020
Amount to be Awarded:	Approximately $2 million, subject to the availability of appropriated funds.
Anticipated Awards:	ARPA-E may issue one, multiple, or no awards under this FOA. Awards may vary between $50,000 and $150,000.

- For eligibility criteria, see Section III.A of the FOA.
- For cost share requirements under this FOA, see Section III.B of the FOA.
- To apply to this FOA, Applicants must register with and submit application materials through ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov/Registration.aspx). For detailed guidance on using ARPA-E eXCHANGE, see Section IV.H.1 of the FOA.
- Applicants are responsible for meeting each submission deadline. Applicants are strongly encouraged to submit their applications at least 48 hours in advance of the submission deadline.
- For detailed guidance on compliance and responsiveness criteria, see Sections III.D.1 through III.D.2 of the FOA.

MODIFICATIONS

All modifications to the Funding Opportunity Announcement (FOA) are highlighted in yellow in the body of the FOA.

Mod No.	Date	Description of Modifications
01	1/31/2020	• Updated the expected date for Semi-Finalist notifications and Grant notifications to April 20, 2020. • Revised eligibility criteria to allow Applicants to propose software developed and reported under an ARPA-E award as the basis for SCALEUP eligibility, see Section III.A. • Provided guidance in the "Content and Form of Preliminary Applications" on standard entry into iEdison number field if proposing software as the basis of the technology to be scaled, or if no subject invention reported by submission deadline for Preliminary Applications, see Section IV.C. • Provided guidance in the "Content and Form of Full Applications" on standard entry into iEdison number field if proposing software as the basis of the technology to be scaled, see Section IV.D.

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REQUIRED DOCUMENTS CHECKLIST

For an overview of the application process, see Section IV.A of the FOA.

For guidance regarding requisite application forms, see Sections IV.B and VI.G of the FOA.

For guidance regarding the content and form of the Preliminary Application, Small Business Grant Application, Replies to Reviewer Comments, Full Application, Final Replies to Reviewer Comments, and Oral Presentation see Sections IV.C, IV.D, IV.E and VI.G, of the FOA.

SUBMISSION	COMPONENTS	OPTIONAL/ MANDATORY	FOA SECTION	DEADLINE
Preliminary Application	○ Each Applicant must submit a Preliminary Application in Adobe PDF format by the stated deadline. Sections 1-7 of the Preliminary Application must not exceed 6 pages in length and must include the following: 1. Project Summary and Objectives 2. Technology Status 3. Intellectual Property (IP) Strategy 4. Path to Market 5. Project Plan 6. Team Organization and Capabilities 7. Potential Impacts 8. References (no page limit) ○ The Preliminary Application must be accompanied by: • SF-424 (no page limit, Adobe PDF format) ○ The Preliminary Application may be accompanied by: • Letter(s) of Intent (Optional, no page limit, Adobe PDF format);	Mandatory	IV.C	9:30 AM ET, Friday, February 14, 2020
Small Business Grant Application	○ In addition to the Preliminary Application, eligible small business Applicants may submit a Small Business Grant Application as an addendum to the Preliminary Application. The Small Business Grant Application must be submitted in an Adobe PDF format by the stated deadline. The Small Business Grant Application must include the following: • Statement of Work Letter (one page limit, Adobe PDF format);	Optional	VI.G	9:30 AM ET, Friday, February 14, 2020

	• SF424A (no page limit, Microsoft Excel format); and • Completed and signed Business Assurances & Disclosures Form (no page limit, Adobe PDF format).			
Preliminary Application Reply to Reviewer Comments	○ Each Applicant may submit a Reply to Reviewer Comments in Adobe PDF format. This submission is optional. Applicants may use the Reply to Reviewer Comments template available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov). The Reply may include: • Up to 2 pages of text; and • Up to 1 page of images.	Optional	IV.E	5 PM ET, Monday, March 23, 2020
Full Application	○ Each selected Full Applicant must submit a Project Plan Volume in Adobe PDF format by the stated deadline. Full Applicants may use the Project Plan Volume template available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov). The Project Plan must include the following: • Executive Summary (1 page max.) • Sections 1-8 (30 pages max.) 1. Project Summary and Objectives 2. Technology Status 3. Intellectual Property (IP) Strategy 4. Path to Market 5. Project Plan 6. Team Organization and Capabilities 7. Potential Impacts 8. Budget • References and Business Documents (no page limit) • Personal Qualification Summaries (each PQS limited to 3 pages in length, no cumulative page limit) ○ The Project Plan must be accompanied by: • Letter(s) of Intent (no page limit, Adobe PDF format); • SF-424 (no page limit, Adobe PDF format); • Budget Justification Workbook/SF424A (no page limit, Microsoft Excel format) • Summary for Public Release (250 words max., Adobe PDF format);	Mandatory	IV.D	9:30 AM ET, Monday, July 20, 2020

	• Summary Slide (1 page limit, Microsoft PowerPoint format) – Applicants may use the Summary Slide template available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov); • Completed and signed Business Assurances & Disclosures Form (no page limit, Adobe PDF format); and • U.S. Manufacturing Plan (1 page limit, Adobe PDF format).			
Final Reply to Reviewer Comments	• Each Applicant may submit a Reply to Reviewer Comments in Adobe PDF format. This submission is optional. Applicants may use the Reply to Reviewer Comments template available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov). The Reply may include: ○ Up to 2 pages of text; and ○ Up to 1 page of images.	Optional	IV.E	5 PM ET, Tuesday, September 8, 2020

I. FUNDING OPPORTUNITY DESCRIPTION

A. AGENCY OVERVIEW

The Advanced Research Projects Agency – Energy (ARPA-E), an organization within the Department of Energy (DOE), is chartered by Congress in the America COMPETES Act of 2007 (P.L. 110-69), as amended by the America COMPETES Reauthorization Act of 2010 (P.L. 111-358):

"(A) to enhance the economic and energy security of the United States through the development of energy technologies that result in—
(i) reductions of imports of energy from foreign sources;
(ii) reductions of energy-related emissions, including greenhouse gases; and
(iii) improvement in the energy efficiency of all economic sectors; and
(B) to ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies."

ARPA-E issues this Funding Opportunity Announcement (FOA) under the programmatic authorizing statute codified at 42 U.S.C. § 16538. The FOA and any awards made under this FOA are subject to 2 C.F.R. Part 200 as amended by 2 C.F.R. Part 910.

ARPA-E funds research on the development of high-potential, high-impact energy technologies that are too early for private-sector investment. The agency focuses on technologies that can be meaningfully advanced with a modest investment over a defined period of time in order to catalyze the translation from scientific discovery to early-stage technology. In addition, the agency is launching new funding opportunities for public-private collaborations supporting the further refinement, scaling, and pre-piloting of successful ARPA-E technologies. Success of these scale-up projects will establish the path forward to continued private sector development and deployment of these transformational technologies. For the latest news and information about ARPA-E, its programs and the research projects currently supported, see: http://arpa-e.energy.gov/.

ARPA-E funds transformational research. Existing energy technologies generally progress on established "learning curves" where refinements to a technology and the economies of scale that accrue as manufacturing and distribution develop drive down the cost/performance metric in a gradual fashion. This continual improvement of a technology is important to its increased commercial deployment. It is appropriately the focus of the private sector and can be spurred by early-stage R&D supported by the applied energy offices in DOE. By contrast, ARPA-E supports high-risk, potentially transformative research that has the potential to create fundamentally new learning curves. ARPA-E R&D projects typically start with cost/performance estimates for the proposed technology that are well above the level of the competitive incumbent technology. Given the high risk inherent in these projects, many will fail to progress,

but some may succeed in generating a new learning curve with a projected cost/performance metric that is significantly lower than that of the incumbent technology.

ARPA-E funds technology with the potential to be disruptive in the marketplace. The mere creation of a new learning curve does not ensure market penetration. Rather, the ultimate value of a technology is determined by the marketplace, and impactful technologies ultimately become disruptive – that is, they are widely adopted and displace existing technologies from the marketplace or create entirely new markets. ARPA-E understands that definitive proof-of-market disruption takes time, particularly for energy technologies. Therefore, ARPA-E funds the development of technologies that, if technically successful, have clear disruptive potential, e.g., by demonstrating capability for manufacturing at competitive cost and deployment at scale.

ARPA-E funds applied research and development. The Office of Management and Budget defines "applied research" as an "original investigation undertaken in order to acquire new knowledge…directed primarily towards a specific practical aim or objective" and defines "development" as "creative and systematic work, drawing on knowledge gained from research and practical experience, which is directed at producing new products of processes or improving existing products or processes."[1] Applicants interested in receiving financial assistance for basic research should contact the DOE's Office of Science (http://science.energy.gov/). Office of Science national scientific user facilities (http://science.energy.gov/user-facilities/) are open to all researchers, including ARPA-E applicants and awardees. These facilities provide advanced tools of modern science including accelerators, colliders, supercomputers, light sources and neutron sources, as well as facilities for studying the nanoworld, the environment, and the atmosphere. Projects focused on early-stage R&D for the improvement of technology along defined roadmaps may be more appropriate for support through the DOE applied energy offices including: the Office of Energy Efficiency and Renewable Energy (http://www.eere.energy.gov/), the Office of Fossil Energy (http://fossil.energy.gov/), the Office of Nuclear Energy (http://www.energy.gov/ne/office-nuclear-energy), and the Office of Electricity Delivery and Energy Reliability (http://energy.gov/oe/office-electricity-delivery-and-energy-reliability).

B. PROGRAM BACKGROUND

The Seeding Critical Advances for Leading Energy technologies with Untapped Potential (SCALEUP) solicitation provides a vital mechanism for the support of innovative energy R&D that complements ARPA-E's primary R&D focus on early-stage transformational energy technologies that still require proof-of-concept.

ARPA-E's mission is to develop transformational energy technologies in support of U.S. national security and economic competitiveness. ARPA-E funds the R&D of technologies to build and maintain U.S. technological leadership in highly competitive global energy markets, thus

[1] OMB Circular A-11 (https://www.whitehouse.gov/wp-content/uploads/2018/06/a11.pdf), Section 84, pg. 3.

supporting American jobs and economic growth. ARPA-E's authorizing statute directs the Agency to develop linkages between its sponsored applied research and the marketplace.[2] These linkages are central to realizing the public's return on technology investments.

An enduring challenge to ARPA-E's mission is that even technologies that achieve substantial technical advancement under ARPA-E support are at risk of being stranded in their development path once ARPA-E funding ends (averaging $2.5M over three years). ARPA-E-funded technologies typically face significant remaining technical risks upon completion of an award's funding period. Experience across ARPA-E's diverse energy portfolios, and with a wide range of investors, indicates that pre-commercial "scaling" projects are critical to establishing that performance and cost parameters can be met in practice for these very early stage technologies. These pre-commercial scaling projects aim to translate the performance achieved at bench scale to commercially scalable versions of the technology, integrate the technology with broader systems, provide extended performance data, and validate the manufacturability and reliability of new energy technologies. (These projects are often termed "pre-pilot" development in different industries.) Success in these scaling projects would enable industry, investors, and partners to justify substantial commitments of financial resources, personnel, production facilities, and materials to develop promising ARPA-E technologies into early commercial products.

The SCALEUP FOA builds upon ARPA-E-funded technologies by scaling the most promising. Stranding promising ARPA-E-funded technologies in their development pathways leaves substantial intellectual property developed with American taxpayer dollars vulnerable to adoption by foreign competitors, who can and do capture it for continued development – and economic benefit – overseas. This harms national competitiveness, as U.S. industries often lose the lead on the development, scaling, and manufacturing of technologies necessary to compete in rapidly evolving global energy markets. These scaling energy technology projects will meet ARPA-E's statutory direction to achieve the above goals by " accelerating transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty".[3]

C. PROGRAM OBJECTIVES

The objective of the ARPA-E SCALEUP FOA is to support the scaling of high-risk and potentially disruptive new technologies across the full spectrum of energy applications. This FOA focuses only on scale-up and pre-pilot projects of promising technologies that ARPA-E has funded – following highly competitive selection processes – and for which the scale-up would substantially build upon innovations achieved under the original ARPA-E award. Eligible projects will be based upon inventions that were conceived or first actually reduced to practice in the performance of work under the original ARPA-E award ("subject inventions") with the intent to

[2] 42 U.S.C. §16538(c)(2)(a-c)
[3] Id.

advance the innovative results to practical application. Only organizations leveraging subject inventions that were created during an ARPA-E award and reported in the iEdison system are eligible for funding under this program. SCALEUP Applicants are not required to have participated within the original ARPA-E award – alternatively, Applicants may be licensed or have purchased rights in such subject inventions, and thereby become eligible for the SCALEUP FOA.

Because of the breadth of energy technologies solicited under the SCALEUP FOA, technical and project targets are not specified. Therefore, ARPA-E asks Applicants to address how the proposed scale-up or pre-pilot project will sufficiently advance the technology to enable a path to market and ultimately lead to realized commercial impact. The proposed potential impacts must fall within the agency's mission areas:[4] reducing imported energy, reducing energy-related emissions, improving energy efficiency, and ensuring the U.S. maintains a technological lead in developing and deploying advanced energy technologies – including substantial U.S. manufacturing of resulting technologies. ARPA-E desires to fund projects for which the proof-of-concept R&D challenges have been addressed in a successful ARPA-E award, and which can establish a path to real-world impact through scaling R&D. For the SCALEUP FOA, Applicants must demonstrate the path to market, making the strongest case for how the proposed technology will scale and ultimately enable the technology to thrive in the open market. This includes building a Project Team with the skillset and capabilities necessary for scaling high-risk energy technologies during and beyond the completion of the SCALEUP project.

The ARPA-E SCALEUP FOA award selection process consists of three phases: 1) Preliminary Application submissions, resulting in selection of Semi-Finalists; 2) Semi-Finalists who will be invited to submit Full Applications, resulting in selection of Finalists; 3) Finalists, who will be invited to provide Oral Presentations, leading to award selections.

The ARPA-E SCALEUP FOA seeks Applicants with an existing early-stage developmental prototype that demonstrates functionality in a controlled environment. Finalists selected for the SCALEUP Award will demonstrate a path to market and be well positioned for investment from the private sector (venture, strategic, philanthropic, internal, etc.). For example, those selected would then work to advance the existing developmental prototype to a manufacturable and commercially relevant product, meaning the research will seek to prove all functionality using pre-commercial manufacturing techniques. The project should be structured to answer critical questions required to reduce the associated technical and business risks.

[4] See ARPA-E statutory goals at 42 U.S.C. §16538(c)(1) and (2)

II. AWARD INFORMATION

A. AWARD OVERVIEW

As described in the previous Section I.C, this FOA includes a new phased approach to fund scale-up or pre-pilot R&D: Preliminary Application, Semi-Finalist/Full Application, and Finalist/Oral Presentation phases.

The first phase is the Preliminary Application process, which requires Applicants to submit a description of the proposed technology to be scaled, project plan to enable scaling, expected market, and ARPA-E mission impact. The content and criteria for the Preliminary Application are described further in Sections IV.C and V.A, respectively.

> Note: Preliminary Applicants that are eligible small businesses[5] have the **option** to apply for a fixed-amount grant ("Small Business Grant") of up to $150,000 to support development of the technology. Grants may be awarded to small businesses selected as Semi-Finalists under this SCALEUP FOA. Information on the Small Business Grant can be found in Section VII of this FOA, along with the eligible tasks and activities for these grants. Small Business Grant Applications must be submitted as an addendum to a Preliminary Application, however review and selections will be separate and independent of the SCALEUP FOA. ARPA-E expects to award a total of up to $2 million for such Small Business Grants, subject to the availability of appropriated funds.

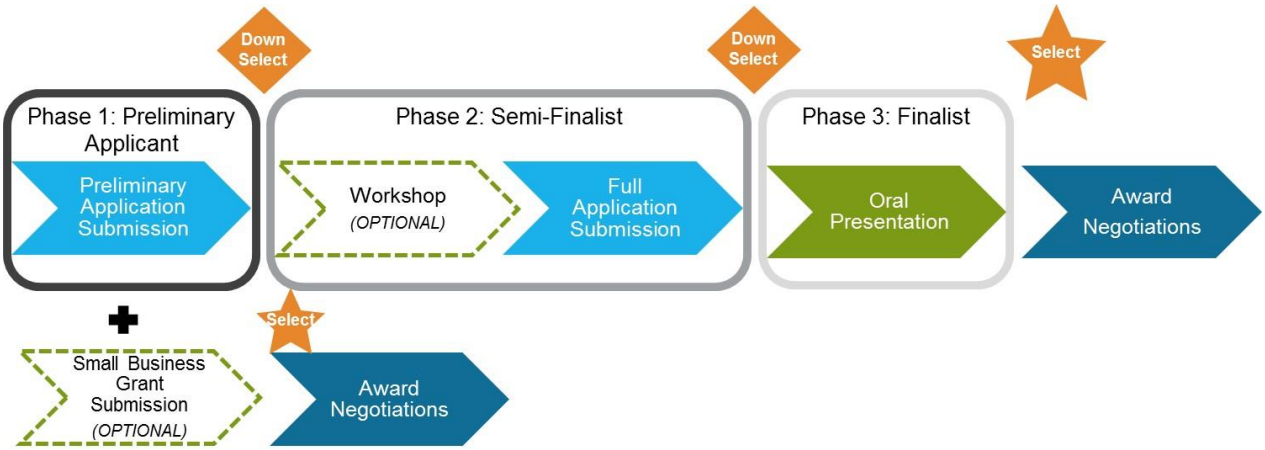
From these Preliminary Applications, selections will be made for the second phase: Semi-Finalist (Full Applicantions). Prior to submission of their Full Applications, Semi-Finalists will be invited to attend an optional Workshop. The purpose of the SCALEUP Workshop is for each Semi-Finalist to present their proposed project to potential investors, industry stakeholders, manufacturers, and other relevant potential Commercialization and Financial Partners (see more information on partnering in Sections II.A.1 and II.A.2). The SCALEUP Workshop is designed to facilitate partnering with the invited stakeholders. Semi-Finalists are not required to attend; however, all Semi-Finalists in attendance are required to make a non-confidential presentation on their proposed project. Separate rooms will be available for confidential presentations and discussions with potential Commercialization and Financial Partners. The Workshop is tentatively scheduled for Wednesday, May 20, 2020.

Full Applications will be due 60 calendar days after the Workshop. As part of the selection process, Finalists will be invited to participate in Oral Presentations to ARPA-E. Following Oral Presentations, ARPA-E will make selections for award negotiations.

This process is visualized in Figure 1.

[5] The term "small business" is defined in FOA Section X.

Figure 1. FOA Process Overview for SCALEUP



For the Full Application submissions, ARPA-E expects to make approximately $50 million available for new awards under this FOA, with individual awards up to $20 million (including awardee's cost share), subject to the availability of appropriated funds. ARPA-E anticipates making approximately 5-8 awards under this FOA. ARPA-E may issue one, multiple, or no awards.

The period of performance for funding agreements is anticipated to be approximately 36 months.

ARPA-E seeks Applications for projects that have progressed beyond proof-of-concept and need to demonstrate scalability, reliability, and domestic manufacturability.

Submissions requiring scale-up or pre-pilot R&D can propose a project with the goal of delivering on the project objectives at the conclusion of the period of performance. These submissions must contain an appropriate cost and project duration plan that is described in sufficient technical detail to allow reviewers to meaningfully evaluate the proposed project.

For the SCALEUP Award, projects should expect a minimum of two phased budget periods. ARPA-E's determinations for proceeding from one budget period to the next will be based on rigorous milestone criteria that will be negotiated with the Applicant. Budget period 1 will be for the completion of activities such as preliminary design, permitting, limited preparatory R&D, development of a detailed Risk Mitigation Plan (RMP), and similar preparatory activities. Budget period 2, for execution of the scale-up or pre-pilot, will follow the successful completion of budget period 1. The transition from budget period 1 to budget period 2 is contingent upon compliance with the award terms and conditions, including ARPA-E's decision on achievement of milestone criteria, and a determination that continuation is in the best interest of the Government. Activities during this second budget period may include construction/modification

of an existing facility or manufacturing line and will end after completion of a negotiated cumulative run time and project milestones.

Applicants should provide sufficient evidence to demonstrate the technical viability of their proposed technology and project. Applicants are encouraged to submit proof-of-concept demonstration data that supports the probability of success of the proposed project.

ARPA-E will provide support at the highest funding level only for applications with significant productization and market risk, aggressive timetables, and careful management and mitigation of the associated risks.

At the time of award (once negotiations are completed), ARPA-E plans to fully obligate funding for selected Applicants' negotiated budgets.

1. PARTNERING REQUIREMENTS

Applicants must propose one or more SCALEUP Commercialization Partners in their Full Applications.

Commercialization Partners may include potential customers, end-users, suppliers, corporate investors, manufacturers, and distributors, etc. It is preferable for Applicants to have at least one Commercialization Partner that represents the viewpoint and needs of the target customer to help ensure market adoption for the technology after the completion of the SCALEUP project.

Commercialization Partners can make a contribution of cash, in-kind (e.g., a demonstration site, intellectual property, etc.) or via other justifiable means that will be integral to the success of the project. Commercialization Partners are expected to actively participate in the project. Commercialization Partners make contributions with the goal that the technology will be successfully proven and commercialized.

For the Preliminary Application, Letter(s) of Intent from Commercialization Partners are not required; however, at least one is required for the Full Application. Submission information regarding the Letter of Intent is provided in Sections IV.C.2 and IV.D.2.

2. OPTIONAL FINANCIAL PARTNERS

Applicants may propose Financial Partners for their proposed project. A Financial Partner is an investing organization willing to provide the Applicant with funding for the cost share contribution to the project, or other financial support that benefits the project activities of the Applicant. Financial Partners may include venture capitalists, accelerators/incubators, angel/impact investors, etc. Financial Partners take on investment risk with the goal that the technology will be successfully proven and commercialized. Financial Partners provide cost share contributions without actively participating in research activities in the project.

Financial Partners are optional, and hence not a requirement of the SCALEUP FOA; however, their inclusion by an Applicant and commitment to the proposed project will be considered as a factor in Full Application selections. Applicants should include Letter(s) of Intent from any committed Financial Partner(s) with the Full Application. Submission information regarding the Letter of Intent is provided in Sections IV.C.2 and IV.D.2.

B. ARPA-E FUNDING AGREEMENTS

For projects selected from the SCALEUP program, ARPA-E will provide financial assistance through cooperative agreements, other transactions, and similar agreements. ARPA-E provides financial and other support to projects that have the potential to realize ARPA-E's statutory mission. ARPA-E does not use such agreements to acquire property or services for the direct benefit or use of the U.S. Government.

Congress directed ARPA-E to "establish and monitor project milestones, initiate research projects quickly, and just as quickly terminate or restructure projects if such milestones are not achieved."[6] Accordingly, ARPA-E has substantial involvement in the direction of projects, as described in Section II.C below.

1. COOPERATIVE AGREEMENTS

ARPA-E generally uses Cooperative Agreements to provide financial and other support to Prime Recipients.[7]

Cooperative Agreements involve the provision of 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.

ARPA-E encourages Prime Recipients to review the Model Cooperative Agreement, which is available at https://arpa-e.energy.gov/?q=site-page/funding-agreements.

2. FUNDING AGREEMENTS WITH FFRDCS/DOE LABS, GOGOS, AND FEDERAL INSTRUMENTALITIES

Any Federally Funded Research and Development Centers (FFRDC) involved as a member of a Project Team must provide the information requested in the "FFRDC Lab Authorization" and "Field Work Proposal" section of the Business Assurances & Disclosures Form, which is submitted with the Full Application.

[6] U.S. Congress, Conference Report to accompany the 21st Century Competitiveness Act of 2007, H. Rpt. 110-289 at 171-172 (Aug. 1, 2007).
[7] The term "Prime Recipient" is defined in FOA Section X.

When a FFRDC/DOE Lab is a member of a Project Team, ARPA-E executes a funding agreement directly with the FFRDC/DOE Lab and a single, separate Cooperative Agreement with the rest of the Project Team. Notwithstanding the use of multiple agreements, the Prime Recipient under the funding agreement is the lead organization for the entire project, including all work performed by the FFRDC/DOE Lab and the rest of the Project Team.

Funding agreements with DOE/NNSA FFRDCs take the form of Work Authorizations issued to DOE/NNSA FFRDCs through the DOE/NNSA Field Work Proposal system for work performed under Department of Energy Management & Operation Contracts. Funding agreements with non-DOE/NNSA FFRDCs, GOGOs (Government-Owned/Government-Operated facilities, including NETL), and Federal instrumentalities (e.g., Tennessee Valley Authority) will be consistent with the sponsoring agreement between the U.S. Government and the Laboratory. Any funding agreement with a FFRDC or GOGO will have similar terms and conditions as ARPA-E's Model Cooperative Agreement (https://arpa-e.energy.gov/?q=site-page/funding-agreements).

Non-DOE GOGOs and Federal agencies may be proposed to provide support to the project team members on an Applicant's project, through a Cooperative Research and Development Agreement (CRADA) or similar agreement.

3. OTHER TRANSACTION AUTHORITY

ARPA-E may use its "other transactions" authority under the America COMPETES Reauthorization Act of 2010 to enter into an other transaction agreement with Prime Recipients on a case-by-case basis.

ARPA-E may negotiate an other transaction agreement when it determines that the use of a standard cooperative agreement, grant, or contract is not feasible or appropriate for a project.

In general, an other transaction agreement would require a cost share of at least 50%. See Section III.B of the FOA.

C. STATEMENT OF SUBSTANTIAL INVOLVEMENT

ARPA-E is substantially involved in the direction of projects from inception to completion. For the purposes of an ARPA-E project, substantial involvement means:

- Project Teams must adhere to ARPA-E's agency-specific and programmatic requirements.
- ARPA-E may intervene at any time in the conduct or performance of work under an award.
- ARPA-E does not limit its involvement to the administrative requirements of an award.

ARPA-E may have substantial involvement in the direction and redirection of the technical, design, and execution aspects of the project as a whole.

- During award negotiations, ARPA-E and Prime Recipients mutually establish an aggressive schedule of quantitative milestones and deliverables that must be met every quarter. In addition, ARPA-E will negotiate and establish phased budget periods as necessary. ARPA-E's determinations for proceeding from a budget period to the next will be based on rigorous "Go/No-Go" decision criteria that will be negotiated with the Applicants. If the Prime Recipient fails to achieve any of the "Go/No-Go" milestones and deliverables as determined by the ARPA-E Contracting Officer, ARPA-E may, at its discretion, renegotiate the statement of project objectives or schedule of milestones and deliverables for the project. Alternatively, ARPA-E may suspend or terminate the award in accordance with 2 C.F.R. §§ 200.338 and 200.339.
- ARPA-E may provide guidance and/or assistance to the Prime Recipient to accelerate the commercial deployment of ARPA-E-funded technologies. Guidance and assistance provided by ARPA-E may include coordination with other Government agencies and nonprofit organizations[8] to provide mentoring and networking opportunities for Prime Recipients. ARPA-E may also organize and sponsor events to educate Prime Recipients about key barriers to the deployment of their ARPA-E-funded technologies. In addition, ARPA-E may establish collaborations with private and public entities to provide continued support for the development and deployment of ARPA-E-funded technologies.

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[8] The term "nonprofit organizations" or "nonprofits" is defined in FOA Section X.

III. ELIGIBILITY INFORMATION

A. SCALEUP ELIGIBLE APPLICANTS

Organizations leveraging subject inventions that were created during an ARPA-E award and reported in the iEdison system are eligible for funding under this program. Organizations may also leverage software, developed and reported (in technical reports or otherwise) under an ARPA-E award, that will be used in manufacturing, as "firmware" in manufactured products, or deployed on energy infrastructure or large scale energy systems. For both subject inventions and software, note that "ARPA-E seeks Applications for projects that…demonstrate scalability, reliability, and domestic manufacturability" (quoting from Section II.A above), and Full Applications are required to include a detailed U.S. Manufacturing Plan (see Section IV.D.8 below).

SCALEUP Applicants are not required to have participated within the original ARPA-E award – alternatively, Applicants may be licensed or have purchased rights in such subject inventions or software and thereby become eligible for the SCALEUP FOA. This FOA is open to the following Applicants that propose to scale subject inventions or software that have resulted from ARPA-E awards:

i) Current and former ARPA-E awardees (except Institutions of Higher Education[9] and FFRDCs/DOE Laboratories) that own/control subject invention(s) or software arising from their ARPA-E award(s);

ii) Entities that are licensees[10] of subject invention(s) or software arising from any ARPA-E award(s); or

iii) Consortia – specified below – that have title to or are licensees of subject invention(s) or software arising from an ARPA-E award.

The eligible Applicants described in (i) or (ii) above may propose as a Standalone Applicant[11] as the lead organization for a Project Team,[12] or as a member of a Project Team that may include for-profit entities, educational institutions, and nonprofits[13] that are incorporated in the United States, including U.S. territories, and FFRDCs/DOE Laboratories.

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[9] The term "Institutions of Higher Education" or "educational institutions" is defined in FOA Section X.

[10] Prior to any award, ARPA-E may inspect any licenses and/or assignment or other transfer of rights documents to confirm the Applicant/licensee-assignee has the necessary rights to conduct research, and commercialize, the results of its proposed research project.

[11] The term "Standalone Applicant" is defined in FOA Section X. A Standalone Applicant must be its own Commercialization Partner.

[12] The term "Project Team" is defined in FOA Section X.

[13] 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 as a Prime Recipient or Subrecipient.

ARPA-E welcomes the participation of educational institutions and FFRDCs/Labs, as Project Team Members and Consortia Members, but not as Standalone Applicants or Leads of Project Teams. This is in light of this FOA's goal of rapidly advancing commercialization of energy technologies resulting from ARPA-E funding. Commercialization of such inventions of educational institutions and FFRDCs/Labs occurs not by these enitites but through licenses to for-profit businesses. These businesses have the incentive, ability and organizational capacity to directly attract financial support – such as the 30%-50% cost share necessary for SCALEUP projects - and manufacturing support necessary for commercialization of inventions. Educational institutions and FFRDCs/Labs are encouraged to participate as Project Team Members and Consortia Members in the proposals of businesses who license their – or others' - inventions arising from ARPA-E-funded research.

Consortia in (iii) above:

- Must include one or more U.S. for-profit businesses;
- May include for-profit entities, educational institutions, and nonprofits that are incorporated in the United States, including U.S. territories, and FFRDCs/DOE Laboratories; and
- Must designate one member of the consortium as the consortium representative to the Project Team. The consortium representative must be incorporated in the United States. Each consortium must have an internal governance structure and a written set of internal rules. Upon request, the consortium entity must provide a written description of its internal governance structure and internal rules to the Contracting Officer (ARPA-E- CO@hq.doe.gov).

Unincorporated consortia must provide the Contracting 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 collaboration agreement binds the individual consortium members together and shall 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.

Foreign entities, whether for-profit or otherwise, are eligible to apply for funding as Standalone Applicants, as the lead organization for a Project Team, or as a member of a Project Team. Foreign entities must designate in the Preliminary Application a subsidiary or affiliate incorporated (or otherwise formed or to be formed) under the laws of a State or territory of the United States to receive funding. The Preliminary Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. The Applicant may request a waiver of this requirement in the Business Assurances & Disclosures Form, which is submitted with the Full Application and can be found at https://arpa-e-foa.energy.gov/. Refer to the Business Assurances & Disclosures Form for guidance on the content and form of the request.

B. COST SHARING[14]

Applicants are bound by the cost share proposed in their Full Applications.

1. BASE COST SHARE REQUIREMENT

ARPA-E generally uses Cooperative Agreements to provide financial and other support to Prime Recipients (see Section II.B.1 of the FOA). For a Cooperative Agreement awarded under this FOA, the Prime Recipient must provide at least 50% of the Total Project Cost[15] as cost share, except as provided in Section III.B.2 below.[16]

2. REDUCED COST SHARE REQUIREMENT

Project teams may qualify for a reduced cost share of 30% if they qualify under one of the following specified applicant categories:

- Small businesses – or consortia of small businesses – will provide 0% cost share from the outset of the project through the first 12 months of the project (hereinafter the "Cost Share Grace Period"). If the project is continued beyond the Cost Share Grace Period, then at least 30% of the Total Project Cost (including the costs incurred during the Cost Share Grace Period) will be required as cost share over the remaining period of performance.

- Project Teams where a small business is the lead organization and small businesses perform greater than or equal to 80%, but less than 100%, of the total work under the funding agreement (as measured by the Total Project Cost) are entitled to the same cost share reduction and Cost Share Grace Period provided to Standalone small businesses or consortia of small businesses.

[14] Refer to Section VII.B.3-4 of the FOA for guidance on cost share payments and reporting.
[15] The term "Total Project Cost" is defined in FOA Section X.
[16] Energy Policy Act of 2005, Pub.L. 109-58, Sec. 988(c).

Projects that do not meet any of the above criteria are subject to the minimum cost share requirements described in Sections III.B.1 of the FOA.

3. LEGAL RESPONSIBILITY

Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for contributing the entire cost share. The Prime Recipient's cost share obligation is expressed in the funding agreement as a static amount in U.S. dollars (cost share amount) and as a percentage of the Total Project Cost (cost share percentage). If the funding agreement is terminated prior to the end of the period of performance, 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 obligations assumed by Project Team members in subawards or related agreements.

4. COST SHARE ALLOCATION

Each Project Team is free to determine how much each Project Team member will contribute towards the cost share requirement. The amount contributed by individual Project Team members may vary over time, budget period, and/or project milestone. The cost share requirement is met overall for the project as a whole.

5. COST SHARE TYPES AND ALLOWABILITY

Every cost share contribution must be allowable under the applicable Federal cost principles, as described in Section IV.G of the FOA.

Project Teams may provide cost share in the form of cash or in-kind contributions. Cash contributions may be provided by the Prime Recipient or Subrecipients. Allowable in-kind contributions include but are not limited to personnel costs, indirect costs, facilities and administrative costs, reasonable patent expenses, rental value of buildings or equipment, and the value of a service, other resource, or third-party in-kind contribution. Project Teams may use funding or property received from state or local governments to meet the cost share requirement, so long as the funding or property was not provided to the state or local government by the Federal Government.

The Prime Recipient may <u>not</u> use the following sources to meet its cost share obligations:

- Revenues or royalties from the prospective operation of an activity beyond the period of performance;
- 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.

In addition, Project Teams may not use independent research and development (IR&D) funds[17] to meet their cost share obligations under cooperative agreements. However, Project Teams may use IR&D funds to meet their cost share obligations under an other transaction agreement.

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. Every cost share contribution must be reviewed and approved in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred.

Applicants may wish to refer to 2 C.F.R. Parts 200 and 910, and 10 C.F.R Part 603 for additional guidance on cost sharing, specifically 2 C.F.R. §§ 200.306 and 910.130, and 10 C.F.R. §§ 603.525-555.

6. COST SHARE CONTRIBUTIONS BY FFRDCS AND GOGOS

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 a non-Federal source.

Because GOGOs/Federal Agencies are funded by the Federal Government, GOGOs/Federal Agencies may not provide cost share for the proposed project. However, the GOGO/Agency costs would be included in Total Project Costs for purposes of calculating the cost-sharing requirements of the Applicant.

7. COST SHARE VERIFICATION

[17] As defined in Federal Acquisition Regulation Subsection 31.205-18.

Upon selection for award negotiations, Applicants are required to provide information and documentation regarding their cost share contributions. Please refer to Section VII.B.3 of the FOA for guidance on the requisite cost share information and documentation.

C. OTHER

1. COMPLIANT CRITERIA

The Preliminary Application submission is deemed compliant if:

- The Applicant meets the eligibility requirements in Section III.A of the FOA;
- The Preliminary Application complies with the content and form requirements in Section IV.C of the FOA; and
- The Applicant entered all required information, successfully uploaded all required documents, and clicked the "Submit" button in ARPA-E eXCHANGE by the deadline stated in the FOA.

Preliminary Application submissions found to be noncompliant may not be merit reviewed or considered for Semi-Finalist status. ARPA-E may not review or consider noncompliant Preliminary Applications, including Preliminary Applications submitted through other means, Preliminary Applications submitted after the applicable deadline, and incomplete Preliminary Applications. A Preliminary Application is incomplete if it does not include required information, such as Form SF-424. ARPA-E will not extend the submission deadline for Applicants who fail to submit required information and documents due to server/connection congestion.

Full Applications are deemed compliant if:

- The Applicant submitted a compliant and responsive Preliminary Application and was selected as a Semi-Finalist;
- The Applicant meets the eligibility requirements in Section III.A of the FOA;
- The Full Application complies with the content and format requirements in Section IV.D of the FOA; and
- The Applicant entered all required information, successfully uploaded all required documents, and clicked the "Submit" button in ARPA-E eXCHANGE by the deadline stated in the FOA.

Full Applications found to be noncompliant may not be merit reviewed or considered for award. ARPA-E may not review or consider noncompliant Full Applications, including Full Applications submitted through other means, Full Applications submitted after the applicable deadline, and incomplete Full Applications. A Full Application is incomplete if it does not include required information and documents, such as Forms SF-424 and SF-424A. ARPA-E will not extend the submission deadline for Applicants who fail to submit required information and documents due to server/connection congestion.

Replies to Reviewer Comments are deemed compliant if:

- The Applicant successfully uploads its response to ARPA-E eXCHANGE by the deadline stated in the FOA; and

- The Replies to Reviewer Comments comply with the content and form requirements of Section IV.E of the FOA.

ARPA-E will not review or consider noncompliant Replies to Reviewer Comments, including Replies submitted through other means and Replies submitted after the applicable deadline. ARPA-E will not extend the submission deadline for Applicants who fail to submit required information due to server/connection congestion. ARPA-E will review and consider each compliant and responsive Full Application, even if no Reply is submitted or if the Reply is found to be noncompliant.

2. RESPONSIVENESS CRITERIA

ARPA-E performs an initial review of Preliminary Applications and Full Applications. The following types of submissions may be deemed nonresponsive and may not be reviewed or considered:

- Submissions that do not identify a subject invention from a prior or ongoing ARPA-E award.
- Submissions that have been submitted in response to other currently issued ARPA-E FOAs.
- Submissions that are not scientifically distinct from applications submitted in response to other currently issued ARPA-E FOAs.
- Submissions for basic research aimed solely at discovery and/or fundamental knowledge generation.
- Submissions for early stage R&D projects aimed at developing a proof-of-concept demonstration.
- Submissions for proposed technologies that represent incremental improvements to existing technologies.

- Submissions for proposed technologies that are not based on sound scientific principles (e.g., violates a law of thermodynamics).
- Submissions for proposed technologies that are not transformational, as described in Section I.A of the FOA.
- Submissions for proposed technologies that do not have the potential to become disruptive in nature, as described in Section I.A of the FOA.
- Submissions that are not distinct in technical approach or objective from activities currently supported by or actively under consideration for funding by any other office within Department of Energy.
- Submissions that are not distinct in technical approach or objective from activities currently supported by or actively under consideration for funding by other government agencies or the private sector.
- Submissions that are not distinct and propose increasing throughput or incremental improvement of an existing pilot or manufacturing facility.
- Submissions that describe but do not propose a technology scaling R&D plan that allows ARPA-E to evaluate the submission under the applicable merit review criteria provided in Section V.A of the FOA.
- Submissions that are not scaling technology developed under ARPA-E awards (both prior and ongoing), and do not have a confirmed Subject Invention report filing with ARPA-E/iEdison.
- Submissions that fail to adequately demonstrate ownership or licensing of the intellectual property necessary to accomplish the proposed project.

3. LIMITATION ON NUMBER OF SUBMISSIONS

ARPA-E is not limiting the number of submissions from Applicants. Applicants may submit more than one application to this FOA, provided that each application is scientifically and technically distinct.

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IV. APPLICATION AND SUBMISSION INFORMATION

A. APPLICATION PROCESS OVERVIEW

Under the SCALEUP FOA, ARPA-E will select Semi-Finalists based on a Preliminary Application. Selection as a Semi-Finalist for SCALEUP is designed to encourage a Full Application submission. Applicants not selected as a Semi-Finalist are not invited to submit a Full Application. Semi-Finalists will be invited to attend a Workshop designed to facilitate discussion with industry, investors, and potential Commercialization and Financial Partners. ARPA-E will select Finalists based on a Full Application and Awardees will be selected following Finalists' Oral Presentations.

In addition, eligible small businesses that submit a Preliminary Application may apply for an optional fixed-amount Small Business Grant by addendum to the Preliminary Application. For more information on the Small Business Grant, please see Section VII. The Small Business Grant Application is not a requirement of the Preliminary Application, nor the FOA, and will not be used to evaluate or select Semi-Finalists, Finalists, or SCALEUP Awardees.

The application process including details regarding due dates and notification schedule for the SCALEUP FOA, is visualized in Figure 2.

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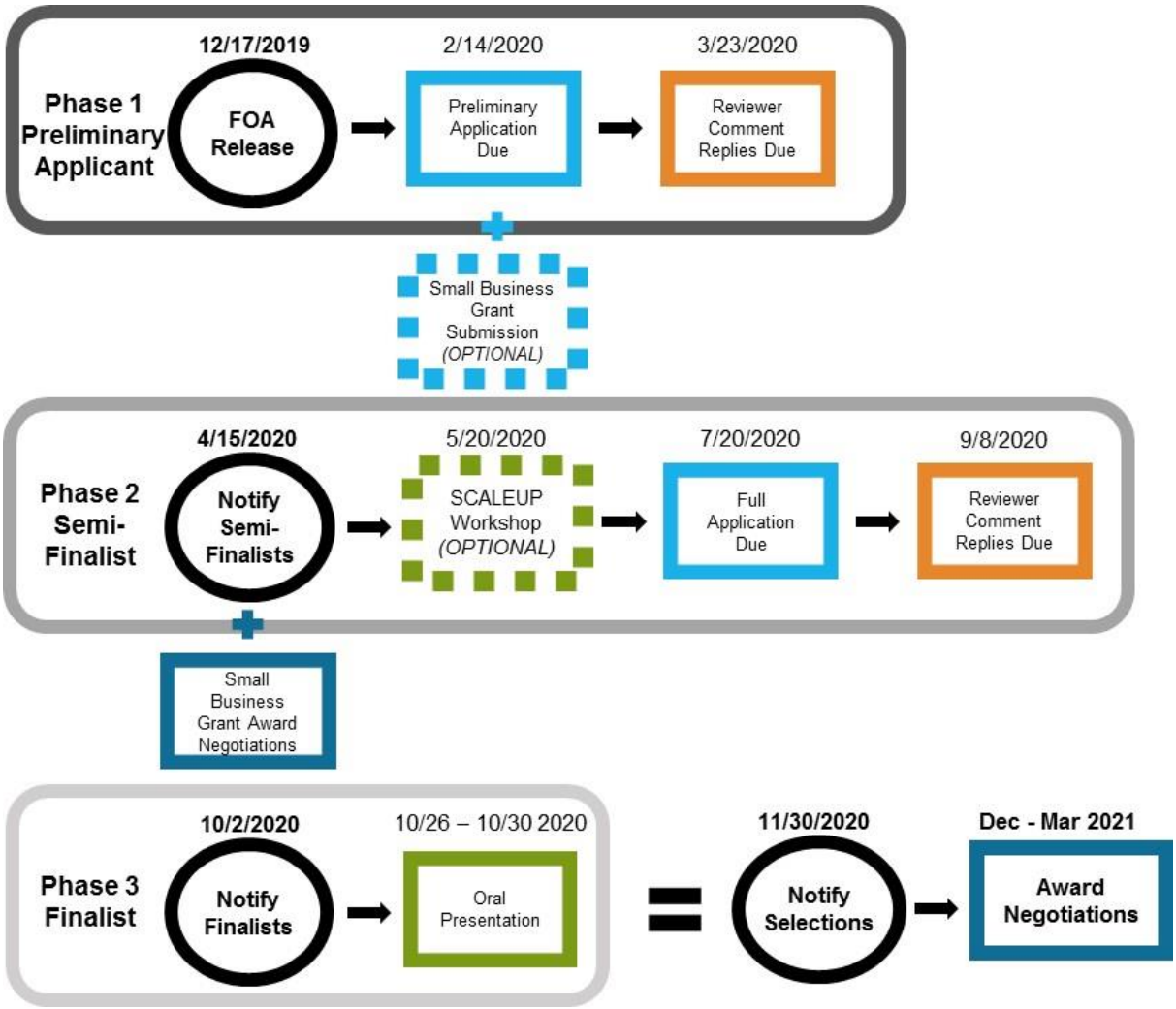
Figure 2. SCALEUP FOA Application Process, Timeline, Due Dates, and Notification Schedule



1. REGISTRATION IN ARPA-E eXCHANGE

The first step in applying to this FOA is registration in ARPA-E eXCHANGE, ARPA-E's online application portal. For detailed guidance on using ARPA-E eXCHANGE, please refer to Section IV.H.1 of the FOA and the "ARPA-E eXCHANGE Applicant Guide" (https://arpa-e-foa.energy.gov/Manuals.aspx).

2. PRELIMINARY APPLICATION

Applicants must submit a Preliminary Application by the deadline stated in the FOA. Section IV.C of the FOA provides instructions on submitting a Preliminary Application.

3. Reply to Preliminary Application Reviewer Comments

Once ARPA-E has completed its review of Preliminary Application submissions, reviewer comments on compliant and responsive Preliminary Applications are made available to Applicants via ARPA-E eXCHANGE. Applicants may submit an optional Reply to Reviewer Comments, which must be submitted by the deadline stated in the FOA. Section IV.E of the FOA provides instructions on submitting a Reply to Reviewer Comments.

4. Selection for Semi-Finalist Status

Based on the Preliminary Application submission, ARPA-E will invite a subset of Applicants to submit Full Applications. This subset of Applicants are Semi-Finalists for the SCALEUP FOA. Other Applicants will be rejected and are not invited to submit a Full Application.

ARPA-E carefully considers all of the information obtained through the application process and makes an independent assessment based on the criteria and program policy factors in Sections V.A.1 and V.B.1 of the FOA.

Applicants are notified as soon as possible of ARPA-E's selection determination. Please refer to Section VII.A of the FOA for guidance on award notifications.

5. SCALEUP Workshop

Semi-Finalists may participate in the SCALEUP Workshop, tentatively scheduled for Wednesday, May 20, 2020.

All Semi-Finalists are encouraged to participate at the SCALEUP Workshop. The purpose of the SCALEUP Workshop is for each Semi-Finalist to present non-confidential summaries of their proposed project to all invited attendees – Investors, industry, manufacturers, and other potential Commercial and Financial Partners. Separate rooms will be available for confidential presentations and discussions between Semi-Finalists and potential Commercialization and Financial Partners. The meetings will be arranged by the Semi-Finalists. The SCALEUP Workshop is designed to facilitate partnering with the invited stakeholders. Semi-Finalists are not required to attend; however, all Semi-Finalists in attendance are required to present their proposed project.

ARPA-E will not evaluate Semi-Finalists at the SCALEUP Workshop, therefore none of the presenter content or performance will be included in ARPA-E's assessment of the Full Application. Semi-Finalist presentations will not be considered as part of the Merit Review and should not be included within the Application package.

Additional information regarding the SCALEUP Workshop will be provided to Semi-Finalists within the notification letter.

6. FULL APPLICATIONS

Semi-Finalists may submit a Full Application by the deadline stated in the FOA. Semi-Finalists will have approximately 90 days from receipt of the Semi-Finalist selection notification to prepare and submit a Full Application. Section IV.D of the FOA provides instructions on submitting a Full Application. Applicants who receive a Rejection notification should not prepare or submit a Full Application.

7. REPLY TO FULL APPLICATION REVIEWER COMMENTS

Once ARPA-E has completed its review of Full Applications, reviewer comments on compliant and responsive Full Applications are made available to Semi-Finalists via ARPA-E eXCHANGE. Semi-Finalists may submit an optional Reply to Reviewer Comments, which must be submitted by the deadline stated in the FOA. Section IV.E of the FOA provides instructions on submitting a Reply to Reviewer Comments.

ARPA-E performs a preliminary review of Replies to determine whether they are compliant, as described in Section III.C of the FOA. ARPA-E will review and consider compliant Replies only. ARPA-E will review and consider each compliant and responsive Full Application, even if no Reply is submitted or if the Reply is found to be non-compliant.

8. FINALIST ORAL PRESENTATION

Based on merit review of Full Application submissions, ARPA-E will select Finalists. The Finalists proceed to the final evaluation phase, including Oral Presentations. Applicants not selected as Finalists will receive a notification of their non-selection.

The invited Finalists will meet with ARPA-E representatives to present the contents of their Full Applications and provide ARPA-E an opportunity to ask questions regarding the proposed project. The information provided by Finalists to ARPA-E through the Oral Presentation contributes to ARPA-E's selection decisions.

ARPA-E will arrange to meet with the invited Finalists in person at ARPA-E offices or a mutually agreed upon location. Alternatively, ARPA-E may invite certain Finalists to present to ARPA-E via webinar, videoconference, or conference call.

ARPA-E will not directly reimburse Finalists for travel and other expenses relating to the Oral Presentations, nor will these costs be eligible for reimbursement as pre-award costs.

Note: The Oral Presentation process is distinct from pre-selection clarifications (See below Section IV.A.9 of this FOA).

9. PRE-SELECTION CLARIFICATIONS

Throughout each FOA phase: Preliminary Application, Full Application and Oral Presentations, ARPA-E may, at the Contracting Officer's discretion, conduct a pre-selection clarification process and/or perform a "down-select." Through the pre-selection clarification process, ARPA-E may obtain additional information from select Applicants through pre-selection meetings, webinars, videoconferences, conference calls, written correspondence, or site visits that can be used to accept or reject the Applicant's proposal. ARPA-E will not reimburse Applicants for travel and other expenses relating to pre-selection meetings or site visits, nor will these costs be eligible for reimbursement as pre-award costs.

Participation in a pre-selection meeting or site visit with ARPA-E does not signify that Applicants have been selected for the SCALEUP Award.

10. SELECTION FOR SCALEUP AWARD NEGOTIATIONS

ARPA-E carefully considers all of the information obtained through the application process and makes an independent assessment based on the criteria and program policy factors in Sections V.A.2 and V.B.1 of the FOA. The Selection Official may select all or part of a Full Application for award negotiations. The Selection Official may also postpone a final selection determination on one or more Full Applications until a later date, subject to availability of funds and other factors. ARPA-E will enter into award negotiations only with selected Finalists.

Finalists are promptly notified of ARPA-E's selection determination. Please refer to Section VII.A of the FOA for guidance on award notifications.

B. APPLICATION FORMS

Required forms for Full Applications are available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov), including the SF-424 and Budget Justification Workbook/SF-424A. Applicants may use the templates available on ARPA-E eXCHANGE, including the Preliminary Application, Project Plan Volume of the Full Application, Summary Slide, Summary for Public Release, Reply to Reviewer Comments, and Business Assurances & Disclosures Form. A sample response to the Business Assurances & Disclosures Form is available on ARPA-E eXCHANGE.

C. CONTENT AND FORM OF PRELIMINARY APPLICATIONS

The Preliminary Application is mandatory (i.e., in order to submit a Full Application, an Applicant must submit a compliant and responsive Preliminary Application and be selected as a Semi-Finalist) and must conform to the following formatting requirements:

- The Preliminary Application must not exceed 6 pages in length including graphics, figures, and/or tables.

- The Preliminary Application must be submitted in Adobe PDF format.

- The Preliminary Application must be written in English.

- All pages must be formatted to fit on 8-1/2 by 11-inch paper with margins not less than one inch on every side. Single space all text and use Times New Roman typeface, a black font color, and a font size of 12 point or larger (except in figures and tables).

- The ARPA-E assigned Control Number, the Lead Organization Name, and the Principal Investigator's Last Name must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.

- The first paragraph must include the Lead Organization's Name and Location, Principal Investigator's Name, original ARPA-E Award Number and Program, ARPA-E/iEdison Confirmation Number, Proposed Funding Requested (Federal and Awardee's Cost Share), and Project Duration.

Preliminary Applicants identifying software as the basis for the technology to be scaled during SCALEUP should enter "Software-0000" in the iEdison number field for the Preliminary Application.

Preliminary Applicants that have not yet reported an ARPA-E-funded subject invention in iEdison by the time they submit a Preliminary Application may enter "Pending-0000" in the iEdison number field for the Preliminary Application. **Applicants are strongly encouraged to report all subject inventions in iEdison as soon as possible, and in compliance with the requirements of the original ARPA-E awards. Note that for the Full Application phase, those invited to submit are required to have accurately and successfully reported the subject invention in iEdison before submitting a Full Application.**[18]

Each Preliminary Application must be limited to a single technology and project. Unrelated technologies and scaling projects must not be consolidated into a single Preliminary Application.

[18] Reporting subject inventions in iEdison is a condition precedent for reimbursement of patent related expenses under any ARPA-E agreement. Failure to do so may result in disallowance of any patent costs reimbursed to the Recipient.

Component	Required Format	Description and Information
Preliminary Application	PDF	Provides a detailed description of the proposed scaling or pre-pilot R&D project and Project Team. A Preliminary Application template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).
Letter(s) of Intent (Optional)	PDF	Applicants are not required to submit letters of intent for the Preliminary Application, but are encouraged to provide letters from any third-party collaborators (including Commercialization or Financial Partners) who propose to provide all or part of the required cost share (e.g. cash, services, or property), as well as those not contributing cost share.
SF-424	PDF	Application for Federal Assistance (https://arpa-e-foa.energy.gov).

ARPA-E provides detailed guidance on the content and form of each component below.

1. First Component: Preliminary Application

The Preliminary Application must be submitted in Adobe PDF format. A Preliminary Application template is available at https://arpa-e-foa.energy.gov/. The Preliminary Application must conform to the content and form requirements included within the template, including maximum page lengths. If Applicants exceed the maximum page lengths specified for each section, ARPA-E will review only the authorized number of pages and disregard any additional pages. Applicants must provide sufficient citations and references to the primary research and technical literature to justify the claims and approaches made in the Preliminary Application. ARPA-E and reviewers may review primary research literature in order to evaluate applications. However, ARPA-E and reviewers are under no obligation to review cited sources.

2. Second Component: Letter(s) of Intent (OPTIONAL)

Letter(s) of Intent from Commercialization Partners are not required for the Preliminary Application; however, at least one is required for the Full Application. Any Letter(s) of Intent must be submitted in Adobe PDF format. If provided, each letter should state the intended role of the party, including their authority within the proposed project, and clearly describe any constraints/restrictions. Letters should also specify whether the party is committed to providing a specific minimum dollar amount of cost share for the Total Proposed Project Cost.

Financial Partners are optional, and hence not a requirement of the SCALEUP FOA; however, their inclusion by an Applicant and commitment to the proposed project will be considered in Awardee selections. Applicants should include Letter(s) of Intent from any committed Financial Partner(s) with the Full Application.

3. THIRD COMPONENT: SF-424

The SF-424 must be submitted in Adobe PDF format. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov.

The SF-424 includes instructions for completing the form. Applicants are required to complete all required fields in accordance with the instructions.

Prime Recipients and Subrecipients are required to complete SF-LLL (Disclosure of Lobbying Activities), available at https://www.grants.gov/forms/post-award-reporting-forms.html, if any non-Federal funds have been paid or will be paid to any person for influencing or attempting to influence 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 in connection with your application or funding agreement. The completed SF-LLL must be appended to the SF-424.

ARPA-E provides the following supplemental guidance on completing the SF-424:

- Each Project Team should submit only one SF-424 (i.e., a Subrecipient should not submit a separate SF-424).
- The list of certifications and assurances in Block 21 can be found at http://energy.gov/management/downloads/certifications-and-assurances-use-sf-424.
- The dates and dollar amounts on the SF-424 are for the entire period of performance (from the project start date to the project end date), not a portion thereof.

D. CONTENT AND FORM OF FULL APPLICATIONS

Full Applications must conform to the following formatting requirements:

- Each document must be submitted in the file format prescribed below.
- The Full Application must be written in English.
- All pages must be formatted to fit on 8-1/2 by 11-inch paper with margins not less than one inch on every side. Single space all text and use Times New Roman typeface, a black font color, and a font size of 12 point or larger (except in figures and tables).
- The ARPA-E assigned Control Number, the Lead Organization Name, and the Principal Investigator's Last Name must be prominently displayed on the upper right

corner of the header of every page. Page numbers must be included in the footer of every page.

Applicants identifying software as the basis for the technology to be scaled during SCALEUP should enter "Software-0000" in the iEdison number field for the Full Application.

Full Applications found to be noncompliant or nonresponsive may not be merit reviewed or considered for award (see Section III.C of the FOA).

Each Full Application must be limited to a single technology and project. Unrelated technologies and scaling projects must not be consolidated in a single Full Application.

Fillable Full Application template documents are available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov.

Full Applications must conform to the content requirements described below.

Component	Required Format	Description and Information
Project Plan Volume	PDF	The centerpiece of the Full Application. Provides a detailed description of the proposed scaling, or pre-pilot R&D project and Project Team. A Project Plan Volume template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).
Letter(s) of Intent	PDF	Applicants must provide letter(s) from all third-party collaborators (including Commercialization or Financial Partners) that proposes to provide all or part of the required cost share (e.g. cash, services, or property), as well as those not contributing cost share.
SF-424	PDF	Application for Federal Assistance (https://arpa-e-foa.energy.gov). Applicants are responsible for ensuring that the proposed costs listed in eXCHANGE match those listed on forms SF-424 and SF-424A. Inconsistent submissions may impact ARPA-E's final award determination.
Budget Justification Workbook/SF-424A	XLS	Budget Information – Non-Construction Programs (https://arpa-e-foa.energy.gov)
Summary for Public Release	PDF	Short summary of the proposed project. Intended for public release. A Summary for Public Release template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).

Summary Slide	PPT	A four-panel project slide summarizing different aspects of the proposed project. A Summary Slide template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).
Business Assurances & Disclosures Form	PDF	Requires the Applicant to make responsibility disclosures and disclose potential conflicts of interest within the Project Team. Requires the Applicant to describe the additionality and risks associated with the proposed project, disclose applications for funding currently pending with Federal and non-Federal entities, and disclose funding from Federal and non-Federal entities for work in the same technology area as the proposed R&D project. If the Applicant includes a FFRDC/DOE Lab, requires the Applicant to provide written authorization from the cognizant Federal agency and, if a DOE/NNSA FFRDC/DOE Lab, a Field Work Proposal. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov. A sample response to the Business Assurances & Disclosures Form is also available on ARPA-E eXCHANGE.
U.S. Manufacturing Plan	PDF	As part of the application, Applicants are required to submit a U.S. Manufacturing Plan. The U.S. Manufacturing Plan represents the Applicant's measurable commitment to support U.S. manufacturing as a result of its award.

ARPA-E provides detailed guidance on the content and form of each component below.

1. First Component: Project Plan

The Project Plan Volume must be submitted in Adobe PDF format. A Project Plan Volume template is available at https://arpa-e-foa.energy.gov. The Project Plan Volume must conform to the content and form requirements included within the template, including maximum page lengths. If Applicants exceed the maximum page lengths specified for each section, ARPA-E will review only the authorized number of pages and disregard any additional pages.

Applicants must provide sufficient citations and references to the primary research literature to justify the claims and approaches made in the Project Plan Volume. ARPA-E and reviewers may review primary research literature in order to evaluate applications. However, ARPA-E and reviewers are under no obligation to review cited sources (e.g., Internet websites).

2. Second Component: Letter(s) of Intent

The Letter(s) of Intent must be submitted in Adobe PDF format. A Letter of Intent from at least one Commercialization Partner is required for the Full Application. Applicants should provide letter(s) from all third-party collaborators (including Commercialization or Financial Partners). Each letter should state the intended role of the third-party, including their authority within the proposed project, and clearly describe any constraints/restrictions. Any letters should also specify whether the third-party is committed to providing a specific minimum dollar amount of

cost share for the Total Proposed Project Cost. If committed to providing cost share, in the budget justification, identify the following information: (1) the name of the organization; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project cost; and (4) the proposed type of cost share – cash, services, or property (e.g. equipment or facilities). Where equipment or facilities are offered, each should be described and the basis for their value provided in the budget justification if their use will be charged to the project.

Financial Partners are optional, and hence not a requirement of the SCALEUP FOA; however, their inclusion by an Applicant and commitment to the proposed project will be considered in Awardee selections. Applicants should include Letter(s) of Intent from any committed Financial Partner(s) with the Full Application.

3. THIRD COMPONENT: SF-424

The SF-424 must be submitted in Adobe PDF format. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov.

The SF-424 includes instructions for completing the form. Applicants are required to complete all required fields in accordance with the instructions.

Prime Recipients and Subrecipients are required to complete SF-LLL (Disclosure of Lobbying Activities), available at https://www.grants.gov/forms/post-award-reporting-forms.html, if any non-Federal funds have been paid or will be paid to any person for influencing or attempting to influence 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 in connection with your application or funding agreement. The completed SF-LLL must be appended to the SF-424.

ARPA-E provides the following supplemental guidance on completing the SF-424:

- Each Project Team should submit only one SF-424 (i.e., a Subrecipient should not submit a separate SF-424).
- The list of certifications and assurances in Block 21 can be found at http://energy.gov/management/downloads/certifications-and-assurances-use-sf-424.
- The dates and dollar amounts on the SF-424 are for the entire period of performance (from the project start date to the project end date), not a portion thereof.

- Applicants are responsible for ensuring that the proposed costs listed in eXCHANGE match those listed on forms SF-424 and SF-424A. Inconsistent submissions may impact ARPA-E's final award determination.

4. FOURTH COMPONENT: BUDGET JUSTIFICATION WORKBOOK/SF-424A

Applicants are required to complete the Budget Justification Workbook/SF-424A Excel spreadsheet. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov. Prime Recipients 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. The SF-424A form included with the Budget Justification Workbook will "auto-populate" as the Applicant enters information into the Workbook. Applicants should carefully read the "Instructions and Summary" tab provided within the Budget Justification Workbook.

Subrecipient information must be submitted as follows:

- Each Subrecipient incurring greater than or equal to 10% of the Total Project Cost must complete a separate Budget Justification workbook to justify its proposed budget. These worksheets must be inserted as additional sheets within in the Prime Recipient's Budget Justification.

- Subrecipients incurring less than 10% of the Total Project Cost are not required to complete a separate Budget Justification workbook. However, such Subrecipients are required to provide supporting documentation to justify their proposed budgets. At a minimum, the supporting documentation must show which tasks/subtasks are being performed, the purpose/need for the effort, and a sufficient basis for the estimated costs.

ARPA-E provides the following supplemental guidance on completing the Budget Justification Workbook/SF-424A:

- Applicants may request funds under the appropriate object class category tabs as long as the item and amount requested are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions described herein.

- If Patent costs are requested, they must be included in the Applicant's proposed budget (see Section IV.G.3 of the FOA for more information on Patent Costs).

- For more information, please refer to the ARPA-E Budget Justification Guidance document at https://arpa-e-foa.energy.gov.

5. Fifth Component: Summary for Public Release

Applicants are required to provide a 250 word maximum Summary for Public Release. A Summary for Public Release template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov). The Summary for Public Release must be submitted in Adobe PDF format. This summary should not include any confidential, proprietary, or privileged information. The summary should be written for a lay audience (e.g., general public, media, Congress) using plain English.

250 Words	**SUMMARY FOR PUBLIC RELEASE**	Briefly describe the proposed effort; summarize its objective(s) and project plan approach. Include context for how these goals and objectives are crucial for the commercial success of your technology. Specify what the technology product will be, at what scale (e.g., volume, number, weight, etc.) and how it will be delivered by the end of project. Describe its potential impact on "ARPA-E Mission Areas" (see Section I.A of the FOA). The summary should be written at technical level suitable for a high-school science student and is designed for public release. **INSTRUCTIONS:** (1) The Summary for Public Release shall not exceed 250 words and one paragraph. (2) The Summary for Public Release shall consist only of text—no graphics, figures, or tables. (3) For applications selected for award negotiations, the Summary may be used as the basis for a public announcement by ARPA-E; therefore, **this Cover Page and Summary should not contain confidential or proprietary information**. See Section IX.I of the FOA for additional information on marking confidential information

6. Sixth Component: Summary Slide

Applicants are required to provide a single PowerPoint slide summarizing the proposed project. The slide must be submitted in Microsoft PowerPoint format. This slide will be used during ARPA-E's evaluation of Full Applications. A summary slide template, including content requirements, is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).

7. Seventh Component: Business Assurances & Disclosures Form

Applicants are required to provide the information requested in the Business Assurances & Disclosures Form. The information must be submitted in Adobe PDF format. A fillable Business Assurances & Disclosures Form template is available on ARPA-E eXCHANGE at https://arpa-e-

foa.energy.gov. A sample response to the Business Assurances & Disclosures Form is also available on ARPA-E eXCHANGE.

As described in the Business Assurances & Disclosures Form, the Applicant is required to:

- Disclose conditions bearing on responsibility, such as criminal convictions and Federal tax liability;
- Disclose potential conflicts of interest within the Project Team.

In addition, ARPA-E is required by statute to "accelerat[e] transformational technological advances in areas that industry is by itself not likely to undertake because of technical and financial uncertainty."[19] In accordance with ARPA-E's statutory mandate, the Applicant is required to:

- Describe the additionality and risks associated with the proposed R&D project;
- Disclose any applications for the same project or related work currently pending with any Federal or non-Federal entities; and
- Disclose all funding for work in the same technology area as the proposed project received from any Federal or non-Federal entity within the last 5 years.

Finally, the Applicant may use the Business Assurances & Disclosures Form to request authorization to perform some work overseas.

8. EIGHTH COMPONENT: U.S. MANUFACTURING PLAN

As part of the application, Applicants are required to submit a U.S. Manufacturing Plan that should not exceed one page in length. The U.S. Manufacturing Plan represents the Applicant's measurable commitment to support U.S. manufacturing as a result of its award. U.S. Manufacturing Plans are a Program Policy Factor during the review and selection process. See Section V.B.1 of the FOA. A U.S. Manufacturing Plan must contain a commitment to the U.S manufacturing requirements stated in Section VII.B.7 below.

In addition, the plan should include other specific and measurable commitments. For example, an Applicant may commit particular types of products to be manufactured in the U.S. These plans should not include requirements regarding the source of inputs used during the manufacturing process. In addition to or instead of making a commitment tied to a particular product, the Applicant may make other types of commitments still beneficial to U.S.

[19] America COMPETES Act, Pub. L. No. 110-69, § 5012 (2007), as amended (codified at 42 U.S.C. § 16538).

manufacturing. An Applicant may commit to a particular investment in a new or existing U.S. manufacturing facility, keep certain activities based in the U.S. (i.e., final assembly), or support a certain number of jobs in the U.S. related to the technology and manufacturing. ARPA-E will provide a template for the U.S. Manufacturing Plan, though the Applicant is not required to use the template as long as the Applicant provides all of the information noted above.

When an Applicant is selected for an award, the U.S. Manufacturing Plan submitted by the Applicant will become part of the terms and conditions of the award. It is important to note that the U.S. Manufacturing Plan is in support of and not a replacement for the U.S. Manufacturing Requirement described in Section VII.B.7. The Applicant/Awardee may request a waiver or modification of the U.S. Manufacturing Plan from DOE/ARPA-E upon a showing that the original U.S. Manufacturing Plan is no longer economically feasible.

Class patent waivers usually apply to domestic For-Profit Organizations (Other than Small Businesses)[20] as set forth in Section IX.A of the FOA. Under this class patent waiver, domestic large businesses may elect title to their subject inventions similar to the right provided to the domestic small businesses, educational institutions, and nonprofits by law. In order to avail itself of the class patent waiver, a domestic large business must agree that any products embodying or produced through the use of an invention conceived or first actually reduced to practice under the award will be substantially manufactured in the United States, unless a waiver is granted by DOE/ARPA-E. The U.S. Manufacturing Plan submitted by the Applicant will become part of the terms and conditions of the award in addition to the requirements attaching to subject inventions.

E. CONTENT AND FORM OF REPLIES TO REVIEWER COMMENTS

Written feedback on both the Preliminary Application and Full Application is made available to Applicants before the submission deadline for Replies to Reviewer Comments. Applicants have a brief opportunity to prepare a short Reply to Reviewer Comments responding to one or more comments or supplementing their Full Application. A fillable Reply to Reviewer Comments template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).

Replies to Reviewer Comments must conform to the following requirements:

- The Reply to Reviewer Comments must be submitted in Adobe PDF format.
- The Reply to Reviewer Comments must be written in English.

[20] The term "For-Profit Organizations (Other than Small Businesses)" or "large business" is defined in FOA Section X.

- All pages must be formatted to fit on 8-1/2 by 11-inch paper with margins not less than one inch on every side. Use Times New Roman typeface, a black font color, and a font size of 12 points or larger (except in figures and tables).

- The Control Number must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.

ARPA-E may not review or consider noncompliant Replies to Reviewer Comments (see Section III.C.1 of the FOA). ARPA-E will review and consider each compliant and responsive Preliminary and Full Application, even if no Reply is submitted or if the Reply is found to be noncompliant.

Replies to Reviewer Comments must conform to the following content and form requirements, including maximum page lengths, described below. If a Reply to Reviewer Comments is more than three pages in length, ARPA-E will review only the first three pages and disregard any additional pages.

SECTION	PAGE LIMIT	DESCRIPTION
Text	2 pages maximum	Applicants may respond to one or more reviewer comments or supplement their Preliminary Application or Full Application.
Images	1 page maximum	Applicants may provide graphs, charts, or other data to respond to reviewer comments or supplement their Preliminary Application or Full Application.

F. INTERGOVERNMENTAL REVIEW

This program is not subject to Executive Order 12372 (Intergovernmental Review of Federal Programs).

G. FUNDING RESTRICTIONS

1. ALLOWABLE COSTS

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

2. PRE-AWARD COSTS

ARPA-E will not reimburse any pre-award costs incurred by Applicants before they are selected for award negotiations. Please refer to Section VII.A of the FOA for guidance on award notices.

Upon selection for award negotiations, Applicants may incur pre-award costs at their own risk, consistent with the requirements in 2 C.F.R. Part 200, as modified by 2 C.F.R. Part 910, and other Federal laws and regulations. ARPA-E generally does not accept budgets as submitted with the Full Application. Budgets are typically reworked during award negotiations. ARPA-E is under no obligation to reimburse pre-award costs if, for any reason, the Applicant does not receive an award or the award is made for a lesser amount than the Applicant expected, or if the costs incurred are not allowable, allocable, or reasonable.

3. PATENT COSTS

For Subject Inventions disclosed to DOE under an award, ARPA-E will reimburse the Prime Recipient – in addition to allowable costs associated with Subject Invention disclosures, up to $50,000 of expenditures for filing and prosecution of United States patent applications, including international applications ("PCT application") submitted to the United States Patent and Trademark Office (USPTO).

The Prime Recipient may request a waiver of the $50,000 cap.

4. FOREIGN TRAVEL

ARPA-E generally does not fund projects that involve foreign travel. Recipients are required to obtain written authorization from the authorized ARPA-E Official before incurring any foreign travel costs and provide trip reports with their reimbursement requests.

5. PERFORMANCE OF WORK IN THE UNITED STATES

ARPA-E strongly encourages interdisciplinary and cross-sectoral collaboration spanning organizational boundaries. Such collaboration enables the achievement of scientific and technological outcomes that were previously viewed as extremely difficult, if not impossible.

ARPA-E requires all work under ARPA-E funding agreements to be performed in the United States – i.e., Prime Recipients must expend 100% of the Total Project Cost in the United States. However, Applicants may request a waiver of this requirement where their project would materially benefit from, or otherwise requires, certain work to be performed overseas.

Applicants seeking a waiver of this requirement are required to include an explicit request in the Business Assurances & Disclosures Form, which is part of the Full Application submitted to ARPA-E. Such waivers are granted where there is a demonstrated need, as determined by ARPA-E.

6. PURCHASE OF NEW EQUIPMENT

All equipment purchased under ARPA-E funding agreements must be made or manufactured in the United States, to the maximum extent practicable. This requirement does not apply to used or leased equipment. Prime Recipients are required to notify the ARPA-E Contracting Officer reasonably in advance of any single purchase of equipment items that are not made or manufactured in the United States with a total acquisition cost of $250,000 or greater. The ARPA-E Contracting Officer will provide consent to purchase or reject within 30 calendar days of receipt of the Recipient's notification.

7. LOBBYING

Prime Recipients and Subrecipients may not use any Federal funds, directly or indirectly, to influence or attempt to influence, directly or indirectly, congressional action on any legislative 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.

Prime Recipients and Subrecipients are required to complete and submit SF-LLL, "Disclosure of Lobbying Activities" (http://www.whitehouse.gov/sites/default/files/omb/grants/sflllin.pdf) if any non-Federal funds have been paid or will be paid to any person for influencing or attempting to influence any of the following in connection with your 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.

8. CONFERENCE SPENDING

Prime Recipients and Subrecipients may not use any Federal funds to:

- Defray the cost to the United States Government of a conference held by any Executive branch department, agency, board, commission, or office which is not directly and programmatically related to the purpose for which their ARPA-E award is made and for which the cost to the United States Government is more than $20,000; or

  To circumvent 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 a conference.

9. INDEPENDENT RESEARCH AND DEVELOPMENT COSTS

ARPA-E does not fund Independent Research and Development (IR&D) as part of an indirect cost rate under its financial assistance awards. IR&D, as defined at FAR 31.205-18(a), includes cost of effort that is not sponsored by an assistance agreement or required in performance of a contract, and that consists of projects falling within the four following areas: (i) basic research, (ii) applied research, (iii) development, and (iv) systems and other concept formulation studies.

ARPA-E's goals are to enhance the economic and energy security of the United States through the development of energy technologies and ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies. ARPA-E accomplishes these goals by providing financial assistance for energy technology projects, and has well recognized and established procedures for supporting research through competitive financial assistance awards based on merit review of proposed projects. Reimbursement for independent research and development costs through the indirect cost mechanism could circumvent this competitive process.

To ensure that all projects receive similar and equal consideration, eligible organizations may compete for direct funding of independent research projects they consider worthy of support by submitting proposals for those projects to ARPA-E. Since proposals for these projects may be submitted for direct funding, costs for independent research and development projects are not allowable as indirect costs under ARPA-E awards. IR&D costs, however, would still be included in the direct cost base that is used to calculate the indirect rate so as to ensure an appropriate allocation of indirect costs to the organization's direct cost centers.

H. OTHER SUBMISSION REQUIREMENTS

1. USE OF ARPA-E eXCHANGE

To apply to this FOA, Applicants must register with ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov/Registration.aspx). Preliminary Applications, Full Applications, and Replies to Reviewer Comments must be submitted through ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov/login.aspx). ARPA-E will not review or consider applications submitted through other means (e.g., fax, hand delivery, email, postal mail). For detailed guidance on using ARPA-E eXCHANGE, please refer to the "ARPA-E eXCHANGE Applicant Guide" (https://arpa-e-foa.energy.gov/Manuals.aspx).

Upon creating an application submission in ARPA-E eXCHANGE, Applicants will be assigned a Control Number. If the Applicant creates more than one application submission, a different Control Number will be assigned for each application. **Applicants submitting the Small Business Grant Application will not be assigned a new Control Number, as this Application will be an**

addendum to the Preliminary Application submission. Applicants will receive a single Control Number for the Applicant Phase of the SCALEUP FOA.

Once logged in to ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov/login.aspx), Applicants may access their submissions by clicking the "My Submissions" link in the navigation on the left side of the page. Every application that the Applicant has submitted to ARPA-E and the corresponding Control Number is displayed on that page. If the Applicant submits more than one application to a particular FOA, a different Control Number is shown for each application.

Applicants are responsible for meeting each submission deadline in ARPA-E eXCHANGE. **Applicants are strongly encouraged to submit their 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 Preliminary Application or Full Application. In addition, Applicants should allow at least 15 minutes to submit a Reply to Reviewer Comments. Once the application is submitted in ARPA-E eXCHANGE, Applicants may revise or update their application until the expiration of the applicable deadline.

Applicants should not wait until the last minute to begin the submission process. During the final hours before the submission deadline, Applicants may experience server/connection congestion that prevents them from completing the necessary steps in ARPA-E eXCHANGE to submit their applications. **ARPA-E will not extend the submission deadline for Applicants that fail to submit required information and documents due to server/connection congestion.**

ARPA-E may not review or consider incomplete applications and applications received after the deadline stated in the FOA. Such applications may be deemed noncompliant (see Section III.C.1 of the FOA). Following is the entire list of errors could cause an application to be deemed "incomplete" and thus noncompliant:

- Failing to comply with the format and content requirements in Section IV of the FOA;
- Failing to enter required information in ARPA-E eXCHANGE;
- Failing to upload required document(s) to ARPA-E eXCHANGE;
- Failing to click the "Submit" button in ARPA-E eXCHANGE by the deadline stated in the FOA;
- Uploading the wrong document(s) or application(s) to ARPA-E eXCHANGE; and
- Uploading the same document twice, but labeling it as different documents. (In other words, failing to submit a required document.)

ARPA-E urges Applicants to carefully review their applications and to allow sufficient time for the submission of required information and documents.

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V. APPLICATION REVIEW INFORMATION

A. CRITERIA

ARPA-E performs an initial review of Preliminary Applications and Full Applications to determine whether they are compliant and responsive (see Section III.C of the FOA). ARPA-E also performs a preliminary review of Replies to Reviewer Comments to determine whether they are compliant.

ARPA-E considers a mix of quantitative and qualitative criteria in evaluating Preliminary or Full Applications.

1. CRITERIA FOR APPLICATIONS

(1) *Project Feasibility and Technical Merit* (33.33%) - This criterion involves consideration of the following subject matter, but shall not be considered or interpreted as subfactors to be separately scored:

- The description of the problem to be addressed, technology scaling challenges, and timeline for the proposed project;
- How R&D activities subsequent to the original ARPA-E award have helped mitigate any technical and business risks;
- Whether the technology is ready for immediate scaling, and that successful project completion will result in a commercially investable system, product, or service;
- For Full Applications only: Whether clearly defined, and reasonable, budget and timelines with project outcomes, tasks, milestones, Go/No Go Decision Points, and final deliverables have been proposed;
- Whether necessary intellectual property (IP) rights exist or can be obtained, and well-defined pathways for strengthening the IP position throughout the proposed project have been proposed;
- Whether key risk areas for the project and technology, and freedom to operate, including a comprehensive mitigation strategy to be implemented during and following the completion of the project, have been identified and proposed;
- Whether justification to support the goals and objectives of the proposed project have been identified, and are likely, from a technical perspective, to achieve the identified performance, yield, conversion, throughput, scale, cost, and/or efficiency

metrics, etc. of the proposed project;

- For Full Applications only: The sufficiency of the detailed techno-economic analysis, including major cost factors and performance metrics; and

- For Full Applications only: The sufficiency of the Project Plan used to manage people and resources to successfully complete the proposed project with appropriate allocation levels.

(2) *Commercial Viability, Strategy, and Impact* (33.33%) - This criterion involves consideration of the following subject matter, but shall not be considered or interpreted as subfactors to be separately scored :

- How the goals and objectives of the proposed project are likely to lead to commercialization of the technology;

- How well the path to market approach addresses both immediate and long-term commercialization factors;

- The significance of the technology's value proposition compared to existing solutions;

- For Full Applications only: Sufficency of evidence demonstrating successful market validation efforts with findings that support a path to market and the proposed project goals and objectives;

- Sufficiency of supply chain and distribution channel pathways demonstrating compelling knowledge of existing channel availability and known gaps;

- Significance of the technology's value proposition as it applies to the proposed customer(s) and/or end-user(s);

- Potential commercialization risk areas and forward-looking mitigation strategies; and

- Impact on at least one of ARPA-E's mission areas in Section I.A of the FOA, as well as long-term impact on the U.S. economy and energy landscape.

(3) *Project Team Qualifications, Experience, and Capabilities* (33.33%) - This criterion involves consideration of the following subject matter, but shall not be considered or interpreted as subfactors to be separately scored:

- Capabilities of the individuals performing the project, the key capabilities of the

organizations comprising the Project Team, the roles and responsibilities of each organization supporting the proposed project, and demonstrated capabilities to advance the project to completion, as evidenced by:
  - A record of successful scale-up and commercialization of new technologies;
  - The ability to collect and analyze data, manage unexpected contingencies, and troubleshoot problems.

- Sufficiency of plans to access the equipment and facilities necessary to accomplish the proposed scaling effort and/or a clear plan to obtain access to necessary equipment and facilities;

- Commitment of Commercialization and Financial Partner(s) that will help enable the success of the project and ultimately the technology.

Submissions will not be evaluated against each other since they are not submitted in accordance with a common work statement. The above criteria will be weighted as follows:

Project Feasibility and Technical Merit	33.33%
Commercial Viability, Strategy, and Impact	33.33%
Project Team Qualifications, Experience, and Capabilities	33.33%

2. CRITERIA FOR REPLIES TO REVIEWER COMMENTS

ARPA-E has not established separate criteria to evaluate Replies to Reviewer Comments. Instead, Replies to Reviewer Comments are evaluated as an extension of the Preliminary or Full Application, as appropriate.

3. CRITERIA FOR ORAL PRESENTATIONS

ARPA-E has not established separate criteria to evaluate the Oral Presentation. Instead, the Oral Presentation is evaluated as an extension of the Full Application.

B. REVIEW AND SELECTION PROCESS

1. PROGRAM POLICY FACTORS

In addition to the above criteria, ARPA-E may consider the following program policy factors in determining which Preliminary Applications to select as Semi-Finalist and which Full Applications to select for award negotiations:

I. **ARPA-E Portfolio Balance**. Project balances ARPA-E portfolio in one or more of the following areas:

a. Diversity of technical personnel in the proposed Project Team;
b. Technological diversity;
c. Organizational diversity;
d. Geographic diversity;
e. Technical, team, or commercialization risk; or
f. Stage of technology development.

II. **Relevance to ARPA-E Mission Advancement.** Project contributes to one or more of ARPA-E's key statutory goals:
a. Reduction of U.S. dependence on foreign energy sources;
b. Stimulation of domestic manufacturing/U.S. Manufacturing Plan;
c. Reduction of energy-related emissions;
d. Increase in U.S. energy efficiency;
e. Enhancement of U.S. economic and energy security; or
f. Promotion of U.S. advanced energy technologies competitiveness.

III. **Synergy of Public and Private Efforts**.
a. Avoids duplication and overlap with other publicly or privately funded projects;
b. Promotes increased coordination with nongovernmental entities for demonstration of technologies and research applications to facilitate technology transfer; or
c. Increases unique research collaborations.

IV. **Low likelihood of other sources of funding.** High technical and/or financial uncertainty that results in the non-availability of other public, private or internal funding or resources to support the project.

V. **High-Leveraging of Federal Funds**. Project leverages Federal funds to optimize advancement of programmatic goals by proposing cost share above the required minimum or otherwise accessing scarce or unique resources.

VI. **High Project Impact Relative to Project Cost.**

2. ARPA-E Reviewers

By submitting an application to ARPA-E, Applicants consent to ARPA-E's use of Federal employees, contractors, and experts from educational institutions, nonprofits, industry, and governmental and intergovernmental entities as reviewers. ARPA-E selects reviewers based on their knowledge and understanding of the relevant field and application, their experience and skills, and their ability to provide constructive feedback on applications.

ARPA-E requires all reviewers to complete a Conflict-of-Interest Certification and Nondisclosure Agreement through which they disclose their knowledge of any actual or apparent conflicts and

agree to safeguard confidential information contained in Preliminary Applications, Full Applications, Replies to Reviewer Comments, and Oral Presentation. In addition, ARPA-E trains its reviewers in proper evaluation techniques and procedures.

Applicants are not permitted to nominate reviewers for their applications. Applicants may contact the Contracting Officer by email (ARPA-E-CO@hq.doe.gov) if they have knowledge of a potential conflict of interest or a reasonable belief that a potential conflict exists.

3. ARPA-E SUPPORT CONTRACTOR

ARPA-E utilizes contractors to assist with the evaluation of applications and project management. To avoid actual and apparent conflicts of interest, ARPA-E prohibits its support contractors from submitting or participating in the preparation of applications to ARPA-E.

By submitting an application to ARPA-E, Applicants represent that they are not performing support contractor services for ARPA-E in any capacity and did not obtain the assistance of ARPA-E's support contractor to prepare the application. ARPA-E will not consider any applications that are submitted by or prepared with the assistance of its support contractors.

C. ANTICIPATED ANNOUNCEMENT AND AWARD DATES

ARPA-E expects to announce selections for award negotiations in approximately November 2020 and to award funding agreements in approximately March 2021.

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VI. AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. REJECTED SUBMISSIONS

Noncompliant and nonresponsive Preliminary Applications and Full Applications are rejected by the Contracting Officer and are not merit reviewed or considered for award. The Contracting Officer sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in ARPA-E eXCHANGE. The notification letter states the basis upon which the Preliminary Application or Full Application was rejected.

2. PRELIMINARY APPLICATIONS – SEMI-FINALIST NOTIFICATIONS

ARPA-E promptly notifies Applicants of its Semi-Finalist selections and determination to invite the submission of a Full Application. ARPA-E sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in ARPA-E eXCHANGE. The notification letter will inform the Applicant that its Preliminary Application was selected as a Semi-Finalist, or not selected.

Written feedback on Preliminary Applications is made available to Applicants before the submission deadline for Replies to Reviewer Comments. By providing feedback, ARPA-E intends to guide the further development of the proposed technology and provide a brief opportunity to respond to reviewer comments.

3. FULL APPLICATION – FINALIST NOTIFICATIONS/ORAL PRESENTATION INVITATION

ARPA-E will promptly notify Semi-Finalists of its Finalist determination. ARPA-E sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in ARPA-E eXCHANGE. The notification letter may inform the Semi-Finalists that its Full Application was selected as a Finalist, or not selected.

Written feedback on Full Applications is made available to Semi-Finalists before the submission deadline for Replies to Reviewer Comments. By providing feedback, ARPA-E intends to guide the further development of the proposed technology and to provide a brief opportunity to respond to reviewer comments.

As part of the evaluation and selection process, ARPA-E will invite Finalists to provide an Oral Presentation. ARPA-E will arrange to meet with the invited Finalists in person at the ARPA-E

offices or a mutually agreed upon location. Alternatively, ARPA-E may invite certain Finalists to present to ARPA-E via webinar, videoconference, or conference call.

Finalist will have approximately 30 days from receipt of the invitation letter to prepare for and complete the Oral Presentation. During the Oral Presentation, Finalists will meet with ARPA-E representatives to present the contents of the Full Application and provide ARPA-E an opportunity to ask questions regarding the proposed project. The information provided by Finalists to ARPA-E through the Oral Presentation contributes to ARPA-E's selection decisions.

4. SELECTION NOTIFICATIONS

a. SUCCESSFUL FINALISTS

ARPA-E will promptly notify Finalists of its selections for award negotiations. ARPA-E sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in ARPA-E eXCHANGE. The notification letter may inform the Finalists that it was selected for an ARPA-E award or not selected. Alternatively, ARPA-E may notify one or more Finalists that a selection determination on a particular Full Application will be made at a later date, subject to the availability of funds and other factors.

ARPA-E has discretion to select all or part of a proposed project for negotiation of an award. A notification letter selecting a Finalist for award negotiations does not authorize the Finalist to commence performance of the project. **ARPA-E selects Finalists for award negotiations, not for award.** Finalists do not receive an award until award negotiations are complete and the Contracting Officer executes the funding agreement. ARPA-E may terminate award negotiations at any time for any reason.

Please refer to Section IV.G.2 of the FOA for guidance on pre-award costs.

b. POSTPONED SELECTION DETERMINATIONS

A notification letter postponing a final selection determination until a later date does not authorize the Finalist to commence performance of the project. ARPA-E may ultimately determine to select or not select the Finalist for award negotiations.

Please refer to Section IV.G.2 of the FOA for guidance on pre-award costs.

c. NON-SELECTION OF FINALISTS

By not selecting a Finalist, ARPA-E 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. ARPA-E hopes that unsuccessful Finalists will submit innovative ideas and concepts for future FOAs.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

The following administrative and national policy requirements apply to Prime Recipients. The Prime Recipient is 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 a FFRDC contractor. Prime Recipients are required to flow down these requirements to their Subrecipients through subawards or related agreements.

1. DUNS NUMBER AND SAM, FSRS, AND FEDCONNECT REGISTRATIONS

Prime Recipients and Subrecipients are required to obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number at http://fedgov.dnb.com/webform and to register with the System for Award Management (SAM) at https://www.sam.gov/SAM/. Prime Recipients and Subrecipients should commence this process as soon as possible in order to expedite the execution of a funding agreement. Obtaining a DUNS number and registering with SAM could take several weeks.

Prime Recipients are also required to register with the Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS) at https://www.fsrs.gov/.[21] Prime Recipients are required to report to FSRS the names and total compensation of each of the Prime Recipient's five most highly compensated executives and the names and total compensation of each Subrecipient's five most highly compensated executives. Please refer to https://www.fsrs.gov/ for guidance on reporting requirements.

ARPA-E may not execute a funding agreement with the Prime Recipient until it has obtained a DUNS number and completed its SAM and FSRS registrations. In addition, the Prime Recipient may not execute subawards with Subrecipients until they obtain a DUNS number and complete their SAM registration. Prime Recipients and Subrecipients are required to keep their SAM and FSRS data current throughout the duration of the project.

Finally, Prime Recipients are required to register with FedConnect in order to receive notification that their funding agreement has been executed by the Contracting Officer and to obtain a copy of the executed funding agreement. Please refer to https://www.fedconnect.net/FedConnect/ for registration instructions.

2. NATIONAL POLICY ASSURANCES

Project Teams, including Prime Recipients and Subrecipients, are required to comply with the National Policy Assurances attached to their funding agreement in accordance with 2 C.F.R.

[21] The Federal Funding Accountability and Transparency Act, P.L. 109-282, 31 U.S.C. 6101 note.

200.300. Please refer to Attachment 6 of ARPA-E's Model Cooperative Agreement (https://arpa-e.energy.gov/?q=site-page/funding-agreements) for information on the National Policy Assurances.

3. PROOF OF COST SHARE COMMITMENT AND ALLOWABILITY

Upon selection for award negotiations, the Prime Recipient must confirm in writing that the proposed cost share contribution is allowable in accordance with applicable Federal cost principles.

The Prime Recipient is also required to provide cost share commitment letters from Subrecipients or third parties that are providing cost share, whether cash or in-kind. Each Subrecipient or third party that is contributing cost share must provide a letter on appropriate letterhead that is signed by an authorized corporate representative.

4. COST SHARE PAYMENTS

All proposed cost share contributions must be reviewed in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred. (Refer to Section III.B of the FOA for guidance on cost share requirements.)

The Prime Recipient is required to pay the "Cost Share" amount as a percentage of the total project costs in each invoice period for the duration of the period of performance. Small Businesses see Section III.B.2 of the FOA.

ARPA-E may deny reimbursement requests, in whole or in part, or modify or terminate funding agreements where Prime Recipients (or Project Teams) fail to comply with ARPA-E's cost share payment requirements.

5. ENVIRONMENTAL IMPACT QUESTIONNAIRE

By law, ARPA-E is required to evaluate the potential environmental impact of projects that it is considering for funding. In particular, ARPA-E must determine before funding a project whether the project qualifies for a categorical exclusion under 10 C.F.R. § 1021.410 or whether it requires further environmental review (i.e., an environmental assessment or an environmental impact statement).

To facilitate and expedite ARPA-E's environmental review, Prime Recipients are required to complete an Environmental Impact Questionnaire during award negotiations. This form is available at https://arpa-e.energy.gov/?q=site-page/required-forms-and-templates. The Environmental Impact Questionnaire is due within 21 calendar days of the selection announcement.

6. INTELLECTUAL PROPERTY AND DATA MANAGEMENT PLANS

ARPA-E requires every Project Team to negotiate and establish an Intellectual Property Management Plan for the management and disposition of intellectual property arising from the project. The Prime Recipient must submit a completed and signed Intellectual Property Management plan to ARPA-E within six weeks of the effective date of the ARPA-E funding agreement. All Intellectual Property Management Plans are subject to the terms and conditions of the ARPA-E funding agreement and its intellectual property provisions, and applicable Federal laws, regulations, and policies, all of which take precedence over the terms of Intellectual Property Management Plans.

ARPA-E has developed a template for Intellectual Property Management Plans (https://arpa-e.energy.gov/?q=site-page/project-management-reporting-requirements) so as to facilitate and expedite negotiations between Project Team members. ARPA-E does not mandate the use of this template. ARPA-E and DOE do not make any warranty (express or implied) or assume any liability or responsibility for the accuracy, completeness, or usefulness of the template. ARPA-E and DOE strongly encourage Project Teams to consult independent legal counsel before using the template.

Awardees are also required, post-award, to submit a Data Management Plan (DMP) that addresses how data generated in the course of the work performed under an ARPA-E award will be preserved and, as appropriate, shared publicly. The Prime Recipient must submit a completed and signed DMP as part of the Team's Intellectual Property Management Plan to ARPA-E within six weeks of the effective date of the ARPA-E funding agreement.

7. U.S. MANUFACTURING REQUIREMENT

As part of its Full Application, each Applicant is required to submit a U.S. Manufacturing Plan that includes the following U.S. Manufacturing Requirements. For more information on the required U.S Manufacturing Plan, see Section IV.D.8 above. For all entity types, ARPA-E will have the right to inspect any licenses and/or assignment or other transfer of rights documents for compliance with the requirements set forth herein.

a. SMALL BUSINESSES

Small businesses (and in rare cases where a nonprofit might manufacture) that are Prime Recipients or Subreceipients under ARPA-E funding agreements must agree that any products embodying any subject invention or produced through the use of any subject invention will be manufactured substantially in the United States for any use or sale anywhere in the world.

Small business must also agree that, for their exclusive and nonexclusive licensees, any products that embody any subject invention or that will be produced through the use of any

subject invention will be manufactured substantially in the United States for any use or sale anywhere in the world.

Small businesses must require their assignees and entities acquiring a controlling interest in the small business to apply the same U.S. Manufacturing requirements to their licensees.

b. LARGE BUSINESSES

Large businesses that are Prime Recipients or Subrecipients (and in rare cases, foreign entities that are subrecipients) under ARPA-E funding agreements are required to substantially manufacture the following products in the United States: (1) products embodying subject inventions, and (2) products produced through the use of subject inventions. This requirement applies to products that are manufactured for use or sale in the United States and outside the United States.

Large businesses (and in rare cases, foreign entities that are subrecipients) must apply the same U.S. Manufacturing requirements to their assignees, licensees, and entities acquiring a controlling interest in the large business or foreign entity. Large businesses must require their assignees and entities acquiring a controlling interest in the large business to apply the same U.S. Manufacturing requirements to their licensees.

c. EDUCATIONAL INSTITUTIONS AND NONPROFITS

Domestic educational institutions that are Subrecipients and nonprofits that are Prime Recipients or Subrecipients under ARPA-E funding agreements must require their exclusive and nonexclusive licensees to substantially manufacture the following products in the United States for any use or sale anywhere in the world: (1) articles embodying subject inventions, and (2) articles produced through the use of subject inventions. Educational institutions and nonprofits must require their assignees to apply the same U.S. Manufacturing requirements to their licensees or any entity otherwise acquiring rights to any subject invention or developed technology covered under the award.

d. FFRDCs/DOE Labs and State and Local Government Entities

FFRDCs/DOE Labs that are government-owned, contractor-operated (GOCOs) and state and local government entities that are Subrecipients under ARPA-E funding agreements must require their exclusive licensees to substantially manufacture the following products in the United States for any use or sale in the United States: (1) products embodying subject inventions, and (2) products produced through the use of subject inventions. This requirement does not apply to products that are manufactured for use or sale overseas. They must also require their assignees to apply the same U.S. Manufacturing requirements to their exclusive licensees. GOGOs are subject to the requirements in 37 CFR § 404.5(a)(2).

e. Criteria for Waiving U.S. Manufacturing Requirements

ARPA-E seeks to "enhance the economic and energy security of the United States …" and "ensure that the United States maintains a technological lead in developing and deploying advanced energy technologies." The preferred benefit to the U.S. economy is the creation and maintenance of manufacturing capabilities and jobs within the United States. However, an Applicant or awardee may request a modification or waiver of the standard U.S. Manufacturing Requirement, or its submitted U.S. Manufacturing Plan. DOE will determine whether to approve such a waiver in light of equitable considerations, including for example, a) Applicant/awardee demonstrating to the satisfaction of DOE/ARPA-E that US manufacturing is not commercially/economically feasible, and, if not, b), whether there is a satisfactory alternative net benefit to the U.S. economy if the requested waiver or modification is approved. These types of benefits are more easily measured and evaluated after technical advance has been made under an award, such as by the making of a subject invention.

Such benefits may include one or more of the following:

- Direct or indirect investment in U.S.-based plant and equipment.
- Creation of new and/or higher-quality U.S.-based jobs.
- Enhancement of the domestic skills base.
- Further domestic development of the technology.
- Significant reinvestment of profits in the domestic economy.
- Positive impact on the U.S. balance of payments in terms of product and service exports as well as foreign licensing royalties and receipts.
- Appropriate recognition of U.S. taxpayer support for the technology; e.g., a quid-pro-quo commensurate with the economic benefit that would be domestically derived by the U.S. taxpayer from U.S.-based manufacture.
- Cross-licensing, sublicensing, and reassignment provisions in licenses which seek to maximize the benefits to the U.S. taxpayer.
- Any foreign manufacturing/use will occur in a country that protects U.S. patents/intellectual property.

8. CORPORATE FELONY CONVICTIONS AND FEDERAL TAX LIABILITY

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

- It is not a corporation that has been convicted of a felony criminal violation under any Federal law within the preceding 24 months; and

- 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 nonprofit organizations.

9. APPLICANT RISK ANALYSIS

If selected for award negotiations, ARPA-E may evaluate the risks posed by the Applicant using the criteria set forth at 2 CFR §200.205(c), subparagraphs (1) through (5). ARPA-E may require special award terms and conditions or terminate award negotiations depending upon results of the risk analysis.

10. RECIPIENT INTEGRITY AND PERFORMANCE MATTERS

Prior to making a Federal award with a total amount of Federal share greater than the simplified acquisition threshold (presently $250,000), ARPA-E is required to review and consider any information about Applicants that is contained in the Office of Management and Budget's designated integrity and performance system accessible through SAM (currently the Federal Awardee Performance and Integrity Information System or FAPIIS) (41 U.S.C. § 2313 and 2 C.F.R. 200.205).

Applicants may review information in FAPIIS and comment on any information about itself that a Federal awarding agency previously entered into FAPIIS.

ARPA-E will consider any written comments provided by Applicants during award negotiations, in addition to the other information in FAPIIS, in making a judgment about an Applicant's integrity, business ethics, and record of performance under Federal awards when reviewing potential risk posed by Applicants as described in 2 C.F.R. §200.205.

11. NONDISCLOSURE AND CONFIDENTIALITY AGREEMENTS REPRESENTATIONS

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

(1) **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.

(2) **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:

a. *"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."*

b. The limitation above shall not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

c. Notwithstanding provision listed in paragraph (a), a nondisclosure 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 disclosure 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.

C. REPORTING

Recipients are required to submit periodic, detailed reports on technical, financial, and other aspects of the project, as described in Attachment 4 to ARPA-E's Model Cooperative Agreement (https://arpa-e.energy.gov/?q=site-page/funding-agreements).

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VII. SMALL BUSINESS GRANTS

A. AWARD OVERVIEW

Preliminary Applicants that are eligible small businesses have the **option** to apply for a fixed-amount grant ("Small Business Grant") of up to $150,000 to support the development of their internal frameworks and infrastructure assessments needed to address how they propose to scale/commercialize the technology(ies) proposed in their Preliminary Applications. The goal of issuing Small Business Grants is to encourage and facilitate substantive participation of small businesses, including (i) generating/improving innovative plans for energy technology commercialization, and (ii) identifying and attracting industrial project engineering skill sets essential for technology commercialization, but not normally engaged by small businesses.

Grant applications:

- Must be compliant and responsive.
- Will be reviewed separately, using the factors set forth in this Section VII, from the Preliminary Applications.
- Will be reviewed only for eligible small businesses first selected as semi-finalists for this FOA.

Proposed grant tasks may include:

- Development of relevant performance and cost metrics supported by third party validation (customer discovery, discussions with industry experts, etc.);
- Analysis of the business and technology's competitive landscape, including market and economic assessment;
- Strategic patent, regulatory, and compliance investigation;
- Detailed techno-economic modeling, including uncertainty and sensitivity analysis; and
- Supply chain and manufacturing capability evaluation

A final technical report to ARPA-E will be required, addressing the grant tasks proposed to/negotiated with ARPA-E. The expectation is that report content will also be used by the small business in preparation of its Full Application.

Small Business Grant Applications must be submitted as an addendum to a Preliminary Application. ARPA-E expects to award a total of up to $2 million for such Small Business Grants, subject to the availability of appropriated funds.

The period of performance for funding agreements is anticipated to be approximately three months.

B. ARPA-E FUNDING AGREEMENTS - GRANTS

ARPA-E anticipates awarding fixed-amount grants after the Preliminary Application to selected Semi-Finalists who have properly submitted the optional Small Business Grant Application. Only small businesses are eligible for the Small Business Grant. ARPA-E will only award a fixed-amount grant in instances where it can be assured that the prospective Awardee will not realize any increment (profit or fee) above the actual cost of performing work.

ARPA-E will provide the fixed grant funding in two amounts: two-thirds at the start of the grant period and one-third at the end of the grant period. Before the final payment, each Small Business Grant Recipient is required to submit to ARPA-E a satisfactory technical report describing the work completed. Payment following submission of the final technical report also requires certification to ARPA-E that all agreed-upon activities have been completed.

Small Business Grant Recipients must obtain prior approval of the ARPA-E Contracting Officer for changes in principal investigator, project team members, project collaborators, or scope of project effort. For additional information about fixed-amount awards refer to 2 C.F.R. § 200.45 and 2 C.F.R. § 200.201.

C. ELIGIBILITY INFORMATION – APPLICANTS

The Small Business Grant is available *only* for small businesses that fulfill the eligibility criteria of Section III.A. To receive the Grant, **Applicants must submit a Preliminary Application and an Addendum (Grant Application) and be selected as a Semi-Finalist.** The Small Business Grant application is optional and, if submitted, must be submitted with the Preliminary Application by the submission deadline set forth on the FOA cover page. A Small Business Grant Application is: (i) not a requirement for selection as a Semi-Finalist, and (ii) if submitted, will not be used to evaluate the selection of Semi-Finalists.

It has long been recognized that the potential capacity of small business is essential to the national security and well-being of the nation (for example, see P.L. 85-536, Small Business Act, § 2(a)). Moreover, "[i]t is the declared policy of the Congress that the Government should aid, counsel, assist, and protect, insofar as is possible, the interests of small-business concerns …" (*Ibid*). Consistent with the aforementioned U.S. Government policy and ARPA-E experiences, the risk and expense of conducting serious R&D efforts are often beyond the means of many small businesses. The Small Business Grant is designed to encourage participation in this FOA and improve the competitiveness of small business entities. Restricting eligibility to small businesses provides some measure of financial support and assists small businesses to develop the capacity necessary to better participate in their chosen technology markets.

D. COST SHARING

No cost share is required for fixed-amount grants.

E. OTHER

1. COMPLIANT CRITERIA

The Small Business Grant Application submission is deemed compliant if:

- The Applicant submitted a compliant and responsive Preliminary Application and was selected as a Semi-Finalist;
- The Applicant meets the eligibility requirements in Section III.A and III.B of the FOA;
- The Small Business Grant Application submission complies with the content and format requirements in Section VII.G.1 of the FOA; and
- The Applicant entered all required information, successfully uploaded all required documents, and clicked the "Submit" button in ARPA-E eXCHANGE by the deadline stated in the FOA.

Small Business Grant Application submissions found to be noncompliant may not be reviewed or considered for grant award. ARPA-E may not review or consider noncompliant Small Business Grant Applications, including Small Business Grant Applications submitted through other means, Small Business Grant Applications submitted after the applicable deadline, or incomplete Small Business Grant Applications. A Small Business Grant Application is incomplete if it does not include required information, such as the Statement of Work Letter and Form SF-424A. ARPA-E will not extend the submission deadline for Applicants who fail to submit required information and documents due to server/connection congestion.

2. LIMITATION ON NUMBER OF SUBMISSIONS

Only one grant application may be submitted for each Preliminary Application.

F. APPLICATION AND SUBMISSION INFORMATION

1. REGISTRATION IN ARPA-E EXCHANGE

Follow instructions above for filing a Preliminary Application, starting with registration in ARPA-E eXCHANGE, ARPA-E's online application portal.

2. SMALL BUSINESS GRANT APPLICATION

Applicants may submit a Small Business Grant Application as an addendum to their Preliminary Applications. See above for instructions on submitting a Preliminary Application.

ARPA-E performs an initial review of Small Business Grant Applications to determine whether they are compliant. Small Business Grant Applications found to be noncompliant may not be considered for the fixed-amount grant award. ARPA-E makes an independent assessment of each compliant Small Business Grant Application based on the eligibility discussed in Section III.B of the FOA.

G. APPLICATION FORMS

Required forms for Small Business Grant Applications are available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov), including the SF-424A (Fixed-Amount Grant). Applicants may use the templates available on ARPA-E eXCHANGE, including the SCALEUP Statement of Work Letter and Business Assurances & Disclosures Form. A sample response to the Business Assurances & Disclosures Form is available on ARPA-E eXCHANGE.

1. CONTENT AND FORM OF SMALL BUSINESS GRANT

The Small Business Grant Application must conform to the following formatting requirements:

- All pages must be formatted to fit on 8-1/2 by 11-inch paper with margins not less than one inch on every side. Single space all text and use Times New Roman typeface, a black font color, and a font size of 12 point or larger (except in figures and tables).

- The Small Business Grant Application must be submitted in English.

- The ARPA-E assigned Control Number, the Lead Organization Name, and the Principal Investigator's Last Name must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page. This information should match those included within the Preliminary Application submission.

- The first paragraph must include the Lead Organization's Name and Location, Principal Investigator's Name, original ARPA-E Award Number and Program, ARPA-E/iEdison Confirmation Number, Proposed Funding Requested, and Project Duration.

Each Small Business Grant Application must be limited to the technology and project proposed in the Applicant's Preliminary Application.

A fillable Small Business Grant Application template is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov.

Small Business Grant Applications must conform to the content requirements described below.

Component	Required Format	Description and Information
Statement of Work Letter	PDF	Provides a description of the internal framework and infrastructure development efforts needed to scale the proposed technology. A Statement of Work Letter template is available on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov).
SF-424A (Fixed-Amount Grant)	XLS	Budget Information – Non-Construction Programs (https://arpa-e-foa.energy.gov)
Business Assurances & Disclosures Form	PDF	Requires the Applicant to make responsibility disclosures and disclose potential conflicts of interest within the Project Team. Requires the Applicant to describe the additionality and risks associated with the proposed project, disclose applications for funding currently pending with Federal and non-Federal entities, and disclose funding from Federal and non-Federal entities for work in the same technology area as the proposed R&D project. If the Applicant includes a FFRDC/DOE Lab, requires the Applicant to provide written authorization from the cognizant Federal agency and, if a DOE/NNSA FFRDC/DOE Lab, a Field Work Proposal. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov. A sample response to the Business Assurances & Disclosures Form is also available on ARPA-E eXCHANGE.

ARPA-E provides detailed guidance on the content and form of each component below.

i. First Component: Statement of Work Letter

The Statement of Work Letter must conform to the content and form requirements included within the template, and must conform to the following formatting requirements:

- The Statement of Work Letter must not exceed 1 page in length.

- The Statement of Work Letter must be submitted in Adobe PDF format.

If Applicants exceed the maximum page length specified for, ARPA-E will review only the authorized number of pages and disregard any additional pages.

ii. SECOND COMPONENT: SF-424A (FIXED AMOUNT GRANT)

Applicants are required to complete the SF-424A Excel spreadsheet. This form is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov/.

iii. THIRD COMPONENT: BUSINESS ASSURANCES & DISCLOSURES FORM

Applicants are required to provide the following information requested in the Business Assurances & Disclosures Form. The information must be submitted in Adobe PDF format. A fillable Business Assurances & Disclosures Form template is available on ARPA-E eXCHANGE at https://arpa-e-foa.energy.gov. A sample response to the Business Assurances & Disclosures Form is also available on ARPA-E eXCHANGE.

As described in the Business Assurances & Disclosures Form, the Applicant is required to:

- Disclose conditions bearing on responsibility, such as criminal convictions and Federal tax liability;

For this grant application, Applicants need not complete other sections of this form. (A complete form must be submitted with Full Applications.)

Note: all grant work must be performed in the United States and its Territories.

H. APPLICATION REVIEW CRITERIA

Small Business Grant applications will be reviewed using the following criteria:

- *Impact of the Proposed Activities Relative to the Goal of the Small Business Grant Program* (50%) - This criterion involves consideration of the proposed activities relative to the goal of the Small Business Grant program to encourage and facilitate substantive participation of small businesses, including (i) generating/improving innovative plans for energy technology commercialization, and (ii) identifying and attracting industrial project engineering skill sets essential for technology commercialization, but not normally engaged by small businesses.

- *Overall Merit* (50%) - This criterion involves consideration of the degree to which the Applicant or Project Team meets the requirements stated in Section VII.A above and identifies clearly defined and meritorious project outcomes.

I. APPLICANT RISK ANALYSIS

Refer to FOA Section VI.B.9 for details.

J. REVIEW AND SELECTION PROCESS

Refer to FOA Section V.B.2 and Section V.B.3 for details.

K. AWARD ADMINISTRATION INFORMATION

1. GRANT AWARD NOTIFICATIONS

All small businesses selected as Semi-Finalists that submitted a fully compliant Small Business Grant Application will be concurrently notified of whether they have been selected for negotiation of a Small Business Grant. ARPA-E sends a notification letter by email to the technical and administrative points of contact designated by the small business Applicant in ARPA-E eXCHANGE. This letter may be combined with notification of selection as a Semi-Finalist.

A notification letter selecting a Small Business Grant Application for award negotiations does not authorize the Applicant to commence performance of the project. **ARPA-E selects Small Business Grant Applications for award negotiations, not for award.** Semi-Finalists do not receive a grant until grant award negotiations are complete and the Contracting Officer executes the grant. ARPA-E may terminate grant award negotiations at any time for any reason.

2. ADMINISTRATIVE AND NATIONAL POLICY ASSURANCES

Refer to the Administrative and National Policy Assurances Section VI.B of this FOA, as applicable.

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VIII. AGENCY CONTACTS

A. COMMUNICATIONS WITH ARPA-E

Upon the issuance of a FOA, only the Contracting Officer may communicate with Applicants. ARPA-E personnel and our support contractors are prohibited from communicating (in writing or otherwise) with Applicants regarding the FOA. This "quiet period" remains in effect until ARPA-E's public announcement of its project selections.

Note: At the SCALEUP Workshop discussed above, Applicants may not communicate with ARPA-E personnel or support contractors regarding their Applications or the SCALEUP FOA more generally.

During the "quiet period," Applicants are required to submit all questions regarding this FOA to ARPA-E-CO@hq.doe.gov. Questions and Answers (Q&As) about ARPA-E and the FOA are available at http://arpa-e.energy.gov/faq. For questions that have not already been answered, please send an email with the FOA name and number in the subject line to ARPA-E-CO@hq.doe.gov. Due to the volume of questions received, ARPA-E will only answer pertinent questions that have not yet been answered and posted at the above link.

- ARPA-E will post responses on a weekly basis to any questions that are received that have not already been addressed at the link above. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

- ARPA-E will cease to accept questions approximately 10 business days in advance of each submission deadline. Responses to questions received before the cutoff will be posted approximately one business day in advance of the submission deadline. ARPA-E may re-phrase questions or consolidate similar questions for administrative purposes.

- Responses are published in a document specific to this FOA under "CURRENT FUNDING OPPORTUNITIES – FAQS" on ARPA-E's website (http://arpa-e.energy.gov/faq).

Applicants may submit questions regarding ARPA-E eXCHANGE, ARPA-E's online application portal, to ExchangeHelp@hq.doe.gov. ARPA-E will promptly respond to emails that raise legitimate, technical issues with ARPA-E eXCHANGE. ARPA-E will refer any questions regarding the FOA to ARPA-E-CO@hq.doe.gov.

ARPA-E will not accept or respond to communications received by other means (e.g., fax, telephone, mail, hand delivery). Emails sent to other email addresses will be disregarded.

During the "quiet period," only the Contracting Officer may authorize communications between ARPA-E personnel and Applicants. The Contracting Officer may communicate with Applicants as necessary and appropriate. As described in Section IV.A.9 of the FOA, the Contracting Officer may arrange pre-selection meetings and/or site visits during the "quiet period."

B. DEBRIEFINGS

ARPA-E does not offer or provide debriefings. ARPA-E provides Applicants with a Semi-Finalist notification based on the ARPA-E's assessment of the Preliminary Application, and a Finalist notification based on the ARPA-E's assessment of the Full Application. In addition, ARPA-E provides Applicants with reviewer comments on Preliminary Application and Full Applications before the submission deadline for Replies to Reviewer Comments.

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IX. OTHER INFORMATION

A. TITLE TO SUBJECT INVENTIONS

Ownership of subject inventions is governed pursuant to the authorities listed below. Typically, either by operation of law or under the authority of a patent waiver, Prime Recipients and Subrecipients may elect to retain title to their subject inventions under ARPA-E funding agreements.

- 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. If Prime Recipients/Subrecipients elect to retain title, they must file a patent application in a timely fashion, generally one year from election of title, though: a) extensions can be granted, and b) earlier filing is required for certain situations ("statutory bars," governed by 35 U.S.C. Section 102) involving publication, sale, or public use of the subject invention.

- All other parties: The Federal Non-Nuclear Energy Research and Development Act of 1974, 42. U.S.C. 5908, provides that the Government obtains title to new inventions unless a waiver is granted (*see below)*.

- Class Waiver: Under 42 U.S.C. § 5908, title to subject inventions vests in the U.S. Government, and large businesses and foreign entities do not have the automatic right to elect to retain title to subject inventions. However, ARPA-E typically issues "class patent waivers" under which large businesses and foreign entities that meet certain stated requirements, such as cost sharing of at least 20%, may elect to retain title to their subject inventions. If a large business or foreign entity elects to retain title to its subject invention, it must file a patent application in a timely fashion. If the class waiver does not apply, a party may request a waiver in accordance with 10 C.F.R. §784.

- GOGOs are subject to the requirements of 37 C.F.R. Part 501.

- Determination of Exceptional Circumstances (DEC): DOE has determined that exceptional circumstances exist that warrant the modification of the standard patent rights clause for small businesses and nonprofit awardees under Bayh-Dole to maximize the manufacture of technologies supported by ARPA-E awards in the United States. The DEC, including a right of appeal, is dated September 9, 2013 and is available at the following link: http://energy.gov/gc/downloads/determination-exceptional-circumstances-under-bayh-dole-act-energy-efficiency-renewable. Please see Section IV.D.8 and VII.B.7 for more information on U.S. Manufacturing Requirements.

B. GOVERNMENT RIGHTS IN SUBJECT INVENTIONS

Where Prime Recipients and Subrecipients retain title to subject inventions, the U.S. Government retains certain rights.

1. GOVERNMENT USE LICENSE

The U.S. 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.

2. MARCH-IN RIGHTS

The U.S. 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. In addition, the Government may grant licenses for use of the subject invention when Prime Recipients, Subrecipients, or their assignees and exclusive licensees refuse to do so.

The U.S. Government may exercise its march-in rights 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 satisfactory manner;
- The owner has not met public use requirements specified by Federal statutes in a reasonably satisfactory manner; or
- The U.S. Manufacturing requirement has not been met.

C. RIGHTS IN TECHNICAL DATA

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

- Background or "Limited Rights Data": The U.S. Government will not normally require delivery of technical data developed solely at private expense prior to issuance of an

award, except as necessary to monitor technical progress and evaluate the potential of proposed technologies to reach specific technical and cost metrics.

- Generated Data: The U.S. Government normally retains very broad rights in technical data produced under Government financial assistance awards, including the right to distribute to the public. However, pursuant to special statutory authority, certain categories of data generated under ARPA-E awards may be protected from public disclosure for up to five years in accordance with provisions that will be set forth in the award. In addition, invention disclosures may be protected from public disclosure for a reasonable time in order to allow for filing a patent application.

D. PROTECTED PERSONALLY IDENTIFIABLE INFORMATION

Applicants may not include any Protected Personally Identifiable Information (Protected PII) in their submissions to ARPA-E. Protected PII is defined as data that, if compromised, could cause harm to an individual such as identity theft. Listed below are examples of Protected PII that Applicants must not include in their submissions.

- Social Security Numbers in any form;
- Place of Birth associated with an individual;
- Date of Birth associated with an individual;
- Mother's maiden name associated with an individual;
- Biometric record associated with an individual;
- Fingerprint;
- Iris scan;
- DNA;
- Medical history information associated with an individual;
- Medical conditions, including history of disease;
- Metric information, e.g., weight, height, blood pressure;
- Criminal history associated with an individual;
- Ratings;
- Disciplinary actions;
- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual's performance appraisal;
- Financial information associated with an individual;
- Credit card numbers;
- Bank account numbers; and
- Security clearance history or related information (not including actual clearances held).

E. FOAs and FOA Modifications

FOAs are posted on ARPA-E eXCHANGE (https://arpa-e-foa.energy.gov/), Grants.gov (http://www.grants.gov/), and FedConnect (https://www.fedconnect.net/FedConnect/). Any modifications to the FOA are also posted to these websites. You can receive an e-mail when a modification is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon as possible after release of the FOA to ensure that you receive timely notice of any modifications or other announcements. More information is available at https://www.fedconnect.net.

F. Obligation of Public Funds

The Contracting Officer is the only individual who can make awards on behalf of ARPA-E or obligate ARPA-E to the expenditure of public funds. A commitment or obligation by any individual other than the Contracting Officer, either explicit or implied, is invalid.

ARPA-E awards may not be transferred, assigned, or assumed without the prior written consent of a Contracting Officer.

G. Requirement for Full And Complete Disclosure

Applicants are required to make a full and complete disclosure of the information requested in the Business Assurances & Disclosures Form. Disclosure of the requested information is mandatory. Any failure to make a full and complete disclosure of the requested information may result in:

- The rejection of a Preliminary Application, Full Application, and/or Reply to Reviewer Comments;
- 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.

H. RETENTION OF SUBMISSIONS

ARPA-E expects to retain copies of all Preliminary Application, Full Applications, Replies to Reviewer Comments, and other submissions. No submissions will be returned. By applying to ARPA-E for funding, Applicants consent to ARPA-E's retention of their submissions.

I. MARKING OF CONFIDENTIAL INFORMATION

ARPA-E will use data and other information contained in Preliminary Applications, Full Applications, and Replies to Reviewer Comments strictly for evaluation purposes.

Preliminary Applications, Full Applications, Replies to Reviewer Comments, and other submissions containing confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

The cover sheet of the Preliminary Application, Full Application, Reply to Reviewer Comments, or other submission must be marked as follows and identify the specific pages containing confidential, proprietary, or privileged information:

> Notice of Restriction on Disclosure and Use of Data:
>
> Pages [___] of this document may contain confidential, proprietary, or privileged 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 or loan 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.

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: "Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure." In addition, every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

J. COMPLIANCE AUDIT REQUIREMENT

A prime recipient organized as a for-profit entity expending $750,000 or more of DOE funds in the entity's fiscal year (including funds expended as a Subrecipient) must have an annual

compliance audit performed at the completion of its fiscal year. For additional information, refer to Subpart F of: (i) 2 C.F.R. Part 200, and (ii) 2 C.F.R. Part 910.

If an educational institution, nonprofit organization, or state/local government is either a Prime Recipient or a Subrecipient, and has expended $750,000 or more of Federal funds in the entity's fiscal year, the entity must have an annual compliance audit performed at the completion of its fiscal year. For additional information refer to Subpart F of 2 C.F.R. Part 200.

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X. GLOSSARY

Applicant: The entity that submits the application to ARPA-E. In the case of a Project Team, the Applicant is the lead organization listed on the application.

Application: The entire submission received by ARPA-E, including the Preliminary Application, Full Application, Reply to Reviewer Comments, and Small Business Grant Application (if applicable).

ARPA-E: Is the Advanced Research Projects Agency – Energy, an agency within the U.S. Department of Energy.

Commercialization Partner: Partners that make a contribution of cash, in-kind (e.g., a demonstration site, intellectual property, etc.) or via other justifiable means that will be integral to the success of the project. Commercialization Partners are expected to actively participate in the project.

Cost Sharing: Is the portion of project costs from non-Federal sources that are borne by the Prime Recipient (or non-Federal third parties on behalf of the Prime Recipient), rather than by the Federal Government.

Deliverable: A deliverable is the quantifiable goods or services that will be provided upon the successful completion of a project task or sub-task.

DOE: U.S. Department of Energy

DOE/NNSA: U.S. Department of Energy/National Nuclear Security Administration

Financial Partner: An investing organization willing to provide the Applicant with funding for the cost share contribution to the project.

FFRDCs: Federally Funded Research and Development Centers

FOA: Funding Opportunity Announcement

For-Profit Organizations (Other than Small Businesses) (or *large businesses*): Means entities organized for-profit other than small businesses as defined elsewhere in this Glossary.

GOCOs: U.S. Government Owned, Contractor Operated laboratories

Institutions of Higher Education (or *educational institutions*): Has the meaning set forth at 20 U.S.C. 1001.

Milestone: A milestone is the tangible, observable measurement that will be provided upon the successful completion of a project task or sub-task.

Nonprofit Organzations (or *nonprofits*): Has the meaning set forth at 2 C.F.R. § 200.70.

Prime Recipient: The signatory to the funding agreement with ARPA-E.

Project Team: A Project Team consists of the Prime Recipient, Subrecipients, and others performing or otherwise supporting work under an ARPA-E funding agreement.

Small Business: Small businesses are domestically incorporated entities that meet the criteria established by the U.S. Small Business Administration's (SBA) "Table of Small Business Size Standards Matched to North American Industry Classification System Codes" (NAICS) (http://www.sba.gov/content/small-business-size-standards).

Standalone Applicant: An Applicant that applies for funding on its own, not as part of a Project Team.

Subject Invention: Any invention conceived or first actually reduced to practice under an ARPA-E funding agreement.

Task: A task is an operation or segment of the work plan that requires both effort and resources. Each task (or sub-task) is connected to the overall objective of the project, via the achievement of a milestone or a deliverable.

Total Project Cost: The sum of the Prime Recipient share and the Federal Government share of total allowable costs. The Federal Government share generally includes costs incurred by GOGOs, FFRDCs, and GOCOs.

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