



BUSINESS ASSURANCES & DISCLOSURES FORM



This form is populated with fictional data for demonstration purposes. Applicants must complete this form using their actual data.

Applicant: Bolt-Out-of-the-Blue, LLC

Application Control Number: 0123-4567

***INSTRUCTIONS:** The Applicant (i.e. the Lead Prime Recipient or the Lead Lab) is required to provide and submit the information requested in this form with the Full Application on behalf of the Project Team. Alternatively, the Applicant may submit this form on its own behalf and append separate forms completed by each Project Team member. ARPA-E strongly encourages Applicants to use this template. Additional instructions are provided below. A sample response to this form is available on ARPA-E eXCHANGE (<https://arpa-e-foa.energy.gov>).*

Certification: I certify under penalty of perjury that the information contained in this disclosure form is accurate and complete. I understand that false statements or misrepresentations may result in civil and/or criminal penalties under 18 U.S.C. § 1001.

Applicant's Authorized Representative: John Doe
Date: 08-04-14

Principal Investigator: Jane Doe, Ph.D.
Date: 08-04-14

X

Authorized Representative

X

Principal Investigator

(1) RESPONSIBILITY DISCLOSURES: Mandatory. No page limit. The Applicant is required to disclose if any of the following conditions exist. If the answer to any of the questions in this Section is "Yes," the Applicant is required to provide a detailed explanation in the space below.

a. Has the Applicant or any of its principals¹ been convicted of a covered offense² in the last three years or had a civil judgment rendered against them for one of those offenses in that time period?

YES

NO

¹ In this form, "principal" means: (1) An officer, director, owner, partner, principal investigator (PI), or other person (as defined in 2 C.F.R. 180.985) within the Project Team with management or supervisory responsibilities related to this application and any resulting transaction; or (2) A consultant or other person, whether or not employed by the Applicant or its principals, or paid with Federal funds, who (a) is in a position to handle Federal funds, (b) is in a position to influence or control the use of those funds, or (c) occupies a technical or professional position capable of substantially influencing the development or outcome of an activity required to perform the transaction, including, without limitation, any Co-PIs.

² In this form, "covered offenses" include: (1) Commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public or private agreement or transaction; (2) Violation of Federal or State antitrust statutes, including those proscribing price fixing between competitors, allocation of customers between competitors, and bid rigging; (3) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice; or (4) Commission of any other offense indicating a lack of business integrity or business honesty that seriously and directly affects the Applicant's present responsibility.

b. Is the Applicant or any of its principals presently excluded³ or disqualified⁴ from participation in Federal programs or activities?

YES NO

c. Is the Applicant or any of its principals presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of a covered offense?

YES NO

d. Has the Applicant or any of its principals had one or more transactions with governmental entities (Federal, State, or local) terminated within the preceding three years for cause, default, or material noncompliance?

YES NO

e. If a corporation, has the Applicant been convicted of any felony criminal violation under any Federal law within the preceding two years?

YES NO N/A (not a corporation)

f. If a corporation, does the Applicant have 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 an authority responsible for collecting the tax liability?

YES NO N/A (not a corporation)

If the answer to any of the above questions is "Yes," please use the space below to provide a detailed explanation.

Not Applicable.

³ In this form, "excluded" refers to: Only discretionary actions taken by a suspending or debaring official under Executive Order 12549 and Executive Order 12689 or under the Federal Acquisition Regulation (48 C.F.R. Part 9, Subpart 9.4.

⁴ In this form, "disqualified" refers to: Prohibitions under specific statutes, executive orders (other than Executive Order 12549 and Executive Order 12689), or other authorities. Disqualifications frequently are not subject to the discretion of a Federal agency official, may have a different scope than exclusions, or have special conditions that apply to the disqualification.

(2) ADDITIONALITY AND RISKS: Mandatory. 4 pages maximum. The Applicant must provide a narrative response to each question below.

a. Describe the technical and market risks associated with the proposed R&D project.

Bolt-Out-of-the-Blue's proposed technology will use supercritical fluids in a thermal energy storage device that can be integrated with utility-scale solar thermal and geothermal generating sources. A thermal energy storage of the proposed scale has never been developed by researchers in the field, making Bolt-Out-of-the-Blue's proposed device advanced relative to the existing state of the art.

To date, Bolt-Out-of-the-Blue's research has focused on identification and optimization of appropriate supercritical fluids that demonstrate ideal P-V-T characteristics for thermal energy storage. However, supercritical fluids have not been integrated into a scaled proof-of-concept system sufficient to demonstrate the full potential of supercritical thermal storage capacity for large-scale power systems. As a result private investors have deemed Bolt-Out-of-the-Blue's technology premature for commercialization and risky from an investment standpoint (see Item (e) below). Intensive RD&D is required to overcome this perceived market barrier and situate the proposed technology for scaled manufacturing, market penetration, and commercial deployment. Securing public funding to support the proposed RD&D is critical to meeting these objectives.

b. Describe why the Applicant and/or other members of the Project Team need ARPA-E funding for the proposed R&D project, relative to other funding sources.⁵

- If the Applicant is a large business, describe why this R&D project is not being sponsored internally.
- If the Applicant is a small business sponsored by private investors, identify the types of private investors that have supported your business and explain why this R&D project is not being supported by the private investors.
- If the Applicant is a small business not sponsored by private investors, describe why this R&D project has been unable to attract private financing.
- If the Applicant is a university, nonprofit, or national laboratory, describe the institutional or other resources that may be leveraged, and explain why these resources have not been available to date.

The proposed RD&D project seeks to prove the technical and commercial feasibility of using supercritical fluid in a proposed thermal energy storage system through proof-of-concept prototype testing. This work will lay the foundation for eventual commercial-scale demonstration activities. These are critical steps towards scale up, market penetration, and commercial deployment.

⁵ In support of your description, you are required to attach to this form any letter(s) or other communication(s) (e.g., emails) from private investors that you have received explaining why they decided not to fund the proposed R&D project.

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In April 2013, Bolt-Out-of-the-Blue raised \$1,500,000 in Series A capital based on support from EnergyFund LLC, a venture capital fund. This funding was used to recruit a strong research team and support preliminary RD&D through computational modeling, and laboratory and bench-scale research. Since May 2011, Bolt-Out-of-the-Blue has sought Series B funding, but has not succeeded in securing additional venture backing. An appraisal of Bolt-Out-of-the-Blue's intellectual property portfolio has characterized Bolt-Out-of-the-Blue's technologies as "systematically unique" and "innovative." However, the company has failed to secure next-round financing due to investor concern that its core thermal energy storage system is too premature for commercialization and would require a proof-of-concept scale demonstration. Given the technical risk of RD&D that remains for Bolt-Out-of-the-Blue's proposed technology, at a proof-of-concept scale private investors are hesitating to provide further backing towards Bolt-Out-of-the-Blue. In particular, the risks associated with developing a compression technology matching the P-V-T characteristics identified in basic research of the supercritical fluid are high.

In addition, as the P-V-T characteristics of the supercritical fluid have been investigated on a basic science basis, the proposed technology has advanced to a level of development beyond basic science (TRL 2), making funding from public sources such as the National Science Foundation inappropriate. Finally, due to the intensive involvement of the National Renewable Energy Laboratory (NREL) in the proposed project, funding under public programs such as the Small Business Innovation Research program is inappropriate.

Within the Department of Energy, ARPA-E is particularly well situated to fund a project of this nature. The project presents significant technical risk and demonstrates immense innovation potential, while other sources of funding are unavailable. A successful ARPA-E project could prove the technical and financial feasibility of utilizing supercritical fluids for thermal energy storage at the commercial scale and demonstrate the proposed technology's flexible use with a variety of renewable energy applications. Funding from ARPA-E will thus assist Bolt-Out-of-the-Blue in bringing the proposed technology to a point of development at which investor confidence will increase.

- c. Describe how, if successful, the proposed R&D project may provide a benefit to the United States (e.g., increased employment in the domestic energy sector, increased domestic manufacturing of novel energy technologies).**

In its 3 years of operation, Bolt-Out-of-the-Blue has generated 21 high technology and 3 administrative jobs. Based on existing growth trajectory, Bolt-Out-of-the-Blue plans to develop new manufacturing facilities that will expand the company's size to 110 personnel within 2-3 years. If successful in this project, Bolt-Out-of-the-Blue may accelerate this growth and provide a benefit to the domestic energy sector.

(3) PENDING AND CURRENT SOURCES OF FUNDING. Mandatory. No page limit.

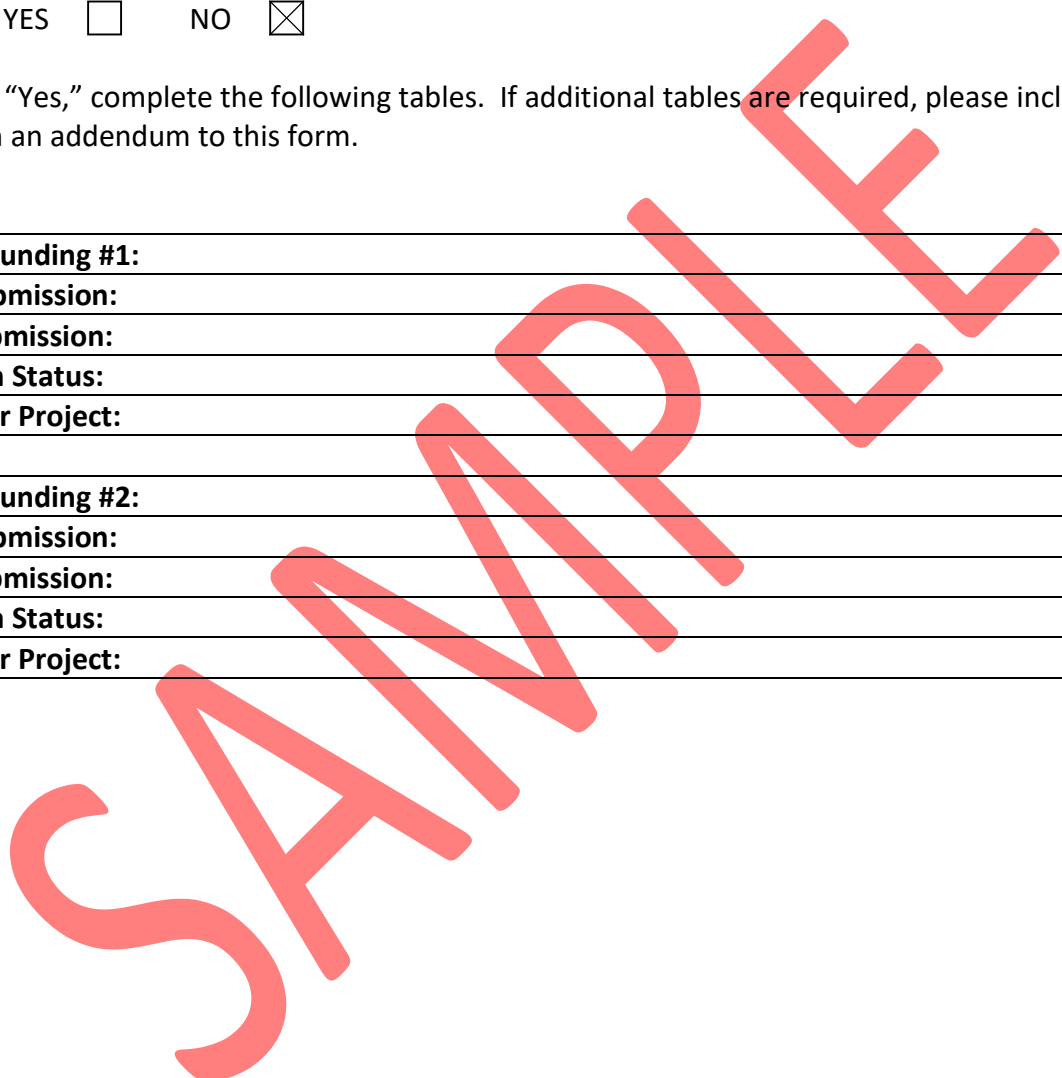
- a. Does the **Applicant or any other member(s) of the Project Team** (including, without limitation, the PI or any Co-PI(s)), have any applications for **this project** or for **related work** (i.e., work that relates directly or indirectly to the proposed R&D project) pending with any **Federal or non-Federal entity** (including, without limitation, industry, private investors, and foreign, state, or local governments)?

YES NO

If "Yes," complete the following tables. If additional tables are required, please include the tables in an addendum to this form.

Source of Funding #1:
Date of Submission:
Title of Submission:
Application Status:
Abstract for Project:

Source of Funding #2:
Date of Submission:
Title of Submission:
Application Status:
Abstract for Project:



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- b. The Applicant is required to disclose **all funding from any Federal or non-Federal entity** that the **Applicant or any other member(s) of the Project Team** (including, without limitation, the PI or any Co-PI(s)), are **currently receiving or have received within the last 5 years** in the same technology area as the proposed R&D project. Complete a separate table for each source of funding. If additional tables are required, please include the tables in an addendum to this form. If the Applicant and all members of the Project Team have not received any such funding, check the box marked "None" below.

<p>If NONE, check here <input type="checkbox"/></p>
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Entity #1: U.S. Department of Energy
Point of Contact Name and Title: Tommy Johnson, DOE Program Manager
Point of Contact Telephone: (202) 555-5555
Point of Contact Email Address: Tommy.Johnson@hq.doe.gov
Point of Contact Postal Address: U.S. Department of Energy 1000 Independence Ave., SW Washington, DC 20585
Title of Project: Development of Supercritical Fluids for Thermal Energy Storage Devices
Funding Amount: \$150,000 (Phase I SBIR)
Non-Federal Cost Share Amount (If Applicable): N/A
Start and End Dates: 10/15/2012 – 04/15/2013
Abstract for Project: This project focused on the development of a supercritical fluid to accommodate heat-based, grid-scale energy storage. Various supercritical fluid mediums were examined in order to determine which allowed for the highest capacity of energy storage within traditional metrics.

Entity #2: EnergyFund LLC
Point of Contact Name and Title: John Smith, President and CEO
Point of Contact Telephone: 650-555-5555
Point of Contact Email Address: JSmith@genericemailaddress.com
Point of Contact Postal Address: EnergyFund LLC 123 Venture Way Suite 430 Palo Alto, CA 94301
Title of Project: Optimization of Supercritical Fluids for Thermal Energy Storage Devices
Funding Amount: \$1,500,000
Non-Federal Cost Share Amount (If Applicable): N/A
Start and End Dates: 04/2013 - ongoing

Abstract for Project: Bolt-Out-of-the-Blue raised \$1,500,000 in internal Series A capital. The uses of funds were explicitly defined in the investment agreement as “general working capital” under the direction and approval of EnergyFund’s Board of Directors. This funding was used to recruit a strong research team and support preliminary applied RD&D through computational modeling, and laboratory and bench-scale research, to optimize supercritical fluids for use in an integrated proof-of-concept-scale thermal storage system.

SAMPLE

(4) POTENTIAL CONFLICTS OF INTEREST WITHIN PROJECT TEAM: Mandatory. No page limit. The Applicant is required to disclose potential conflicts of interest within the Project Team. An apparent or actual conflict of interest may exist where an individual or entity has different, and potentially conflicting, duties or relationships with respect to other individuals or entities within the Project Team. Complete a separate table for each potential conflict of interest. If additional tables are required, include the tables in an addendum to this form. If no conflicts of interest exist, check the box marked "None" below. Examples of potential conflicts of interest include but are not limited to:

- The PI for the Prime Recipient has an equity stake in a Subrecipient;
- The PI for a Subrecipient has a consulting arrangement with the Prime Recipient; or
- A Subrecipient is a subsidiary of or is otherwise affiliated with the Prime Recipient.

If NONE, check here <input type="checkbox"/>

Conflicted Individual or Entity #1: Co-PI John Doe, Ph.D. and Subrecipient Analytics Technologies
Description of Potential Conflict of Interest: Co-PI John Doe was a majority shareholder and founding partner of Analytics Technologies, selected to be a subrecipient on this project. To correct the conflict, Dr. Doe has divested all stock held in the Analytics Technologies and stepped down from Analytics' Board of Directors. There is no longer any financial or business relationship between the parties.

Conflicted Individual or Entity #2:
Description of Potential Conflict of Interest:

(5) WAIVER REQUEST – FOREIGN WORK (see Section IV.G.6 of the FOA): Optional. No page limit. ARPA-E requires all work to be performed in the United States. Applicants may request a waiver of this requirement if they wish to perform some work overseas. Complete a separate table for each entity that is requesting to perform work overseas. If additional tables are required, include the tables in an addendum to this form. If no work will be performed overseas, check the box marked “Not Applicable” below.

<p>If NOT APPLICABLE, check here <input type="checkbox"/></p>
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Entity #1: Specialized Systems
Countries in Which Work Will Be Performed : Canada
Description of Work to Be Performed: Specialized will manufacture the supercritical containment chamber necessary to house the supercritical fluids studied in this project.
Rationale for Performing Work Overseas: Specialized Systems is a leading manufacturer of high-heat, high-pressure containment chambers. Due to the heat and pressure demands the proposed supercritical fluid will place on any chamber in which it is placed, there is an overriding need for a highly-customized and reliable containment chamber in order to create a likelihood of project success.

Entity #2:
Countries in Which Work Will Be Performed :
Description of Work to Be Performed:
Rationale for Performing Work Overseas:

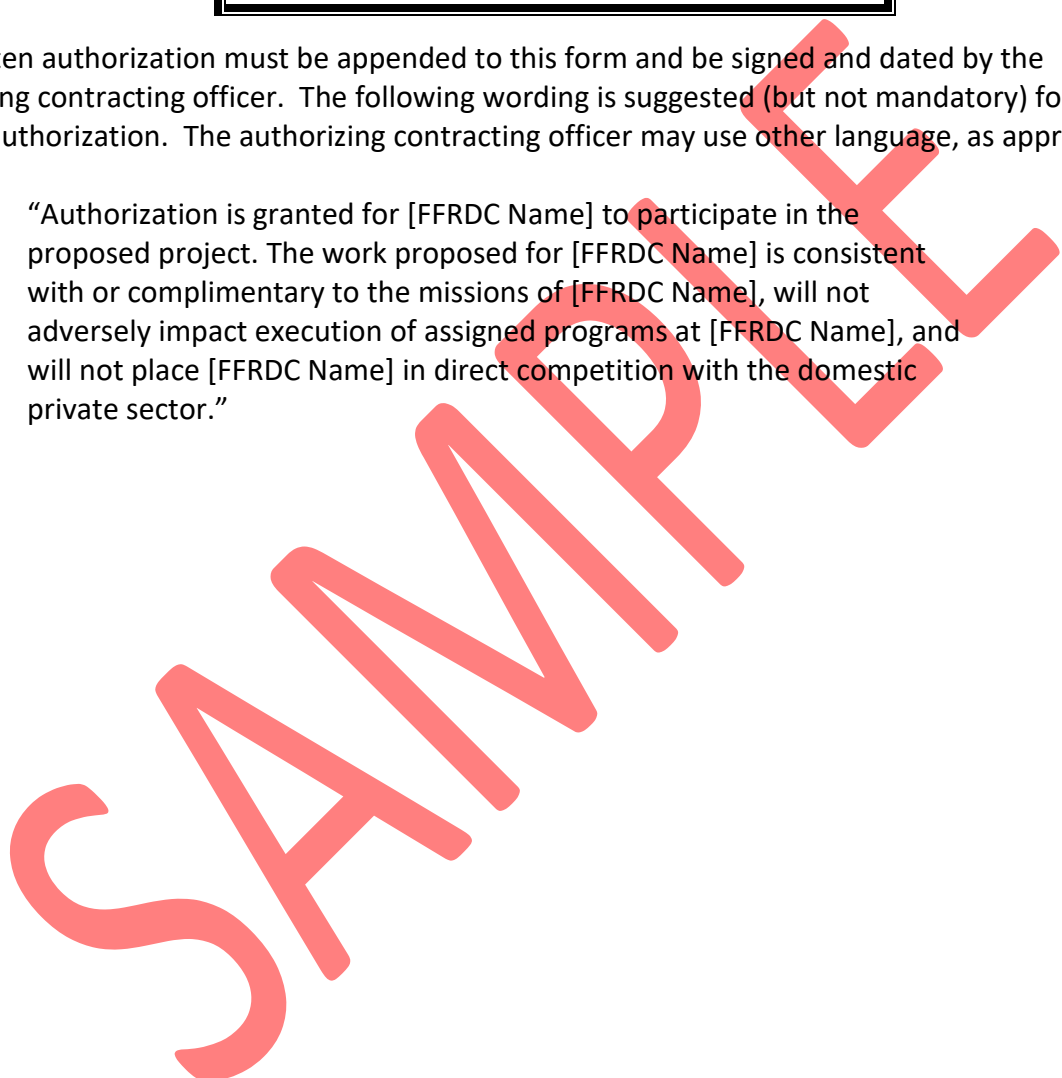
Entity #3:
Countries in Which Work Will Be Performed :
Description of Work to Be Performed:
Rationale for Performing Work Overseas:

(6) FFRDC AUTHORIZATION (see Section II.B.2 of the FOA): Mandatory for FFRDCs only. No page limit. Before submitting a Full Application, DOE/NNSA FFRDCs are required to obtain written authorization from the cognizant DOE/NNSA contracting officer. Non-DOE/NNSA FFRDCs are required to obtain written authorization from the cognizant Federal agency sponsoring the FFRDC. If the Applicant is not a FFRDC, check the box marked “Not Applicable” below.

If NOT APPLICABLE, check here <input checked="" type="checkbox"/>
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The written authorization must be appended to this form and be signed and dated by the authorizing contracting officer. The following wording is suggested (but not mandatory) for the written authorization. The authorizing contracting officer may use other language, as appropriate.

“Authorization is granted for [FFRDC Name] to participate in the proposed project. The work proposed for [FFRDC Name] is consistent with or complimentary to the missions of [FFRDC Name], will not adversely impact execution of assigned programs at [FFRDC Name], and will not place [FFRDC Name] in direct competition with the domestic private sector.”



(7) FIELD WORK PROPOSAL (see Section II.B.2 of the FOA): Mandatory for DOE/NNSA FFRDCs only.
No page limit. DOE/NNSA FFRDCs are required to append a Field Work Proposal to this form. The Field Work Proposal must conform to the instructions in DOE O 412.1A, "Work Authorization System" (<https://www.directives.doe.gov/directives/0412.1-BOrder-a/view>). If the Applicant is not a DOE/NNSA FFRDC, check the box marked "Not Applicable" below.

If NOT APPLICABLE, check here <input checked="" type="checkbox"/>
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SAMPLE

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(8) Unique Entity Identifier (UEI) and System for Award Management (SAM) registration (see Section VI.B.1 of the FOA): Mandatory. Prime Recipients must have an active registration in SAM (<https://www.sam.gov/portal/public/SAM/>) and obtain a UEI in order to receive an award under this FOA. Subrecipients do not need an active SAM registration but must have a UEI. Registering with SAM and obtaining a UEI could take several weeks, so **Prime Recipients and Subrecipients should begin these efforts as soon as possible**. Complete a separate table for each entity with the entity's UEI number, confirmation of active registration in SAM (Prime Recipient only), or the dates when the entity began or will begin the process of obtaining a UEI and/or SAM registration.

Entity #1 (Prime): Bolt-Out-of-the-Blue, LLC
UEI: YES <input checked="" type="checkbox"/> ; Number: 8675309
NO <input type="checkbox"/> ; if no, date when process to obtain one began or will begin:
Active SAM Registration: YES <input checked="" type="checkbox"/>
NO <input type="checkbox"/> ; if no, date when process to register began or will begin:

Entity #2 (Subrecipient): Electricity Things, LLC
UEI: YES <input type="checkbox"/> ; Number:
NO <input checked="" type="checkbox"/> ; if no, date when process to obtain one began or will begin: September 12, 2022

Entity #3 (Subrecipient):
UEI: YES <input type="checkbox"/> ; Number:
NO <input type="checkbox"/> ; if no, date when process to obtain one began or will begin:

