Request for Application

U.S. DEPARTMENT *of* ENERGY

U.S. Department of Energy (DOE)

Office of Science (SC)

Advanced Scientific Computing Research (ASCR)

The DOE Quantum Genesis Q Competition

Request for Funding Application Number: DE-FOA-0003657

Application Due: October 19, 2026

I. Table of Contents

II. Basic Information

A. Key Facts

Issuing Agency	Department of Energy, Office of Science, Advanced Scientific Computing Research
Request for Application Title	The DOE Quantum Genesis Q Competition
Announcement Version	Initial
Request for Application Number	DE-FOA-0003657
Expected Total Available Funding	$215,000,000
Assistance Listing Number and Name	81.049: The Office of Science Financial Assistance Program
Eligible Applicants	• Applications may only be submitted by for-profit domestic entities as defined herein. • In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a recipient or subrecipient. • A foreign entity may apply to this RFA, either as a recipient or subrecipient, but the application must be accompanied by an explicit written waiver. • All capabilities must be built in the U.S. and all work under the award must be performed in the U.S., but the applicant may request a partial waiver of this requirement.
Submission Deadline for Questions	Potential applicants must submit RFA questions by October 6, 2026, at 5:00 PM Eastern Time. DOE will answer all questions received by that date and may answer questions submitted after that date at its discretion. All questions should be directed to: qcompetition@doe.gov.
Informational Webinar	September 25, 2026, at 1:00 PM Eastern Time, virtual. Attendance is optional and requires registration by 5 PM Eastern Time September 23, 2026. Register here.
Submission Deadline for Applications	Applications must be submitted by October 19, 2026, to be considered.
Anticipated Selections	DOE anticipates announcing initial selections of participants no earlier than November 13, 2026.

B. Executive Summary

The Department of Energy (DOE) recently announced the establishment of the **Quantum Genesis** initiative to develop and deploy the world's first fault-tolerant, scientifically relevant quantum computing (SRQC) capability for research and development. The Department seeks to realize this bold ambition through **the Quantum Genesis Q Competition** (herein, the Q Competition), a first of its kind effort to accelerate the timeline for realizing this novel, transformative capability. The Quantum Genesis initiative will serve as a foundational pillar of the broader Genesis Mission, designed to usher in a new era of computational power for the nation and accelerate scientific discovery and innovation. The announcement of the Quantum Genesis initiative marks a significant step toward the Department's goals outlined in President Trump's Executive Order (EO), **Ushering in the Next Frontier of Quantum Innovation** and its Quantum Computer for Application Development and Discovery Science (QC-ADDS) effort.[1]

This request for applications (RFA) invites proposals from domestic commercial entities have a technically viable plan for the Quantum Genesis program and achieving the milestones of the Q Competition. The intent of the Q Competition is to accelerate the development timeline for SRQCs, align successful applicants with the needs of the Department and the scientific community, and to enable the necessary scaling of quantum hardware, software, and enabling technology while developing scientific workflows that ensure SRQCs contribute to national scientific and technological advancement. In addition to the goal of building the first-generation SRQC, these partners may also help to form the technical foundation for DOE's continued efforts into the 2030s to deploy one or more next-generation SRQCs at National Laboratories.

DOE envisions this competition as a first step toward scaling fault-tolerant quantum computers to scientific relevance alongside other ongoing and planned activities.
DOE acknowledges that potential vendors may have timelines that do not coincide with this competition, even though they may have a viable path to future platforms of interest to the DOE. Failure to participate or complete the milestones does not disqualify an entity or vendor from future DOE collaborations or procurements.

III. Request for Application Details

A. Introduction

Successful applications to this RFA will be domestic commercial entities who are able to realize DOE's vision of a first-generation SRQC and demonstrate its performance on an application of importance to DOE, for example, those identified in the Blueprint for DOE Quantum Supercomputing.

Applicants should demonstrate the capability to deliver a full-stack quantum computing solution. They, along with any partners on the application, should be capable of manufacturing, assembling, and operating the quantum computer, while also demonstrating

[1] https://www.whitehouse.gov/presidential-actions/2026/06/ushering-in-the-next-frontier-of-quantum-innovation/.

scientific relevance to DOE. DOE anticipates its role being limited to verification and validation; separately, DOE intends to work with performers on pathways for integration into DOE's scientific ecosystem—the scope of this RFA does not include participation from DOE-funded researchers to help develop or build the SRQC.

B. Process

DOE expects applicants to submit a complete application. Applications must be submitted in accordance with the deadlines in Section I.A. DOE may, at its discretion, re-open the opportunity for additional applications in the future, depending on programmatic needs. DOE will evaluate applications based on the details contained in the Project Narrative (Section VI, Application and Submission Information). Based on the quality of the technical merit of the applications, DOE reserves the right to select all, some, or none of the applications received in response to this RFA. If selected to participate in this program, applicants will receive notification from DOE to finalize an Other Transaction Agreement with DOE, which will include details on all milestones.

C. Statutory Authority

Statutory authority for this program includes but is not limited to:

- 42 U.S.C. § 7151 – General transfers
- 42 U.S.C. § 7256 (g) – Contracts, leases, etc., with public agencies and private organizations and persons
- U.S. Department of Energy Organization Act (codified as amended at 42 U.S.C. § 7256) (2020).
- Act of Jul. 4, 2025, Pub. L. No. 119-21, § 50404, 139 Stat. 500 (2025).
- Energy Policy Act of 2005, Pub. L. No. 109-58, §§ 901, 965, 119 Stat. 594 (2005).
- Energy Independence and Security Act of 2007, Pub. L. No. 110- 140, §§ 618, 1304A, codified at 42 U.S.C. §§ 17197, 17384a
- National Quantum Initiative Act, Pub. L. No. 115-368, § 401, 132 Stat. 5100, 5105 (2018).
- The CHIPS and Science Act of 2022, Pub. L. No. 117-167, § 10731, 136 Stat. 1366 (2022).

D. Regulatory Authority

Regulatory authority for this program includes but is not limited to:

- U.S. Department of Energy Other Transaction Agreements Regulations, codified at 2 C.F.R. Part 930 (2025)

IV. Agreement Instrument

DOE anticipates awarding through only Other Transaction Agreements (OTAs) under this RFA. More specifically, DOE anticipates using its Additional Authorities under 42 U.S.C. § 7256(g) to implement OTAs under this RFA. DOE chose this instrument to provide maximum flexibility and efficiency to achieve the programmatic goals.

The terms of these DOE OTAs will be crafted to streamline regulatory requirements. Model terms will be provided on Grants.gov and https://science.osti.gov/Funding-Opportunities where the RFA is listed.

Applicants selected for negotiation will be able to propose modifications to the model terms consistent with their technical pathway subject to DOE approval, though the DOE reserves the right to, and anticipates, limiting the negotiation period to ten business days. These terms will establish the technical milestones and verification procedures for progress in deploying first a prototype and then a first-generation SRQC as described in Section IV.A and Section IV.B. In addition to technical milestones, DOE will also request progressively more detailed roadmaps to establish that the performer has a viable pathway to next-generation SRQCs.

V. Program Description

A. Program Goals

The goal of this program is to deliver to the nation a fault-tolerant quantum computer of sufficient performance to qualify as "scientifically relevant." In describing the goals, DOE refers to three classes of devices:

- A **prototype** demonstrated roughly one year into the program, which will validate basic modules in both hardware and software and validate the performer's ability to scale further. Production of the prototype is an intermediate milestone in the Q Competition.
- A **first-generation SRQC**, possessing at least a hundred logical qubits and capable of performing thousands of hard fault-tolerant operations in service of a specific scientific workflow. Production of the first-generation SRQC is the final milestone of the Q Competition.
- A **next-generation SRQC,** possessing on the order of a thousand logical qubits and capable of millions of hard fault-tolerant operations in service of scientific discovery. Production of the next-generation SRQC is not a goal of the Q Competition, but first-generation SRQCs will be evaluated for the feasibility of future scaling towards this goal.

While the goal of the Quantum Genesis program is to deliver the first-generation SRQC by 2028, DOE will consider applications from entities that propose to reach that point by no later than 2030. While DOE may choose to select these applicants as part of the portfolio, applicants with longer timelines accept the risk that other performers may claim the available milestone payments prior to completion of their own negotiated milestones.

Deep collaboration with and access to DOE and its contractors is required for successful participation in this program. To verify and validate performance of systems under the OTAs,

DOE intends to use staff from DOE National Laboratories and, at its sole discretion, reserves the right to engage other agencies' Federally Funded Research and Development Centers, University Affiliated Research Center, and other similarly neutral third parties. These personnel are expected to be given both physical and virtual access to the quantum computers and allowed to operate the device to verify and validate performance. This verification and validation of devices will be used to determine if awardees have met their negotiated milestones, consistent with the OTA.

B. Performance Metrics

DOE identifies the following as key performance metrics. A table is provided below describing the anticipated value of each metric for each of the SRQC generations described in Section IV.A.

- **Logical qubit**. An effective qubit spread across multiple subsystems that can be operated under a quantum error correction regime to suppress errors or environmental noise.
- **Hard operation**. An operation from a family of operations which are difficult in the participant's error correction scheme (e.g., non-Clifford operations in stabilizer QEC) but necessary to realize computational universality. "Hard" operations are expected to require many elementary quantum operations, becoming the scarce resource in a fault-tolerant computation. In the Q Competition, DOE will benchmark computers in part based on the number of hard operations that can be completed reliably, a metric which acts as a test of both the error rate and the stability of the computer.
- **Scientific relevance**. The ability of the quantum computer to usefully solve problems of interest to scientists working in DOE mission spaces. The Blueprint for DOE Quantum Supercomputing highlights key challenges that are relevant to our mission, which themselves cover a range of possible example problems. In the Q Competition, we will ask for a progressive demonstration of scientific relevance against a problem and associated solution algorithm specified at the beginning of the program. Prototype computers will demonstrate a simple subroutine (such as phase estimation or Trotter evolution) while the first-generation SRQC will be capable of a full demonstration of a scientific workflow (although not necessarily at classically intractable scales), potentially in concert with a classical computer. This lays the groundwork for next-generation SRQC in the 2030s capable of production-level discovery science.

SRQC Generation	# Logical Qubits	Hard Operations	Scientific relevance
Prototype	10	10^3	Subroutine
First-generation	100	10^5	Workflow
Next-generation	1000	10^7	Production

Table 1. Key performance metrics at each generation of SRQC development. The numbers included are illustrative, and a specific realization at any generation may differ.

DOE views the metrics defined in Table 1 as illustrative and recognizes that the milestones for any specific performer's technology may vary. For instance, a given performer may achieve very low error rates (and thus many hard operations) but not yet achieve the indicated number of logical qubits. Alternately, discrete hardware generations and modular scaling constraints may not align precisely with the benchmark target, or architectural differences may make the milestones complicated to apply to a specific application. In these cases, we encourage applicants to make best efforts to convert their roadmaps and scale-up pathways to the metrics defined in Table 1. The specifics of the intermediate prototype milestone and what constitutes an acceptable prototype will be based off of Table 1 but negotiated with selected applicants. In addition to the target metrics for the intermediate prototype milestone, DOE and the applicant will, during negotiation, specify, to the extent possible, the methodology used to define and evaluate these metrics.

The responsibility of siting and operating the prototype and first-generation SRQC will be the responsibility of the awardee.

C. Applications Not of Interest

- Applications from entities that do not have a demonstrated history of successfully creating and demonstrating multi-qubit quantum computers.
- Applications that primarily propose to pursue R&D work to develop a quantum computing methodology.
- Applications to build quantum computers that are not fault-tolerant, or cannot be made fault-tolerant, or are only capable of error mitigation or detection and not correction. Such proposals are not of interest even if the applicant believes that error rates can be reduced to a point of scientific relevance without fault-tolerance.

VI. Project Information

A. Funding

DOE anticipates that the total value of awards over the first 30 months of this program will be $215,000,000, subject to the availability of appropriations, to support milestone-based payments for awardees, as described in Section IV.

Development of the application is the financial responsibility of the applicant.

The number of awards is contingent upon the availability of funds and the submission of a sufficient number of meritorious applications. Accordingly, DOE anticipates selecting at least three, and up to ten, applications under this RFA to enter the competition. However, DOE may select for negotiation all, some, or none of the applications received in response to this RFA.

All funding considerations are based on the availability of appropriated funds.

The awards will be split into two phases:

Phase I - Fixed awards. DOE will provide funding to selected participants at successful completion of the intermediate milestones, as follows:

- Those selected for participation will be responsible for developing a detailed technical plan, in consultation and collaboration with a DOE-designated verification and validation (V&V) team, for assessing the completion of the prototype and first-generation milestones. The technical plan will be evaluated by verification and validation subject matter experts and the DOE. DOE, at its sole discretion, will approve or reject the plan based on its feasibility. Upon DOE approval of the technical plan, awardees will receive $250,000.
- For successful completion of a validated intermediate milestone (prototype device), as negotiated in the OTA, awardees will receive $1,250,000.

Phase II – General Incentive pools. The general incentive pool will be $100,000,000.

DOE anticipates a final evaluation of progress towards the final milestone, a first-generation SRQC, will occur in September 2028. After this evaluation, DOE will evenly split funds in the general incentive pool amongst all awardees who successfully demonstrate a device at the first-generation SRQC goal in Table 1.

Bonus pools. To encourage performance beyond this, bonus funds will be disbursed in the following manner:

- One $50,000,000 bonus pool will be split evenly amongst all awardees, achieving 150 or more total logical qubits, if any.
- A second $50,000,000 bonus pool will be split evenly amongst all awardees achieving 200 or more total logical qubits, if any.

All funding under this RFA is subject to the availability of appropriated funds. Funding identified for a future phase, milestone, incentive pool, extension, or other activity does not constitute a commitment, promise, or entitlement to such funding. Selection under this RFA, successful completion of any milestone, or entry into an Other Transaction Agreement does not entitle an applicant or awardee to funding for any subsequent phase or activity. Upon completion of a milestone or phase, DOE will provide written authorization to an awardee to proceed to a subsequent milestone or phase and the minimum funding available for that portion of the award. Moving from Phase I to Phase II and the funds available in Phase II, including the specific funding amounts available in the general incentive pool and bonus pool(s), are each subject to future appropriations, and absent of said appropriations, DOE reserves the right to end the awards prior to proceeding to Phase II and modify any funding available in Phase II. Selection under this RFA does not, by itself, constitute a commitment by the DOE to proceed with any subsequent acquisition that would require a different award instrument, additional competition, or approval.

In the event that no awardees are able to successfully demonstrate a device at the first-generation SRQC level by September 2028, DOE will evaluate the progress of the awardees completion of the milestones. If intermediate progress towards the final milestone is deemed sufficient by DOE, DOE will notify awardees of its intent to modify the OTA for an extended duration to be determined at a later date. If the competition is extended, DOE reserves the right to extend the awards by a fixed timeframe, by a time bounded by the first

successful demonstration, or by any other method, at DOE's sole discretion. If the program is extended, DOE, at its sole discretion, may elect to provide a mechanism for new entities to join the program. The fixed and pooled payments are summarized in Table 2.

As discussed in Section IV, DOE will work with selected applicants whose quantum computing architecture is not naturally measurable in total logical qubits to identify equivalent technical metrics during negotiation. Judgement of the acceptability of alternative metrics is at the sole discretion of DOE. These metrics and targets will cover both realization of first-generation SRQC and eligibility for the two bonus pools.

Example calculation. The following example is provided to illustrate the funding pools mechanism. Consider a scenario in which $200,000,000 is available in the incentive pool and four performers (Alice, Bob, Charlie, and Deborah) all successfully deliver first-generation SRQCs, with Alice achieving 200 total logical qubits, Bob achieving 150, and Charlie and Deborah both achieving 100. In this scenario:

- The 200+ qubit bonus pool would be awarded to Alice ($50,000,000).
- The 150+ qubit bonus pool would be split evenly between Alice and Bob ($25,000,000 each).
- The general incentive pool would be split evenly between Alice, Bob, Charlie, and Deborah ($25,000,000 each).

As a result, each performer would receive the following total from incentive pools, in addition to any previous fixed payments they had received:

- Alice: $100,000,000
- Bob: $50,000,000
- Charlie: $25,000,000
- Deborah: $25,000,000

	Funding	**Payment**	**Eligibility Criteria**	**Timeline (Approximate)**
Fixed	Initial Plan	$250,000 per awardee	Awarded to each performer after DOE approves the V&V plan.	Six months after project initiation
	Prototype	$1,250,000 per awardee	Awarded upon successful DOE validation of the negotiated intermediate prototype milestone.	One year after project initiation
Pooled Incentives	First-generation SRQC	Shared portion of general incentive pool, anticipated to	Awarded evenly to all awardees who successfully demonstrate a first-generation SRQC. General incentive pool is total program funding minus all fixed payments and bonus pools.	Fall 2028

		be $100,000,000		
	Bonus Pool 1	Shared portion of $50,000,000 bonus pool	Awarded evenly to all awardees who demonstrate 150 or more total logical qubits in addition to meeting other goals of a first-generation SRQC.	Fall 2028
	Bonus Pool 2	Shared portion of $50,000,000 bonus pool	Awarded evenly to all awardees who demonstrate 200 or more total logical qubits in addition to meeting other goals of a first-generation SRQC.	Fall 2028

Table 2. Summary of how performers in this program will be paid. Fixed payments are awarded for intermediate milestones, with successful performers of the final milestone receiving distributions from three incentive pools depending on final performance. "Fall 2028" for final milestone payments reflects the September 2028 deadline plus additional time required for DOE to complete V&V across performers. *Timeline is subject to negotiation between DOE and awardee, with final timeline being up to the DOE at its sole discretion.*

1. Cost Sharing or Matching

DOE intends to waive applicable cost share requirements of the Energy Policy Act of 2005 (EPAct 2005), P.L. 109-58, as amended (42 U.S.C. § 16352) in accordance with section 988(b)(3) and section 988(c)(2) of EPAct 2005, and 42 U.S.C. § 7256.

B. Milestones

The applicant is responsible for developing specific milestones to track progress under the project. Milestones must include, at minimum:

1. Verification and validation plan establishing mechanisms for evaluation of devices cooperatively with DOE anticipated to be delivered within six months of project initiation.
2. Prototype device and accompanying scientific subroutine demonstration described in Section IV.B, anticipated to occur no later than one year after the start of the program.
3. First-generation SRQC and accompanying scientific workflow demonstration described in Section IV.B., used as project capstone, with evaluation occurring across all participants in September 2028.

Milestones (2) and (3) must include access to the software stack supporting the programming, operation, and usage of quantum computers within a larger ecosystem including classical supercomputing. Additionally, DOE as a part of the final milestone, to be completed no

later than July 2028, each awardee must deliver a final scaling plan, for growth of the quantum computing system beyond the first-generation SRQC, including estimates for costs and infrastructure requirements.

Failure to complete the milestones within their anticipated timeframe may, at DOE's sole discretion, result in the removal of the awardee from the program and termination of the OT agreement.

C. Deliverables and Reports

1. Deliverables:

Project deliverables will include but may not be limited to:

1. Validation data for quantum computing performance claims, such as logical qubit error rates, logical gate fidelities, and the width and depth of logical circuits and accompanying fidelities. As part of negotiations and the first milestone of the program, DOE will work with selected applicants to agree on an objective methodology for evaluating these quantities and finalize the nature of data provided to DOE.
2. Code and technical documentation for demonstrations towards scientific relevance, as well as input/output data for such demonstrations. To the extent that scientific workflows are hybridized between quantum and classical computers, both aspects must be provided to DOE for verification.
3. Systems (software and administrative) to enable accessibility to inspect, verify, and validate computers, manufacturing/assembly processes, and software products. Applicants will be responsible for software stack elements necessary to the operation of quantum computers, such as compilers, schedulers, and automation of system operations. The system access must be both physical (i.e., allowing personnel access to applicant facilities) and virtual (allowing personnel to access machines via API or web interface).

Deliverables for (2) and (3) above, including any system access, must be provided to DOE and its contractors. See Section IV.A for additional information on DOE's intended use of contractors.

Precise format and specifications for project deliverables will vary by technology approach and, except for specific requirements deferred to the deliverable for the first milestone, will be finalized during negotiations.

2. Reporting

In addition to the deliverables above, applicants will be required to submit information to DOE regarding:

1. Manufacturing and supply chain of components, to allow DOE to understand the impact of the applicant's activities on U.S. manufacturing and workforce and evaluating the requirement for these systems to be built in the U.S.
2. Milestone progress reporting, to allow DOE to understand intermediate progress towards

milestones that are not yet due.

Applicants should expect to provide DOE with written and verbal updates (e.g., via teleconference) at least quarterly.

D. Data and Intellectual Property

1. Application Data

Applicants should include business sensitive data (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential information in their application only to the extent such information is necessary to convey an understanding of the proposed project or to comply with a requirement in the RFA. For DOE to protect proprietary or otherwise sensitive information, the applicant must also treat the information as confidential and properly mark it as described below.

> Notice of Restriction on Disclosure and Use of Data:
>
> Pages [list applicable pages] of this document may contain trade secrets, confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes. The government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]

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

Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act (FOIA) or otherwise. These protections do not apply to information that the applicant has released publicly or is in the public domain. For additional information on DOE's FOIA regulations, see 10 C.F.R. Part 1004.

Evaluation and Administration by Non-Federal Personnel. In conducting the merit review evaluation, the government may seek the advice of qualified non-Federal personnel as reviewers. The government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign a conflict-of-interest agreement and a certificate of confidentiality prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

Interagency Sharing. DOE may share and use within the Government any application information provided by or on behalf of the applicant. Accordingly, in accordance with applicable law and notwithstanding any other provisions herein, by submitting an application or entering into an agreement with the DOE under this RFA, the applicant is providing consent for any properly marked trade secret, confidential, proprietary, privileged or otherwise sensitive application information provided by or on behalf of the applicant to be disclosed to the Executive Office of the President and relevant Agencies offering loans, grants, equity, guarantees or other Federal funding, for the purposes of evaluating the application for additional or alternative funding, for awareness of information influencing DOE's funding decisions, and for awareness of the performance of DOE's awards.

Rights Data, Title to Subject Inventions, and U.S. Competitiveness

The terms below represent DOE's standard framework for Rights in Data, Title to Subject Inventions, and U.S. Competitiveness. DOE anticipates that these terms will be addressed and formalized during the negotiation of the final award agreement with selected Applicants.

Rights in Data

For U.S. Government rights in application information, please refer to the Use and Disclosure of Application Information section. The U.S. Government rights to data produced under the award or used in the performance of the award varies according to following classifications.

Limited Rights Data: Limited Rights Data is data (other than computer software) developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged. For limited rights data used in the performance of the award, the U.S. Government may inspect such data for the purposes of verifying the limited rights data rights assertion or for evaluating work performance but will not normally require delivery of such data. For awards requiring delivery of Limited Rights Data and to ensure the protection of such data, the Limited Rights Data must be properly marked as set forth in the award's intellectual property terms and conditions.

Unlimited Rights: Unlimited Rights Data is data first produced under the award or unmarked data delivered to the U.S. Government as part of the award. Unlimited rights mean the right of the U.S. Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose whatsoever, and to have or permit others to do so.

Patentable Information: In addition to any other protection allowed under the award, invention disclosures and other patentable information may be protectable from public disclosure for a reasonable time to allow for filing a patent application.

Protected Data: Notwithstanding the unlimited rights that the U.S. Government normally obtains in data first produced under the award, DOE may in certain circumstances pursuant to special statutory authority provide that certain categories of data first produced under awards resulting from this RFA may be marked as Protected Data. Protected Data is technical data or commercial or financial data first produced under the award which, if it had been

obtained from and first produced by a non-federal party, would be privileged or confidential. Such data is protected from public disclosure for up to five years after the data was first produced. Should DOE grant the ability to mark data as Protected Data, DOE may in certain circumstances authorize protection of data for more than five years. To qualify as Protected Data, DOE must concur with the classification, and the data must be properly marked as set forth in the award's intellectual property terms and conditions. The applicant may request Protected Data in their award terms, and DOE may, at its discretion and subject to applicable authorities, include applicable terms in the resulting award.

The recipient, subrecipient(s), and contractor(s) may assert copyright in copyrightable works, such as software, first produced under the award without DOE approval. When copyright is asserted, the government retains a paid-up nonexclusive, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and to perform publicly and display publicly the copyrighted work. This license extends to contractors and others doing work on behalf of the government.

Title to Subject Inventions

DOE intends to release fast-track OT agreements using provisions similar to 37 C.F.R. § 401.14 and 35 U.S.C. § 200 et seq. allowing recipients to elect to retain title to their subject inventions. This RFA uses DOE's OTA to negotiate intellectual property rights.

U.S. Competitiveness

The following U.S. Competitiveness is required under all award types, including OTAs.

A primary objective of DOE's multi-billion-dollar research, development and demonstration investments is to cultivate new research and development ecosystems, manufacturing capabilities, and supply chains for and by U.S. industry and labor. Therefore, in exchange for receiving taxpayer dollars to support an applicant's project, the applicant must agree to a U.S. Competitiveness provision requiring any products embodying any subject invention or produced using any subject invention will be manufactured substantially in the United States unless the Recipient can show to the satisfaction of DOE that it is not commercially feasible.

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

As noted in the U.S. Competitiveness Provision, if an entity cannot meet the requirements of the U.S. Competitiveness Provision, the entity may request a modification or waiver of the U.S. Competitiveness Provision. If granted, DOE will modify the award terms and conditions for the requesting entity accordingly. More information and guidance on the waiver and modification request process can be found in the DOE Financial Assistance Letter on this topic, available here at https://www.energy.gov/management/pf-2022-09-fal-2022-01-implementation-doe-determination-exceptional-circumstances-under. Additional information on DOE's Commitment to Domestic Manufacturing for DOE-funded R&D is available at https://www.energy.gov/gc/us-manufacturing.

E. Eligibility Information

1. Eligibility

All applicants must meet the following criteria to be eligible. DOE will use all available tools and authorities to verify eligibility and alignment with the strategic interests and foreign policies of the United States.

Applications may only be submitted by for-profit domestic entities. To qualify as a domestic entity, the entity must be legally formed in the United States and have a physical location for business operations in the United States. In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a recipient or subrecipient. A foreign entity may apply to this RFA, either as a recipient or subrecipient, but the application must be accompanied by an explicit written waiver. Applications led by a foreign entity must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. All work under the award must be performed in the United States, but the applicant may request a partial waiver of this requirement as described herein.

An organization may participate in multiple proposals in response to this solicitation; however, DOE does not intend to make awards to multiple applicants that rely on substantively similar qubit technologies from a single provider. For example, if a qubit technology provider were to lead an application to this solicitation and also partner on one or more applications led by one or more system integrators, DOE intends to pursue awards corresponding to at most one of those submitted applications.

Should DOE receive submissions in excess of the applicable limits, DOE reserves the right, in its sole discretion, to request additional or clarifying information to ascertain the institutions intended submissions. Otherwise, DOE will consider the latest received submissions to the institutions intended submissions. Applications in excess of the limited number of submissions may be declined without review.

2. Prohibition Related to Malign Foreign Talent Recruitment Programs

Prohibition

Individuals participating in a Malign Foreign Talent Recruitment Program are prohibited from participating in this award.

Should an award result from this RFA, the recipient must exercise ongoing due diligence to reasonably ensure that no such individuals participating on the DOE-funded project are participating in a *Malign Foreign Talent Recruitment Program*. Consequences for violations of this prohibition will be determined according to applicable law, regulations, and policy.

Further, the recipient must notify DOE within five (5) business days upon learning that an individual on the project team is or is believed to be participating in a malign

foreign talent recruitment program. DOE may modify and add requirements related to this prohibition to the extent required by law.

Required Certifications

a. Each covered individual must certify that they are not party to a Malign Foreign Talent Recruitment Program.
b. The applicant and the subrecipients must certify that the covered individuals in their respective employment have been made aware of the Malign Foreign Talent Recruitment Program prohibition and have complied with their certification responsibilities identified in a.

Non-Discrimination

DOE will ensure that the Malign Foreign Talent Recruitment Program Prohibition is carried out in a manner that does not target, stigmatize, or discriminate against individuals on the basis of race, ethnicity, or national origin, consistent with title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000(d) et seq.).

Definitions

Malign Foreign Talent Recruitment Program, as defined in Pub. L. No. 117-167, Section 10638(4):

A. any program, position, or activity that includes compensation in the form of cash, in-kind compensation, including research funding, promised future compensation, complimentary foreign travel, things of non de minimis value, honorific titles, career advancement opportunities, or other types of remuneration or consideration directly provided by a foreign country at any level (national, provincial, or local) or their designee, or an entity based in, funded by, or affiliated with a foreign country, whether or not directly sponsored by the foreign country, to the targeted individual, whether directly or indirectly stated in the arrangement, contract, or other documentation at issue, in exchange for the individual—
   i. engaging in the unauthorized transfer of intellectual property, materials, data products, or other nonpublic information owned by a United States entity or developed with a federal research and development award to the government of a foreign country or an entity based in, funded by, or affiliated with a foreign country regardless of whether that government or entity provided support for the development of the intellectual property, materials, or data products;
   ii. being required to recruit trainees or researchers to enroll in such program, position, or activity;
   iii. establishing a laboratory or company, accepting a faculty position, or undertaking any other employment or appointment in a foreign country or with an entity based

in, funded by, or affiliated with a foreign country if such activities are in violation of the standard terms and conditions of a federal research and development award;

iv. being unable to terminate the foreign talent recruitment program contract or agreement except in extraordinary circumstances;

v. through funding or effort related to the foreign talent recruitment program, being limited in the capacity to carry out a research and development award or required to engage in work that would result in substantial overlap or duplication with a federal research and development award;

vi. being required to apply for and successfully receive funding from the sponsoring foreign government's funding agencies with the sponsoring foreign organization as the recipient;

vii. being required to omit acknowledgment of the recipient institution with which the individual is affiliated, or the federal research agency sponsoring the research and development award, contrary to the institutional policies or standard terms and conditions of the federal research and development award;

viii. being required to not disclose to the federal research agency or employing institution the participation of such individual in such program, position, or activity; or

ix. having a conflict of interest or conflict of commitment contrary to the standard terms and conditions of the federal research and development award; and

B. a program that is sponsored by—

i. a foreign country of concern or an entity based in a foreign country of concern, whether or not directly sponsored by the foreign country of concern;

ii. an academic institution on the list developed under section 1286(c)(8) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. § 2358 note; [1] Public Law 115–232); or

iii. a foreign talent recruitment program on the list developed under section 1286(c)(9) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. § 2358 note; [1] Public Law 115–232).

Consistent with applicable law (42 U.S.C. § 19232), this provision does not prohibit, unless such activities are funded, organized, or managed by an academic institution or a foreign talent recruitment program on the lists developed under paragraphs (8) and (9) of section 1286(c) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (10 U.S.C. § 4001 note; Public Law 115–232):

A. making scholarly presentations and publishing written materials regarding scientific information not otherwise controlled under current law;

B. participation in international conferences or other international exchanges, research projects or programs that involve open and reciprocal exchange of scientific information, and which are aimed at advancing international scientific understanding and not otherwise controlled under current law;

C. advising a foreign student enrolled at an institution of higher education or writing a recommendation for such a student, at such student's request; and

D. other international activities determined appropriate by the federal research agency head or designee.

3. Prohibition on Entities of Concern

Prohibition

No Entity of Concern as defined in Section 10114 of Public Law 117-167 (42 U.S.C. § 18912), may receive any OT award, or loan of $10 million or more in Department of Energy funds, including funds made available by the Consolidated Appropriations Act, 2024 (Public Law 118-42). In addition, for all awards involving Departmental activities authorized under Public Law 117-167, no Entity of Concern (including an individual that owns or controls, is owned or controlled by, or is under common ownership or control with an Entity of Concern) may receive DOE funds or perform work under any award, subject to certain penalties. See Section 10114 of Public Law 117-167 (42 U.S.C. § 18912) and Division D, Title III, Section 310 of Division D of the Consolidated Appropriations Act of 2024 (Pub. L. No. 118-42) for additional information.

By submitting an application to this RFA, the applicant is certifying that neither the applicant nor any of the project participants qualify as Entities of Concern.

Definitions

Entity of Concern is defined in section 10114 of Public Law 117-167 (42 U.S.C. § 18912), also known as the CHIPS and Science Act, as any entity, including a national, that is—

A. identified under section 1237(b) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (50 U.S.C. § 1701 note; Public Law 105–261);
B. identified under section 1260H of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (10 U.S.C. § 113 note; Public Law 116–283);
C. https://media.defense.gov/2025/Jan/07/2003625471/-1/-1/1/ENTITIES-IDENTIFIED-AS-CHINESE-MILITARY-COMPANIES-OPERATING-IN-THE-UNITED-STATES.PDFon the Entity List maintained by the Bureau of Industry and Security of the Department of Commerce and set forth in Supplement No. 4 to part 744 of title 15, Code of Federal Regulations;
D. included in the list required by section 9(b)(3) of the Uyghur Human Rights Policy Act of 2020 (Public Law 116–145; 134 Stat. 656); or
E. identified by the Secretary, in coordination with the Director of the Office of Intelligence and Counterintelligence and the applicable office that would provide, or is providing, covered support, as posing an unmanageable threat—https://www.ecfr.gov/current/title-15/subtitle-B/chapter-VII/subchapter-C/part-744/appendix-Supplement No. 4 to Part 744
    i. to the national security of the United States; or
    ii. of theft or loss of United States intellectual property.

VII. Application and Submission Information

A. Requirements Before Submission

1. SAM.gov Registration

Effective January 1, 2020, the System for Award Management (SAM) is the central repository for common government-wide certifications and representations required of federal solicitation awardees. As registration in SAM is required for eligibility for a federal award and registration must be updated annually, Federal agencies use SAM information to comply with award requirements and avoid increased burden and costs of separate requests for such information, unless the awardee fails to meet a federal award requirement, or there is a need to make updates to their SAM registration for other purposes.

You must have an active account with SAM.gov which includes having a Unique Entity Identifier (UEI). SAM.gov registration can take several weeks. The Entity Registration Checklist provides all the information you need to register.

Every applicant for an award must:

- Be registered in SAM.gov before submitting an application
- Provide a valid Unique Entity Identifier in the RFA application
- Maintain an active, up-to-date registration in SAM.gov while you have an active federal award or an application or plan under consideration by a Federal agency

DOE cannot award Federal funding to you until you comply with all applicable UEI and SAM requirements. If you have not fully complied by the time we are ready to make a Federal award, you will be disqualified to receive a Federal award, and we will select another applicant.

2. FedConnect Registration (this can take 48-72 hours)

Registering with FedConnect is fast and easy. Only individuals who are designated as Points of Contact in SAM.gov can create a new company account.

Interested parties are encouraged to click on the "Register to Receive Notifications" button in the middle of the page when viewing the opportunity. If that link is not found, click on the "Join" button in the lower right-hand corner of the screen. This will allow FedConnect to send applicants any related notifications for this opportunity. Once an entity "joins," it will register the account as part of the "Response Team." Applications are submitted as Responses to the opportunity through the FedConnect Message Center. If an applicant experiences technical difficulties with a submission, the applicant should contact FedConnect Support for assistance.

3. How to Register and Submit an Application in Grants.gov

This section provides the application submission and receipt instructions for applications to SC. Please read the following instructions carefully and completely.

Electronic Delivery

SC is participating in the Grants.gov initiative to provide the grant community with a single site to find and apply for grant funding opportunities. SC requires applicants to submit their applications online through Grants.gov.

How to Register to Apply through Grants.gov

a. Instructions: Read the instructions below about registering to apply for SC funds. Applicants should read the registration instructions carefully and prepare the information requested before beginning the registration process. Reviewing and assembling the required information before beginning the registration process will alleviate last-minute searches for required information.

Organizations must have an active System for Award Management (SAM) registration, which provides a Unique Entity Identifier (UEI), and Grants.gov account to apply for grants. If individual applicants (those submitting on their own behalf) are eligible to apply for this funding opportunity, they need only refer to steps 2 and 3 below.

Creating a Grants.gov account can be completed online in minutes, but SAM registration may take several weeks. Therefore, an organization's registration should be done in sufficient time to ensure it does not impact the entity's ability to meet required application submission deadlines.

1) *Register with SAM*: All organizations applying online through Grants.gov must register with SAM at https://www.sam.gov. Failure to register with SAM will prevent your organization from applying through Grants.gov. SAM registration must be renewed annually. For more detailed instructions for registering with SAM, refer to: https://www.grants.gov/applicants/applicant-registration/

2) *Create a Grants.gov Account*: The next step is to register an account with Grants.gov. Follow the on-screen instructions provided on the registration page.

3) *Add a Profile to a Grants.gov Account*: A profile in Grants.gov corresponds to a single applicant organization the user represents (i.e., an applicant) or an individual applicant. If you work for or consult with multiple organizations and have a profile for each, you may log in to one Grants.gov account to access all of your grant applications. To add an organizational profile to your Grants.gov account, enter the UEI (Unique Entity Identifier) for the organization in the UEI field. If you are an individual applicant submitting on your own behalf, you do not need a UEI to add the profile. For more detailed instructions about creating a profile on Grants.gov, refer to: https://www.grants.gov/applicants/applicant-registration/add-profile

4) *EBiz POC Authorized Profile Roles*: After you register with Grants.gov and create an Organization Applicant Profile, the organization applicant's request for Grants.gov roles and

access is sent to the Electronic Business Point of Contact (EBiz POC)[2]. The EBiz POC will then log in to Grants.gov and authorize the appropriate roles, which may include the Authorized Organization Representative (AOR) role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role. For more detailed instructions about creating a profile on Grants.gov, refer to:
https://www.grants.gov/applicants/applicant-registration/ebiz-poc-authorizes-profile-roles

5) *Track Role Status*: To track your role request, refer to:
https://www.grants.gov/applicants/applicant-registration/track-profile-role-status

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

How to apply to SC via Grants.gov

Grants.gov applicants can apply online using Workspace. Workspace is a shared, online environment where members of a grant team may simultaneously access and edit different webforms within an application. For each RFA, you can create individual instances of a workspace.

For an overview of applying on Grants.gov using Workspaces, refer to:
https://www.grants.gov/applicants/workspace-overview/

1) Create a Workspace: Creating a workspace allows you to complete it online and route it through your organization for review before submitting.

2) Complete a Workspace: Add participants to the workspace to work on the application together, complete all the required forms online or by downloading PDF versions, and check for errors before submission. The Workspace progress bar will display the state of your application process as you apply. As you apply using Workspace, you may click the blue question mark icon near the upper-right corner of each page to access context-sensitive help.

a. Adobe Reader: If you decide not to apply by filling out webforms you can download individual PDF forms in Workspace so that they will appear similar to other Standard forms. The individual PDF forms can be downloaded and saved to your local device storage, network drive(s), or external drives, then accessed through Adobe Reader.

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[2] Individuals with the EBiz POC role are commonly found in an Office of Sponsored Research or similar institutional business office. Other than small businesses, a PI would usually not have the EBiz POC role.

NOTE: Visit the Adobe Software Compatibility page on Grants.gov to download the appropriate version of the software at: https://www.grants.gov/applicants/adobe-software-compatibility

b. Mandatory Fields in Forms: In the forms, you will note fields marked with an asterisk and a different background color. These fields are mandatory fields that must be completed to successfully submit your application.

c. Complete SF-424 Fields First: These forms are designed to fill in common required fields across other forms, such as the applicant's name, address, and SAM UEI. Once it is completed, the information will transfer to the other forms.

3) Submit a Workspace: An application may be submitted through workspace by clicking the Sign and Submit button on the Manage Workspace page, under the Forms tab. Grants.gov recommends submitting your application package *at least 24-48 hours prior to the close date* to provide you with time to correct any potential technical issues that may disrupt the application submission.

4) Track a Workspace: After successfully submitting a workspace package, a Grants.gov Tracking Number (GRANTXXXXXXXX) is automatically assigned to the package. The number will be listed on the Confirmation page that is generated after submission.

For additional training resources, including video tutorials, refer to: https://www.grants.gov/applicants/applicant-training.

Applicant Support: Grants.gov provides applicants 24/7 support via the toll-free number (800) 518-4726 and email at support@Grants.gov. For questions related to the specific grant opportunity, contact the number listed in the application package of the grant you are applying for funding.

If you are experiencing difficulties with your submission, it is best to call the Grants.gov Support Center and get a ticket number. The Support Center ticket number will assist SC with tracking your issue and understanding background information on the issue.

Timely Receipt Requirements and Proof of Timely Submission

Proof of timely submission is automatically recorded by Grants.gov. An electronic date/time stamp is generated within the system when the application is successfully received by Grants.gov. The applicant AOR will receive an acknowledgement of receipt and a tracking number (GRANTXXXXXXXX) from Grants.gov with the successful transmission of their application. Applicant AORs will also receive the official date/time stamp and Grants.gov Tracking number in an email serving as proof of their timely submission.

When SC successfully retrieves the application from Grants.gov, and acknowledges the download of submissions, Grants.gov will provide an electronic acknowledgment of receipt of

the application to the email address of the applicant with the AOR role. Again, proof of timely submission shall be the official date and time that Grants.gov receives your application. Applications received by Grants.gov after the established due date for the program will be considered late and may not be considered for funding by SC.

Applicants using unreliable internet connections should be aware that the process of completing the Workspace can take some time. Therefore, applicants should allow enough time to prepare and submit the application before the package closing date.

Grants.gov will provide either an error or a successfully received submission message in the form of an email sent to the applicant with the AOR role attempting to submit the application.

If you do not promptly receive an email from Grants.gov with an agency tracking number, indicating receipt of the application by SC, please contact the Grants.gov Helpdesk at (800) 518-4726 (toll-free) or support@Grants.gov immediately. SC will have no records of your attempted submission without the second email from Grants.gov.

4. How to Register in PAMS

After you submit your application through Grants.gov, the application will automatically transfer into the Portfolio Analysis and Management System (PAMS) for processing by the DOE SC. Many functions for awards can be done in PAMS, which is available at https://pamspublic.science.energy.gov.

You will want to "register to" your application: a process of linking yourself to the application after it has been submitted through Grants.gov and processed by DOE.

Notifications sent from the PAMS system will come from the PAMS email address <PAMS.Autoreply@science.doe.gov>. Please make sure your email server/software allows delivery of emails from the PAMS email address to yours.

Registering to PAMS is a two-step process; once you create an individual account, you must associate yourself with ("register to") your institution. Detailed steps are listed below.

Create PAMS Account:

To register, click the "Create New PAMS Account" link on the website https://pamspublic.science.energy.gov/.

- Click the "No, I have never had an account" link and then the "Create Account" button.
- You will be prompted to enter your name and email address, create a username and password, and select a security question and answer. Once you have done this, click the "Save and Continue" button.
    - On the next page, enter the required information (at least one phone number and your mailing address) and any optional information you wish to provide (e.g.,

FAX number, website, mailstop code, additional email addresses or phone numbers, Division/Department). Click the "Create Account" button.

- Read the user agreement and click the "Accept" button to indicate that you understand your responsibilities and agree to comply with the rules of behavior for PAMS.
- PAMS will take you to the "Having Trouble Logging In?" page. (If you have been an SC merit reviewer or if you have previously submitted an application, you may already be linked to an institution in PAMS. If this happens, you will be taken to the PAMS home page.)

Register to Your Institution:

- Click the link labeled "Option 2: I know my institution and I am here to register to the institution." (Note: If you previously created a PAMS account but did not register to an institution at that time, you must click the Institutions tab and click the "Register to Institution" link.)
- PAMS will take you to the "Register to Institution" page.
- Type a word or phrase from your institution name in the field labeled, "Institution Name like," choose the radio button next to the item that best describes your role in the system and click the "Search" button. A "like" search in PAMS returns results that contain the word or phrase you enter; you do not need to enter the exact name of the institution, but you should enter a word or phrase contained within the institution name. (If your institution has a frequently used acronym, such as ANL for Argonne National Laboratory or UCLA for the Regents of the University of California, Los Angeles, you may find it easiest to search for the acronym under "Institution Name like." Many institutions with acronyms are listed in PAMS with their acronyms in parentheses after their names.)
- Find your institution in the list that is returned by the search and click the "Actions" link in the Options column next to the institution name to obtain a dropdown list. Select "Add me to this institution" from the dropdown. PAMS will take you to the "Institutions – List" page.
- If you do not see your institution in the initial search results, you can search again by clicking the "Cancel" button, clicking the Option 2 link, and repeating the search.
- If, after searching, you think your institution is not currently in the database, click the "Cannot Find My Institution" button and enter the requested institution information into PAMS. Click the "Create Institution" button. PAMS will add the institution to the system, associate your profile with the new institution, and return you to the "Institutions – List" page when you are finished.

Each Grants.gov application submitted to the DOE SC automatically transfers into PAMS and is subsequently assigned to a program manager. At the time of program manager assignment, the three people listed on the SF-424 (R&R) cover page will receive an email with the subject line, "Receipt of Proposal 0000xxxxxx by the DOE Office of Science." These three people are the Principal Investigator (PI) (Block 14), Authorized Representative (Block 19), and Point of Contact (Block 5). In PAMS notation, applications are known as proposals, the PI is known as the PI, the Authorized Representative is known as the Sponsored Research

Officer/Business Officer/Administrative Officer (SRO/BO/AO), and the Point of Contact is known as the POC.

There will be a period of time between the application's receipt at Grants.gov and its assignment to a DOE SC program manager. Program managers are typically assigned two weeks after applications are due at Grants.gov; please refrain from attempting to view the proposal in PAMS until you receive an email providing the assignment of a program manager.

Once the email is sent, the PI, SRO/BO/PO, and POC will each be able to view the submitted proposal in PAMS. Viewing the proposal is optional.

Following are two sets of instructions for viewing the submitted proposal, one for individuals who already have PAMS accounts and one for those who do not.

If you already have a PAMS account, follow these instructions:

1. Log in to PAMS at https://pamspublic.science.energy.gov/.
2. Click the "Proposals" tab and click "Access Previously Submitted Grants.gov Proposal."
3. Enter the following information:
    - Proposal ID: Enter the ten-digit PAMS proposal ID, including the leading zeros (e.g., 00002xxxxx). Do not use the Grants.gov proposal number. Use the PAMS number previously sent to you in the email with subject line, "Receipt of Proposal …"
    - Email (as entered in Grants.gov application): Enter your email address as it appears on the SF424(R&R) Cover Page.
    - Choose Role: Select the radio button in front of the role corresponding to the SF-424 (R&R) cover page. If your name appears in block 19 of the SF-424 (R&R) cover page as the authorizing representative, select "SRO/BO/AO (Sponsored Research Officer/Business Officer/Administrative Officer)." If your name appears in block 14 of the SF424 R&R cover page as the PI, select "Principal Investigator (PI)." If your name appears in block 5 of the SF424 R&R as the point of contact, select "Other (POC)."
        - Click the "Save and Continue" button. You will be taken to your "My Proposals" page. The Grants.gov proposal will now appear in your list of proposals. Click the "Actions/Views" link in the options column next to this proposal to obtain a dropdown list. Select "Proposal" from the dropdown to see the proposal. Note that the steps above will work only for proposals submitted to the DOE SC since May 2012.

If you do not already have a PAMS account, follow these instructions:

1. To register, click the "Create New PAMS Account" link on the website https://pamspublic.science.energy.gov/.
2. Click the "No, I have never had an account" link and then the "Create Account" button.
3. You will be prompted to enter your name and email address, create a username and password, and select a security question and answer. Once you have done this, click the "Save and Continue" button.
    - On the next page, enter the required information (at least one phone number and

your mailing address) and any optional information you wish to provide (e.g., FAX number, website, mailstop code, additional email addresses or phone numbers, Division/Department). Click the "Create Account" button.

4. Read the user agreement and click the "Accept" button to indicate that you understand your responsibilities and agree to comply with the rules of behavior for PAMS.
    - You will be taken to the Register to Institution page. Select the link labeled, "Option 1: My institution has submitted a proposal in Grants.gov. I am here to register as an SRO, PI, or POC (Sponsored Research Officer, Principal Investigator, or Point of Contact)."
5. Enter the following information:
    - Proposal ID: Enter the ten-digit PAMS proposal ID, including the leading zeros (e.g., 00002xxxxx). Do not use the Grants.gov proposal number. Use the PAMS number previously sent to you in the email with subject line, "Receipt of Proposal …"
    - Email (as entered in Grants.gov proposal): Enter your email address as it appears on the SF424(R&R) Cover Page.
        - Choose Role: Select the radio button in front of the role corresponding to the SF-424 (R&R) cover page. If your name appears in block 19 of the SF-424 (R&R) cover page as the authorizing representative, select "SRO/BO/AO (Sponsored Research Officer/Business Officer/Administrative Officer)." If your name appears in block 14 of the SF424 R&R cover page as the PI, select "Principal Investigator (PI)." If your name appears in block 5 of the SF424 R&R as the point of contact, select "Other (POC)."
        - Click the "Save and Continue" button. You will be taken to your "My Proposals" page. The Grants.gov proposal will now appear in your list of proposals. Click the "Actions/Views" link in the options column next to this proposal to obtain a dropdown list. Select "Proposal" from the dropdown to see the proposal.

If you were listed as the PI on a prior submission but you have not previously created an account, you may already be listed in PAMS. If this is the case, you will be taken to the PAMS home page after agreeing to the Rules of Behavior. If that happens, follow the instructions listed above under "If you already have a PAMS account…" to access your Grants.gov proposal.

For help with PAMS, click the "PAMS Help" link on the PAMS website, https://pamspublic.science.energy.gov/. You may also contact the PAMS Help Desk, which can be reached Monday through Friday, 9 AM – 5:30 PM Eastern Time. Telephone: (855) 818-1846 (toll free) or (301) 903-9610, email: sc.pams-helpdesk@science.doe.gov. All submission and inquiries about this RFA should reference the RFA number printed on the cover page.

5. Application Contents and Format

Applications in response to this RFA must be submitted through Grants.gov. Detailed instructions for registering in and using Grants.gov were previously provided.

Component Pieces of the Application

1. SF-424 (R&R)

Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 17 is available on the DOE Financial Assistance Forms Page at https://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms under Certifications and Assurances[3]. Applicants are bound by their representations and certifications in SAM.gov.

Type of Submission (Field 1)

Select the checkbox for "Application" for an initial submission. Select the checkbox for "Changed/Corrected Application" if submitting an updated version of an application. Do not submit pre-applications via Grants.gov: Do not select the checkbox for "Pre-application."

Identifying numbers (Field 4)

For renewals and supplemental funding, enter the DOE award number in Field 4a. Do not enter any other number in Field 4a. Do not enter anything in Field 4b. If submitting an updated version of an application, you may enter the previous Grants.gov Tracking ID in Field 4c, though this is not required.

UEI and EIN Numbers (Fields 5 and 6)

The Uniform Entity Identifier (UEI) and Employer Identification Number (EIN) fields on the SF-424 (R&R) form are used in PAMS to confirm the identity of the individual or organization submitting an application.

- Enter the UEI as a 12-digit alpha-numerical sequence.
- Enter the EIN as a nine-digit number.
- Do not use hyphens or dashes.
- SC does not use the 12-digit EIN format required by some other agencies.
- Applications will not be rejected if an applicant's system-to-system service uses a 12-digit EIN format or inserts hyphens or dashes in an EIN.

Type of Application (Field 8)

A **new** application is one in which DOE support for the proposed research is being requested for the first time. A **renewal** application requests additional funding for a period of time following a current award.

Do not attach pre-applications to Field 20 of the SF-424(R&R) form or letters of intent to Field 21 of the SF-424(R&R) form.

DOE will only accept new applications under this RFA.

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[3] No separate form or submission is required for the Certifications and Assurances.

2. Research and Related Other Project Information

Complete questions in Fields 1 through 6 of the SF-424 Research and Related Other Project Information form.

Note regarding question 4.a. and 4.b.:

If any environmental impact, positive or negative, is anticipated, indicate "yes" in response to question 4.a., "potential impact – positive or negative - on the environment." Disclosure of the impact should be provided in response to question 4.b. First, indicate whether the impact is positive or negative and then identify the area of concern (e.g., air, water, exposure to radiation, impacts to endangered species or historic properties, etc.).

For actions that could have adverse impacts to the environment or have any possibility for adverse impacts to human health (e.g., use of human subjects, Biosafety Level 3-4 laboratory construction/operation, manufacture or use of certain nanoscale materials which are known to impact human health, or any activities involving transuranic or high level radioactive waste, or use of or exposure to any radioactive materials beyond de minimis levels), applicants should indicate a "negative" impact on the environment.

Lastly, based on requirements and guidance in 10 C.F.R. § 1021.102 and DOE's NEPA Implementing Procedures, to find that a proposal is covered by a categorical exclusion (CX), DOE will determine: (1) the proposal fits within one or more classes of actions for which CXs are permissible, (2) there are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal (DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the CX would apply), and (3) the proposal has not been segmented to meet the definition of a CX.

The bulk of your application will consist of files attached to the Research and Related Other Project Information form. The files must comply with the following instructions:

Project Summary/Abstract (Field 7 on the Form)

The project summary/abstract is a summary of the proposed activity suitable for distribution to the public and sufficient to permit potential reviewers to identify conflicts of interest. It must be a self-contained document. The project summary/abstract must be comprised of:

- This information will not count toward the abstract's one-page limit.
- This information must be followed by a statement of the project's objectives, a description of the project, including methods to be employed, and the potential impact of the project (i.e., benefits, outcomes).

- The description of the proposed research may not exceed one page (excluding Project Title and list of investigators) when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font must not be smaller than 11 point. Figures and references, if included, must fit within the one-page limit.
  A sample is provided below:

Project Title A. Smith, Lead Institution (Principal Investigator) A. Brown, Institution 2 (Co-Investigator) A. Jones, Institution 3 (Co-Investigator) Text of abstract (no more than one page, excluding Project Title and list of investigators)

If an application is recommended for award, the project summary will be used in preparing a public abstract about the award. Award abstracts and titles form a government document that describes the project and justifies the expenditure of Federal funds in light of the DOE and SC mission statements at https://energy.gov/mission and https://science.osti.gov/about/.

- Do not include any proprietary or sensitive business information.
- DOE may use the project summary and abstract to prepare public reports about supported research and may aggregate information from the summary.

DOE Title Page
(Part of Project Narrative attached to Field 8 on the form)

The application narrative must begin with a title page that will not count toward the Project Narrative page limitation. The title page must include the following items:

- The project title:
- Applicant/Institution:
- Street Address/City/State/ZIP:
- Postal Address:
- Lead PI name, telephone number, email:
- Administrative Point of Contact name, telephone number, email:
- RFA Number: Include the RFA number printed on the cover of this RFA.: DE-FOA-0003657
- DOE/SC Program Office: ASCR
- DOE/SC Program Office Technical Contact:

Senior/Key Personnel

- Senior/Key Personnel Name, Institution
- Senior/Key Personnel Name, Institution

- Senior/Key Personnel Name, Institution

The material listed here defines the minimum acceptable information on a title page. Additional information may be provided at the applicant's discretion.

> **Important Instructions to the Sponsored Research Office of Submitting Institutions**: SC requires that you create one single machine-readable PDF file that contains the DOE Title Page, Project Narrative, all required appendices, and other attachments. This single PDF file may not be scanned from a printed document and must be attached in Field 8 on the Grants.gov form. This must be a plain PDF file consisting of text, numbers, and images without editable fields, signatures, passwords, redactions, or other advanced features available in some PDF-compatible software. Do not use PDF portfolios or binders. The Project Narrative will be read by SC staff using the full version of Adobe Acrobat: Please ensure that the narrative is readable in Acrobat. If combining multiple files into one Project Narrative, ensure that a PDF portfolio or binder is not created. If creating PDF files using any software other than Adobe Acrobat, please use a "Print to PDF" or equivalent process to ensure that all content is visible in the Project Narrative. Once a Project Narrative has been assembled, please submit the combined Project Narrative file through a "Print to PDF" or equivalent process to ensure that all content is visible in one PDF file that can be viewed in Adobe Acrobat. Do not attach any of the appendices listed in this paragraph separately in any other field in Grants.gov. If you do, these additional attachments will not become part of the application in PAMS.

Project Narrative (Field 8 on the form)

The Project Narrative **must not exceed a page limit of 50 pages** of technical information, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). The body text font of all main text must not be smaller than 11 point. Merit reviewers will only consider the number of pages specified in the first sentence of this paragraph. This page limit does not apply to the Title Page, Budget Page(s), Budget Justification, biographical material, publications and references, appendices, and an optional table of content, each of which may have its own page limit defined later in this RFA.

Do not include any websites (URLs) that provide supplementary or additional information that constitutes a part of the application. Merit reviewers are not required to access websites; however, Internet publications in a list of references will be treated identically to print publications. To attach a Project Narrative, click "Add Attachment."

The Project Narrative comprises the plan for the project. It should contain enough background material in the Introduction, including a brief review of the relevant literature and any prior research in this area, to demonstrate sufficient knowledge of the state of the science. A major part of the narrative should be devoted to a description and justification of the proposed project, including details of the methods to be used. It should also include a timeline for the major activities of the proposed project and should indicate which project personnel will be

responsible for which activities. There should be no ambiguity about which personnel will perform particular parts of the project, and the time at which these activities will take place.

The following organization of the Project Narrative is suggested:

Introduction and Applicant Background	Describe the applicant's background, history, and general approach to quantum computing. Describe any important context or strategic positioning needed to evaluate and interpret the current capabilities and future scaling plans of the applicant.
Current quantum capabilities	Describe the current quantum computing capabilities possessed by the applicant. Describe both the quality and nature of the most performant device or devices produced to date, as well as the volume and nature of other devices produced throughout the company's history. Describe the qubit hardware and the current process for and challenges in manufacturing, calibration, and tune-up, including physical qubit yield, where applicable. Describe mechanisms for control, single- and multi-qubit gates, and measurement. Include mean one- and two-qubit gate fidelities, state preparation and measurement fidelities, logical cycle time, and the logical noise floor. Describe the extent to which QEC has already been implemented, the nature of the QEC scheme, and its experimental performance, including robustness to rare events (e.g., cosmic ray impacts or atom/ion loss). Describe software stacks such as compilers and programming interfaces. Describe any relevant scientific demonstrations that have been made on the Applicant's devices to date.
Phased scaling plan	From the current device(s) described in the above section, the applicant should provide a detailed plan to describe future scaling. Identify which components and subsystems will be improved at each step and identify key risks and mitigation plans for each step. Scaling plans should be subdivided, with a subsection for each of the following phases: • A prototype device, to be demonstrated one year into the program timeline. • A first-generation SRQC, to be demonstrated at the end of the program, which is anticipated to be September 2028. • A next-generation SRQC, beyond the scope of this program. The plan for the prototype device and first-generation system should include technical details including, but not limited to, target fidelities for a complete set of logical gates, state preparation and measurement fidelities, yield targets, error correction architecture (including error correcting codes, target cycle time, syndrome extraction scheme, how logical gates will be implemented, decoding methods, and a definition of "easy" and "hard"

	operations), and compilers and schedulers. Describe the classical infrastructure required (power requirements, cryogenics, space, electrical architecture). It is anticipated that the level of detail for the prototype and first-generation device will be higher than the level for the next-generation SRQC. If relevant, describe any aspects of this plan that represent an acceleration compared to technology roadmaps previously published by the applicant.
Scientific relevance plan	Present a plan for establishing the scientific relevance of demonstrator devices. Identify a demonstrator problem and key subroutine(s). Provide rationale for this problem, including as a useful quantum demonstrator, as a valuable problem for the DOE mission, and as an integral piece of a scientific workflow. Details should be provided about the current classical state of the art and the classical barriers to significant performance increase. Describe how: • The prototype device will demonstrate the key subroutine, • The first-generation SRQC will demonstrate a scientific workflow, • And the next-generation SRQC would accelerate scientific discovery. Describe the anticipated number of quantum operations (both hard and easy) along with wall clock time to realize these applications on both a first- and next generation SRQC.
Team Structure & Partnerships	Describe the performing personnel and their expertise, including who will lead delivery of the systems and act as primary contact for DOE staff. Describe any key partnerships with vendors or subcontractors whose participation will be key to realizing the scaling plan. Additionally, describe any existing work occurring under DOE funding or in partnership with DOE National Laboratories.
Quantum Ecosystem Impacts	Describe how the execution of the proposed program will advance the general strength of the quantum ecosystem in the United States. Describe programs or activities that the applicant undertakes or will undertake to increase U.S. manufacturing, to improve the U.S. quantum workforce, or to commercialize quantum technologies.

The Project Narrative is considered the intellectual work of the proposed researchers. Concurrent submission of the same or substantially similar narratives attributed to different researchers may constitute academic dishonesty or research misconduct. Submission of a Project Narrative that is not the work of the proposed researchers, including machine-generated Project Narratives, may constitute academic dishonesty or research misconduct.

SC will apply a "fair-use" concept regarding the use of generative artificial intelligence to support investigators' efforts in presenting their intellectual work in an application. Guided by

the principles expressed by others (https://www.acm.org/publications/policies/frequently-asked-questions and https://journals.ieeeauthorcenter.ieee.org/become-an-ieee-journal-author/publishing-ethics/guidelines-and-policies/submission-and-peer-review-policies/#ai-generated-text), applicants must disclose the use of any artificial intelligence tools in applications, unless the tools were used solely for editing an original draft.

Do not attach any of the requested appendices described below as files for Fields 9, 10, 11, and 12 on the SF-424 Research and Related Other Project Information form in Grants.gov. Follow the instructions below to include the information as appendices in the single Project Narrative file.

Biographical sketches and current and pending support may no longer be provided as attachments to a Project Narrative. These documents must be attached to the Research and Related Senior/Key Person Profile (Expanded) form in an application.

Appendix 1: Bibliography & References Cited

Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication.

For research areas where there are routinely more than ten coauthors of archival publications, you may use an abbreviated style such as the *Physical Review Letters* (PRL) convention for citations (listing only the first author). For example, your paper may be listed as, "A Really Important New Result," A. Aardvark et. al. (MONGO Collaboration), PRL 999. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application. Provide the Bibliography and References Cited information as an appendix to your Project Narrative.

- This appendix will not count in the Project Narrative page limitation.
- Do not attach a bibliography to Field 9 of the Research and Related Other Project Information form.

Appendix 2: Facilities & Other Resources

This information is used to assess the capability of the organizational resources, including subrecipient resources, available to perform the effort proposed. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical and Other). If appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Describe other resources available to the project (e.g., machine shop, electronic shop) and the extent to which they would be available to the project. For proposed investigations requiring access to experimental user facilities maintained by institutions other than the applicant, please provide a document from the facility manager confirming that the researchers will have access to the facility. Such documents, provided that they do not become letters of support or

recommendation, may be printed on any letterhead. Please provide the Facility and Other Resource information as an appendix to your Project Narrative.

- This appendix will not count in the Project Narrative page limitation.
- Do not attach a facilities and other resources statement to Field 10 of the Research and Related Other Project Information form.

Appendix 3: Equipment

List major items of equipment already available for this project and, if appropriate, identify location and pertinent capabilities. Provide the Equipment information as an appendix to your Project Narrative.

- This appendix will not count in the Project Narrative page limitation.
- Do not attach an equipment statement to Field 11 of the Research and Related Other Project Information form.

Appendix 4: Synergistic Activities (Optional)

In addition to biographical sketches in the Common Format, each senior/key person may provide a one-page list of no more than five distinct examples of synergistic activities that demonstrate the individual's professional and scholarly activities that focus on the integration, transfer, and creation of knowledge as related to the application.

- Do not attach a separate file to Field 12 of the Research and Related Other Project Information form.
- This appendix may not exceed the limit of the same number of pages as senior/key personnel when printed using standard letter-size (8.5-inch x 11-inch) paper with 1-inch margins (top, bottom, left, and right). This appendix will not count in the Project Narrative page limitation.

Appendix 5: Transparency of Foreign Connections

As an appendix to your Project Narrative, applicants must provide the following information as it relates to the proposed recipient and subrecipient(s). Include a separate disclosure for the applicant and each proposed subrecipient.

Disclosure exceptions by entity type:

- U.S. National Laboratories and domestic government entities are not required to respond to the Transparency of Foreign Connections disclosure.
- Institutions of higher education and non-profit research organizations are only required to respond to items with an asterisk symbol (*).

Applicants, regardless of entity type, must provide complete responses for all proposed subrecipients that are not U.S. National Laboratories, domestic government entities, or institutions of higher education.

Disclosure Format: For the convenience of the entity providing the disclosure and certification a template is available at Transparency of Foreign Connections | Department of

Energy, however, the entity is not required to use this specific format. If another format is used, the signatory must include the same substantive information, a signature, date, and the certification statement provided at Transparency of Foreign Connections | Department of Energy.

Questions: Contact rtesinfo@hq.doe.gov

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

Appendix 6: Other Attachment

If you need to elaborate on your responses to questions 1-6 on the "Other Project Information" document, please provide the Other Attachment information as an appendix to your Project Narrative. Information not easily accessible to a reviewer may be included in this appendix, but do not use this appendix to circumvent the page limitations of the application. Reviewers are not required to consider information in this appendix.

- Do not attach a separate file to Field 12 of the Research and Related Other Project Information form.
- This appendix will not count in the Project Narrative page limitation.

Reminders Regarding all Appendices

- Follow the above instructions to include the information as appendices to the Project Narrative file.
- These appendices will not count toward the Project Narrative's page limitation.
- Do not attach any appendices to Fields 9, 10, 11, or 12.

3. Research and Related Senior/Key Person Profile (Expanded)

Complete the Research and Related Senior/Key Person Profile (Expanded) form in accordance with the instructions on the form and the following instructions. Complete this form before the Budget form to populate data on the Budget form.

You must submit this information for the PI and all senior/key personnel who will be identified by name in Section A of the application's budget. List all other personnel who contribute in a substantive, meaningful way to the scientific development or execution of the project, whether or not salaries are requested. Consultants should be included in this "Senior/Key Person Profile (Expanded)" Form if they meet this definition. List individuals that meet the definition of senior/key regardless of what organization they work for. Senior/key personnel must be aware that they are included in the application and must agree to perform the work if awarded. The form will pre-populate with the PI identified on the SF-424(R&R) form. For each senior/key person:

- Complete the required sections in their profile.
- In the "credential" field, enter the person's PAMS username, if known.
- Attach the person's biographical sketch.
- Attach the person's current and pending support.

The Senior/Key Person Profile (Expanded) form will support the PI and up to 99 additional senior/key personnel. On the addition of the 99th senior/key person, you will be presented with an option to upload an additional file with the required information for all other senior/key personnel.

How to Prepare a Biographical Sketch

As part of the application, each covered individual at the applicant and subrecipient level must submit a biographical sketch ("*Biosketch*"). Use SciENcv (Science Experts Network Curriculum Vitae) to produce a DOE/NNSA compliant PDF version of the *Biosketch*. Note that there is no page limitation for the *Biosketch*, though some fields in SciENcv have character limitations for consistency.

Consistent with the instructions in NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support[4] and the DOE/NNSA RFA-Specific Biosketch Instructions below, the *Biosketch* and *CPS Common Form* must together include a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All connections with malign foreign talent recruitment programs must be identified.

For the purposes of this RFA, a Covered Individual means an individual who (a) contributes in a substantive, meaningful way to the development or execution of the scope of work of a project proposed for funding by DOE, and (b) is designated as a covered individual by DOE. DOE designates as covered individuals any principal investigator (PI); project director (PD); co-principal investigator (Co-PI); co-project director (Co-PD); project manager; and any individual regardless of title that is functionally performing as a PI, PD, Co-PI, Co-PD, or project manager. Status as a consultant, graduate (master's or PhD) student, or postdoctoral associate does not automatically disqualify a person from being designated as a "covered individual" if they meet the definition in (a) above.

The prime applicant is responsible for assessing the applicability of (a) against each person listed on the application. Further, the prime applicant is responsible for identifying any such individual to DOE for designation as a covered individual, if not already designated by DOE as described above. Individuals committing no measurable effort or "as-needed" effort are not automatically exempt from being designated as a covered individual. The prime applicant's listing of an individual in the "Senior/Key Person" section of an SF-424(R&R) budget serves as an acknowledgement that DOE designates that person as a covered individual.

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[4] This table supersedes in its entirety, Table 2a and Paragraph 7 of the Disclosure Requirements and Standardization Section of the NSPM-33 Implementation Guidance.

DOE may further designate covered individuals during award negotiations or the award period of performance.

If selected, throughout the life of the award, the recipient has an ongoing responsibility to submit: 1) current and pending support disclosure statements and resumes/biosketches for any new covered individuals, and 2) updated disclosures if there are changes to the current and pending support or resume/biosketch previously submitted to DOE.

Please note the following:

- With the exception of "covered individual", which is defined below, all other definitions of terms used in the *Biosketch* are available at: NSPM-33 Definitions.
- If there is any conflict between NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support and the DOE/NNSA RFA-Specific Biosketch Instructions below, **follow the DOE/NNSA RFA-Specific Biosketch Instructions**.

DOE/NNSA RFA-Specific CPS Instructions	
Persistent Identifier (PID) of the Covered Individual	The PID field is required.
Reporting Timeframe for Proposals, Projects, and In-Kind Contributions	Disclose only **current** and **pending** support, as defined in the "Status of Support" field of the SciENcv Common Form.
Types of Proposals and Active Projects to Disclose	In addition to the guidance listed above, consulting activities must be disclosed under the proposals and active projects section of the form when any of the following scenarios apply: • The consulting activity will require the covered individual to perform research as part of the consulting activity; • The consulting activity does not involve performing research, but is related to the covered individual's research portfolio and may have the ability to impact funding, alter time or effort commitments, or otherwise impact scientific integrity; or • The consulting entity has provided a contract that requires the covered individual to conceal or withhold confidential financial or other ties between the covered individual and the entity, irrespective of the duration of the engagement.
Disclosure Instructions for In-Kind Travel	Follow the disclosure instructions for travel in NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support.
Current and Pending (Other) Support Addendum	The Current and Pending (Other) Support Addendum is **not** required for this RFA.

Throughout the life of the award, the recipient has an ongoing responsibility to submit: 1) current and pending support disclosure statements and resumes/biosketches for any new covered individuals, and 2) updated disclosures if there are changes to the current and pending support or resume/biosketch previously submitted to DOE.

Submission of current and pending support constitutes the individual's certification that they have complied with the Research Security Training[5] requirement.

Biographical sketches must be attached to the Research and Related Senior/Key Person Profile (Expanded) form in an application.

Personally Identifiable Information: Do not include sensitive and protected personally identifiable information including social security numbers, birthdates, citizenship, marital status, or home addresses. Do not include information that a merit reviewer should not use.

How to Prepare Current and Pending Support

Current and pending (other) support ("*CPS Common Form*") is used to identify potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support.

As part of the application, each covered individual at the prime applicant and subrecipient level must submit a *CPS Common Form*. Use SciENcv (Science Experts Network Curriculum Vitae) to produce a DOE/NNSA compliant PDF version of the *CPS Comon Form*. Note that there is no page limitation for the *CPS Common Form*, though some fields in SciENcv have character limitations for consistency.

Consistent with the instructions in NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support[6] and the DOE/NNSA RFA-Specific CPS Instructions below, the *CPS Common Form* and *Biosketch Common Form* must together include a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All connections with malign foreign talent recruitment programs must be identified in current and pending support.

Please note the following:

- With the exception of "covered individual," which is defined below, all other definitions of terms used in the *CPS Common Form* are available at: NSPM-33 Definitions.
- If there is any conflict between NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other)

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[5] Covered individuals listed on applications are required to certify that they have taken research security training consistent with Section 10634 of the CHIPS and Science Act of 2022. In addition, an applicant who receives an award must maintain sufficient records (records must be retained for the time period noted in 2 C.F.R. § 200.334 and made available to DOE upon request) of its compliance with this requirement for covered individuals at the applicant/recipient organization and it must extend this requirement to any and all subrecipients.

[6] This table supersedes in its entirety, Table 2a and Paragraph 7 of the Disclosure Requirements and Standardization Section of the NSPM-33 Implementation Guidance.

Support and the DOE/NNSA RFA-Specific CPS Instructions below, **follow the DOE/NNSA RFA-Specific CPS Instructions**.

DOE/NNSA RFA-Specific CPS Instructions	
Persistent Identifier (PID) of the Covered Individual	The PID field is required.
Reporting Timeframe for Proposals, Projects, and In-Kind Contributions	Disclose only **current** and **pending** support, as defined in the "Status of Support" field of the SciENcv Common Form.
Types of Proposals and Active Projects to Disclose	In addition to the guidance listed above, consulting activities must be disclosed under the proposals and active projects section of the form when any of the following scenarios apply: • The consulting activity will require the covered individual to perform research as part of the consulting activity; • The consulting activity does not involve performing research, but is related to the covered individual's research portfolio and may have the ability to impact funding, alter time or effort commitments, or otherwise impact scientific integrity; or • The consulting entity has provided a contract that requires the covered individual to conceal or withhold confidential financial or other ties between the covered individual and the entity, irrespective of the duration of the engagement.
Disclosure Instructions for In-Kind Travel	Follow the disclosure instructions for travel in NSPM-33 Implementation Guidance Pre- and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending (Other) Support.
Current and Pending (Other) Support Addendum	The Current and Pending (Other) Support Addendum is **not** required for this RFA.

Throughout the life of the award, the recipient has an ongoing responsibility to submit: 1) current and pending support disclosure statements and resumes/biosketches for any new covered individuals, and 2) updated disclosures if there are changes to the current and pending support or resume/biosketch previously submitted to DOE.

Submission of current and pending support constitutes the individual's certification that they have complied with the Research Security Training[7] requirement.

4. Research And Related Budget

While a Research and Related Budget will be present in the application set of forms, most of it will be left blank. All fields with a red border are required.

- The UEI field will be prepopulated from the SF-424 (R&R) form.
- Please select "Project" in the "Budget Type" field.
- Please enter a Start Date and an End Date, which will not be binding.
- The PI's First and Last Name will be prepopulated from the SF-424 (R&R) form.
- Please enter zeroes for Requested Salary, Fringe Benefits, Funds Requested, and Total Senior/Key Person.
- Please leave all other fields blank.

Budget Justification (Field L on the form)

Please attach a one-page blank PDF file containing nothing.

5. R&R Subaward Budget Attachment(s) Form

While an R&R Subaward Budget Attachment(s) Form is in the set of forms for the application, please leave it blank.

6. Project/Performance Site Location(s)

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

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

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

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[7] Covered individuals listed on applications are required to certify that they have taken research security training consistent with Section 10634 of the CHIPS and Science Act of 2022. In addition, an applicant who receives an award must maintain sufficient records (records must be retained for the time period noted in 2 C.F.R. § 200.334 and made available to DOE upon request) of its compliance with this requirement for covered individuals at the applicant/recipient organization and it must extend this requirement to any and all subrecipients.

7. Disclosure and Prohibition of Lobbying Activities (SF-LLL)

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying." Applicants that have never paid any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress do not need to submit this form.

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

8. Identification of Merit Reviewer Conflicts

Provide a list of individuals who should not serve as merit reviewers of this application. Attach this information to Field 12 of the Research and Related Other Project Information Form.

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

All work for the projects selected under this RFA must be performed in the United States, unless you have a written waiver from DOE and prior approval by the DOE AO. To request a waiver of this requirement, you must submit an explicit waiver request in the application for each entity proposing performance of work outside of the United States.

Overall, a waiver request must demonstrate to the satisfaction of DOE that it:

- Would further the purposes of this RFA
- Is otherwise in the best interest of the DOE program objectives
- Is in the economic and energy security interests of the United States
- Does not pose an undue RTES risk (see Due Diligence Review for Research Technology and Economic Security)
- Is otherwise in the best interest of DOE program goals and agency priorities.

A request for a foreign work waiver must include:

- The rationale for performing the work outside the United States (foreign work)
- A description of the work proposed to be performed outside the United States
- An explanation of how the foreign work is essential to the project
- A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the U.S. economy
- The associated benefits to be realized and the contribution to the project from the foreign work
- How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States, and growth in new markets and jobs in the United States

- How the foreign work will promote manufacturing of products and services in the United States
- A description of the likelihood that Intellectual Property (IP) will be created from the foreign work and the treatment of any such IP
- The total estimated cost of the proposed foreign work
- The countries where the foreign work is proposed to be performed
- The name of the entity that would perform the foreign work

We may require additional information before considering the waiver request. You cannot appeal DOE's decision on a waiver request.

9. Summary of Required Forms/Files

Your application must include the following items:

Name of Document	Format	Attach to
SF 424 (R&R)	Form	N/A
RESEARCH AND RELATED Other Project Information	Form	N/A
Project Summary/Abstract	PDF	Field 7
Project Narrative, including required appendices	PDF	Field 8
Identification of Merit Review Conflicts	File	Field 12
RESEARCH & RELATED Senior/Key Person Profile (Expanded)	Form	N/A
RESEARCH & RELATED BUDGET	Form	N/A
Budget Justification	PDF	Field L
PROJECT/PERFORMANCE SITE LOCATION(S)	Form	N/A
SF-LLL Disclosure of Lobbying Activities, if applicable	Form	N/A

VIII. Application Review Information

A. Basis for Selection

The applicant may be considered for this agreement only upon preparation and submittal of a complete and fully compliant application. The selections for this agreement will be based on evaluation of applications as described in this section. By submitting an application, each applicant acknowledges and agrees that:

- The government may utilize the technical expertise of subject matter experts to assist in the evaluation of applications

- Each subject matter expert who reviews any application shall be legally and contractually bound by a non-disclosure agreement governed by 41 U.S.C. § 2102 Prohibitions on Disclosing and Obtaining Procurement Information
- Each subject matter expert who reviews any application shall not be disqualified or otherwise precluded from working on other projects or agreements at his/her employer that are similar or related to the subject matter of this RFA, providing that the subject matter expert shall fully comply with the nondisclosure obligations referenced above

B. Application Evaluation

DOE will evaluate applications to determine based on merit which applications meet the qualifications and are selectable to participate in this program. The government reserves the right to select all, some, or none of the applications received in response to this RFA. There is no maximum number of qualified applications, but DOE will prioritize its participation in projects based on the quality of the proposed project.

Prior to merit review, DOE will conduct an eligibility review. Applications will be checked for compliance with the eligibility criteria and against the "Applications Not of Interest" types listed in Section IV.C. Applications identified as deficient at this stage will be declined without further review.

Merit-based selection procedures include evaluating applications based on how well the proposed solution addresses the following criteria, in decreasing order of importance:

Category	Characteristics of a Technically Complete Application
Scientific and Technical Feasibility	The applicant has a detailed proposed technical approach that is innovative, feasible, achievable, and complete. This includes the extent to which the task descriptions and associated technical elements are comprehensive and presented in a logical sequence with all proposed deliverables clearly defined, resulting in a clear picture of how an award will achieve the desired goals of this program in realizing a prototype, a first-generation SRQC, and demonstrating scientific workflows.
Operational Feasibility	The applicant's project plan is feasible to execute, including: the extent to which the applicant and key partners have the necessary experience, facilities, and plans to complete and operate the project; the extent to which the proposed costs are realistic for the technical and management approach; and the likelihood and extent to which the project could mitigate any technical and operational risk. The applicant's schedule is detailed, logic driven, exhaustive of all workstreams, includes credible durations, and has manageable execution risks. The scaling pathways to both prototype and first-generation

	SRQCs are clear, viable, and validatable.
Impact on the DOE Mission	The applicant has a comprehensive explanation of the extent to which an application furthers the programmatic and technical goals of the Department of Energy as described in this document. The applicant has suitably justified that their success in the program would lay the groundwork for future deployment of quantum computers within the DOE's research complex and for those quantum computers to advance scientific discovery. The scaling pathway to a next-generation SRQC is clear and viable.
Contribution to U.S. Quantum Ecosystem	The applicant describes how their participation in the Q Competition will advance the strength of the quantum ecosystem in the United States. The applicant's involvement will advance U.S. R&D, commercialization, manufacturing, and workforce efforts.

The Selection Official may consider any of the following program policy factors in making the selection, listed in no order of significance:

- Availability of funds
- Relevance of the proposed activity to DOE priorities and program objectives
- Performance under current awards
- Portfolio balance
- Strengthening partnerships between DOE/NNSA Laboratories and industry
- Majority U.S.-owned, domestic lead entity
- In addition, all applications submitted to DOE are subject to a due diligence review for research, technology, and economic security. As DOE invests in critical infrastructure and funds critical and emerging technology areas, DOE considers possible threats to United States research, technology, and economic security from undue foreign government influence when evaluating risk. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant. As part of the research, technology, and economic security risk review, DOE may contact the applicant and/or proposed project team members for additional information to inform the review. This risk review is conducted separately from the technical merit review.

  The due diligence review of covered individuals includes but is not limited to the review of resumes and disclosures, as required in the RFA. DOE reserves the right to ask for disclosures on project participants not defined as covered individuals. The applicant need not submit any additional information on non-covered individuals, unless requested by DOE. The volume and type of information collected may depend on various factors associated with the award. Users requiring access to DOE computing facilities, information, and systems may require individual vetting before being granted access.

  Note this review is separate and distinct from DOE Order 142.3C "Unclassified

Foreign National Access Program," as applicable.

In the event an RTES risk is identified, DOE may require risk mitigation measures, including but not limited to, requiring that an individual or entity not participate in the award. If significant risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant.

Consistent with section 4(e) of the Presidential Memorandum on United States Government-Supported Research and Development National Security Policy-33 (NSPM-33), DOE may share information regarding the risks identified as part of the RTES due diligence review process or monitoring with other Federal agencies.

DOE's decision regarding a due diligence review is not appealable.

DOE may include reporting and protection requirements in the OTAs to ensure "that QIST activities and policies maintain robust and balanced security controls to safeguard critical information and protect national security interests, while not unduly impacting quantum innovation in the United States," pursuant to President Trump's Executive Order (EO) 14413, **Ushering in the Next Frontier of Quantum Innovation** and its Quantum Computer for Application Development and Discovery Science (QC-ADDS) effort and related security requirements.

IX. Selection Information

DOE anticipates announcing initial selections of applicants in accordance with the deadlines in Section I.A. If you are selected to participate in this program, you will receive a notification from DOE to finalize an Other Transaction agreement with DOE. Copies of each unsuccessful application will be retained in accordance with General Records Schedule 1.2: Grant and Cooperative Agreement Records.