PowerAmerica:
Next Generation Power Electronics Manufacturing Innovation Institute

Request for Proposals for Project Period:
Budget Period 1

Issue Date:	November 14, 2025
Submission Deadline for Concept Paper: https://ncsu.inforeadv4.com	December 12, 2025
Response (Invited/Not Invited Notification)	January 15, 2026
Submission Deadline for Full Applications: https://ncsu.inforeadv4.com	February 20, 2026
Expected Date for Selection Notifications:	May 18, 2026
Expected Timeframe for Project Negotiations	
Project Start Date	

General Submission Information

- Questions regarding this funding opportunity may be submitted to poweramerica@ncsu.edu. We will post the questions and answers publicly here: https://poweramericainstitute.org/2025-request-for-proposals/questions-and-answers/
- **Do not include any proprietary information in the Concept Papers**.
- Concept Papers are mandatory for full proposal submission and the deadline is firm. An Encourage or Discourage recommendation will be provided in response to each Concept Paper submitted.
- **Full Proposals will only be accepted from applicants who received an "Encouraged" response to their Concept Paper submission.**
- Regretfully, no further information about Discouraged Concept Papers will be given. No "de-brief" will be provided.
- PowerAmerica will only review proposals that are submitted through the InfoReady submission website.
- If an application is selected for award negotiations, it is not a commitment to issue an award. It is **critical** that the Applicant/Selectee be responsive during award negotiations to ensure that deadlines are met. Failure to be responsive may result in cancellation of any subsequent award negotiations and rescission of selection for funding.

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I. SUMMARY

Purpose	This request for Institute initiated proposals (IIPs) is focused on the development of advanced wide bandgap power semiconductor technologies, power electronics assemblies, and packaging and manufacturing processes with the potential to improve performance and lower cost. Demonstration of wide bandgap (WBG) manufacturing processes and/or devices in high volume, commercially viable, power electronic applications is also desired. Technology Readiness Levels should be in the TRL 4 through 6 range. Primary metrics used to evaluate the proposed projects include their potential to: ● Accelerate the adoption of wide bandgap (WBG) power electronics ● Lower the cost of WBG devices and power modules ● Demonstrate the system level advantages of WBG technologies in power electronics applications ● Demonstrate the reliability of WBG systems ● Create a pathway to commercialization ● Improve U.S. manufacturing competitiveness ● Improve workforce development and education ● Production of U.S. technicians and engineers with expertise in WBG power electronics ● Address technological gaps linked to the needs defined in the PowerAmerica or other relevant DOE or industry roadmaps and identify additional knowledge gaps to be addressed
Concept Papers	● Mandatory Concept Papers for all proposed projects must be submitted using the InfoReady submission website: https://ncsu.infoready4.com ● The Concept Paper submission package should consist of one single PDF document. ● After reviewing the Concept Papers, PowerAmerica will respond to applicants by providing an "Encourage" or "Discourage" recommendation. We regret that we are unable to offer any further information about any Discouraged Concept Papers. ● Concept Papers that receive an "Encourage" notification are invited to submit a Full Proposal in response to this RFP. Full proposals will only be accepted from Encouraged Concept Papers. ● Concept Papers should not contain any proprietary information. ● Projects are expected to produce usable models/software tools or data

	sets and tangible results including engineering samples, operating hardware, or prototypes that can be transitioned to U.S. manufacturing. Paper studies or engineering analyses alone are not suitable for this program. ● All university projects in Focus Areas 1 and 2 are required to engage two undergraduate students in the work plan. ● Concept papers that do not conform to the required format or are over the stated page limit will not be accepted. ● Only one (1) Concept Paper in technical Focus Area 1 or 2 may be submitted from any commercial entity as the lead. ● Each academic institution may submit one (1) Concept Paper in Technical Focus Area 1 or 2 as the lead, and one (1) additional Concept Paper in Education/Workforce Focus Area 3 as the lead. ● There is no limit on the number of teams that an entity can join as a subrecipient.
Full Proposals	● Full proposals will only be accepted from Encouraged Concept Papers ● Full Proposals will be similar to the Concept Papers in scope, but will require a more in-depth project description and budget. All attachments listed in Section D of this document must accompany full proposals. ● Information that is proprietary, confidential, a trade secret, or otherwise protected, should be clearly marked. ● Only one (1) Full Proposal in technical Focus Area 1 or 2 may be submitted from any commercial entity as the lead. ● Each academic institution may submit one (1) Full Proposal in Technical Focus Area 1 or 2 as the lead, and one (1) additional Full Proposal in Education/Workforce Focus Area 3 as the lead. ● There is no limit on the number of teams that an entity can join as a subrecipient.

Expected Award Amounts	• Please note that throughout this Request for Proposal document, the dollar amounts listed represent the funds that will be awarded by PowerAmerica. • **All projects require a minimum 1:1 or greater cost match from the applicant.** • The suggested maximum project dollar amounts shown in Table 1 are estimates only, and may be adjusted based on the quality of the proposal. • Industry and National Lab project awards may be up to $1M. University project awards may be up to $230K. • **For organizations participating in multiple PowerAmerica proposals**: Industry and National Lab recipients may receive up to $1M total. University recipients may receive up to $230K total.
Type of Award Agreement	• **In order to be eligible to receive a PowerAmerica award, all organizations on all project teams are required to become members of PowerAmerica.** • Selected projects will be awarded as cost-reimbursable Subawards from NC State University, which will flow down the special terms and conditions from the Cooperative Agreement between NC State and the United States Department of Energy, along with NC State's own special terms and conditions.
Project Duration	Up to **24 months**
Eligibility	• **All proposals must have active project team members with U.S. manufacturing presence or an educational institution.** • All project team organizations are required to be located in the U.S. • All work must be performed in the U.S. and must have direct relevance to U.S. manufacturing.
Cost Share Requirement	A minimum of 1:1 or greater cost match is required on all projects. In teaming arrangements, industry/companies may provide some or all of the cost match for their university, community college or National Lab team members. Funding for the National Labs will be provided directly to the lab by DoE.
Proposal Development Costs	Costs incurred in developing a proposal in response to this "Request for Proposals" cannot be reimbursed and are unallowable as cost-share. Federal funds from other programs are also unallowable as cost share.
Teaming	• Teaming is strongly encouraged among companies with complementary capabilities or in adjacent sectors of the supply chain. Universities and

	National Labs are also strongly encouraged to team with industry to ensure that research goals are driven by U.S. manufacturing needs, and that a clear pathway to commercialization exists. ● For teams consisting of multiple entities, the lead team member will receive a direct subaward from NC State University, and will be responsible for overseeing invoicing/payments for other team members, which will be subrecipients to the lead team member. There will not be a separate subaward outside of the lead team member except in the case of National Labs, which as federal entities will receive funding directly from the Department of Energy. ● **All team members receiving funds are required to become members of PowerAmerica.**
Membership, Bylaws, Intellectual Property	Information on Membership and Bylaws is available by contacting poweramerica@ncsu.edu. The Intellectual Property Management Plan (Article VI of the Institute bylaws) governs the treatment of Intellectual Property and the rights between the Institute and its Members. Intellectual Property rights between DOE, the Institute and its Members are covered by the terms of the Cooperative Agreement.
Export Control and ITAR	Organizations are required by law to comply with Export Control regulations. PowerAmerica does not place any restrictions on publication. PowerAmerica will review papers and presentations generated by funded projects before publication to review for patentability and inadvertent disclosure of proprietary information. Organizations will inform PowerAmerica if there is a need to restrict publications for U.S. competitiveness, or for commercial purposes.

II. REQUEST FOR PROPOSAL DESCRIPTION

A. Background

PowerAmerica (the Institute) is a part of the Manufacturing USA network. It is supported by the U.S. Department of Energy's Advanced Materials and Manufacturing Technologies Office (AMMTO). The Institute is a public-private partnership committed to increasing technical capabilities, domestic manufacturing, and creating jobs across the U.S. wide bandgap semiconductor industry. The purpose of the Institute is to accelerate the commercialization of WBG semiconductor power electronics. PowerAmerica is led by North Carolina State University in Raleigh, NC.

This Request for Proposal is focused on enabling U.S. industry to develop advanced wide bandgap power materials, semiconductor devices, manufacturing equipment, peripheral components, power electronic assemblies, and packaging and manufacturing processes with the potential to improve performance and lower cost. Demonstration of WBG devices in high-volume, commercially viable, power electronic applications is also desired. The competition for wide bandgap semiconductors is essentially silicon power electronics. WBG proposals need to show not only clear technical advantages, but also the energy, operational, and system level benefits over silicon. The focus of the Institute is on projects that have a manufacturing strategy, and additionally, help support the U.S. WBG supply chain.

Furthermore, workforce development and education activities are critical for maximizing U.S. competitiveness as well as creating a pipeline of trained professionals to support this growing industry. Education and workforce development activities are an important contributor to the long-term success of the industry. Projects are sought that help to train workers starting from the community college/high school graduate level, through undergraduate and graduate students, up to and including enhancing the skills of working professionals.

The Institute strongly encourages teaming between companies, national laboratories and universities as an effective strategy for the successful advancement of technology. Teams with access to adjacent supply chain technologies, vital technical expertise or unique facilities can accelerate system development, build long-lasting partnerships, and strengthen the WBG ecosystem.

PowerAmerica focuses on projects that will advance the state of readiness beyond the concept feasibility stage. Component validation and prototype demonstrations that help to quantify the system level benefits of WBG power electronics are of great interest. In particular, PowerAmerica addresses gaps in knowledge and technology to enable manufacturing that contributes to its mission of realizing manufacturing jobs creation and energy savings through accelerated large-scale adoption of WBG semiconductor devices in power electronic systems. The Technology Readiness Level of proposed activities should fall in the TRL 4 range through 6. **Basic science and exploratory scientific research are not appropriate for this program.**

Participation by Foreign Firms
Foreign owned firms may apply, provided they have substantial manufacturing and operational facilities, and staff based in the U.S. A U.S. sales and marketing operation of a Foreign Firm is not eligible. Current PowerAmerica members who are foreign entities are eligible to apply. The DoE will review and must approve all applications submitted by foreign entities.
All work must be performed in the U.S.

B. Applications Specifically Not of Interest
PowerAmerica does not have the capacity to fund:

- Incremental improvements to, or combinations of, existing products and technologies, wherein no significant advances in understanding or reductions in technical uncertainty or cost are achieved
- Devices other than SiC and GaN wide bandgap power semiconductors
- Power converters and inverters for low volume and niche applications without a compelling justification
- Analog RF (Radio Frequency) devices and applications (except for switch mode envelope tracking applications)

C. Concept Papers

No proprietary information should be included in Concept Papers.

Documents must adhere to the following format:

- Page size – 8.5 x 11 inches
- Margins – 1 inch
- Spacing – single
- Font – Times New Roman, 12 point

Concept Papers must be submitted as follows:
The following information as a single PDF file (maximum of five pages, including the cover page)

1. Cover page (1 page)
    a. Project title
    b. Applicant organization
    c. Point of contact name and full contact information
    d. Team members (if applicable)
    e. Focus Area of proposed project (i.e. Focus Area 1, 2, 3)
    f. Funds requested and cost share to be provided
2. Objective and Project Description (~1/4 page)
3. Technical Approach and Rationale (~2 pages max)
    a. Describe the technical and or economic challenge addressed by the project
    b. Describe the technical approach to be followed and the facilities and equipment to be used
    c. Describe the innovation and how it represents an advancement over the current practice
    d. Describe technical and other risks and identify risk mitigation approaches

e. Describe how the proposed work addresses knowledge and technology issues or gaps to enable large-scale manufacturing of WBG semiconductor devices and insertion in power electronic systems.
f. Describe the primary deliverable(s) and how it advances the Institute objectives
g. Identify SMART (specific, measurable, achievable, relevant, time-bound) metrics for the 24-month project.
h. Commercialization approach including target market, product or manufacturing insertion opportunity, competition, barriers to market penetration, impact on U.S. competitiveness. Teaming arrangement, description of roles, and list of key personnel

4. Gantt chart or timeline showing monthly progress and milestones for the 24-month effort (~1/2 page)
5. Budget estimate (sample format) given below (~1/2 page)

Concept Paper Budget Sample

	PowerAmerica funds	Applicant Cost Match
Organization 1:		
Personnel		
Equipment (>$10,000)		
Supplies & Materials (<$10,000)		
Contractual		
Other costs		
Travel		
Indirect costs		
Organization 1 Subtotal		
Organization 2: (repeat cost categories)		
Total project cost		

All Education and Workforce Development (Focus Area 3) Concept Papers must also include the following:

- Number of students involved and their role in the project.
- Methods for disseminating educational materials developed.
- Industry impact.

D. Full Proposals

Proprietary, confidential, privileged, or trade secret information should be clearly marked in the header and footer of each page containing such information.

Documents must adhere to the following format:

- Page size – 81/2 x 11 inches
- Margins – 1 inch
- Spacing – single
- Font – Times New Roman 12 point

Full Proposals must include the items defined below:

- Items 1 - 5 as a single PDF file (Maximum of 15 pages including the cover page)
- Item 6 as defined
- Item 7 as a single slide PowerPoint file
- Item 8 as a macro-enabled Excel file
- Item 9 as 2-3 page Word file
- The information identified in the attached Department of Energy "Research, Technology, and Economic Security" (RTES) document.

Full Proposal item description:

1. Cover page (same information as Concept Paper)
2. Technical project description (9 pages max; with similar content as Concept Papers, but more detailed)
3. Commercialization approach including target market, product or manufacturing insertion opportunity, deployment timeline, barriers to market penetration. Please describe opportunities for cost reduction over comparable silicon solutions, and what products the project's result will replace or improve. (2 pages max)
4. Teaming arrangement, description of roles, and list of key personnel (1 page max)
5. A Gantt chart or timeline should be provided showing monthly progress and important project milestones.
6. Signed letter of commitment from the organization, university, or community college sponsored program office from each participating organization including a detailed description of the type and amount of cost share to be provided for the net 1:1 cost match. A sample cost share letter is attached.
7. Quad chart with no proprietary information, suitable for public distribution. A sample Quad Chart is attached.

8. Budget and justification using the Department of Energy EERE – 540.132 form. Include travel to Raleigh, NC for two (2) , 2-3 day project review meetings per year (PowerAmerica Member meeting and PowerAmerica WBG Workshop) for at least one representative from each funded organization and any associated student travel costs. Expenses for one attendee at one conference in the continental U.S. to present project results, or one attendee and two students for Universities are acceptable in the budget. Travel costs must be reasonable and consistent with the Federal Travel Regulations as well as the policies of the entity submitting the application.
9. A Statement of Project Objectives (SOPO) in the format provided in the appendix is required for the project. The SOPO is essentially a 2–3 page work plan that describes the specific project activities that will be performed and is divided into sub-tasks. It must list progress milestones, and deliverables. The SOPO is the contractual tracking tool the Institute will use for project management, so it should be prepared carefully. A sample SOPO is attached.
    - Typical structure will include a project summary, followed by the sub-task summaries, followed by the associated milestones, and deliverables. The project milestones should be summarized in a table at the end.
    - The number of milestones must be sufficient to measure the progress of the project each quarter and should include a minimum of two milestones per year that contain specific, measurable metrics related to technological development. Multiple-organization projects are encouraged to merge related milestones of partner organizations with the proposing organization coordinating overall progress of the project.
10. F&A Rate agreement (Universities only)
11. Subrecipient Letter of Intent (template attached)
12. Required RTES Information (Please reference Section IV. RTES Requirements)- The Department of Energy requires additional information be provided by applicants and "covered individuals". The DoE RTES requirements are summarized in the attached "DOE RTES Requirements for Institute RFPs" and the following must be included with Full Proposals:
    a) Resumes
    b) Current and Pending Support
    c) Digital Persistent Identifier (PID) (optional until May 1, 2025)
    d) Research Security Training Requirement (optional until May 1, 2025)
    e) Transparency of Foreign Connections

All files must be named as follows:

Organization_PI_Focus Area_Description (i.e. Acme Corp_J. Doe_FA2_CV)

University Team Members (Focus Area 1 - 2)

Universities as prime or sub-recipients conducting technical projects (Focus Areas 1 - 2) are required to hire two undergraduate students to work on the project. Student involvement should be described in the proposal. Graduate students and post-docs sponsored by the program are expected to be involved with the

undergraduate students in research and to provide mentorship. Each undergraduate student is required to produce a project poster and to present in person at the PowerAmerica Annual Meeting (typically February or March) and/or the PowerAmerica Summer Workshop (typically August). Student stipend/salary and travel to Raleigh, NC, should be included in the budget.

All Education and Workforce Development (Focus Area 3) Full Proposals must also include:

1. Potential impact on industry
2. Methods and venues for disseminating education materials developed (if applicable).

E. Evaluation Criteria

PowerAmerica will assemble an external panel of experts from government, industry, and academia to evaluate the proposals. An initial compliance review will be performed to ensure all application requirements and proposal contents have been submitted and that the applicant is eligible for selection. Compliant proposals will be reviewed according to the following evaluation criteria:

Technical Projects (Focus Areas 1 - 2)

1. **Technical Merit (Weight: 40%) -** The extent to which the project, if successfully carried out, will make a valuable contribution to the PowerAmerica mission of realizing manufacturing job creation and energy savings through accelerated large-scale adoption of WBG semiconductor devices in power electronic systems. The project objectives are clearly stated, well-conceived, and technically feasible. The degree to which this project will provide valuable new tools, engineering processes, devices, or hardware/software/data to support adjacent Institute activities. The project addresses gaps in knowledge and technology to enable large-scale WBG semiconductor and power electronics manufacturing. Project will materially advance the mission of the Institute to accelerate WBG semiconductor technology.

2. **Technical Approach (Weight: 20%) -** Adequacy and feasibility of the applicant's approach to achieving the stated objectives of the project. The extent to which the project plan, methods, analysis, and technology are properly developed, well integrated, and appropriate to the project objectives. Appropriateness, rationale, and completeness of the proposed SOPO. Degree to which the applicant has identified high risk challenges and presented reasonable mitigation strategies. Adequacy and appropriateness of the proposed schedule, staffing plan, and proposed travel.

3. **Technical and Management Capabilities (Weight: 20%) -** Likeliness that the proposed work can be accomplished within the proposed budget and performance period by the technical team, given their experience, expertise, past accomplishments, available resources, institutional commitment, and access to technologies. Clarity, completeness and appropriateness of the project plan and timeline. Clarity, logic, and effectiveness of the project organization, including sub awardees to successfully complete the project. Credentials, capabilities, experience of the key

personnel. Adequacy and availability of personnel, facilities, and equipment to perform the proposed project.

4. **Commercialization Potential (Weight: 20%) -** The economic benefit to the U.S. and to a U.S. company must be clear; with U.S. manufacturing being advanced and with U.S. product innovation. A pathway to U.S. manufacturing is clearly stated with supply chain and other considerations (capital, equipment, facility, competition, other) discussed in some fashion. Preference will be given to proposals that create or sustain U.S. manufacturing jobs. All proposals must address gaps in knowledge and technology to enable manufacturing that contributes to the PowerAmerica mission of realizing manufacturing job creation and energy savings through accelerated large-scale adoption of WBG semiconductor devices in power electronic systems.

Education and Workforce Development Projects (Focus Area 3)

1. **Technical and EWD Merit (Weight: 30%) -** The extent to which the project, if successfully carried out, will make a valuable contribution to PowerAmerica mission and make a unique and important impact in education and workforce development that promotes job creation in WBG power electronics manufacturing. The project addresses gaps in knowledge and technology to enable large-scale WBG semiconductor manufacturing. Project will materially advance the mission of the Institute to advance WBG industry workforce needs.

2. **Relevance and Approaches to Innovation in Pedagogy (Weight: 20%)** - Are the educational objectives and pedagogical approaches clearly stated? Does the project have the potential to either augment or be easily integrated into established relevant curricula? Is it well designed, innovative, and does it have a substantial hands-on component (if applicable)? Can it be replicated and disseminated to other educational entities? Lastly, will this project proposal have an impact on helping to ensure a well-trained workforce for the emerging WBG power electronics industry?

3. **Subject Matter, Teaching, and Project Management Expertise (Weight: 20%)** - Does the project team possess the necessary subject matter expertise required of this project proposal? Does the teaching experience required to effectively create and deliver this subject matter exist within the project team or individual? Does the project team or individual have the necessary project management skills and track record required to complete this project proposal given the constraints of budget, time, personnel, other resources, and departmental and/or institutional commitment?

4. **Measurable Impact (Weight: 30%) -** How many students, workers, and others will directly benefit from this project. How concrete are the plans for deployment and dissemination of the materials/programs that are developed in this project. What additional resources and relationships will be brought to bear to support the project outcomes. Describe the assessment and follow up with program participants will be conducted so real impacts can be measured and reported.

III. TOPIC AREAS

For administrative and management purposes PowerAmerica project activity is organized into focus areas. This call for projects is soliciting proposals in focus areas 1,2, and 3.

- Focus Area 1: Manufacturing of Materials, Tools, Devices, and Modules
- Focus Area 2: Applications and System Demonstration Projects
- Focus Area 3: Education and Workforce Development

Throughout this document, the dollar amounts stated are the funds that will be provided by PowerAmerica. All projects require a minimum 1:1 net cost match. Proposals with funding requests exceeding the PowerAmerica limits per organization will not be considered.

Table 1 Anticipated Funding Amounts and Period of Performance

Focus Area Number	Focus Area Title	Anticipated Number of Awards	Anticipated Maximum Award Size (PowerAmerica Share)	Period of Performance
1	Manufacturing of Materials, Tools, Devices, and Modules	5 industry 5 university	Up to $1M for Industry and up to $230K for university	up to 24 Months
2	Applications and System Demonstration Projects	4 industry 4 university	Up to $1M for Industry and up to $230K for university	up to 24 Months
3	Education and Workforce Development	5	Up to $230K per award	up to 24 Months

A. Focus Area 1: Manufacturing of Materials, Tools, Devices, and Modules

WBG chip manufacturing has lower yields than that of silicon, as material and processing defects compromise yields in these newer technologies early in their yield ramp life cycle. Improving yields will directly reduce cost, increase productivity, and expand applications by increasing adaptation of WBG devices and modules. Projects should aim to improve key aspects of power materials and chip manufacturing to increase yields, improve the quality of dedicated WBG manufacturing tools, lower manufacturing costs, and improve the manufacturability and reliability/ruggedness of WBG devices and modules. Within this focus area, Power America will work on four major goals.

FA 1.1: Improved SiC and GaN Materials

Projects are sought to develop technologies to support innovations in manufacturing of SiC and GaN materials. The task will improve SiC and GaN substrate growth rates and quality to lower “killer” defect densities, achieve greater flatness, and lower roughness. Projects will also evaluate and develop engineered substrates to reduce costs and secure a supply chain that meets the high demand. High growth

rate SiC and GaN epitaxy, which minimizes defect generation and defect propagation from the underlying substrate, will be optimized under this task. Thick SiC epitaxy for +6.5 kV chips, which are essential to grid modernization, rail, and the fast EV charging infrastructure, will be optimized under this task. Projects will also facilitate transition to 200 mm diameter SiC substrates and epitaxy.

Projects are sought to develop GaN on substrates of silicon, sapphire, and other suitable materials, and on engineered substrates to improve thermal conductivity, minimize the impact of lattice mismatch, minimize defects, and extend breakdown voltage capability to 1200 V and beyond. Projects will also facilitate transition to 200 mm substrates and epitaxy for lateral GaN.

FA 1.2: Improved WBG Manufacturing Equipment and Tools

Projects are sought to develop next-generation growth equipment to enhance repeatability, precision, and performance of bulk SiC and GaN substrates. Reduction of consumables and waste during WBG substrate manufacturing is desirable. Projects are also sought to develop SiC and GaN epitaxy equipment that achieve faster growth rates, better uniformity, lower defect densities, and larger thickness, enabling high-voltage chips essential to grid modernization and improving energy capacity integrated on grid, industrial processes, and data center performance. Innovations in WBG specific processing equipment for polishing and grinding, substrate thinning, heated implantation, ohmic contact formation, etching, dielectric deposition, and metallization to increase SiC and GaN chip production throughput with improved yields will also be developed under this task. Projects are sought to develop test, measurement, metrology, inspection, and process monitoring tools with improved accuracy to characterize SiC and GaN materials, defects, epitaxial thickness and doping uniformities, electrical properties, and perform in-situ quality verification during the manufacturing process to accelerate throughput and production.

FA 1.3: Chip Design, Fabrication, and Testing

Projects are sought to develop more efficient, reliable, and rugged higher power SiC and GaN chips, and testing at the manufacturing level. Projects are sought to optimize manufacturing of +6.5 kV SiC chips, with a path to product release, for grid modernization, industrial, transportation, or other applications. Projects are sought to develop 900 V and 1200 V lateral GaN power chips, both e-mode and d-mode, for EV and other power conversion applications as well as projects to develop GaN chips on native and engineered substrates. GaN power chips with a rating below 650 V aimed at addressing data centers use, EV auxiliary equipment, and other applications are also sought. Projects are also sought to evaluate chip and package reliability and ruggedness and identify and remedy failure mechanisms to accelerate adoption of SiC and GaN into applications.

Projects are sought to develop monolithic bidirectional chips and co-packaged bidirectional solutions for applications including grid to vehicle, vehicle to grid, energy storage, UPS, and data centers in the 100 V to 3.3 kV range. Bidirectional chips are well suited for power converter topologies such as matrix converters, current-source inverters, multi-level voltage-source power converters, and AC solid-state circuit breakers.

Projects should produce results (i.e. materials, processes, or products) that are compatible with

fabrication in 150mm and/or 200mm fabs, with a strong emphasis on transitioning to 200mm fabs to exploit the significant volume and cost competitive advantages.

FA 1.4: Passive Components, High Frequency Capability, Thermal Management, Isolation, and Advanced Packaging

Projects are sought to develop passive components optimized for SiC and GaN circuits including high frequency magnetics, high temperature and voltage ceramic capacitors, higher density and voltage film capacitors, high voltage and high temperature inductors, and reduced volume/weight passive EMI filter components. Projects developing improved motor winding insulation that can withstand the high dV/dt of WBG devices are within the scope of this focus area. Projects developing modules for harsh environments like high humidity, high temperature, and radiation hardness will also be considered.

Projects are sought to develop high power-density and high-voltage advanced modules with improved thermal management, high voltage isolation, improved partial discharge tolerance, and low inductance for high frequency operation. Projects will develop innovative gate drives and control ICs that mitigate dV/dt, provide prognostic and diagnostic functions for fault protection, reliability, and short circuit protection. Projects will develop modules that co-package GaN enhancement or depletion mode chips with control gate drives, protection/diagnostic control ICs, and passive circuit components, or package monolithically integrated GaN chips with control ICs and passive components. Heterogenous integration solutions that combine GaN chips with Si ICs will also be considered. Projects are also sought to develop SiC 6.5 kV and 10 kV modules with improved high voltage isolation and partial discharge tolerance. The modules must demonstrate advanced thermal management that efficiently dissipates heat to enable high-temperature operation to fully exploit the potential of SiC and GaN semiconductors. Modules that accommodate chips operating at 200 C junction temperatures and above are within the scope of these projects.

FA 1.5 Other Technical WBG Activities

Projects that fill technology gaps and contribute to lifting barriers in WBG adoption and volume manufacturing, and are not explicitly addressed in the FA 1 subtopics above will also be considered for funding. Projects can address some combination of the topics mentioned above, or completely novel approaches for advancing SiC and GaN manufacturing and use. Innovations in design tools, materials processing, manufacturing, packaging, and system integration are of interest. Projects are sought that improve supply chain resilience, reduce waste in manufacturing, improve system efficiency, and can be broadly implemented across the industry.

B. Focus Area 2: Applications and System Demonstration Projects
Industry-university and industry-national lab collaborations are particularly sought in this topic area.
Insertion of WBG chips and modules in power electronic circuits is a critical aspect of increasing efficiency and resiliency of the grid, supporting the Department of Energy's first mandate of advancing

energy addition. In particular, mass volume applications like energy generation and grid modernization, electric traction and transportation, variable frequency motor drives, and data centers can greatly benefit from WBG insertion, and achieve economies of scale that make them cost competitive with those of conventional silicon. Focus area 2 projects address WBG power electronics knowledge and technology gaps and enable power chips and modules to have a transformative impact in these volume power electronics applications.

FA 2.1 Electricity Generation and Grid Modernization

Projects are sought to develop WBG based circuits to support efficient grid operation and distributed generation at +6.5 kV voltages. The projects will integrate WBG devices into grid applications such as grid forming and following inverters, solid-state transformers (SST), medium voltage converters, solid state circuit breakers, and energy storage systems. Projects are sought to develop WBG based circuits that enable traditional, distributed, and emerging electricity generation, as well as bidirectional energy storage. The projects will also demonstrate +6.5 kV WBG packaging and reliable circuits, and address engineering challenges to fully realize the inherent benefits of WBG semiconductors in grid applications. Passive component technologies specific to WBG based grid circuits will also be developed and evaluated.

FA 2.2: Electrified Transportation, Rail, Aerospace, and Marine Converters

Projects are sought to overcome challenges of SiC and GaN technologies in the growing electrified transportation sector. Projects that develop vehicle on-board charging hardware and auxiliary equipment, DC/DC converters, traction inverters, traction-inverter and electric-machine integration, positive temperature coefficient heater modules, and vehicle power export (vehicle to grid, and vehicle to vehicle) are of interest. The projects should address the reliability and ruggedness of WBG insertion including the high dV/dt waveforms generated by the SiC and GaN devices, and their low short-circuit withstand times. The projects should improve efficiency and can implement novel topologies (including multi-level) circuit integration and packaging. Projects are also sought to develop high efficiency, reliable, and rugged WBG based electric propulsion converters for off-road vehicles, aircraft, rail traction, and marine applications.

FA 2.3: Variable Frequency Motor Drives for Consumer and Industrial Applications

Projects are sought to develop low and medium voltage WBG based motor drives for residential and industrial applications. The projects should improve energy efficiency in heating, ventilation, and air-conditioning, industrial processes using variable frequency drives, and industrial heating. The projects should demonstrate advances that lower the dV/dt induced common-mode noise, bearing currents, and radiated electromagnetic interference (EMI). The projects should also develop packaging for high power density motor drive integration with the electric motor, and demonstrate circuit reliability and ruggedness. High frequency passive and magnetic circuit components that enable efficient high-power density WBG motor drives and motor drive integration with the electric motor are also within the scope of the projects.

FA 2.4: Data Centers and Uninterruptible Power Supplies

Projects are sought to develop data center power supplies and power distribution hardware, such as UPS systems that benefit from WBG integration. The projects will demonstrate improved efficiency, reliability, ruggedness, and address packaging, EMI, and thermal concerns. Projects that demonstrate efficient operation at high frequencies of 1 MHz and above to increase power density to greater than 200W/in^3 are also being sought.

FA 2.5 Other Technical WBG Activities

Applications and system demonstration projects that fill technology gaps and contribute to lifting barriers to WBG adoption and volume manufacturing, and are not explicitly addressed in the FA 2 subtopics above will also be considered for funding. Projects can address some combination of the topics mentioned above, or completely novel approaches for advancing SiC and GaN manufacturing and use.

C. Focus Area 3: Education and Workforce Development

The mission of the Education and Workforce Development (EWD) focus area is to assist educators and trainers from academia and industry in building *career pathways* for students and professionals to enter the next WBG generation power electronics industry. The PowerAmerica community has a unique opportunity to excite young people from community college to undergraduate and graduate university levels and also working professionals about the meaningful impact that this technology will have.

The EWD focus area is open to all US community college, vocational schools, university faculty and their research teams, nonprofits, startups, as well as established businesses interested in training the workforce needed by the emerging WBG power electronics industry. The purpose of FA5 is to address gaps in workforce education to meet the rapid transition from silicon-based power electronics to WBG-based power electronics. Education and training activities will address the breadth of the supply chain, to mirror the technical activities in focus areas 1 through 4. We are not soliciting activities for high school and lower grade learners, as there are other programs elsewhere that address general STEM education needs.

FA 3.1 Research Experience for Undergraduates

The Research Experiences for Undergraduates (REU) program supports active research participation by undergraduate students in any of the areas of research funded by PowerAmerica. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program.

All proposals in FA 3.1 must include:

- A recruitment plan to recruit a cohort of undergraduates (5~7 students).
- The SOPO and the schedule for a one/two-semester/summer WBG student project.
- Metrics for measuring the success of REU program

FA 3.2 Lab Equipment Grants for Education & Research

Projects are sought for the development of undergraduate teaching labs or research facilities for graduate students that focus on WBG semiconductor device design, fabrication, characterization and testing, packaging, or demonstration of the advantages of wide bandgap power electronics in relevant applications (Grid, xEV, data centers/UPS, motors/industrial, others). Teaching labs focused on power electronics, thermal management, isolation, peripheral components (magnetics, capacitors, inductors) and system integration are also sought. Development and use of evaluation boards is encouraged.

All proposals in FA 3.2 must include:

- A schedule and plan for integrating the equipment purchase into existing courses or other immediate education activities.
- Metrics for measuring the success of this grant

FA 3.3 Community College and University Curriculum Development

Community College Training and Certificate Programs – This program aims to build the knowledge and hands-on skills that meet the needs of employers in the local region. Industry involvement or support is encouraged in order to ensure that course outcomes satisfy the current industry needs. The desired goal of this program is to create a stackable or micro-credentialing pathway. Training in the form of boot camps is encouraged. Training program must include classroom instruction and hands-on laboratory activities.

University course modules; short courses, certificate programs, specialized training - The objective of this program is to increase the knowledge about WBG technology among university students. This program aims to create WBG course modules and short courses as standalone training or as an enhancement to existing courses. Programs that award certificates in WBG technology are encouraged.

All proposals in FA 3.3 must include:

- A learning outcome model (i.e.: Bloom Taxonomy)
- A plan for student recruitment
- A schedule for deployment of the materials/training developed
- Identification of the faculty or staff member who will conduct the course/training.
- Metrics for measuring the success of the course/training.
- A plan to make the course/training material available online to reach a broader audience.

FA 3.4 Community College Technician Training Partnerships

The objective of this TTP program is to prepare fab technicians, tool operators, electronics technicians, machine operators, inspection and metrology specialists, electronic assemblers, and similar workers for the semiconductor and power electronics industries. The proposed training can take the form of semiconductor fab “boot camps,” semester-long specialized instruction, new community college courses, or apprenticeships to meet the needs of the growing WBG industry. Industry involvement or support is encouraged, to ensure that program outcomes satisfy industry needs. Enhancement of existing TTP-like

programs that broaden the scope or increase student throughput are desirable. For example, expansion of an existing Skill-Bridge Program, apprenticeship or industry specific training are encouraged.

All proposals in Task 3.4 must include:

- An industry partner or advisor
- A student recruitment strategy
- A SOPO and schedule for deployment of the training partnership.
- Metrics for measuring the success of the training

FA 3.5 Open Call for Education and Workforce Development Projects

The above projects are not an exhaustive list of PowerAmerica interests in education and workforce development. PowerAmerica will consider these and other ideas, especially if they have a significant impact on community college and university education and workforce development. Leveraging, expanding, and adding power WBG content to existing power electronics education programs will be considered. Industry support or involvement in proposed activities is considered advantageous.

IV. MEMBER INITIATED PROJECTS (up to 6 projects will be awarded)

PowerAmerica Member Initiated Projects (MIPs) are a valuable benefit of Institute membership and are funded with membership funds (no DOE funds). MIPs are pre-competitive in nature (TRL 4-6), and their outcomes should benefit members broadly. Project outputs, results, and IP will be shared with all members. MIP projects must be proposed and carried out by teams consisting of PowerAmerica members in good standing, e.g., current on member dues payments. Team collaboration between members is required, either formally with compensation or as informal advisors on the project. All concept papers must include at least one PowerAmerica university member and one industry member on the team with the aim of increasing the likelihood of commercial relevance and rapid commercialization of the project's results. Additional uncompensated team members can be added after the project begins. MIP topic areas, concept paper and proposal requirements, and evaluation criteria are the same as those of IIPs. MIPs period of performance is up to 18 months. A team can submit both an IIP and an MIP concept paper (and if encouraged full proposals), but the topics and scopes of work must differ.

In the MIP cover page, proposers must certify that they have read and understand the provisions of PowerAmerica's Bylaws that apply to MIPs, including the intellectual property, confidentiality, and publication provisions. In addition, this certification must also be made by the appropriate intellectual property authority of each organization. Any background intellectual property that may be used in the project must be identified and described in the concept paper's (and if encouraged in the full proposal's) technical section, as well as any restrictions on its use that may be encountered by PowerAmerica members in using the project's results. Since PowerAmerica members expect to have use of the designs and outcomes of the MIP submitted with the proposal, any restrictions on the use of background technology or other restrictions that may apply to the proposal or use of the results of the project must be fully disclosed. This includes but is not limited to the use of technical data and patented technology. Such restrictions can result in a lower evaluation score on the proposal or disqualification of the proposal.

The MIP anticipated funding amounts and period of performance are shown in Table 2 below. Throughout this document, dollar amounts stated are the funds that will be provided by PowerAmerica. All MIP projects require a minimum of 50% cost match. The maximum award size per project refers to the total project funding amount for all team members. Proposals with funding requests exceeding the PowerAmerica MIP limit will not be considered.

Table 2 MIP Anticipated Funding Amounts and Period of Performance

Anticipated Number of Awards	Anticipated Maximum Award Size per project (PowerAmerica Share)	Period of Performance
6	Up to $150K	up to 18 Months

V. RTES Requirements

A. Entity of Concern Prohibition

Prohibition

No Entity of Concern as defined in Section 10114 of Public Law 117-167 (42 USC 18912), may receive any grant, contract, cooperative agreement, 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 USC 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, 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 as in section 10114 of Public Law 117-167 (42 USC 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) on 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—

(i) to the national security of the United States; or

(ii) of theft or loss of United States intellectual property.

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

Requirement:

All work for the projects selected must be performed in the United States, absent a written waiver approved by DOE and prior approval by the Grants Officer. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the application. A separate waiver request must be submitted for each entity proposing performance of work outside of the United States.

Overall, a waiver request must demonstrate to the satisfaction of DOE that it would further the purposes of this application, and is otherwise in the best interest of the DOE programmatic 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 below) and is otherwise in the best interest of DOE program goals and agency priorities. A request for a foreign work waiver must include the following:

1. The rationale for performing the work outside the United States ("foreign work");
2. A description of the work proposed to be performed outside the United States;
3. An explanation as to how the foreign work is essential to the project;
4. A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the U.S. economy;
5. The associated benefits to be realized and the contribution to the project from the foreign work;
6. How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
7. How the foreign work will promote manufacturing of products and/or services in the United States;
8. A description of the likelihood of IP being created from the foreign work and the treatment of any such IP;
9. The total estimated cost (DOE and recipient cost share) of the proposed foreign work;
10. The countries in which the foreign work is proposed to be performed; and
11. The name of the entity that would perform the foreign work.

DOE may require additional information before considering the waiver request. DOE's decision concerning a waiver request is not appealable.

C. Resumes for Research and Development (R&D) Applications

A resume provides information reviewers can use to evaluate an individual's skills, experience, and potential for leadership within the scientific community. Applicants must submit a resume or biographical sketch (see description below the table) for each Principal Investigator or Lead Project Manager, Senior/Key Personnel, and all covered individuals as defined above.

Applicants must screen resumes to ensure that they do not contain PII such as personal addresses, personal landline/cell phone numbers, and personal emails.

Resumes must include the following information, at a minimum:

Resume Requirements (Research & Development Activities)	
Contact Information	Phone, email, and address
Education & Training	Provide name of institution, major/area, degree, and year for undergraduate, graduate, and postdoctoral training
Research & Professional Experience	Beginning with the current position, list professional/academic positions in chronological order with a brief description. List all current academic, professional, or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether remuneration is received, and, whether full-time, part-time, or voluntary
Awards & Honors	List any notable awards and honors received
Publications	List of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically. Patents, copyrights, and software systems developed may be provided in addition to or substituted for publications. An abbreviated style such as the Physical Review Letters (PRL) convention for citations (list only the first author) may be used for publications with more than 10 authors
Synergistic Activities	List up to five professional and scholarly activities related to the proposed effort;
Additional Criteria	There should be no lapses in time over the past 10 years or since age 18, whichever period is shorter.

As an alternative to a resume, it is acceptable to use the biographical sketch format approved by the National Science Foundation (NSF). The biographical sketch format may be generated by the Science Experts Network Curriculum Vita (SciENcv), a cooperative venture maintained at SciENcv: Science Experts Network Curriculum Vitae (nih.gov) also available at Common Form for Biographical Sketch (nsf.gov). The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats.

D. Resumes for Non-Research & Development (R&D) Applications

A resume provides information reviewers can use to evaluate an individual's relevant skills and the experience of the key project personnel. Applicants must submit a resume for each project manager, Senior/Key Personnel, and all covered individuals as defined below.. Applicants must screen resumes to ensure that they do not contain PII such as personal addresses, personal landline/cell phone numbers, and personal emails.

Resumes must include the following at a minimum:

Resume Requirements	
Contact Information	Phone, email, and address
Education	All academic institutions attended, major/area, degree
Training	Examples include certification or credential from a Registered Apprenticeship or Labor Management Partnership
Professional Experience	Beginning with the current position, list professional/academic positions in chronological order with a brief description
Current Appointments	All current academic, professional, or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether or not remuneration is received, and whether full-time, part-time, or voluntary.
Products and Activities	A list of products and activities that demonstrate the individual's qualifications to carry out the project as proposed. It is up to the individual to determine how to best organize this listing to demonstrate their ability to carry out the project.
Additional Criteria	There should be no lapses in time over the past 10 years or since age 18, whichever period is shorter.

E. Current and Pending Support

Current and pending support is intended to allow the identification of potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support. As part of the application, the Principal Investigator or Lead Project Manager and all covered individuals as defined below at the applicant and subrecipient level must submit a Current and Pending Support disclosure. Consistent with the chart below, the current and pending support disclosures and biosketch/resumes 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 OSTP-Foreign-Talent-Recruitment-Program-Guidelines.pdf must be identified in current and pending support.

Information Required for Each Activity	
Sponsor of the Activity	The sponsor of the activity or the source of funding. Identify the entity for each proposal and/or active project that is providing the support. Include all Federal, State, Tribal, territorial, local, foreign, public or private foundations, non-profit organizations, industrial or other commercial organizations, or internal funds allocated toward specific projects.
Award Number	The federal award number or any other identifying number.
Award Title	The title of the award or activity. If the title of the award or activity is not descriptive, add a brief description of the research being performed that would identify any overlaps or synergies with the proposed research
Total Cost or Value	The total cost or value of the award or activity, including direct and indirect costs and cost share. For pending proposals, provide the total amount of requested funding. For in-kind contributions, enter the US dollar value of the in-kind contribution with an estimated value of $5000 or more. If the dollar value is not readily ascertainable, a reasonable estimate should be provided. If the support is in a foreign country's currency, convert to US dollars at time of submission rounded to the nearest dollar.
Primary Place of Performance	Identify the primary location where the proposal and/or active project is being executed. Enter the City, State/Province, and Country where the organization is located. If the State/Province is not applicable, state N/A.
Award Period	The "Start Date" through "End Date".
Person-months	The person-months of effort per year dedicated to the award or activity. Enter how much time the individual anticipates is necessary to complete the scope of work on the proposal and/or active project. Enter the number of person-months (even if unsalaried) for the current budget period and enter the proposed person-months for each subsequent budget period. If the time commitment is not readily ascertainable, a reasonable estimate should be provided.
Overall Objectives	Provide a brief statement of the overall objectives of the proposal/active project.
Statement of Potential Overlap	Enter a description of the potential overlap with any pending proposal or active foreign or domestic project and this proposal in terms of scope, budget, or person-months planned or devoted to the project by the individual. If there is no potential overlap, state "none".
Digital Persistent Identifier (e.g., ORCID iD)	For R&D RFPs only, providing an ORCID iD is required.

Certification Statement	All covered individuals must provide a separate disclosure statement listing the required information above regarding current and pending support. Each individual must sign and date their respective certification statement: *I, [Full Name and Title], understand that I have been designated as a covered individual by the Federal funding agency.* *I certify to the best of my knowledge and belief that the information contained in this Current and Pending Support Disclosure Statement is true, complete, and accurate. I understand that any false, fictitious, or fraudulent information, misrepresentations, half-truths, or omissions of any material fact, may subject me to criminal, civil, or administrative penalties for fraud, false statements, false claims, or otherwise. (18 U.S.C. §§ 1001 and 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812). I further understand and agree that (1) the statements and representations made herein are material to DOE's funding decision, and (2) I have a responsibility to update the disclosures during the period of performance of the award should circumstances change which impact the responses provided above.* *I also certify that, at the time of submission, I am not a party in a malign foreign talent recruitment program**.** I further understand should I take action to involve myself with a Malign Foreign Talent Recruitment Program during the period of performance of the award, I must notify the recipient's Authorized Agent immediately, but no later than five business days of taking such action and immediately recuse myself from all DOE awards.* **The following certification is required for R&D projects:** *I further certify that within the past 12 months I have completed research security training meeting the requirements in SEC. 10634(b) of 42 USC 19234.*
Foreign Government Sponsorship	Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to either the applicant institution or DOE. Supporting documents of any identified source of support must be provided to DOE on request, including certified translations of any document.

The information may be provided in the Common Form for Current and Pending (Other) Support. Regardless of the format used, the individual must include a signature, date, and a certification statement using the language included in the table above.

Current and Pending Support Disclosures must be submitted for all covered individuals, include the exact certification statement provided above, and must be signed and dated in order to be considered.

Definitions:

Current and pending support –

A) All resources made available, or expected to be made available, to an individual in support of the individual's RD&D efforts, regardless of
   i. whether the source is foreign or domestic;
   ii. whether the resource is made available through the entity applying for an award or directly to the individual; or
   iii. whether the resource has monetary value; and
B) includes in-kind contributions requiring a commitment of time and directly supporting the individual's RD&D efforts, such as the provision of office or laboratory space, equipment, supplies, employees, or students.

This term has the same meaning as the term "Other Support" as applied to researchers in NSPM-33: For researchers, Other Support includes all resources made available to a researcher in support of and/or related to all of their professional RD&D efforts, including resources provided directly to the individual or through the organization, and regardless of whether or not they have monetary value (e.g., even if the support received is only in-kind, such as office/laboratory space, equipment, supplies, or employees). This includes resource and/or financial support from all foreign and domestic entities, including but not limited to gifts provided with terms or conditions, financial support for laboratory personnel, and participation of student and visiting researchers supported by other sources of funding.

Malign Foreign Talent Recruitment Program as defined in P.L. 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).

More information can be found at OSTP-Foreign-Talent-Recruitment-Program-Guidelines.pdf (whitehouse.gov).

F. Digital Persistent Identifier (PID)

For all Research and Development (R&D) applicants, individuals that are required to submit Biographical Sketch and/or Current and Pending (Other) Support disclosures must provide a digital persistent identifier (PID) in such disclosures as part of the application. Included PIDs must meet the common/core standards specified in an ORCID iD).

Include this information for each covered individual with the Current and Pending Support submission as described above section.

G. Research Security Training Requirement

The research security training requirement described here is required for R&D applications. 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 CFR 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.

Include this information for each covered individual with the Current and Pending Support submission as described above.

H. Transparency of Foreign Connections

Applicants must provide a transparency of foreign connections disclosure and certification as it relates to the proposed recipient and subrecipient(s). Include a separate disclosure for the applicant and each proposed subrecipient.

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.

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 are only required to respond to items with an asterisk symbol (*).
- The applicability of disclosure requirements is determined by the entity type. Regardless of whether the applicant is exempt, the subrecipient(s) must provide these disclosures unless the subrecipient is also exempt.

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

Questions: Contact rtesinfo@hq.doe.gov

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

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

Requirement
All work performed under awards issued under this application must be performed in the United States, absent a written waiver approved by DOE and prior approval by the Grants Officer. The recipient must flow down this requirement to its subrecipients.

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

Foreign Work Waiver
To seek a foreign work waiver, the applicant must submit a written waiver request to DOE. Refer to Performance of Work in the United States (Foreign Work Waiver) which lists the information that must be included in a request for a foreign work waiver.

J. Foreign Travel

If international travel is proposed for your project, **foreign travel costs are allowable only with the written approval of the Grants Officer assigned to the award prior to any incurred costs.** If your proposal is selected for negotiations, please inform the DOE project team of any planned international travel that may occur during the course of the project.

In addition to the GO approval above, a foreign work waiver is also required in the following circumstances:

- For travel to any country, submit a foreign work waiver for foreign travel conducted in connection with the scope of the project where the purpose of the travel is a not a conference, scholarly workshop, or symposium.
- If the purpose of the travel is a conference, scholarly workshop, or symposium, the applicant is only required to submit a foreign work waiver if the travel is to a foreign country of concern (China, Russia, North Korea, Iran).
- See *Performance of Work in the United States (Foreign Work Waiver)* above for details.

All planned international travel must be essential to the successful completion of a task outlined in your proposal.

All international travel must comply with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. § 40118), commonly referred to as the "Fly America Act," and implementing regulations at 41 CFR 301-10.131 through 301-10.143. The law and regulations require air transport of people or property to, from, between, or within a country other than the

United States, the cost of which is supported under this award, to be performed by or under a cost-sharing arrangement with a United States flag carrier, if service is available.

K. Due Diligence Review for Research, Technology and Economic Security

All applications submitted to DOE are subject to a due diligence review.

As DOE invests in critical infrastructure and funds critical and emerging technology areas,[1] DOE considers possible threats to United States research, technology, and economic security from undue foreign government influence when evaluating risk. 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.

All project participants, which for purposes of this term includes individuals participating in the project, are subject to RTES due diligence reviews. The due diligence review of covered individuals includes but is not limited to the review of resumes/biosketches, disclosures, and certifications, as required in the RFP. DOE reserves the right to require resumes/biosketches, disclosures, and certifications for 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.

Note this review is separate and distinct from DOE Order 142.3B "Unclassified Foreign National Access Program".

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.

L. Interim Conflict of Interest Policy for Financial Assistance

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

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)[2] is applicable to all recipients or subrecipients applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant or cooperative agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is participating in, the project funded wholly or in part under the DOE financial assistance award. The term "Investigator" means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. Recipients must flow down the requirements of the interim COI Policy to any subrecipient. Further, for DOE funded projects, the recipient must include all financial conflicts of interest (FCOI) (i.e., managed and unmanaged/unmanageable) in its initial and ongoing FCOI reports.

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

M. Participants and Collaborating Organizations

If selected for award negotiations, the selected applicant must submit a list of personnel who are proposed to work on the project, both at the recipient and subrecipient level and a list of proposed collaborating organizations prior to award. Recipients will have an ongoing responsibility to notify DOE of changes to the personnel and collaborating organizations and submit updated information during the life of the award.

N. Current and Pending Support

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. Also see the Current and Pending Support information in the Application Contents Requirements section above.

O. Prohibition Related to Malign Foreign Talent Recruitment Programs

[2] DOE's interim COI Policy can be found at https://www.energy.gov/management/department-energy-interim-conflict-interest-policy-requirements-financial-assistance.

Prohibition

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

Should an award result from this application, 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. 2000d et seq.).

Definitions

Covered Individual Definition, Designation, and Responsibility

For the purposes of this RFP, 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. Often, these individuals have doctoral or other professional degrees, although individuals at the master's or PhD level may be considered covered individuals if their involvement meets this definition. Consultants, graduate students, and those with a postdoctoral role also may be considered covered individuals if they meet this definition.

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.

The applicant is responsible for assessing the applicability of (a) above, against each person listed on the application. Further, the 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.

The applicant's submission of a current and pending support disclosure and/or biosketch/resume for a particular person serves as an acknowledgement that DOE designates that person as a covered individual.

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

Malign Foreign Talent Recruitment Program. as defined in P.L. 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.

P. Foreign Collaboration Considerations

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

For **existing** collaborations with foreign entities, organizations, and governments, the recipient will be required to provide DOE with a written list of all existing foreign collaborations in which it has entered in connection with its DOE-funded award scope.
Description of collaborations that should be reported:

- In general, a collaboration will involve some provision of a thing of value to, or from, the recipient.

- A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the DOE award, regardless of whether they have monetary value.
- Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students).
- In-kind contributions not intended for direct use on the DOE award but resulting in provision of a thing of value from or to the DOE award must also be reported.

Collaborations do not include routine workshops, conferences, use of the recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the recipient's standard policies and procedures.