Funding Opportunities

December 19, 2022

*The opportunities listed here may be limited submissions. Please contact the **Research Office** to determine if there is an active or upcoming internal process for any opportunity of interest.*

Department of Energy – National Energy Technology Laboratory

Regional Initiative to Accelerate Carbon Capture, Utilization, and Storage Deployment: Technical Assistance for Large-Scale Storage Facilities and Regional Carbon Management Hubs

Due: February 10, 2023

Summary: The overall objective of this FOA will be to accelerate the safe and socially equitable deployment of one of the nation's most promising decarbonization solutions, Carbon Capture and Storage, by establishing technical teams possessing both the expertise and experience in carbon transport and geologic storage, and also the capability to offer technical and community support services and information sharing to Carbon Capture and Storage and storage-based Carbon Dioxide Removal stakeholders. Another objective of this Funding Opportunity Announcement is to enhance geological data gathering, analysis, and sharing in areas where individual or hub scale storage facilities are likely to emerge. Two Areas of Interest are sought under this FOA:

- **Technical Assistance and Public Engagement for Geologic Carbon Dioxide Storage and Transport at Large Scale –** Assistance could be provided under any or all of the five key activities: (1) Addressing Key Technical or Non-Technical Challenges; (2) Facilitating Data Collection, Sharing, and Analysis; (3) Evaluating Regional Infrastructure; (4) Promoting Regional Technology Transfer; and (5) Public Engagement and Support, this last one being a required key activity for all applications.
- **State Geological Data Gathering, Analysis, Sharing, and Engagement –** AOI 2 will only support the work of state geologic surveys or other organizations that have similar responsibility and expertise for characterizing geologic resources at the State level. All data collected and work products developed under this AOI must be managed and controlled by a state geologic survey or analogous State-related agency

Estimated Funding/Number of Awards: DOE expects to make Federal funding available for new awards under this FOA as follows:

Area of Interest (AOI)	Estimated Federal Funding	Anticipated No. of Awards	Anticipated Individual Award Size			Maximum DOE Share per Award
			DOE Share	Cost Share	Total	
1	$12,500,000	5	$2,500,000/ 80%	$625,000/ 20%	$3,125,000	$2,500,000
2	$7,500,000	7 to 8	$1,000,000/ 80%	$250,000/ 20%	$1,250,000	$1,000,000
Total	**$20,000,000**	**12 to 13**				

Additional Information: DE-FOA-0002799

National Science Foundation

Designing Materials to Revolutionize and Engineer our Future (DMREF)

Pre-Application: January 10, 2023 | Full: March 28, 2023

Summary: DMREF seeks to foster the design, discovery, and development of materials to accelerate their path to deployment by harnessing the power of data and computational tools in concert with experiment and theory. This solicitation is open to all materials research topics. DMREF aligns with emerging technologies including artificial intelligence, quantum information science, semiconductors and microelectronics, advanced manufacturing, advanced communication technologies, and biotechnology.

Projects proposed to this solicitation must be directed by a team of at least two Senior Personnel with complementary expertise. The proposed research must involve a collaborative and iterative 'closed-loop' process wherein theory guides computational simulation, computational simulation guides experiments, and experimental observation further guides theory. The integrated research activities could involve some combination of:

- Strategies to advance fundamental knowledge related to materials design and manufacturability through testing methodology, which may include novel synthetic approaches, innovative processing, or advanced characterization techniques.
- Theory, computation/simulation, and modeling that leverage machine learning (ML), artificial intelligence (AI), data mining, or sparse approximation to predict behavior or assist in simplifying the analysis of multidimensional input data.
- Automated, high-throughput, and/or autonomous experimentation, including cyber-physical systems, that streamline and optimize the search of a materials space.

- Validation through synthesis, growth, processing, characterization, and/or device demonstration.

Estimated Funding/Number of Awards: $45,000,000 / 25 awards

Additional Information: NSF-23-530

Department of Energy – Office of Energy Efficiency and Renewable Energy, Industrial Efficiency and Decarbonization Office

(NOI) Onsite Energy Technical Assistance Partnerships

Summary: the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) announced its intent to issue a funding opportunity announcement that will establish a regional network of Technical Assistance Partnerships (TAPs) to help industrial facilities and other large energy users increase the adoption of onsite energy technologies. This upcoming funding opportunity will establish the Onsite Energy TAPs, a regional network of technical assistance providers, to help facilities across the nation integrate the latest onsite energy technologies, including battery storage, combined heat and power (CHP), district energy, geothermal, industrial heat pumps, renewable fuels, solar photovoltaics, solar thermal, thermal storage, and wind power. This specialized technical assistance can range from initial site screenings that identify onsite energy opportunities to more advanced analysis to support project installations.

It is anticipated that the FOA may include the following topic areas:

- **Topic 1: Regional Onsite Energy TAPs:** Funding up to 10 entities to serve as regional Onsite Energy TAPs, each serving a multi-state region. Each TAP will represent a multi-state region and serve as the primary technical, market, and policy point of contact for end-users and other state and local stakeholders that engage with the Onsite Energy TAP Program.

- **Topic 2: Onsite Energy Technical Analysis and Support Center (TASC):** Funding one national entity to serve as the Onsite Energy Technical Analysis and Support Center. The TASC will centrally coordinate technical analysis and programmatic activities of the Onsite Energy TAP Program. The TASC will serve as the liaison between the regional Onsite Energy TAPs, the IEDO Program Manager, and national lab experts supporting this program.

EERE plans to issue the FOA via EERE Exchange in January 2023.

Estimated Funding/Number of Awards: The funding opportunity is expected to include approximately $23 million in federal funding. EERE envisions awarding multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately one to three years.

Additional Information: DE-FOA-0002945

Department of Energy – Office of Science, Advanced Scientific Computing Research

Distributed Resilient Systems

Pre-Application: February 9, 2023 | Full: March 30, 2023

Summary: ASCR is interested in receiving proposals focusing on basic research in computer science that explores innovative approaches to creating distributed resilient systems for science. Such systems might be national or global in scale, linking geographically-distributed computing systems and scientific instruments, and might involve a large number of edge devices or sensors, but regardless, must manage computation and data in scalable and fault-tolerant manner. Important research challenges involve techniques for advanced middleware and operating and runtime systems, with this FOA targeting two research areas: 1) scalable system modeling, and 2) adaptive management and partitioning of resources. Advances in these areas will contribute to scaling-up our increasingly complex and interconnected scientific enterprise.

Pursuing innovative research directions in techniques for advanced middleware and operating and runtime systems is critical to address the unprecedented challenges in implementing future workflows. These research directions may involve, but are not limited to, coordinating work on: a) billions of threads of execution on a supercomputer; b) several geographically-separated supercomputers; c) advanced experimental systems which produce hundreds of petabytes of data each day; and/or d), billions of distributed sensors monitoring the climate or other systems of interest. Recognizing that in systems of this size and complexity sporadic failures of individual components are inevitable, scientific workflows and their supporting middleware and system software must be designed with resilience in mind.

Estimated Funding/Number of Awards: DOE anticipates that, subject to the availability of future year appropriations, up to $45 million in current and future fiscal year funds will be used to support awards under this FOA. The ceiling ($350,000/yr.) and the floor ($100,000/yr.) apply to each application. DOE anticipates making awards with a project period of five years.

Additional Information: DE-FOA-0002902

Department of Energy – Office of Science, Basic Energy Sciences

Established Program to Stimulate Competitive Research Implementation Grants
Pre-Application: January 25, 2023 | Full: April 4, 2023

Summary: The DOE Established Program to Stimulate Competitive Research (EPSCoR) announces its interest in receiving new and renewal applications from applicants within eligible jurisdictions for Implementation Grants. DOE follows the National Science Foundation's eligibility criteria for EPSCoR. Grants awarded under this program are intended to improve research capability through the support of a group of scientists and engineers, including undergraduate students, graduate students and post-doctoral fellows, working on a common scientific theme in one or more EPSCoR jurisdictions. These awards are not appropriate mechanisms to provide support for individual faculty science and technology research projects. While the academic, non-profit and industrial research communities are welcome to lead or to participate in applications, a strong component of student education in research is required for all applicants.

DOE EPSCoR is a federal-state partnership program designed to advance DOE's overarching mission by supporting early-stage research and development for a wide range of topical areas. Applications must identify the topical research area or areas with respect to the relevant DOE program office or offices and the office's specific program goals.

- **Office of Science:** Accelerator Research, Development, and Production; Advanced Scientific Computing Research; Basic Energy Sciences; Biological and Environmental Research; Fusion Energy Sciences; High Energy Physics; Isotope R&D and Production; and Nuclear Physics
- **Technology Offices:** Cybersecurity, Energy Security and Emergency Response; Electricity; Energy Efficiency and Renewable Energy; Environmental Management; Fossil Energy and Carbon Management; and Nuclear Energy

Estimated Funding/Number of Awards: DOE anticipates that a total of up to $35 million in current fiscal year funds will be used to support awards under this FOA. Ceiling: $1,500,000 per year for new awards, $2,500,000 per year for renewal awards / Floor: $1,000,000 per year for new awards, $1,500,000 per year for renewal awards. The number of awards will depend on the number of meritorious applications and the availability of appropriated funds.

Informational Webinar: January 5, 2023 | 2:00pm EST | **REGISTER**

Additional Information: **DE-FOA-0002913**

Department of Energy – Vehicle Technologies Office
(NOI) FY 2023 Vehicle Technologies Office Program Wide

Summary: This FOA will advance research, development, demonstration, and deployment (RDD&D) in several areas critical to achieving net-zero greenhouse gas (GHG) emissions by 2050, including: reduction of weight and cost of batteries, reduction in life cycle emissions of advanced lightweight materials, reduced costs and advanced technologies for both on- and off-road vehicle charging and infrastructure, innovative public transit solutions, and training to increase deployment of these technologies among diverse communities. It is anticipated that the FOA may include the following Areas of Interest:

- Area of Interest 1: High-Capacity, Long Cycle Life Lithium-Sulfur (Li-S) Batteries
- Area of Interest 2: Advanced Integrated Charging System
- Area of Interest 3: Charging Concepts for Off-Road
- Area of Interest 4: Circularity and Sustainability of Polymer Composites for Vehicle Lightweighting and Decarbonization
- Area of Interest 5: Low Cost, Low Carbon Magnesium Production
- Area of Interest 6: Novel Lightweight Materials
- Area of Interest 7: Modeling, Analyzing, and Addressing Knowledge Gaps in the Workforce Supporting Electric Vehicles and the Related Supply Chain
- Area of Interest 8: Mobility System Approaches Supporting Public Transportation
- Area of Interest 9: Reducing Soft Costs of Electric Vehicle Infrastructure to Enable Widespread Deployment
- Area of Interest 10: Addressing Critical Workforce Training Needs for Transportation Electrification
- Area of Interest 11: Consumer Education for Electric Vehicle Charging
- Area of Interest 12: Demonstration and Deployment – Open Topic

EERE plans to issue the FOA on or about February 2023 via the EERE eXCHANGE website

Additional Information: **DE-FOA-0002893**

Department of Energy – Office of Energy Efficiency and Renewable Energy, Industrial Efficiency and Decarbonization Office
Water Resource Recovery Facilities
Concept Paper: January 27, 2023 | Full: April 3, 2023

Summary: The U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) issued a $23 million funding opportunity announcement (FOA) that will drive innovation to decarbonize the entire life cycle of Water Resource Recovery Facilities (WRRFs). These facilities, which treat wastewater from public water systems, are among the country's largest industrial electricity users with full lifecycle greenhouse gas (GHG) emissions on par with direct emissions from the food and beverage industry— one of the largest GHG-emitting industries in the United States. This FOA will accelerate research, development, and demonstration (RD&D) of technologies

to lower GHG emissions from WRRFs to help decarbonize our nation's water treatment sector and move the U.S. closer to a net-zero economy by 2050.
Topic Areas:

- **Decarbonization of WRRF Unit Processes:** This topic will focus on projects to reduce GHG emissions from various unit processes within WRRFs while maintaining or decreasing operating costs. Proposed projects must achieve a 50% reduction in emissions from key processes without increasing total WRRF operating costs.
- **Reducing overall greenhouse GHG emissions from WRRFs:** This topic will focus on projects to reduce GHG emissions and treatment costs for WRRFs at larger scales and higher levels of technological readiness. Proposed projects must achieve a 25% reduction in emissions without increasing operating costs beyond baseline operations of an entire facility.

Estimated Funding/Number of Awards: EERE expects to make a total of approximately $23M of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. EERE anticipates making approximately 4-5 awards under this FOA. Individual awards may vary between $2M and $4M.

Additional Information: **DE-FOA-0002855**