



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Informational Webinar

Advanced Scientific Computing Research – Reaching a New Energy Sciences Workforce

FOA Issue Date:	January 9, 2023
Submission Deadline for Pre-Applications:	February 21, 2023, at 5PM Eastern Time
Letter of Intent Response Date:	March 14, 2023, at 5PM Eastern Time
Submission Deadline for Applications:	April 18, 2023, at 11:59 PM Eastern Time

This presentation summarizes the contents of the FOA; if there are inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document.

Office of Science at a Glance

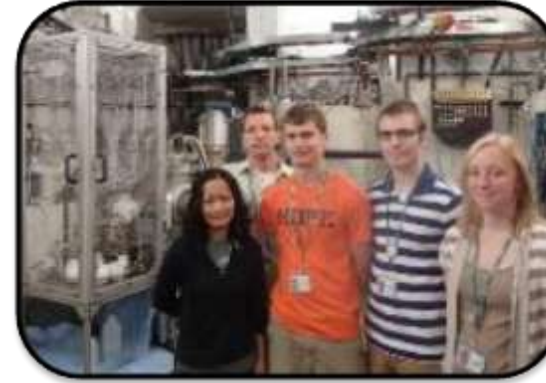
FY 2023 Request: \$7.799B



Largest Supporter of Physical Sciences in the U.S.



Funding at >300 Institutions, including 17 DOE Labs



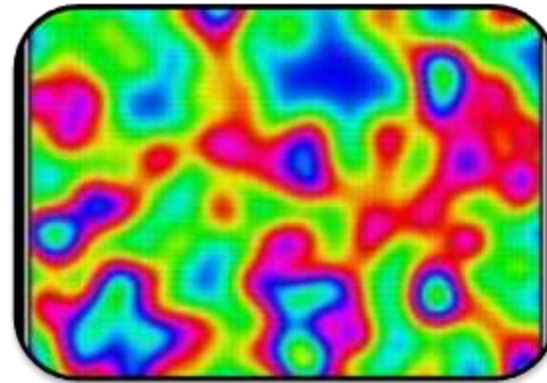
Nearly 29,000 Researchers Supported



Nearly 34,000 Users of 28 SC Scientific Facilities



~35% of Research to Universities



Research: 42.8%, \$3.334B



Facility Operations: 34.5%, \$2.689B



Projects/Other: 22.7%, \$1.776B

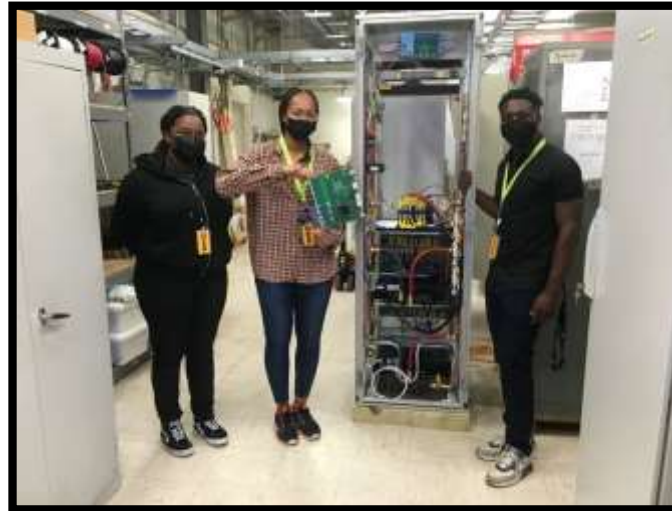
Reaching a New Energy Sciences Workforce (RENEW)

FY 2022 Awards: \$32M across 6 Programs; 7 FY 2023 FOAs totaling \$56M

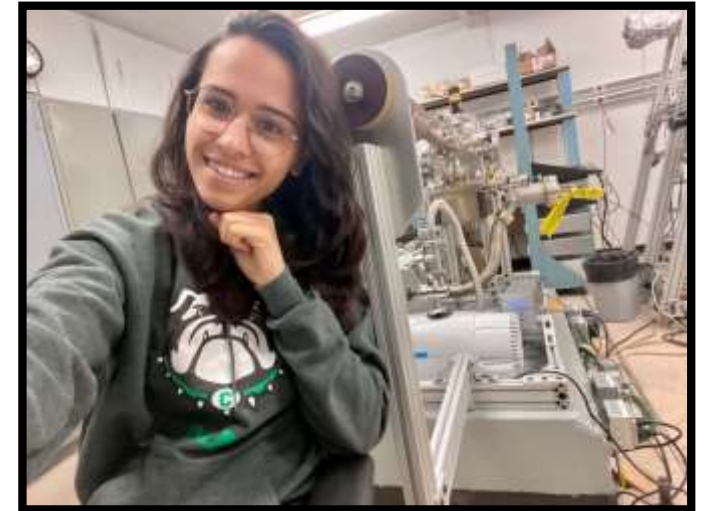
Building foundations through undergraduate and graduate training opportunities for students and institutions historically underrepresented in the SC research portfolio



- SC conducted outreach and listening sessions in FY21-22 on barriers to participation in SC opportunities to inform FY 2022 FOAs



- FY 2022 FOAs are piloting models of support that directly address barriers to participation in SC supported fields of research; Models will be evaluated



- FY 2023 doubles investment and commitment to advance discovery and innovation by increasing the diversity of individuals and institutions supported

<https://science.osti.gov/initiatives/RENEW>

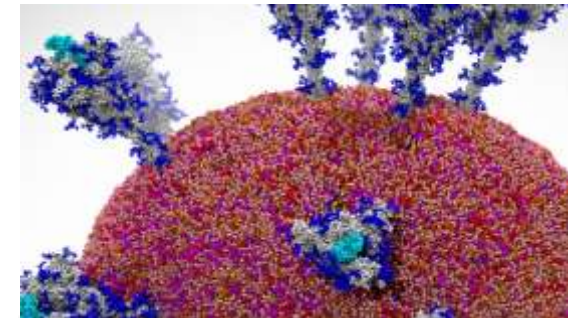
Office (FOA linked)	Total Funding	Award Size and Duration	Eligibility (Lead/Partner)	Deadlines
Advanced Scientific Computing Research	\$10M	\$50K - \$1M per institution per year; \$2M total per year for multi-institution teams; 3-year awards	Lead: All institutions, including DOE National Labs Partner: All institutions, including DOE National Labs Pre-Applications: Limited to 3 per institution	Pre-Application: February 21 Pre-Application Response: March 14 Application: April 18
Basic Energy Sciences	\$10M	\$500K - \$750K per year; 3-year awards	Lead: non-R1 MSI Coordinating Partner: 1 DOE National Lab or 1 R1 MSI Other Partners (optional): non-R1 MSIs Pre-Applications: Limited to 1 per PI; 3 per institution	Pre-Application: February 21 Pre-Application Response: March 24 Application: May 2
Biological and Environmental Research	\$6M	Up to \$800K total award; 3-year awards	Lead: non-R1 MSI Coordinating Partner: BRC and/or DOE National Lab Other Partners (optional): additional BRC and/or DOE National Lab Pre-Applications: Limited to 1 per PI; 3 per institution	Pre-Application: February 21 Pre-Application Response: March 8 Application: April 25
Fusion Energy Sciences	\$6M	\$200K - \$500K per year; 3-year awards	Lead: non-R1 or MSI Partner: all institutions, including DOE National Labs Pre-Applications: Limited 1 per PI, no institutional limit	Pre-Application: February 20 Pre-Application Response: February 27 Application: April 10
High Energy Physics	\$8M	\$50K - \$500K per year; 3-year awards	Lead: All institutions, including DOE National Labs Partner: DOE National Lab, SC User Facility, R1, MSI or HBCU Pre-Applications: Limited 1 per PI; 3 per institution	Letter of Intent: February 21 Application: March 31
Nuclear Physics	\$6M	\$10K - \$500K per year; 2-5 year awards	Lead: All institutions, including DOE National Labs Partner: All institutions, including DOE National Labs Pre-Applications: Unlimited	Pre-Application: February 20 Pre-Application Response: March 6 Application: April 17
Isotope R&D and Production	\$10M	\$100K-\$500K for MSI & single partner per year; \$100K-\$1M for MSI & multiple partners per year; 5-year awards	Lead: MSI Partner: DOE IP production facility (required subaward). Other Partner (optional): DOE National Lab, SC User Facility, R1, R1 MSI, non-R1 MSI also possible. Pre-Applications: Unlimited	Pre-Application: February 21 Pre-Application Response: February 22 Application: March 31

Advanced Scientific Computing Research (ASCR)

- ▶ ASCR research lays the groundwork for scientific discoveries
 - ▶ **Applied Mathematics and Computer Science foundations** to advance the understanding of natural and engineered systems and to reveal scientific insight from high end simulations, models, and data.
 - ▶ **Advanced Computing** to prepare for the future of science based on emerging advanced computing technologies and microelectronics.
- ▶ ASCR facilities drive American global leadership in computing, data and networking
 - ▶ As we deploy the world's first **exascale supercomputers** and the Nation's most **advanced scientific network**, we continue to build a more integrated and open national research infrastructure for all.
- ▶ ASCR's investments and strategic partnerships enable scientific breakthroughs and advance America's economic competitiveness
 - ▶ ASCR's world-leading programs in **interdisciplinary research** enable scientific applications take full advantage of computing and networking capabilities that push the frontiers.
 - ▶ Unique models of partnerships accelerate the competitiveness of **American computing technologies, advanced manufacturing, and high-tech companies** - large and small.
- ▶ ASCR invests in people
 - ▶ **Computational Science Graduate Fellowship** – producing computational leaders since 1991.



Quantum Testbeds



Gordon Bell Prize researchers leverage modeling and AI to understand COVID mutations

ASCR FY 2023 RENEW Scope

The goal of ASCR's RENEW program is to increase participation of underrepresented groups in the advanced scientific computing workforce and to increase participation of underrepresented institutions in advanced scientific computing workforce training.

- ▶ ASCR RENEW applications must be responsive to one of the specific topic areas below:
 - ▶ **Applied Mathematics:** Applications are sought to leverage existing expertise at DOE laboratories and/or other partner institutions to provide hands-on programming, data organization and cleaning, data visualization, and data science experiences to students and postdoctoral researchers from underrepresented groups and institutions.
 - ▶ **Computer Science:** Applications are sought to leverage existing expertise at DOE laboratories and/or other partner institutions to augment learning opportunities for students in computer science for AI and high-performance and scientific computing.
 - ▶ **Advanced Computing Technologies:** Applications are sought to leverage existing expertise at DOE laboratories and/or other partner institutions to augment learning opportunities for students and (optionally) postdoctoral researchers in quantum computing and networking.

ASCR RENEW: Eligibility and Teaming

- ▶ **A wide range of institutions are eligible to participate** (see FOA Section III)
- ▶ **However, programmatically:**
 - ▶ The focus is on members of underrepresented groups (PIs and students) and institutions underrepresented in ASCR's portfolio (including MSIs and non-R1)
 - ▶ National labs and/or other appropriate institutions partner to share expertise and infrastructure
- ▶ **Multi-institutional teams:**
 - ▶ Must submit a collaborative application
 - ▶ The lead institution is expected to either:
 - ▶ Perform a greater portion of the scientific and technical work than any other team member, or
 - ▶ Have a coordinating role in a multi-institution collaboration in which the majority of funding goes to partner institutions

ASCR RENEW: Budget and Allowable Costs

The following list of potential budget items is provided as suggestions of costs that may be relevant to the RENEW initiative rather than an exhaustive or exclusive list of allowable costs.

- ▶ “Buying out” faculty time dedicated to teaching or administrative responsibilities;
- ▶ Support for administrative personnel dedicated to the proposed activity;
- ▶ Support for professional development, training, mentoring of students and junior researchers;
- ▶ Travel to meet with potential collaborators at other institutions and relevant DOE/NNSA national laboratories; or to attend one or more science team, user facility, scientific conference, workshop, or professional society meetings relevant to the proposed research; or for the conduct of off-site research;
- ▶ Fringe benefits, which must be paid in accordance with an institution’s negotiated rates agreement, institutional policies, and the individual’s appointment;
- ▶ Temporary dependent-care costs incurred during travel;
- ▶ Stipends and benefits for students and post-doctoral researchers, recognizing their dual nature as both trainees and employees;
- ▶ Salary support to cover time to participate in outreach for recruitment and training events, science team meetings, partnership development, or information gathering; and
- ▶ Other direct costs, e.g., materials and supplies such as office supplies, desktop or laptop computers, and/or software licenses that are directly necessary to enable the proposed activities.

All requested costs must also conform to institutional policies; all requested costs must be directly related to the proposed work.

ASCR RENEW: Award Information

▶ **Estimated funding**

- ▶ \$10 million in current fiscal year funds

▶ **Period of performance**

- ▶ 3 years

▶ **Award size**

- ▶ A multi-institutional team is limited to a request of no more than \$2,000,000 per year.
- ▶ Ceiling: \$1,000,000 per institution per year
- ▶ Floor: \$50,000 per institution per year

▶ **Expected number of awards and award size:**

- ▶ The exact number of awards will depend on the number of meritorious applications and the availability of appropriated funds.

ASCR RENEW: Pre-application Requirement

- ▶ **Applicant institutions are limited to no more than *three* preapplications**
- ▶ **Pre-applications are required and will be reviewed for responsiveness**
 - ▶ Pre-applications may also be reviewed for competitiveness
- ▶ **Only the lead institution in a multi-institutional team should submit a pre-application**
- ▶ **Pre-application components:**
 - ▶ Cover page
 - ▶ Estimated budget table
 - ▶ Two-page project description, including figures and references
 - ▶ Machine-readable pdf listing individuals who should not be merit reviewers (see Section VIII of FOA)

ASCR RENEW: Merit Review

- ▶ Applications will be subjected to scientific merit review (peer review) and will be evaluated against the following five criteria in equal order of importance:
- Scientific and/or Technical Merit of the Project;
 - Appropriateness of the Proposed Method or Approach;
 - Quality and Efficacy of the Promoting Inclusion and Equitable Research Plan;
 - Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
 - Reasonableness and Appropriateness of the Proposed Budget.

ASCR RENEW: Program Policy Factors

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

- Availability of funds
- Relevance of the proposed activity to SC priorities
- Relevance of the proposed activity to ASCR priorities
- Ensuring an appropriate balance of activities within SC programs
- Performance under current awards
- Institutional history of training and mentoring early-career researchers
- Providing placement for postdoctoral researchers
- Training graduate students in conduct of basic research
- Presence of tenure-track or tenure-equivalent investigators
- Training the next generation of researchers
- Providing career pathways for the next generation of researchers
- Ensuring opportunities to investigators not currently supported by DOE
- Participation with multi-institutional teams in accordance with program priorities identified and incorporated in Section I of this FOA
- Promoting the diversity of supported investigators
- Promoting the diversity of institutions receiving awards
- Increasing participation of institutions historically underrepresented in the SC research portfolio
- Promoting principal investigators with a commitment to improving diversity, equity, and inclusion in the STEM community

ASCR RENEW: Key Dates

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ASCR RENEW: Where to find more information

- ▶ FOA: <https://science.osti.gov/ascr/Funding-Opportunities>
- ▶ Technical questions about FOA: Claire.cramer@science.doe.gov
- ▶ Answers to common questions: <https://science.osti.gov/grants/Applicant-and-Awardee-Resources/>
- ▶ ASCR Workshop Reports: <https://science.osti.gov/ascr/Community-Resources/Program-Documents>