



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Informational Webinar

Reaching a New Energy Sciences Workforce (RENEW) – Earth and Environmental Systems Funding Opportunity Announcement (FOA) DE-FOA-0002757 (Amendment 000001)

Pre-Application Deadline: June 29, 2022, at 5:00pm ET

Full Application Deadline: August 24, 2022, at 11:59pm ET

*Brian Bencoter and Shaima Nasiri
Biological and Environmental Research (BER)
June 13, 2022*

Disclaimer: This presentation summarizes the contents of the FOA. Nothing in the webinar is intended to add to, take away from, or contradict any of the requirements in the FOA. If there are inconsistencies between the FOA and this presentation or statements from DOE personnel, the FOA is the controlling document.

RENEW Webinar Speakers & Agenda

- Welcome and Introduction
 - ▶ Dr. Geraldine Richmond, Under Secretary for Science and Innovation
- Overview of RENEW and BER
 - ▶ Brian Bencoter and Sharlene Weatherwax
- BER Earth and Environmental Systems Sciences Division (EESSD)
 - ▶ Gary Geernaert and Shaima Nasiri
- BER RENEW FOA Introduction
 - ▶ Brian Bencoter
- Application Requirements and Reminders
 - ▶ Brian Bencoter
- Q&A
- Where to Find More Information and Additional Resources

Questions During the Webinar

Please submit questions using the Zoom Q&A feature. It should be accessible at the bottom of your Zoom window.

Welcome and Introduction

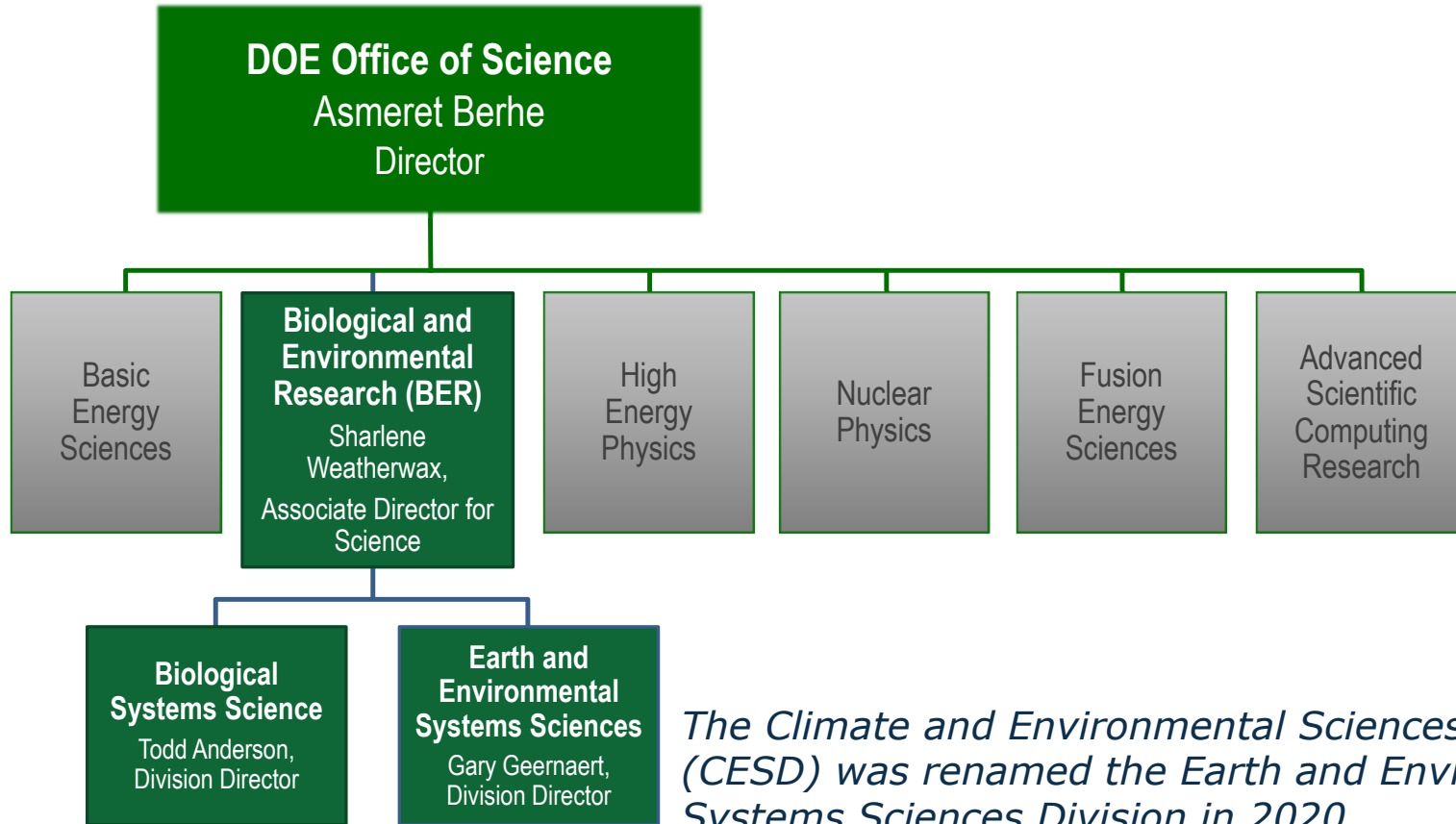
Dr. Geraldine Richmond

U.S. DOE Under Secretary for Science and Innovation

DOE Office of Science (SC) RENEW Initiative

- ▶ RENEW aims to build foundations for SC research and training at institutions and for student populations historically underrepresented in the U.S. science and technology (S&T) ecosystem
- ▶ RENEW leverages SC's unique national laboratories, user facilities, and other research infrastructures
- ▶ Open new career avenues for the participants, forming a nucleus for a future pool of talented young scientists, engineers, and technicians with the critical skills and expertise needed for the full breadth of SC research activities
- ▶ SC-wide initiative, with FOAs from six SC Programs
 - ▶ <https://science.osti.gov/Initiatives/RENEW>

Office of Science Programs



The Climate and Environmental Sciences Division (CESD) was renamed the Earth and Environmental Systems Sciences Division in 2020

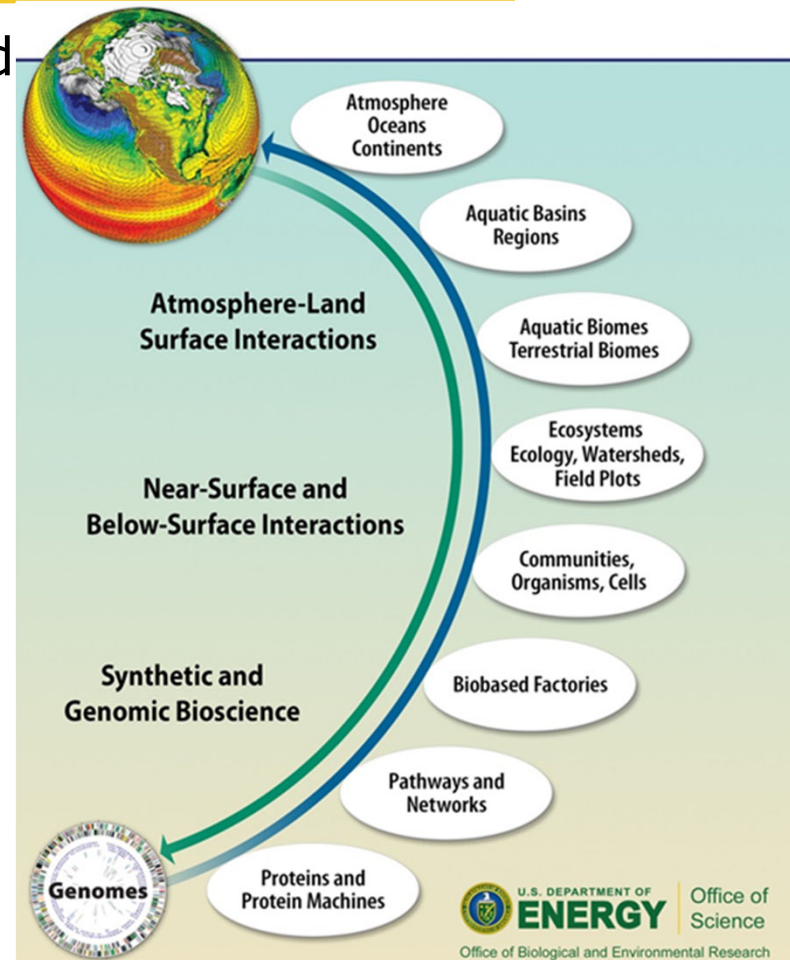
Biological and Environmental Research (BER)

Understanding complex biological, Earth, and environmental systems

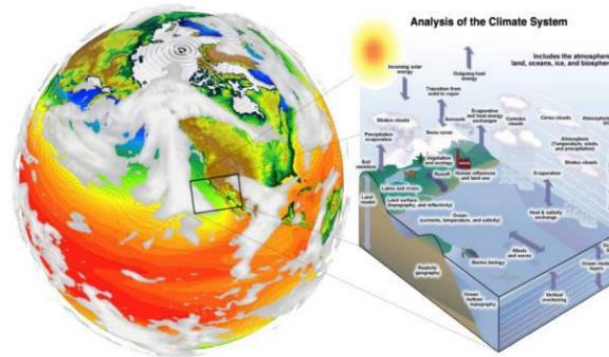
Explore frontiers of genome-enabled biology

Understand physical and biogeochemical Earth system processes

Enable innovation and discovery through user facilities



BER's Earth and Environmental Systems Sciences Division (EESSD)



Atmospheric Science

- Atmospheric Science
- Atmospheric Radiation Measurement (ARM) facility

Earth and Environmental Systems Modeling

- Climate and Earth System Modeling
- Climate resilience

Environmental System Science

- Ecosystem and Watershed Sciences
- Environmental Molecular Sciences Laboratory (EMSL)

Data Management for Earth and Environmental Sciences

Earth and Environmental Systems Science Division



Gary Geernaert
Division Director



Paul Bayer
EMSL User
Facility



Jennifer Arrigo



Brian Benscoter

Environmental System



Dan Stover

Science



Mike Kuperberg
USGRCP



Aaron Grade



Olga Tweedy

AAAS Fellows



Justin Hnilo
Data
Management



Andrew Flatness
Program
Specialist



Sally McFarlane
ARM User Facility



Shaima Nasiri

Atmospheric System
Research



Jeff Stehr



Xujing Davis



Renu Joseph



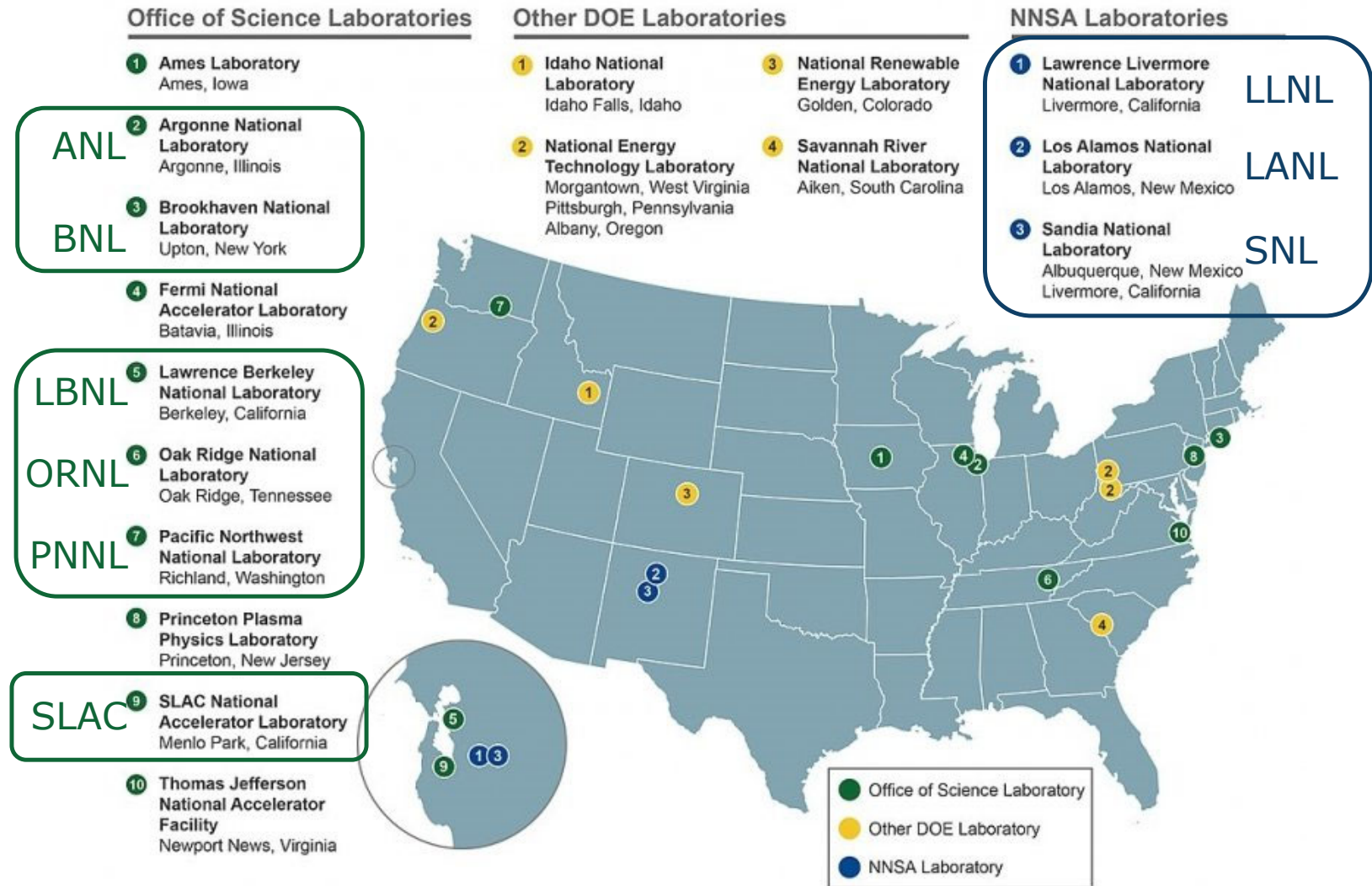
Bob Vallario

Earth and Environmental Systems Modeling

EESSD Science Focus Areas (SFAs)

- ▶ BER's SFA approach challenges the National Laboratories to build and sustain integrative team-oriented research programs to meet BER strategic goals based on their unique scientific capabilities and administrative resources.
- ▶ The intent is to take advantage of the National Laboratories' distinctive strengths to conduct collaborative, coordinated and sustained research programs.
- ▶ This approach recognizes that the National Laboratories are structured for conducting coordinated, team-oriented research in a manner that is distinct from, but complementary to, research conducted through academic institutions or the private sector.

DOE National Labs with EESSD SFAs



EESD SFA Research – ASR & EESM

Atmospheric System Research (ASR)

- Integrated Cloud, Land-Surface, and Aerosol System Study (ICLASS) – PNNL
- Process-level AdvancementS of Climate through Cloud and Aerosol Lifecycle Studies (PASCCALS) – BNL and ANL

Earth and Environmental Systems Modeling (EESM)

- Global Change Intersectorial Modeling (GCIMS) – PNNL
- Integrated Multisector Multiscale Modeling (IM3) – PNNL
- Reducing Uncertainty in Biogeochemical Interactions through Synthesis and Computation (RUBISCO) – ORNL and LBNL
- Calibrated and Systematic Characterization, Attribution, and Detection of Extremes (CASCADE) – LBNL
- High-Latitude Application and Testing of Earth System Models (HiLAT-RASM) – LANL and PNNL
- Water Cycle and Climate Extremes Modeling (WACCEM) – PNNL
- Energy Exascale Earth System Model (E3SM) – LLNL, PNNL, LANL, LBNL, ORNL, ANL, SNL, BNL

https://science.osti.gov/-/media/ber/pdf/Funding/EESD_Funded_SFAs

EESD SFA Research - ESS

Environmental System Sciences (ESS)

- *Soil Carbon Response to Environmental Change – ANL*
- *Wetland Hydro-Biogeochemistry – ANL*
- *Belowground Biogeochemistry – LBNL*
- *Watershed Function – LBNL*
- *Biogeochemistry at Interfaces – LLNL*
- *Critical Interfaces Biogeochemistry – ORNL*
- *Terrestrial Ecosystem Science (SPRUCE) – ORNL*
- *River Corridor – PNNL*
- *Floodplain Hydro-Biogeochemistry - SLAC*

https://science.osti.gov/-/media/ber/pdf/Funding/EESD_Funded_SFAs

EESSD User Facilities and Resources

The logo for the Atmospheric Radiation Measurement (ARM) facility, featuring the letters "ARM" in a bold, blue, sans-serif font with a light blue curved line underneath.

<https://arm.gov/>

DOE Scientific User Facilities Provide researchers with the most advanced tools of modern science, including accelerators, colliders, supercomputers, light and neutron sources, as well as facilities for studying the nano world, the environment, and the atmosphere.

EESSD supports two world class scientific user facilities:

- **Atmospheric Radiation Measurement (ARM)**
- **Environmental Molecular Sciences Laboratory (EMSL)**

Free access to instruments and analysis via annual/regular user proposals.

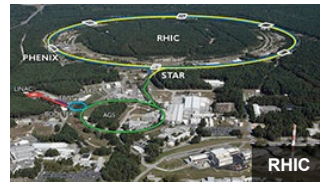
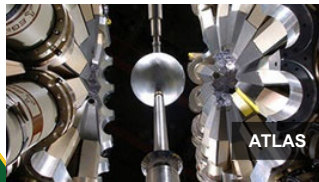
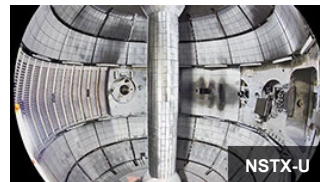
All ARM data is freely available

The logo for the Environmental Molecular Sciences Laboratory (EMSL), featuring the letters "EMSL" in a green, sans-serif font with an orange molecular structure icon to the right.

<https://www.emsl.pnnl.gov/>

DOE SC Scientific User Facilities

FY 2021
28 scientific
 user facilities
33,500+ users



<https://science.osti.gov/User-Facilities>

BER Earth and Environmental Sciences Outreach

Training and outreach events planned for September 2022 – August 2023 to help institutions better understand DOE's investments and opportunities in Earth and environmental sciences fundamental research.

- ▶ Presentations from EESSD research program areas
- ▶ Introductions to National Labs and User Facilities
- ▶ Open eligibility to participate



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RENEW-Earth and Environmental Systems FOA

DE-FOA-0002757 (Amendment 000001)

*Amendment 000001 issued on 6/3/2022 to provide greater context about
the RENEW initiative in Section I, page 1.*

RENEW-Earth and Environmental Systems FOA Scientific Scope (See Section I of the FOA)

- ▶ BER has a goal to broaden and diversify institutional representation in the EESSD portfolio
- ▶ Barriers to engagement in EESSD climate and environmental science research and student training can be surmounted by fostering partnerships and collaborations with BER-supported research at the DOE national laboratories
- ▶ This FOA will provide support for experiential training and mentorship for institutions to:
 - 1) Develop new partnerships with the BER-supported EESSD SFAs at the DOE national laboratories, to enable sustained undergraduate and graduate student participation in EESSD-relevant research;
 - 2) Facilitate undergraduate and graduate student participation in EESSD research programmatic and user facility outreach and training activities; and
 - 3) Foster the development of climate and environmental science training capacity and research at under-represented institutions.

Experiential Training through SFA Collaboration

- ▶ Applications should cite specific interest in developing experiential training, student mentoring, and institutional capabilities through research-focused collaborations with existing EESSD-SFA research projects at DOE national laboratories.
 - ▶ Collaboration with one or more SFAs is required of all applications
 - ▶ Additional collaborations with User Facilities or other EESSD activities is allowed
- ▶ Intent is to foster sustained, mutually beneficial training programs and partnerships between the institution and long-term EESSD research activities
- ▶ Applications should describe the opportunities for experiential training of students associated with PI-led research activities that integrate with and/or leverage the SFA, as well as the institution's specific proposed role through the SFA collaboration.

Applying to the BER RENEW Solicitation

- ▶ Program Managers:
 - ▶ Brian Bencoter, Brian.Bencoter@science.doe.gov
 - ▶ Shaima Nasiri, Shaima.Nasiri@science.doe.gov
- ▶ Pre-Application Deadline: Wed. June 29, 2022, at 5pm ET
 - ▶ **Pre-applications are required**
 - ▶ Pre-applications submitted through PAMS (by PI or SRO)
 - ▶ Encourage/Discourage Response: Tues. July 12, 2022, by 5pm ET via PAMS
 - ▶ Decision of 'Encourage' required to be eligible for full application submission
- ▶ Full Application Deadline: Wed. Aug 24, 2022, at 11:59pm ET
 - ▶ Submitted through Grants.gov (by SRO)
 - ▶ Limit of two (2) applications per institution
- ▶ Merit Review Criteria will be used to evaluate applications
- ▶ Program Policy Factors will be used to prioritize funding recommendations
- ▶ DOE anticipates that award selection will be completed by October 2022 and that awards will be made in November 2022.

Award Information

- ▶ Estimated funding: total of \$3 million in FY22 funds anticipated. Subject to the availability of funds and number of meritorious applications received, additional selections may be made in a future fiscal year.
- ▶ Period of performance: 4 years
- ▶ Minimum/maximum award size: \$300,000 to \$800,000
- ▶ Number of awards: approximately 4-7 awards are anticipated
- ▶ Types of award instruments: Grants
- ▶ Multi-institutional teams may only be comprised of one lead applicant with an unlimited number of DOE/National Nuclear Security Administration (NNSA) National Laboratories proposed as team members.
 - ▶ Collaboration between the applicant institution and at least one EESSD SFA **is required**
 - ▶ Funds can be requested for National Lab investigators up to 10% of the total award budget

Eligibility

- ▶ Eligible Applicants: All types of domestic applicants are eligible to apply (see Sec. III of the FOA)
 - ▶ DOE/NNSA National Labs are not eligible to submit applications, but may be proposed as subrecipients under another organization's application.
 - ▶ Non-DOE/NNSA FFRDCs, and other Federal agencies are neither eligible to submit applications nor be proposed as subrecipients.

- ▶ BER will prioritize applications from lead institutions that have a history of training and mentoring students from populations that are under-represented in climate and environmental sciences, such as those served by HBCUs and MSIs.

Expectations and Requirements for Applications

- ▶ BER RENEW is focused on experiential training of students through collaborations with SFA research
- ▶ Training activities should:
 - ▶ Complement and enhance traditional classroom learning
 - ▶ Develop skills across the full range of the scientific process
 - ▶ Sustain training and mentorship both at the home institution and through the SFA collaboration
 - ▶ Make considerations for barriers to student participation (e.g., travel constraints, other obligations, financial considerations, etc.)
- ▶ Training activities should not:
 - ▶ Be limited to an assistant/routine task role
 - ▶ Be limited to an intensive but short duration exercise (e.g., 2 weeks at a research site)
- ▶ Applications should describe a mutually beneficial partnership between the institution and SFA, with meaningful engagement of all partners in mentorship, training, and research activities
 - ▶ Address potential barriers and paths to overcoming them
 - ▶ Provide foundation for collaboration beyond the duration of the award
 - ▶ BER will consider the scientific merit of the proposed activities, potential for future engagement with EESSD research and activities, and potential benefit of the RENEW award to the applicant

Evaluation and Assessment

- ▶ Evaluation of the impacts of RENEW on project participants will be conducted through a centralized SC effort
 - ▶ Administered through the Oak Ridge Institute for Science and Education
 - ▶ Awardees required to provide information about the content of training opportunities/curricula provided to students and the career paths taken by these participants.
 - ▶ Information requested no more than annually for up to 10 years post-award
- ▶ Program Assessment Plan (Appendix 8)
 - ▶ Plan for institutional assessment of project objectives and outcomes
 - ▶ Max. page limit of 3 pages, submitted as Appendix 8 (does not count toward narrative page limit)

Plan for Recruitment and Inclusion (Appendix 9)

- ▶ Plans for recruitment and retention of students, including individuals from diverse backgrounds and under-represented groups in EESSD research
 - ▶ Describe plan to foster a positive, inclusive, and professional training and research environment
 - ▶ Describe plan to address barriers to participation
- ▶ Max. page limit of 3 pages, submitted as Appendix 9 (does not count toward narrative page limit)

Helpful Reminders for a Successful Application

REGISTER IN ALL SYSTEMS AS SOON AS POSSIBLE:

▶ www.grants.gov

Support: 800-518-4726 or support@grants.gov

▶ www.sam.gov

Support: 866-606-8220

▶ www.fedconnect.net

Support: 800-899-6665

▶ DOE SC Portfolio Analysis and Management System (PAMS) -
<https://pamspublic.science.energy.gov>

Support: 855-818-1846 or sc.pams-helpdesk@science.doe.gov

▶ Any Other Applicable Systems

Helpful Reminders for a Successful Application

- ▶ Carefully review the 'Updates and Reminders' and 'Checklist for Avoiding Common Errors' sections at the beginning of the solicitation
- ▶ Provide budget sheets and budget justifications for the applicant institution and all National Lab collaborators requesting funding
 - ▶ National Lab budget request are limited to a max. of 10% of the total application budget
- ▶ Be sure to use the current standardized forms for the PI biosketches, current and pending awards, and know conflicts of interest documents (links provided in FOA)
- ▶ Be sure to include a Data Management Plan (DMP) for all applications, even if no experimental data is expected
 - ▶ SC Statement on Digital Data Management: <https://science.osti.gov/funding-opportunities/digital-data-management>

Helpful Reminders for Budget Preparation

- ▶ Provide a justification that explains all costs proposed in the budget
 - ▶ Budget sheets and budget justification must be consistent
- ▶ Capital Equipment (individual items $> \$5000$)– up to total of \$15,000 allowed
 - ▶ Material & Supplies are items with individual costs $< \$5000$, even if the total for multiple items is $> \$5000$
- ▶ Fringe/Indirect Rates must include the indirect cost rate agreement as part of the budget justification
- ▶ Travel - Include purpose, destination, dates of travel (if known) and number of individuals for each trip. If the dates of travel are not known, specify estimated length of trip (e.g., 3 days).

Questions & Answers

Please submit questions using the Zoom Q&A feature. It should be accessible at the bottom of your Zoom window.

If your question is not answered today, or if you have additional questions:

Questions about the topic → Program Manager(s)

Brian.Benscoter@science.doe.gov or Shaima.Nasiri@science.doe.gov

Questions about submitting application → [FedConnect.net](https://www.fedconnect.net)

Where to find more information

Biological and Environmental Research (BER)

<https://science.osti.gov/ber>

Earth and Environmental Systems Sciences Division (EESD)

<https://science.osti.gov/ber/Research/eessd>

Atmospheric System Research (ASR)

<https://science.osti.gov/ber/Research/eessd/Atmospheric-System-Research-Program>

Environmental System Science (ESS)

<https://science.osti.gov/ber/Research/eessd/ess>

Earth and Environmental System Modeling (EESM)

<https://science.osti.gov/ber/Research/eessd/Earth-and-Environmental-System-Modeling>

Data Management

<https://science.osti.gov/ber/Research/eessd/Data-Management>

Atmospheric Radiation Measurement (ARM) user facility

<https://science.osti.gov/ber/Research/eessd/ARM-Research-Facility>

Environmental Molecular Sciences Laboratory (EMSL)

<https://science.osti.gov/ber/Research/eessd/Environmental-Molecular-Sciences-Laboratory>

BER Funding Opportunities

<https://science.osti.gov/ber/Funding-Opportunities>

Office of Economic Impact and Diversity

<https://www.energy.gov/diversity/office-economic-impact-and-diversity>

BER EESD SFA list

https://science.osti.gov/-/media/ber/pdf/Funding/EESD_Funded_SFAs

SC RENEW Initiative

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

Additional resources

- ▶ DOE Office of Science Workforce Development for Teachers and Scientists (WDTS) <https://science.osti.gov/wdts>
- ▶ Internship programs for undergraduate students
- ▶ Office of Science Graduate Student Research (SCGSR) Program
- ▶ Visiting faculty programs
- ▶ Outreach and STEM resources



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