U.S. DEPARTMENT OF ENERGY | Office of Science

Informational Webinar

Biological and Environmental Research (BER) - Reaching a New Energy Sciences Workforce (RENEW) Funding Opportunity Announcement (FOA)

DE-FOA-0002929

Pre-Application Deadline: February 21, 2023, at 5:00pm ET

Full Application Deadline: April 25, 2023, at 11:59pm ET

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Brian Benscoter and Shaima Nasiri, EESSD
Biological and Environmental Research (BER)
January 26, 2023

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 of BER Program Managers
  - Gary Geernaert
- Overview of RENEW and BER
  - Brian Benscoter
- Earth and Environmental Systems Sciences Division (EESSD)
  - Brian Benscoter
- Biological Systems Science Division (BSSD)
  - Dawn Adin
- BER Research and User Facilities
  - Dawn Adin
- BER RENEW FOA Introduction
  - Shaima Nasiri
- Application Requirements and Reminders
  - Shing Kwok
- Q&A

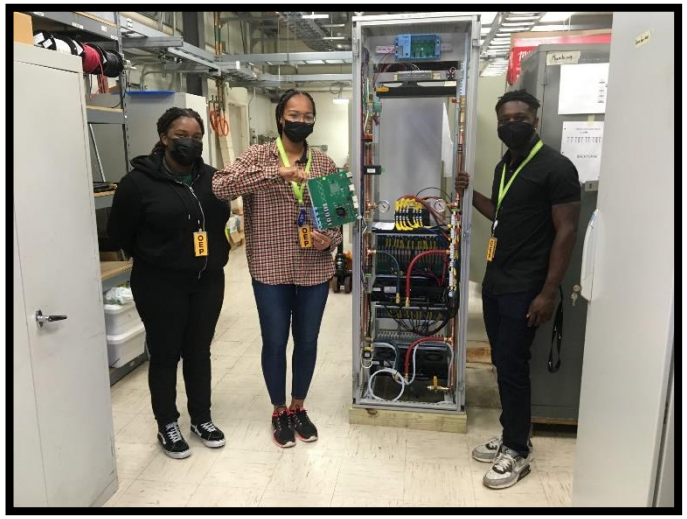
Please submit questions using the Zoom Q&A feature. It should be accessible at the bottom of your Zoom window.

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

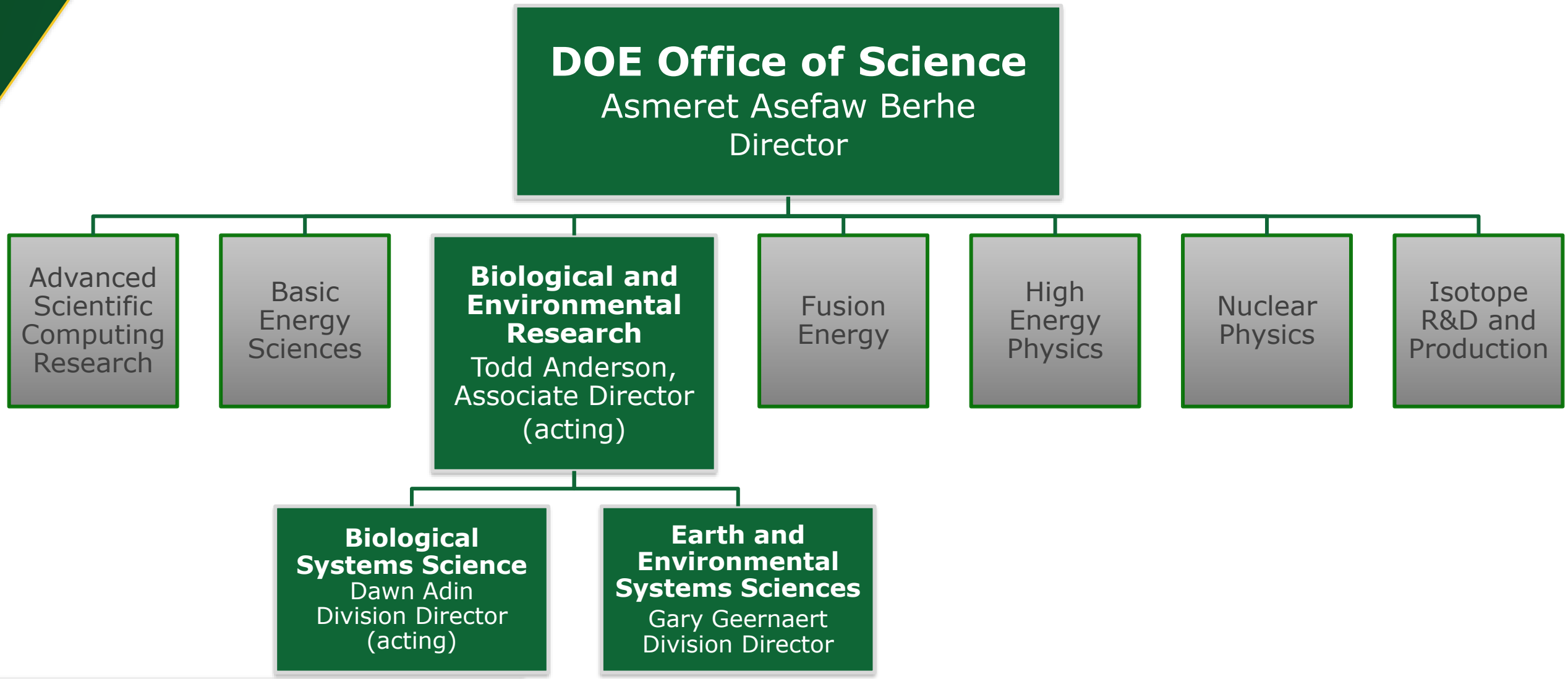


- FY 2022 FOAs are piloting models of support that directly address barriers to participation in SC supported fields of research; Models will be evaluated

- 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

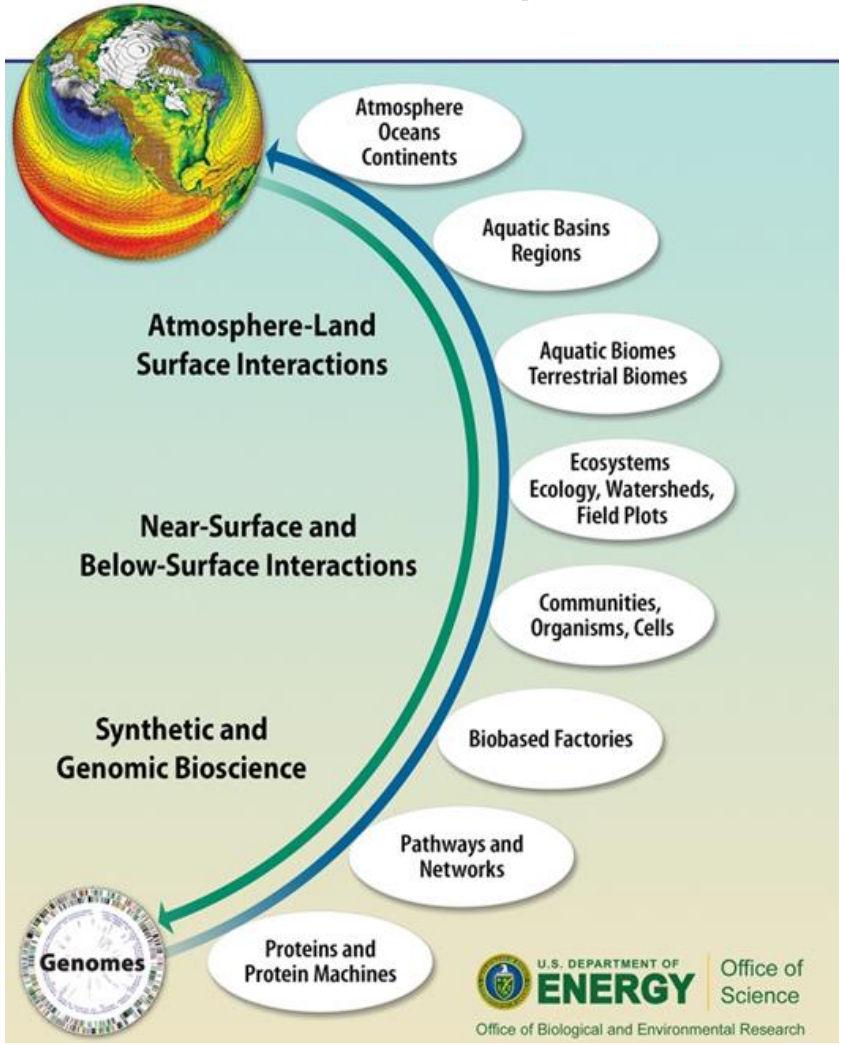
Office of Science Programs



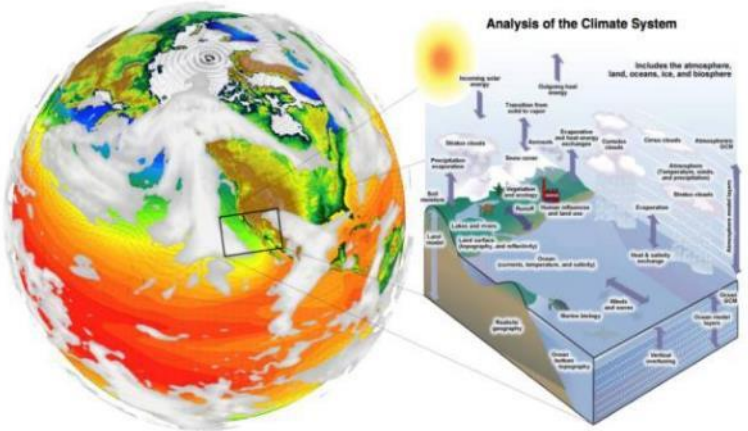
Biological and Environmental Research (BER)

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



Earth and Environmental Systems Sciences Division (EESSD)



Atmospheric System Research

- Atmospheric Process Science
- Atmospheric Radiation Measurement (ARM) facility

Earth and Environmental Systems Modeling

- Climate and Earth System Modeling
- Climate resilience

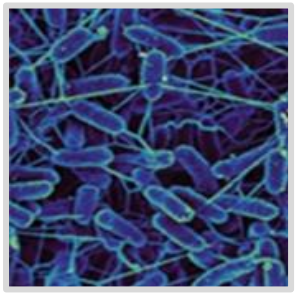
Environmental System Science

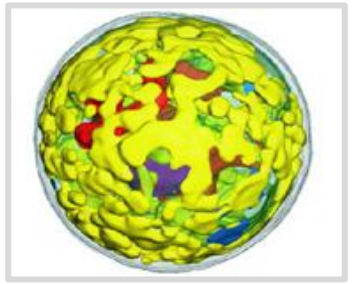
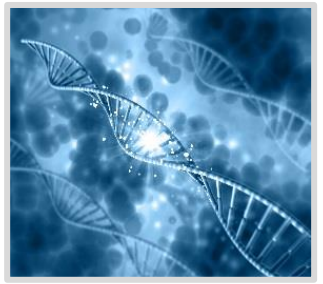
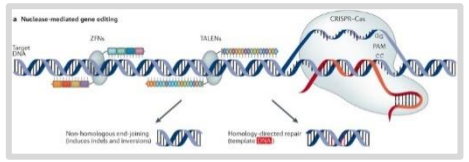
- Ecosystem and Watershed Sciences
- Environmental Molecular Sciences Laboratory (EMSL)

Data Management for Earth and Environmental Sciences

Biological Systems Science Division (BSSD)

Mission: Provide the necessary fundamental science to understand, predict, manipulate, and design biological processes that underpin innovations for bioenergy and bioproduct production and enhance understanding of natural, environmental processes relevant to DOE.



Genomic Science

- Bioenergy
  - Sustainable Bioenergy
  - Plant Genomics
- Biosystems Design
  - Secure Biosystems Design
- Environmental Microbiome
- Computation

Biomolecular Characterization and Imaging Science

- Bioimaging Technologies
  - Quantum Imaging
- Structural Biology
- Cryo-EM Resources

Scientific User Facilities and Enabling Capabilities

- Joint Genome Institute (JGI)
- Systems Biology Knowledgebase (KBase)
- National Microbiome Data Collaborative (NMDC)

BER User Facilities

Atmospheric Radiation Measurement (ARM) User Facility

ARM is a multi-platform scientific user facility with instruments at fixed and varying locations around the globe for obtaining continuous field measurements of clouds, aerosols, precipitation, radiation, surface properties, and the atmospheric state since 1992

Environmental Molecular Sciences Laboratory (EMSL)

EMSL provides users with capabilities to obtain a mechanistic understanding of physical, chemical, and intra- and inter-cellular processes and interactions, and to incorporate this information into numerical models to better understand how biological, environmental, atmospheric, and energy systems function at higher spatial- and temporal scales.

Joint Genome Institute (JGI)

JGI provides advanced genome sequencing, genome data acquisition, and genome analyses in support of DOE mission needs in bioenergy, carbon cycling and biosequestration, and biogeochemical processes. It is the leading provider of plant, fungal, algal, & microbial community genomes and genomic analyses.

How does BER support research?

- Research grants at academic institutions
- Large scale, multidisciplinary research centers focused on specific topic areas (i.e., Bioenergy Research Centers)
- Team-oriented, longer-term collaborative research programs at DOE National Laboratories
- Time-limited research projects to address specific targeted research at DOE National Laboratories

For this FOA, the focus is on developing collaborations at DOE National Laboratories and Bioenergy Research Centers.

DOE National Laboratory BER Investments

Team-oriented, collaborative research programs that take advantage of the unique scientific capabilities and resources of the National Laboratories

Science Focus Areas and Next Generation Environmental Experiments (NGEEs)

- Large, integrative science programs of the highest caliber in support of BER strategic goals and challenges.
- Unique and integrative science projects that target a specific scientific challenge or pilot opportunities.
- Support numerous programs across the National Laboratory complex in BER-relevant research

Short-term Projects

Opportunities for Collaboration and Leveraging

- Lab activities are often collaborative (a consortium of lab, federal, and academic partners).
- Enable access to field, laboratory, and modeling capabilities to collaborations

Bioenergy Research Centers

Bioenergy Research Centers

Large scale, multidisciplinary research centers focused on areas critical to improving production of biofuels and bioproducts from renewable biomass.

- **Great Lakes Bioenergy Research Center (GLBRC)**
  Led by the University of Wisconsin-Madison, GLBRC develops the science and technological advances to underpin a sustainable lignocellulosic bioindustry
- **Center for Bioenergy Innovation (CBI)**
  Led by Oak Ridge National Laboratory, CBI accelerates the domestication of bioenergy crops and targets consolidated bioprocessing innovations to improve cost efficiencies within the bioenergy supply chain
- **Joint BioEnergy Institute (JBEI)**
  Led by Lawrence Berkeley National Laboratory, JBEI broadens and maximizes production of economically viable fuels and chemicals from plant biomass to enable biorefinery development
- **Center for Advanced Bioenergy and Bioproducts Innovation (CABBI)**
  Led by the University of Illinois at Urbana-Champaign, CABBI enables the direct production of drop-in fuels and chemicals in plants as sustainable biofactories for a range of bioproducts

GREAT LAKES BIOENERGY RESEARCH CENTER

cbi THE CENTER FOR BIOENERGY INNOVATION

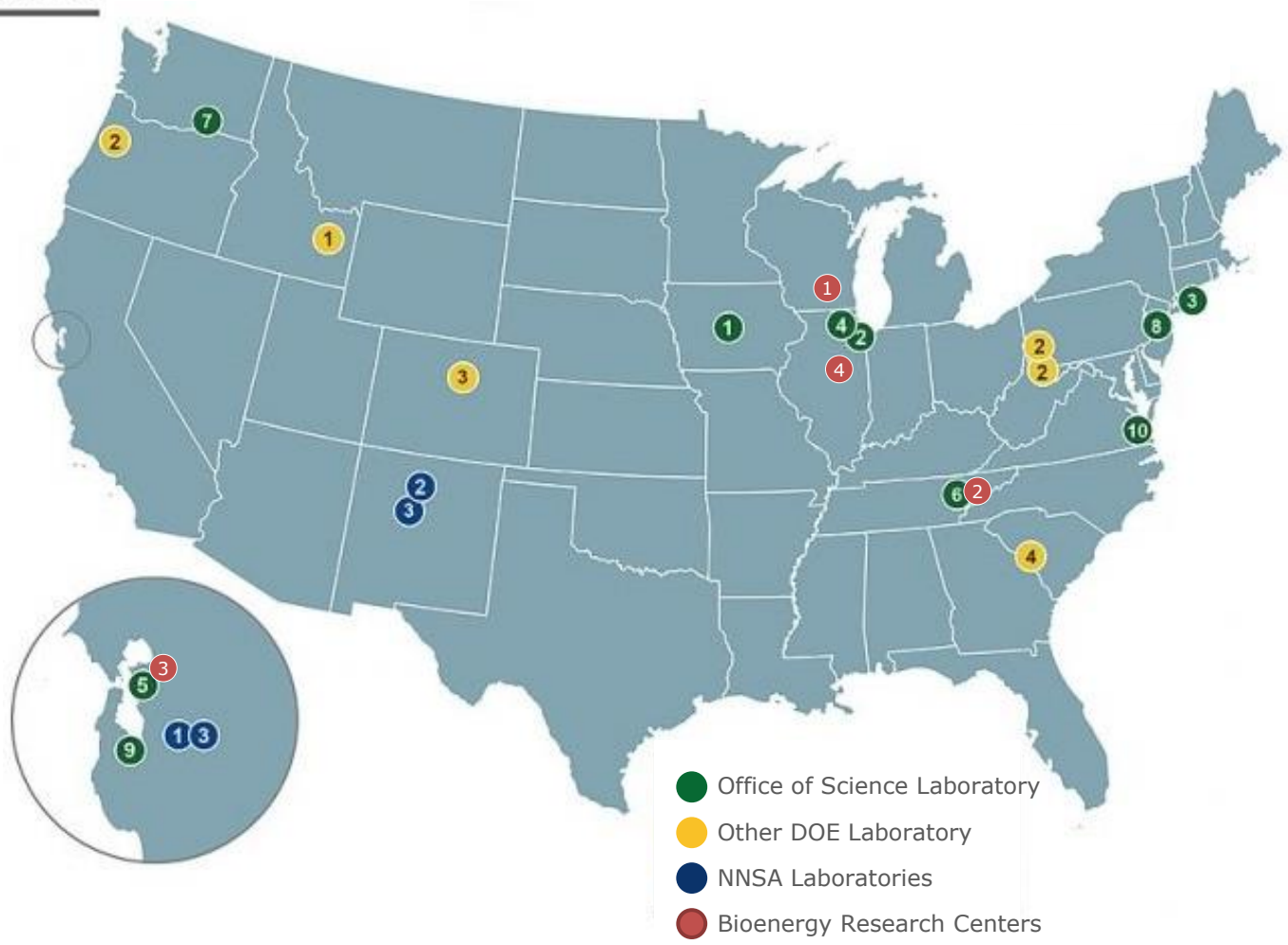
JBEI Joint BioEnergy Institute

CABBI Center for Advanced Bioenergy and Bioproducts Innovation

DOE National Labs with Active BER-funding and BRCs

Office of Science Laboratories

1. **Ames Laboratory**
   Ames, Iowa
2. **Argonne National Laboratory** — ANL
   Argonne, Illinois
3. **Brookhaven National Laboratory** — BNL
   Upton, New York
4. **Fermi National Accelerator Laboratory**
   Batavia, Illinois
5. **Lawrence Berkeley National Laboratory** — LBNL
   Berkeley, California
6. **Oak Ridge National Laboratory** — ORNL
   Oak Ridge, Tennessee
7. **Pacific Northwest National Laboratory** — PNNL
   Richland, Washington
8. **Princeton Plasma Physics Laboratory**
   Princeton, New Jersey
9. **SLAC National Accelerator Laboratory** — SLAC
   Menlo Park, California
10. **Thomas Jefferson National Accelerator Facility**
    Newport News, Virginia



NNSA Laboratories

1. **Lawrence Livermore National Laboratory** — LLNL
   Livermore, California
2. **Los Alamos National Laboratory** — LANL
   Los Alamos, New Mexico
3. **Sandia National Laboratory** — SNL
   Albuquerque, New Mexico
   Livermore, California

Other DOE Laboratories

1. **Idaho National Laboratory**
   Idaho Falls, Idaho
2. **National Energy Technology Laboratory**
   Morgantown, West Virginia
   Pittsburgh, Pennsylvania
   Albany, Oregon
3. **National Renewable Energy Laboratory** — NREL
   Golden, Colorado
4. **Savannah River National Laboratory**
   Aiken, South Carolina

Bioenergy Research Centers

1. **Great Lakes Bioenergy Research Center** — GLBRC
   Madison, WI
2. **Center for Bioenergy Innovation** — CBI
   Oak Ridge, TN
3. **Joint BioEnergy Institute** — JBEI
   Berkeley, CA
4. **Center for Advanced Bioenergy and Bioproducts Innovation** — CABBI
   Urbana, IL

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BER-RENEW FOA

DE-FOA-0002929

BER-RENEW FOA
Scientific Scope (See Section I of the FOA)

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

Experiential Training through Collaboration

- Applications should cite specific interest in **developing experiential training, student mentoring, and institutional capabilities** through research-focused **collaborations** with the national labs and BRCs.
  - Collaboration with **one or more DOE national lab and/or BRC is required**
  - Additional collaborations with other BER activities is allowed
- Applications should describe the opportunities for **experiential training** of students associated with PI-led research activities that **integrate** with and/or leverage the collaboration, as well as the institution's specific proposed role through the collaboration.

Expectations for Training and Mentoring

- 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 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 collaboration, 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 BER research and activities, and potential benefit of the RENEW award to the applicant

Eligibility and Collaborations

- Eligible Applicants: Historically Black Colleges and Universities (HBCUs) and non-R1 Minority-Serving Institutions (MSIs) (see Sec. III of the FOA)

- Collaboration between the applicant institution and at least one DOE national lab and/or BRC **is required.**

  - Applicants should contact the National Laboratory and/or BRC Point of Contact (POC) to explore partnership opportunities for BER-relevant research. A list of National Laboratory and BRC POCs is available on the funding opportunities page: https://science.osti.gov/ber/Funding-Opportunities.

  - A letter of collaboration from the National Lab and/or BRC collaborator(s) **must be provided as part of the preapplication**

  - The only allowed collaborations are between the applicant institution and the partnering DOE national lab(s) and/or BRC(s)

  - Funds can be requested for National Lab and/or BRC investigators up to 10% of the total award budget.

Award Information

- Estimated funding: total of $6 million in FY23 funds anticipated
- Period of performance: 3 years
- Minimum/maximum total award size: $300,000 to $800,000
- Number of awards: approximately 7-9 awards are anticipated
- DOE anticipates that award selection will be completed by September 2023.

Applying to the BER RENEW Solicitation

- Pre-Application Deadline: February 21, 2023, at 5pm ET
  - **Pre-applications are required**
  - Pre-applications submitted through PAMS (**by SRO**)
  - A letter of collaboration from the National Lab and/or BRC collaborator(s) must be provided as part of the preapplication
  - **Limit of one (1) pre-application per PI and three (3) pre-applications per institution**
  - Encourage/Discourage Response: March 8, 2023, by 5pm ET via PAMS
  - Decision of 'Encourage' required to be eligible for full application submission

- Application Deadline: April 25, 2023, at 11:59pm ET
  - Submitted through Grants.gov (**by SRO**)
  - Limit of one (1) application per PI and three (3) applications per institution

PIER Plan (Appendix 5)

- The Promoting Inclusive and Equitable Research (PIER) Plans should describe the activities and strategies to promote equity and inclusion as an intrinsic element of the research project
  - Describe plan to foster a positive, inclusive, and professional training and research environment
  - Should not be a re-statement of standard institutional policies or broad principles
- Max. page limit of 3 pages, submitted as Appendix 5 (does not count toward narrative page limit)
- For more information about PIER plans: https://science.osti.gov/grants/Applicant-and-Awardee-Resources/PIER-Plans

Merit Review and Selection

- Full applications will be subjected to scientific merit review (peer review)
- Reviewers will evaluate the application based on the Merit Review Criteria stated in the FOA (pg 32-33)
- Following merit review, the Program Policy Factors (FOA pg 34) may be considered when making selections
- You are encouraged to review the Merit Review Criteria and Program Policy Factors when developing your application

Check Registration in PAMS before pre-app deadline

- Because of the institutional limitation on submissions, preapplications must be submitted to PAMS via a "Submit to DOE" privileged account (e.g., SRO)

- Confirm in advance your institution's PAMS account:
  - Is active,
  - Has the correct and appropriate contact(s), and
  - If possible, has multiple registered contacts.

- PAMS Helpdesk closes at 5:30 pm ET

Institutions should 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

  Helpdesk Hours: Monday-Friday, 9am – 5:30 pm ET

  PAMS Help Wiki: https://pamsexternalhelp.science.energy.gov/display/UTL2/PAMS+Help

- Any Other Applicable Systems

Where to find more information

Biological and Environmental Research (BER)	https://science.osti.gov/ber
Biological Systems Science Division (BSSD)	https://science.osti.gov/ber/Research/bssd
Genomic Science Program (GSP)	https://genomicscience.energy.gov/
Bioenergy Research Centers (BRCs)	https://genomicscience.energy.gov/bioenergy-research-centers/
Bioimaging Research	https://science.osti.gov/ber/bioimaging-research
Earth and Environmental Systems Sciences Division (EESSD)	https://science.osti.gov/ber/Research/eessd
Atmospheric System Research (ASR)	https://asr.science.energy.gov/
Environmental System Science (ESS)	https://ess.science.energy.gov/
Earth and Environmental System Modeling (EESM)	https://climatemodeling.science.energy.gov/
Data Management	https://science.osti.gov/ber/Research/eessd/Data-Management
Atmospheric Radiation Measurement (ARM) user facility	https://www.arm.gov/
Environmental Molecular Sciences Laboratory (EMSL)	https://www.emsl.pnnl.gov/
Joint Genome Institute (JGI)	https://jgi.doe.gov/
List of National Lab and BRC contacts	https://science.osti.gov/-/media/ber/pdf/Funding/2023/BER_RENEW_Lab_POCs_Contact_Info_2023.pdf

Questions & Answers

Please submit questions using the Zoom Q&A feature or use the raise hand option. Both should be accessible at the bottom of your Zoom window.

If your question is not answered today, or if you have additional questions about the FOA topic, please contact the program managers:

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