



## **NASA EPSCoR Research Award (RA) Solicitation 2023 Request for Pre-Proposals**

**Announcement: RFP-23-004**

Release Date: October 4, 2023

**Letter of Intent (Required): Monday, November 6, 2023, 5:00 PM ET**

**Pre-proposal Submission: Wednesday, November 15, 2023, 5:00 PM ET**

**Teleconference for Proposers: Thursday, October 12, 2023, 12:00 PM ET**

[Registration Form](#)

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Proposal forms, FAQ, and additional information available:  
[nasa.engr.uky.edu/epscor](https://nasa.engr.uky.edu/epscor) and [nasa.engr.uky.edu/requests-for-proposals](https://nasa.engr.uky.edu/requests-for-proposals)



## NASA KENTUCKY EPSCoR Research Award Solicitation

### NASA EPSCoR Research Award Overview

The National Aeronautics and Space Administration (NASA) Office of STEM Engagement (OSTEM), in cooperation with NASA’s five Mission Directorates (MD) and ten Centers, will solicit FY24 proposals for the NASA Established Program to Stimulate Competitive Research (EPSCoR) Research Award program.

Projects funded under this NASA EPSCoR opportunity are expected to establish research activities to make significant contributions to strategic research and technology development priorities of one or more NASA MD or Centers and contribute to overall research infrastructure, science and technology capabilities, higher education, and economic development of the EPSCoR jurisdiction (Kentucky). These projects should establish a significant research base and develop active collaborations and competitiveness for follow-on funding.

The FY2024 NASA EPSCoR Research Notice of Funding Opportunity (NOFO) is available at [nspires.nasaprs.com](https://nspires.nasaprs.com). Proposers may refer to the national RA NOFO ([NNH24ZHA001C](#) FY24) for descriptions of national program objectives and general proposal guidelines. Each of the 28 EPSCoR states is permitted one proposal to the NASA solicitation, with 10 to 15 awards expected.

### Request for Pre-proposals

*NASA KENTUCKY EPSCoR invites pre-proposal submissions that address **NASA mission and technical needs** and **aerospace-related research for Kentucky**.*

**\$900,000 funding for 3-year period of performance**

### RFP process to select Kentucky’s sole proposal for the national competition:

**Period of Performance:** Up to 3 years with estimated start date of September 2024.

**Anticipated Size of Awards:** The Research team may budget for two sources of funds in their pre-proposal package for a total of \$900,000 over three years: (1) \$675,000 in Federal NASA funds with full indirect costs (F&A) plus (2) \$225,000 in state funds without F&A.

**Pre-Proposal Selection:** One pre-proposal will be selected. The selected research team will develop their pre-proposal for submission by NASA Kentucky as the state’s single allowed entry in the national NASA EPSCoR competition. The pre-proposal selection process will be conducted according to the guidelines and timeline described below.

**Eligibility:** Pre-proposals will be accepted from any institution of higher education in Kentucky. Eligibility is *not* limited to NASA Kentucky Space Grant Consortium Affiliate Institutions. US Citizenship *not* required. NASA EPSCoR funds shall be expended on institutions in eligible NASA EPSCoR jurisdictions.

### Timeline

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| ▪ Teleconference for Proposers                 | Thursday, October 12, 2023, 12:00 PM ET  |
| ▪ Letter of Intent (Required)                  | Monday, November 6, 2023, 5:00 PM ET     |
| ▪ Pre-Proposal Submission Deadline             | Wednesday, November 15, 2023, 5:00 PM ET |
| ▪ Pre-Proposal Selection Announcement          | Anticipated Wednesday, December 6, 2023  |
| ▪ Full Proposal Submission to NASA via NSPIRES | Monday, January 22, 2024                 |

Proposal forms available online at [nasa.engr.uky.edu/requests-for-proposals/forms](https://nasa.engr.uky.edu/requests-for-proposals/forms)

### Pre-proposal Submission Instructions

**1) Letter of Intent (Required):** Send to [nasa@uky.edu](mailto:nasa@uky.edu) by **5:00 pm ET, Monday, November 6, 2023**

The Letter of Intent should summarize in one page: the research topic and 3-year scope of work, brief description of alignment with NASA including Mission Directorate or Center, existing NASA partnerships, and potential for additional research collaboration with NASA, industry and other research institutions.

Include on a separate page complete contact information (name, title, address, phone, email) for each of the following: PI and their Authorized Organizational Representative (AOR) for Sponsored Projects. Please also include a list of potential NASA collaborators with description of their prospective role.

The LOI should show evidence of well-developed research goals, strong potential for NASA partnership and alignment with NASA KY program objectives.

**2) Pre-Proposal:** Submit online at [nasa.engr.uky.edu](https://nasa.engr.uky.edu) by **5:00 pm ET, Wednesday, November 15, 2023**

All pre-proposals must be submitted as PDF files via the NASA KY website. Documents can be submitted as a combined PDF. The project cover page requires AOR signature. Please title documents beginning with the PI's last name. Letters of support are strongly encouraged with this submission.

- SIGNED COVER PAGE:** Complete in Adobe Acrobat/Reader, save as PDF
  - o Digital signatures are acceptable or scan signed original and save as PDF
- PRE-PROPOSAL PROJECT DESCRIPTION:**
  - o 12-point font, 1-inch margins, single spaced
  - o 10-page limit – See guidelines (pg. 7) for required content
  - o Additional pages – See guidelines (pg. 7) for list of documents
- BUDGET FORMS & JUSTIFICATION:** See budget guidelines (pg. 8)
  - o Budget form for Federal funds (\$675,000) with F&A
  - o Budget form for State funds (\$225,000) without F&A
  - o Include budget narrative describing in detail requested support and cost-share

### Teleconference for Proposers (Optional)

Interested researchers may participate in a conference call at 12:00 pm ET, Thursday, October 12, 2023 to discuss the submission and selection process, features of past successful proposals, and budget structure. Participation information will be kept confidential from other proposers. Please register to receive meeting information and updates about the telecon: <https://forms.gle/JVXxB8xZ91bQqg2y7>. Proposers may also contact NASA KY with any questions during the pre-proposal process.

### General Guidelines

See the following sections for specific content guidelines. Pre-proposals that omit required materials or exceed page limits are considered non-compliant and may be rejected without review. Proposers can review the [NASA Guidebook for Proposers](#) for NASA-specific proposal guidelines.

- *Special Purpose Equipment* may be purchased or used as cost-share (during the performance period).
- *General Purpose Equipment* may not be purchased or used as cost-share.
- *Travel funds* may be used for domestic and foreign travel as specified in the NASA NOFO.
- *Cost-share must be 50%* from non-Federal sources (see below for more detail).
- *US citizenship not required*; foreign nationals receiving support must be employed by a US institution.

**Additional information and FAQ:** [nasa.engr.uky.edu/epscor](https://nasa.engr.uky.edu/epscor)

**Project Budget:** Proposers should include two budgets in their pre-proposals, a budget form for Federal funds (\$675,000) with F&A and a budget form for State funds (\$225,000) without F&A. The budget narrative should fully describe details of all proposed expenditures and describe any additional cost-share sources. Expenditure of the state funds should be fully described and will qualify as cost-share. Budget requirements are described in the following section (pg. 9).

**Cost-Share:** Federal funds must be cost-shared with in-kind and/or non-Federal funds at a level of at least 50% of the \$675,000 Federal amount (\$337,500 in cost-share). The KY Cabinet for Economic Development and the KY Statewide EPSCoR Committee typically provide State matching funds of \$225,000 to the Research team. State match funding is contingent on allocation in future state budgets. Expenditure of these funds qualifies as cost-share for the project.

State matching funds do not allow for indirect costs, resulting in associated unrecovered indirect costs that can also be used as cost-share. The unrecovered indirect amount is based on the Research team's institutional indirect rate. These State matching funds plus associated unrecovered indirect are usually adequate to meet the 50% cost-share requirement.

Proposers should describe any additional sources of cost-share for their pre-proposals in the budget section. Description of additional sources will not be considered a cost-share commitment, but solely as a description of potential resources available for development of the selected pre-proposal. Institutional support and other cost-share sources are: 1) reviewed favorably in the national competition and 2) serve as alternate cost-share sources should state funds not be available in a future budget year.

### Pre-Proposal Review Process

The NASA KY EPSCoR program and advisors from inside and outside the jurisdiction will review pre-proposals and rate them based on the following criteria:

- INTRINSIC MERIT (40%)
  - Proposed research
  - Prior research
- NASA ALIGNMENT AND PARTNERSHIPS (40%)
  - Relevance of proposed research to NASA and Kentucky priorities
  - Strength of NASA and industry collaborations
  - Sustainability - specific plans for building partnerships, institutional support, continued funding
  - Diversity - Collaboration between Kentucky institutions ; inclusive opportunities for personnel
- MANAGEMENT (10%): Project management and evaluation, including task schedule; successful and timely completion of prior NASA Kentucky projects and reporting
- BUDGET (10%): Effective use of funds, reasonableness and detail of budget narrative

The review process will consider funding history and prior reporting of the research team to assess their readiness to propose to the national competition. During review, the Director may contact NASA collaborators identified in the pre-proposal to evaluate strength of partnership and involvement in pre-proposal development. Note: In the national competition, strength of partnership and NASA alignment are major factors.

As a panel, reviewers will recommend to the NASA KY EPSCoR Director one pre-proposal for development into a full proposal. The selected research group will work with the NASA KY EPSCoR Director to prepare the full proposal for submission to NASA via NSPIRES. University of Kentucky will be the submitting institution.

### **Research Alignment and Collaboration**

Programmatic alignment is a determining factor in this funding program. Proposals to this program must address objectives described in the following sections. Proposals should align with NASA missions and research as well as national [NASA EPSCoR](#) objectives and program elements described in the current solicitation (to be released on NSPIRES in mid-October). Proposals should address NASA Kentucky EPSCoR program objectives and contribute to significant research capabilities in the state.

Proposals should be aligned with NASA missions and technical priorities. Proposers must show evidence of collaboration with NASA researchers via letters of support. For the pre-proposal process, formal letters of support are not required, but encouraged. Proposers should allow for time required to obtain NASA support letters.

In addition to a researcher's existing NASA collaborators, it is highly recommended that proposers connect with NASA points of contact relevant to their research as listed in the NASA focus areas Appendix B included in the current solicitation ([NASA EPSCoR RA FY24 Focus Areas](#)). Proposers should describe their alignment with NASA priorities using the [NASA Technology Taxonomy](#) and explore additional collaboration by reviewing the [NASA EPSCoR RA FY24 Focus Areas](#) for NASA Center and Mission Directorate areas of interest. Proposers may browse [NASA Techport](#) to review related studies and the [NASA EPSCoR R3 FY24 Topics](#) list for ideas about potential research task objectives that could be incorporated in their project. These documents are available under "Proposal Resources" on the [NASA KY EPSCoR](#) web page.

### **National NASA EPSCoR Program Objectives**

- Contribute to and promote the development of research infrastructure in NASA EPSCoR jurisdictions in areas of strategic importance to the NASA mission.
- Improve the capabilities of the jurisdictions to gain support from sources outside the NASA EPSCoR program.
- Develop partnerships among NASA research assets, academic institutions, commercial space programs, and industry.
- Contribute to the overall research infrastructure, science and technology capabilities of higher education, and/or economic development of the jurisdiction.

### **NASA KENTUCKY EPSCoR Program Objectives**

The statewide Kentucky EPSCoR Program mission is to enhance research and intellectual capacity of the state's universities and colleges by building and coordinating strategic investments in human capital necessary for Kentucky to excel in Federal R&D funding competitiveness. Derived from this statewide mission, NASA Kentucky EPSCoR has goals to enhance capacity through strategic investments focused on NASA-priority research areas and competitiveness for non-EPSCoR funding.

A key factor in achieving these goals is initiation of relationships between Kentucky's and NASA's researchers that develop into partnerships. Every aspect of the program emphasizes the process of relationship building, including the contribution of early-career faculty in helping to solve NASA technical problems.

NASA KY EPSCoR investment is focused on NASA priorities including Aeronautics, Science, Human Spaceflight and Space Technology missions, ISS National Laboratory, lunar and planetary exploration, to develop researchers in Kentucky who are nationally and internationally recognized for contributions to their fields.

Equally important to building research capacity are the resulting contributions to economic development evidenced by securing non-EPSCoR follow-on research funding and supporting aerospace-related industrial development and associated job creation. Growth in economic development opportunities as a result of the

NASA EPSCoR investment is therefore a jurisdictional emphasis underlying all aspects of the program. The NASA Kentucky EPSCoR Program receives state support through the Cabinet for Economic Development and the statewide Kentucky EPSCoR Committee, the University of Kentucky, and cost-share commitment from participating institutions statewide.

### **Kentucky Science and Innovation Strategy**

Kentucky produced a science and technology strategic plan in 2012, the *Kentucky Science and Innovation Strategy*, updated in 2018 and reviewed by the Kentucky Council on Postsecondary Education (CPE). Five high-value areas are identified with strong potential to build innovation capacity in the Commonwealth: 1. Agriculture and Bioscience, 2. Energy and Environmental Technologies, 3. Human Health and Personalized Medicine, 4. Information Technology and New Media, and 5. Material Science and Advanced Manufacturing. The strategy acknowledges the importance of the aerospace sector to Kentucky's economy and that relevant high-value R&D often spans multiple areas, as is the case for aerospace-related research. The strategy further defines actions to catalyze investment in high-value areas and to build industry/academic partnerships for STEM workforce development, goals which intersect with priorities of both the NASA Kentucky EPSCoR and Space Grant Consortium programs.

### **NASA Research and Technology Development Priorities**

The NASA EPSCoR Program and the NASA Office of STEM Engagement (OSTEM) identify research and technology priorities based on alignment with NASA's five Mission Directorates: Aeronautics Research Mission Directorate (ARMD), Exploration Systems Development Mission Directorate (ESDMD), Science Mission Directorate (SMD), Space Operations Mission Directorate (SOMD), and Space Technology Mission Directorate (STMD). For information on NASA's missions, please visit [www.nasa.gov/nasa-missions](http://www.nasa.gov/nasa-missions) and the following URLs:

- Aeronautics Research ([www.aeronautics.nasa.gov](http://www.aeronautics.nasa.gov))
- Exploration Systems Development ([www.nasa.gov/directorates/exploration-systems-development](http://www.nasa.gov/directorates/exploration-systems-development))
- Science ([science.nasa.gov](http://science.nasa.gov))
- Space Operations ([www.nasa.gov/directorates/space-operations-mission-directorate](http://www.nasa.gov/directorates/space-operations-mission-directorate))
- Space Technology ([www.nasa.gov/directorates/spacetech](http://www.nasa.gov/directorates/spacetech))
- NASA Office of STEM Engagement (OSTEM) ([www.nasa.gov/stem](http://www.nasa.gov/stem))
- NASA OSTEM Higher Education ([www.nasa.gov/stem/highereducation](http://www.nasa.gov/stem/highereducation))
- NASA EPSCoR ([www.nasa.gov/stem/epscor](http://www.nasa.gov/stem/epscor))

### **NASA Mission Directorate (MD) Descriptions**

**Aeronautics Research Mission Directorate (ARMD):** NASA aeronautics has made decades of contributions to aviation. Every U.S. commercial aircraft and U.S. air traffic control tower has NASA-developed technology on board that helps improve efficiency and maintain safety. Research conducted by ARMD directly benefits today's air transportation system, the aviation industry, and the passengers and businesses who rely on aviation every day. ARMD scientists, engineers, programmers, test pilots, facilities managers and strategic planners are focused on aviation's future. They design, develop and test advanced technologies that will make aviation much more environmentally friendly, maintain safety in more crowded skies, and ultimately transform the way we fly. NASA's aeronautics research is primarily conducted at four NASA centers: Ames Research Center and Armstrong Flight Research Center in California, Glenn Research Center in Ohio, and Langley Research Center in Virginia.

**Exploration Systems Development Mission Directorate (ESDMD):** The Exploration Systems Development Mission Directorate defines and manages systems development for programs critical to the NASA's Artemis program and planning for NASA's Moon to Mars exploration approach in an integrated manner. ESDMD manages the human exploration system development for lunar orbital, lunar surface, and Mars exploration. ESDMD leads the human aspects of the Artemis activities as well as the integration of science into the human system elements. ESDMD is responsible for development of the lunar and Mars architectures. Programs in the mission directorate include Orion, Space Launch System, Exploration Ground Systems, Gateway, Human Landing System, and Extravehicular Activity (xEVA) and Human Surface Mobility. ESDMD duties were previously managed under the Human Exploration and Operations Mission Directorate (HEOMD).

**Science Mission Directorate (SMD):** NASA's Science Mission Directorate (SMD) is responsible for directing and overseeing the nation's space research program in Earth and space science. The Directorate engages the external and internal science community to define and prioritize science questions and seeks to expand the frontiers of four broad scientific pursuits: Earth Science, Planetary Science, Heliophysics, and Astrophysics. Through a variety of robotic observatory and explorer craft, and through sponsored research, the Directorate provides virtual human access to the farthest reaches of space and time, as well as practical information about changes on our home planet.

**Space Operations Mission Directorate (SOMD):** NASA's Space Operations Mission Directorate (SOMD) is responsible for enabling sustained human exploration missions and operations in our solar system. SOMD manages NASA's current and future space operations in and beyond low-Earth orbit (LEO), including commercial launch services to the International Space Station. SOMD operates and maintains exploration systems, develops and operates space transportation systems, and performs broad scientific research on orbit. In addition, SOMD is responsible for managing the space transportation services for NASA and NASA-sponsored payloads that require orbital launch, and the agency's space communications and navigation services supporting all NASA's space systems currently in orbit. SOMD duties were previously managed under the Human Exploration and Operations Mission Directorate (HEOMD).

**Space Technology Mission Directorate (STMD):** Technology drives exploration to the Moon, Mars and beyond. NASA's Space Technology Mission Directorate (STMD) develops transformative space technologies to enable future missions. As NASA embarks on its next era of exploration, STMD is focused on advancing technologies and testing new capabilities at the Moon that will be critical for crewed missions to Mars. In many ways, the Moon will serve as a technology testbed and proving ground for Mars. STMD engages and inspires thousands of entrepreneurs, researchers and innovators, creating a community of America's best and brightest working on the nation's toughest challenges. Space technology research and development take place at NASA centers, universities and national labs. STMD leverages partnerships with other government agencies as well as commercial and international partners. Our current technology portfolio spans a range of discipline areas and technology readiness levels. Investments in revolutionary, American-made space technologies provide solutions on Earth and in space. NASA technology turns up in nearly every corner of modern life. We make our space tech available to commercial companies to generate real world benefits – everything from creating jobs to saving lives.

## Pre-Proposal Content Guidelines

Submit pre-proposals online at [nasa.engr.uky.edu](https://nasa.engr.uky.edu) by 5:00 pm ET, Wednesday, November 15, 2023

A pre-proposal consists of a signed cover page and 10-page Project Description plus specified Additional Pages. Successful proposals clearly describe how the proposed research supports NASA priorities aligned with one or more NASA Mission Directorates or Centers, how the proposed effort enhances research capabilities within Kentucky of strategic importance to NASA, and how Kentucky researchers will continue to interact with NASA researchers.

Based on previous reviewer comments from the national selection process, top-ranked proposals include sound science plans aligned with NASA priorities. Discriminating considerations are strength of partnerships, contributions to state research capabilities and infrastructure, including involvement of early-career faculty, and diversity of the research team. Diversity refers to institutions as well as personnel.

Documents can be submitted as a combined PDF and should be titled with the PI's last name.

### **Project Description (10-page limit):**

The project description includes a detailed description of the proposed research plan and addresses each of the sections described below. Page limit includes all illustrations, tables, and figures.

- Abstract** (200-300 words)
- Proposed Research:** Goals, objectives, tasks and project schedule
- Partnerships and Interactions:** Describe any partnerships or cooperative arrangements among academia, government agencies, business and industry, private research foundations, state and local agencies, as well as inclusion of faculty and students from underrepresented groups and rural or urban underserved areas.
- Sustainability:** Describe how the research capability will be sustained beyond the funding period. There should be a clear plan for developing the research beyond NASA EPSCoR funding and for seeking institutional support and non-EPSCoR funding. Identify potential solicitations and opportunities specifically as examples.
- Evaluation:** Describe an evaluation plan for measuring project success. The evaluation plan should be appropriate for the scope of the proposed activity and include a discussion of data collection and analysis procedures.
- Prior NASA, NASA EPSCoR or NASA Kentucky Research Support:** Demonstrate effectiveness of prior research support. If the PI or any Co-I identified on the project has received NASA EPSCoR or NASA Kentucky research funding in the past five years, information on the award(s) and results is required.

**Additional Pages:** the following should be included after the 10-page Project Description:

- References:** No page limit
- Budget Justification:** See guidelines on next page.
- Team Management Summary:** No more than 2 pages summarizing qualifications, roles, responsibilities and effort committed by team members.
- Curriculum vitae:** 2-page CV for lead PI, 1-page CV for Co-Is
- Statements of Commitment:** Letters of support from all collaborators should be included. A letter of support or email from at least one NASA researcher is required. Letters should indicate strong commitment to the proposed research project, relevance to funding priorities, and willingness to participate in the proposal. Please note, NASA collaborators require time to obtain authorization for letters of support. Informal letters of support (including email) are allowed. See [NASA Guidebook for Proposers](#) Section 2.17 for guidelines about letters of support. Page limit as needed.



### Pre-Proposal Budget Guidelines

A complete proposal budget should be submitted with the pre-proposal, including a cover page signed by the PI's Authorized Organizational Representative (AOR) for Sponsored Projects. The budget should address proposed expenditures for the three-year project, with a start date of September 2024.

The research team may request up to \$900,000 over three years: \$675,000 in Federal funds with full indirect costs (F&A) and \$225,000 in state funds (to be expended as cost-share) without F&A. For additional information about cost-share, see pg. 3.

The submitted budget should include two NASA KY budget forms: one summarizing proposed costs for \$675,000 in Federal funds (with F&A) and one summarizing proposed costs for \$225,000 in state funds (without F&A).

The budget narrative should describe how the award and cost-share funds will be used to support faculty, students, travel, materials and supplies, research equipment and other costs. The budget should include proposed costs for the state match amount and describe institutional support or additional sources to address the required 50% cost-share, including any in-kind contributions. Describe indirect cost rate (F&A) and cost basis.

Proposers should contact NASA KY with questions about allowable costs. Submitted proposals must be consistent with the research team's institutional policies and practices, e.g. definition of equipment, stipend, etc. Any third-party support committed to the project from collaborators should include a letter of support detailing the commitment. Allowable costs should also be consistent with NASA policies as described in the NASA EPSCoR Research Solicitation (to be released mid-October 2023) and the [NASA Guidebook for Proposers](#).

Please note, the NASA EPSCoR Research Solicitation provides up to \$750,000 in Federal funding, however pre-proposals should only include a budget of \$675,000 for the research team. The NASA Kentucky EPSCoR program applies the additional \$75,000 to project management and jurisdictional objectives in support of the project. Proposers do not need to budget for this additional amount.

Additional budget guidelines are available on pg. 8 in the [NASA KY FAQ](#).

The following should be submitted with the pre-proposal package:

#### **Signed Cover Page:**

Submit a signed version of the project cover page. The project cover page *must be signed* by the PI's Authorized Organizational Representative (AOR) for Sponsored Projects. Digital signatures are acceptable. For physical signatures, scan the signed original and save as PDF.

#### **Final Budget (no page limit):**

The final budget should include one NASA KY budget form for the Federal amount and one for the State match amount, along with a budget narrative fully describing the use of funds. Proposers may provide additional budget detail (e.g. annual budgets) using their own budget tables. The budget justification should address all requested support and cost-share.

- NASA KY Budget Forms:** 1 for Federal funds, 1 for State funds (both cumulative)
- Budget Narrative:** Describe how the award and cost-share funds will be used to support faculty, students, travel, materials and supplies, research equipment and other costs. Describe in-kind contributions and plans to address the required 50% cost-share. Describe indirect cost rate and basis. Page limit as needed.
- Budget Detail:** Proposers may include their own budget tables showing additional budget detail, including annual costs.