**CAES Energy Frontiers Challenge Funding - Call for Applications**

The Center for Advanced Energy Studies announces its inaugural call for the Energy Frontiers Challenge, an initiative that aims to accelerate energy innovation to solve the most pressing energy issues of our time. This funding is intended to be utilized to establish mid- to large-scale research teams such as those which comprise a federally funded research center. As a result, we are soliciting planning grant proposals outlining the research, planning, and investment required to develop such teams which can lead to a CAES Center of Excellence (i.e. National Science Foundation Engineering Research Center or Department of Energy Energy Frontiers Research Center).

*Details* : <https://caesenergy.org/wp-content/uploads/2020/10/Energy-Frontiers-Challenge.pdf>

*Energy Frontiers are structured to provide*

* Resources to catalyze transdisciplinary, multi-institution teams to pursue highly competitive funding opportunities,
* Establish CAES Centers of Excellence that advance the energy field through convergent research approaches,
* Further the educational mission of our university members through research, and
* Transform the collaborative model of CAES.

**ENERGY FRONTIERS INITIATIVES:** *We challenge our CAES Community to propose convergent research approaches to address the grand challenges at these inaugural Energy Frontiers. (Other innovative ideas that do not fall into these categories will be considered).*

1. **A Resilient Critical Materials Economy**

“The US imports over 50% of its critical materials and minerals, relying on resilience of supply chains for national economic and defense strategies. A resilient critical materials economy will include: a strategy for reducing reliance on these imported materials; assessment of progress toward developing recycling and reprocessing technologies, and technological alternatives to critical minerals; and options for accessing and developing critical minerals through investment and trade with partners.” [[1]](#endnote-1)

1. **Accelerating Energy Transitions**

**“**Technological breakthroughs are needed to reduce carbon emissions in the energy sector. Even with economically viable and scalable renewable-based solutions available for around two-thirds of the world’s energy supply, population growth and rising energy demand could outpace energy decarbonization without urgent investments in research and development, including: new innovations in energy provision, power-system integrations, the decarbonization of end-users, among others.”[[2]](#endnote-2)

1. **Advanced Manufacturing for Extreme Environments**

“Equipment used in the American energy production, transportation, and industrial sectors regularly operates under conditions that are high-temperature, corrosive, oxidizing, mechanically wearing, embrittling, or that involve thermal cycling. These environments present material stability and durability challenges that constrain the implementation of energy-efficient, cost-effective, and high-performance products and processes. Accelerated research is needed on manufacturing for materials that can withstand these and other conditions.”[[3]](#endnote-3)

**Program Details**

**ELIGIBILITY**: *Principal Investigators must be affiliated with a CAES Institution.*

* *Note: This funding entails INL subcontract funding for one year (up to $50,000).*

***Successful applicants for this funding :***

* Demonstrated record of scholarship through publications, funded research awards, and contributions to their field, including history of role as Principal Investigator
* Identified participants from *at least 3* of the CAES institutions, as well as potential trans-disciplinary partners (i.e. universities, industry, etc)
* Current or recent research/funding supporting the proposed theme
* Demonstrated inclusive mentorship of early career faculty, graduate students, and/or organizations in their field
* Be in good standing with both their home institution and CAES

***AT THE CULMINATION OF THE PROGRAM, SUCCESSFUL DELIVERABLES WILL BE A FULL PROPOSAL THAT INCLUDES:***

1. The text of a solicitation to which a proposal will be submitted. If planning a proposal for a future solicitation, then the text of an expired prior solicitation is acceptable.
2. A description of the path towards a CAES Center for Excellence, including Vision and Mission (For example: <https://nsf.gov/eng/eec/erc.jsp>) – *May be modified for DOE EFRC preproposals, DOD Multidisciplinary University Research Initiative, DOE Implementation Grants, and others.*
3. ***A full proposal that meets requirements of the solicitation***.
4. A letter of commitment signed by the subcontract awardee to submit the proposal and share reviewer comments with the Executive Board.
5. All CV's or biosketches of participants, in the format required by the solicitation for proposal submission.
6. Developed timeline addressing work to be completed, deliverables, and proposal completion & submission.

5. Proposed contingency plan for revising and resubmission

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| **Funding Duration:** 1 Year |
| **Funding Allowance:** Up to $50,000 (1 Award) |
| **Application Deadline:** April 22, 2021 |
| **Selection Announcement:** May 8, 2021 |
| **Proposed Start/End Date:** June 8, 2021 – May 31, 2022 |

*Applications should be submitted in* ***PDF format*** *to the CAES Energy Frontiers Coordinator, Dr. Hillary Fishler at* *Hillary.Fishler@inl.gov* *by 11:59pm on April 22, 2021.*

Please Note: Energy Frontiers Challenge Funding may not be used to:

o Co-mingle with Direct-funded INL Programs or LDRDs;

o Collect data or perform R&D activities;

o Purchase equipment or upgrades; facility upgrades

o Memberships to professional societies and subscriptions;

o Development of licenses, spinoffs or technology commercialization;

o Recruiting, hiring, or relocating new employees.

1. <https://www.commerce.gov/sites/default/files/2020-01/Critical_Minerals_Strategy_Final.pdf> [↑](#endnote-ref-1)
2. <https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Jun/IRENA_Energy_Transition_Innovation_2017.pdf> [↑](#endnote-ref-2)
3. <https://www.energy.gov/fe/articles/department-energy-issues-request-information-materials-withstand-harsh-environments> [↑](#endnote-ref-3)