



NATIONAL SCIENCE FOUNDATION  
2415 EISENHOWER AVENUE  
ALEXANDRIA, VIRGINIA 22314

**NSF 23-119**

## Dear Colleague Letter: DOE Water Power Technologies Office and NSF Engineering Research Initiation Special Emphasis Areas

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June 15, 2023

Dear Colleague:

The Engineering Directorate (ENG) of the National Science Foundation, in partnership with the Water Power Technologies Office (WPTO) of the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE), announces a special funding focus on new science and engineering proposals submitted to the Engineering Research Initiation (ERI) solicitation (see <https://new.nsf.gov/funding/opportunities/engineering-research-initiation-eri>) in topical areas of mutual interest (as described below). We are excited by these opportunities and encourage researchers to contribute to our sustainable future by participating in these important funding focus areas. Topically relevant awards from this opportunity may be funded by ENG and/or WPTO funds.

The objective of the [ERI](#) solicitation is to build engineering research capacity across the nation by investing in new academic investigators who have yet to receive research funding from Federal Agencies. The Engineering Research Initiation (ERI) program will support new investigators as defined in the ERI solicitation as they initiate their research programs and advance in their careers as researchers, educators, and innovators.

The objective of the WPTO is to enable research, development, and testing of emerging technologies to advance marine energy as well as next-generation hydro-power and pumped storage systems for a flexible, reliable grid. To achieve these objectives, WPTO has long funded proposals on various aspects of marine energy and hydro-power systems.

### TOPICS

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Priority topics for this special funding focus include:

1. Marine Energy and Powering the Blue Economy: Marine energy has significant potential to power various markets and applications in the blue economy; specific opportunity

areas include: (1) powering micro-grids in remote coastal communities, including those currently dependent on fossil fuels; (2) power ocean-based scientific and commercial missions currently limited by incumbent energy sources; and (3) integrate with ocean and coastal-based applications like desalination and aquaculture where marine energy can uniquely improve the resilience and economic sustainability of local communities. Proposals in this research area should involve new and innovative ideas that address these opportunity areas. These ideas may involve addressing technology challenges, engaging end users in industry as well as the communities these technologies may be deployed in, and discovering and developing new use cases for marine energy integration. Proposals may incorporate research frameworks to help understand and mitigate socioeconomic risks of marine energy development.

2. Hydro-power and Climate Change Impacts: Hydro-power is an important part of the Nation's energy portfolio and currently provides about 7% of U.S. electricity generation each year, but climate change is impacting the future of hydro-power and the services it provides. These services include balancing intermittent renewables like wind and solar on the grid, including through pumped storage hydro-power, and providing black start capabilities after extreme events like hurricanes and fire, and serving as flood protection and water supply for irrigation, consumption, and recreation. Addressing the impact of climate change on water availability and hydroelectric generation requires researching fundamental questions in climatology and hydrology, impacts on ecosystems, and risks and opportunities for hydro-power operation and planning at basin scales or larger. Proposals in this research area should seek to advance climate, hydrologic, water resource, or power systems monitoring or modeling as it relates to climate change impacts at watershed or energy-shed scales.

## PROCESS

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A proposer to the NSF ERI program solicitation does not need to take any additional steps to be considered for co-funding through this partnership. All ERI proposals in these topical areas will be considered for this funding, with the exception of proposals that have a DOE staff member as an unfunded partner. Such collaborations could be considered for funding with NSF funds, but not with WPTO funds. All proposals in these areas of mutual interest must be well-aligned with an NSF core program that accepts ERI proposals. Submissions should follow the requirements and adhere to the deadlines posted in the [ERI](#) solicitation. Proposals that are considered for co-funding by WPTO may be shared with WPTO staff to assess alignment with WPTO's research interests, and the unattributed reviews and panel summaries for those proposals may also be shared with WPTO.

**Proposers are encouraged to discuss topical alignment with the cognizant NSF Engineering Directorate program director in advance of submission.**

General questions about the ERI mechanism may be directed to [eri@nsf.gov](mailto:eri@nsf.gov).

Questions about the topic descriptions in this Dear Colleague Letter may be directed to [water.sbir@ee.doe.gov](mailto:water.sbir@ee.doe.gov).

Sincerely,

Susan Margulies  
Assistant Director  
Directorate for Engineering

Alejandro Moreno  
Acting Assistant Secretary  
Office of Energy Efficiency and Renewable Energy U.S. Department of Energy