

Notice of Intent No. DE-FOA-0002807

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0002792

DISCLAIMER: This “Notice of Intent” is for informational purposes only; the Department of Energy is not seeking comments on the information in this notice and applications are not being accepted at this time. Any information contained in this notice is subject to change.

The Office of Energy Efficiency and Renewable Energy (EERE) intends to issue a Funding Opportunity Announcement (FOA) entitled “Funding Opportunity in Support of the Hydrogen Shot and a University Research Consortium on Grid Resilience,” that will address two unique areas of interest: one with topic areas focused on supporting the DOE Hydrogen Shot on behalf of the Hydrogen and Fuel Cell Technologies Office and a second EERE-wide topic area focused on grid resilience through a university research consortium.

Building a clean and equitable energy economy and addressing the climate crisis is a top priority of the Biden Administration. This anticipated FOA will advance the Biden Administration’s goals to achieve carbon pollution-free electricity by 2035 and to “deliver an equitable, clean energy future, and put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050¹” to the benefit of all Americans. The Department of Energy is committed to pushing the frontiers of science and engineering, catalyzing clean energy jobs through research, development, demonstration, and deployment, and ensuring environmental justice and inclusion of underserved communities. The activities to be funded under this FOA will support the government-wide approach to the climate crisis by driving the innovation that can lead to the deployment of clean energy technologies, which are critical for climate protection and resilience.

As part of the whole-of-government approach to advance equity across the Federal Government, it is the policy of the Biden Administration that:

[T]he Federal Government should pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality. Affirmatively advancing equity, civil rights, racial justice, and equal opportunity is the responsibility of the whole of our government. Because advancing equity requires a systematic approach to embedding fairness in decision-making processes, executive

¹ Executive Order 14008, “Tackling the Climate Crisis at Home and Abroad,” January 27, 2021

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departments, and agencies (agencies) must recognize and work to redress inequities in their policies and programs that serve as barriers to equal opportunity.

By advancing equity across the Federal Government, we can create opportunities for the improvement of communities that have been historically underserved, which benefits everyone. As part of this approach, this anticipated FOA will encourage the participation of underserved communities and underrepresented groups.

EERE anticipates that the FOA may include the following five topics under two Areas of Interest, as follows:

Area of Interest 1: Hydrogen and Fuel Cell Technologies in Support of Hydrogen Shot

The research, development, and demonstration (RD&D) to be funded under this area aims to support the goals of DOE's Hydrogen Shot,² which targets affordable clean hydrogen production at \$1/kg within a decade, and the H2@Scale Initiative,³ which aims to advance affordable hydrogen production, transport, storage, and utilization to enable decarbonization and revenue opportunities across multiple sectors.

Topic 1) HydroGEN: Solar Fuels from Photoelectrochemical and Solar Thermochemical Water Splitting

DOE's advanced water splitting (AWS) materials consortium, HydroGEN, has made significant progress in the areas of photoelectrochemical (PEC) and solar thermochemical (STCH) hydrogen production pathways through materials discovery and development. However, there is still significant ground to be covered in the AWS R&D materials space to enable low cost and large-scale hydrogen production from these advanced pathways. This topic will solicit applications for collaborative R&D projects that leverage HydroGEN's world-class capabilities and expertise to advance a PEC or STCH pathway with potential to achieve an interim target of \$2/kg H₂ and an ultimate target of \$1/kg H₂. The utilization of abundant, low-cost perovskite materials as photo-absorbers, catalysts, catalyst supports, and/or redox materials in a promising PEC or STCH solar hydrogen process is of particular interest.

Topic 2) Development and Validation of Sensor Technology for Monitoring and Measuring Hydrogen Losses

In this topic, DOE will seek to address potential issues associated with hydrogen emissions which can contribute to overall greenhouse gas (GHG) emissions, particularly as a result of hydrogen leakage or losses across the value chain from production through end use. DOE will seek applications to develop commercially viable hydrogen sensor

² [HydrogenShot | Department of Energy](https://www.energy.gov/eere/fuelcells/hydrogen-shot), <https://www.energy.gov/eere/fuelcells/hydrogen-shot>

³ [H2@Scale | Department of Energy](https://www.energy.gov/eere/fuelcells/h2scale), <https://www.energy.gov/eere/fuelcells/h2scale>

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technologies capable of environmental monitoring, with a specific interest in high-resolution sensing and quantification of hydrogen losses in outdoor applications where hydrogen levels need to be monitored on-site at very low concentrations. Properties of interest include parts-per-billion level sensitivity, quantification capability, rapid response and recovery time, resistance to weather elements, and selectivity to hydrogen in ambient air.

Topic 3) Materials-based Hydrogen Storage Demonstrations

This topic area will seek applications for demonstration projects that establish and validate the potential for materials-based hydrogen transport and storage technologies that could provide benefits over traditional compressed or liquid transport and storage systems in a specified non-onboard-vehicle application. All classes of hydrogen carriers and storage materials relevant to transport and stationary storage are of interest, including adsorbents, all types of metal hydrides, and hydrogen-rich liquids. Use cases may include any high-impact applications identified in the H2@Scale initiative, including the energy, industrial and chemical, and transportation sectors. This topic will strongly encourage approaches other than ammonia production, which is covered elsewhere within the DOE portfolio.

Topic 4) M2FCT: High Performing, Durable, and Low-PGM Catalysts/Membrane Electrode Assemblies (MEAs) for Medium- and Heavy-duty Applications

This topic area will solicit applications that, in coordination with the Million Mile Fuel Cell Truck (M2FCT) consortium, will develop innovative catalysts integrated into MEAs that will reduce the cost and enhance the durability and performance of proton exchange membrane fuel cell stacks for medium- and heavy-duty transportation applications, in line with DOE targets.

Area of Interest 2: Improving Electricity Grid Resilience

This area of interest is funded by multiple EERE offices and will target electricity grid resilience, a DOE priority in which hydrogen and other renewable energy technologies will play a key role. Modernizing and expanding the electricity grid will make the nation's energy sector more resilient, while enabling the buildout of affordable, reliable, clean energy to support President Biden's goal of 100% clean power by 2035.

Topic 5: University Research Consortium on Grid Resilience

This topic will seek to establish a regionally diverse university research consortium to support states and tribes, both individually and regionally, in developing the tools, data, analysis, plans, criteria, and methods needed to develop and implement successful electricity grid resilience programs, establish decarbonization and emission reduction goals, and prioritize infrastructure investments aimed at achieving these goals. The University Research Consortium on Grid Resilience (URCGR) will have established

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agreements with universities in Canada and Mexico to conduct research on a broad array of energy sources and topics and foster information sharing on best practices and cross-border dependencies. The URCGR will work collaboratively with tribes, states, regions, industry, utilities, and other stakeholders to support grid resilience planning and pilot projects that may serve as a model for other states, tribes, and regions.

For all topic areas, EERE envisions awarding financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award will be approximately two to four years.

In general, teaming arrangements that include multiple stakeholders across academia, industry, national laboratories as appropriate, and across technical disciplines are strongly encouraged. For example, teams that include multiple partners are preferred over applications that only include a single organization. Teams that include representation from diverse entities such as, but not limited to: Minority Serving Institutions (MSIs), including Historically Black Colleges and Universities (HBCUs)/Other Minority Institutions (OMIs), or through linkages with Opportunity Zones, are encouraged.⁴ Applicants are also encouraged to include individuals or student organizations from groups historically underrepresented in Science, Technology, Engineering and Math (STEM) education on their project teams.

EERE is compiling a Teaming Partner List to facilitate the widest possible national participation in the formation of applicant teams for this potential FOA. The list allows organizations who may wish to participate in an application to express their interest to other potential applicants and to explore potential partners.

The Teaming Partner List will be available on EERE Exchange at <https://eere-Exchange.energy.gov> under NOI number DE-FOA-0002807 until the FOA is released (after which it will be moved to the FOA application site and remain open until the close of the full application period). The Teaming Partner List will be updated at least weekly. Any organization that would like to be included on this list should submit the following information to HFTOFOA@ee.doe.gov, with the subject line "Teaming Partner Information": Topic Area(s) of Interest, Organization Name, Contact Name, Contact Address, Contact Email, Contact Phone,

⁴ Minority Serving Institutions (MSIs), including HBCUs/OMIs as educational entities recognized by the Office of Civil Rights (OCR), U.S. Department of Education, and identified on the OCR's Department of Education U.S. accredited postsecondary minorities' institution list. See <https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>. Opportunity Zones were added to the Internal Revenue Code by section 13823 of the Tax Cuts and Jobs Act of 2017, codified at 26 U.S.C. 1400Z-1. The list of designated Qualified Opportunity Zones can be found in IRS Notices [2018-48 \(PDF\)](#) and [2019-42 \(PDF\)](#). Further, a visual map of the census tracts designated as Qualified Opportunity Zones may also be found at [Opportunity Zones Resources](#). Also see, [frequently asked questions](#) about Qualified Opportunity Zones.

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Organization Type (including MSI designation or disadvantaged community status, if relevant), Area of Technical Expertise, and Brief Description of Capabilities.

By submitting a request to be included on the Teaming Partner List, the requesting organization consents to the publication of the above-referenced information. By facilitating this Teaming Partner List, EERE does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the Teaming Partner List. EERE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

This Notice of Intent is issued so that interested parties are aware of the EERE's intention to issue this FOA in the near term. All of the information contained in this Notice is subject to change. EERE will not respond to questions concerning this Notice. Once the FOA has been released, EERE will provide an avenue for potential Applicants to submit questions.

EERE plans to issue the FOA on or about August 2022 via the EERE eXCHANGE website <https://eere-exchange.energy.gov/>. If Applicants wish to receive official notifications and information from EERE regarding this FOA, they should register in EERE eXCHANGE. When the FOA is released, applications will be accepted only through EERE eXCHANGE.

In anticipation of the FOA being released, Applicants are advised to complete the following steps, which are **required** for application submission:

- Register and create an account on EERE eXCHANGE at <https://eere-exchange.energy.gov/>. This account will allow the user to register for any open EERE FOAs that are currently in EERE eXCHANGE. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission.

Beginning on July 8, 2022,⁵ eXCHANGE will be updated to integrate with [Login.gov](https://login.gov/). As of August 5, 2022, potential applicants will be required to have a Login.gov account to access [EERE eXCHANGE](https://eere-exchange.energy.gov/). As part of the eXCHANGE registration process, new users will be directed to create an account in Login.gov. Please note that the email address associated with Login.gov must match the email address associated with the eXCHANGE account. For more information, refer to the Exchange Multi-Factor Authentication (MFA) Quick Guide in the [Manuals section](#) of eXCHANGE.

Questions related to the registration process and use of the EERE eXCHANGE website should be submitted to: EERE-eXCHANGESupport@hq.doe.gov

- Register with the System for Award Management (SAM) at <https://www.sam.gov>.

⁵ Dates are tentative and subject to change.

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Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in SAM registration. Please update your SAM registration annually. Upon registration, SAM will automatically assign a Unique Entity ID (UEI).

- Register in FedConnect at <https://www.fedconnect.net/>. To create an organization account, your organization's SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect_Ready_Set_Go.pdf
- Register in Grants.gov to receive automatic updates when Amendments to a FOA are posted. However, please note that applications will not be accepted through Grants.gov. <http://www.grants.gov/>. All applications must be submitted through EERE eXCHANGE.

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