

Notice of Intent No. DE-FOA-0003142

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0003141

The U.S Department of Energy (DOE)'s Office of Energy Efficiency and Renewable Energy (EERE) intends to issue, on behalf of the Wind Energy Technologies Office (WETO) and the Office of Electricity (OE), a Funding Opportunity Announcement (FOA) entitled "Innovative DESigns for high-performAnce Low-cost HVDC Converters (IDEAL HVDC)".

The activities under this anticipated FOA 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. Specifically, the planned FOA would invest in research and development to support continued innovation and cost reduction for high-voltage direct current (HVDC) voltage source converter (VSC) transmission systems. This investment is intended to enable the grid upgrades needed to cost effectively integrate increasing renewable energy generation on to the grid of the future, both onshore and offshore.

HVDC technology is a key enabler for large scale deployment of offshore wind as well as land-based renewable generation. DOE has set the groundwork for continued investment in this space.

As part of the [Building a Better Grid Initiative](#), DOE and Bureau of Ocean Energy Management (BOEM) hosted a series of Atlantic Offshore Wind transmission scoping calls and convening workshops throughout 2021-2023. The associated action plan's [preliminary findings](#) include a recommendation for HVDC standardization and interoperability to promote a multi-terminal HVDC (MTDC) system transmission solution. WETO's [Atlantic Offshore Wind Transmission Study](#) and the DOE Grid Deployment Office's [National Transmission Planning Study](#) analyze future transmission systems that incorporate established HVDC technology. Additionally, the studies incorporate MTDC given projections that a high Technology Readiness Level will be available soon.

In May 2022, WETO and OE co-hosted a three-day HVDC Workshop that brought together key stakeholders to discuss the current state-of-the-art of HVDC systems and identify gaps in the research that need to be filled to advance the technology. Some of the critical gaps identified included the development and advancement of standards to aid in the manufacturability and interoperability of HVDC systems, the research & development of wide bandgap semiconductor devices and other technologies to increase the power capacity of the technology, and the improvement of HVDC circuit breakers for fault protection on the HVDC system.

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The HVDC workshop informed Topic Area 1 (High-Voltage Direct Current for Offshore Wind Transmission) of WETO's [DE-FOA-0002828](#) (Bipartisan Infrastructure Law (BIL) FOA to Address Key Deployment Challenges for Offshore, Land-Based, and Distributed Wind) that was released in December of 2022. Relevant subtopics under Topic Area 1 (TA 1) of the funding opportunity announcement included HVDC standardization and benchmark system development (TA 1a), MTDC basic controls and functional requirements development (TA 1b), and curriculum creation for education and workforce development (TA 1c). OE also released a [HVDC American-Made Prize](#) in March 2023 to promote “new innovative solutions to technical challenges in HVDC through the development of new hardware, controls, and advanced concepts.”

In the [relevant House Report to the Consolidated Appropriations Act, 2023](#), DOE was directed to initiate a HVDC “moonshot” initiative to reduce the cost of HVDC technology. This directive prompted targeted information gathering and another stakeholder workshop held on May 10th, 2023 to collect baseline cost figures and barriers to widespread adoption of HVDC systems. Through these activities, DOE established a [HVDC Cost REduction \(CORE\) Initiative](#) to reduce the combined capital, operating, and maintenance cost of VSC HVDC systems by 35% by 2035. The target annual levelized cost of HVDC converter substations would be \$210/MW/kV by 2035.

It is anticipated that the FOA may include the following Topic Area:

Topic Area 1: Innovative Designs for HVDC VSC Technology

Target areas for innovation under this topic include power capacity of the converter, size and power density of the converter substation, and the lifespan of the system.

EERE and OE envision awarding multiple financial assistance awards in the form of cooperative agreements. The estimated period of performance for each award would be approximately 3 years.

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

EERE and OE plan to issue the FOA sometime between late September and late November 2023 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.

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DOE is also compiling a Teaming Partner List to facilitate the formation of project teams for this anticipated FOA. The Teaming Partner List allows organizations that may wish to participate on a project to express their interest to other applicants and to explore potential partnerships.

The Teaming Partner List will be available on EERE eXCHANGE and will be regularly updated to reflect new teaming partners who provide their organization's information.

SUBMISSION INSTRUCTIONS: View the Teaming Partner List by visiting the EERE eXCHANGE homepage and clicking on "Teaming Partners" within the left-hand navigation pane. This page allows users to view published Teaming Partner Lists. To join the Teaming Partner List, submit a request within eXCHANGE. Select the appropriate Teaming Partner List from the drop-down menu and fill in the following information: Investigator Name, Organization Name, Organization Type, Topic Area, Background and Capabilities, Website, Contact Address, Contact Email, and Contact Phone.

DISCLAIMER: 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 the Teaming Partner List, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are identifying themselves for placement on this Teaming Partner List. DOE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

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

- Register and create an account in EERE eXCHANGE at <https://eere-eXCHANGE.energy.gov>. This account will allow the user to apply to any open EERE FOAs that are currently in EERE eXCHANGE.

To access EERE eXCHANGE, potential applicants will be required to have a [Login.gov](https://login.gov) account. As part of the eXCHANGE registration process, new users are directed to create an account in [Login.gov](https://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.

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. Questions related to the registration process and use of the EERE Exchange website should be

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submitted to: EERE-eXCHANGESupport@hq.doe.gov

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

NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

- 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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