



**U.S. Department of Energy
Advanced Research Projects Agency-Energy
Announcement of Teaming Partner List
for Upcoming Funding Opportunity:
Disruptive DC Converters for Grid Resilient Infrastructure to Deliver
Sustainable energy (DC-GRIDS)**

The Advanced Research Projects Agency-Energy (ARPA-E) is considering issuing a Notice of Funding Opportunity (NOFO) entitled Disruptive DC Converters for Grid Resilient Infrastructure to Deliver Sustainable energy (DC-GRIDS) to target transformative technologies that would enable a multi-terminal high-voltage direct current transmission (MT-HVDC) grid. This MT-HVDC grid would accelerate adoption of offshore power transmission, conversion of high voltage alternating current (HVAC) corridors to HVDC, and interconnection of the three U.S. electrical grids to rapidly expand grid capacity while improving resiliency and performance. The purpose of this Teaming Partner List announcement is to facilitate the formation of new project teams to respond to the potential NOFO. Any NOFO issued in the future would provide specific program goals, technical metrics, and selection criteria. If there are any inconsistencies between this announcement and the potential NOFO, the NOFO language would be controlling.

Specifically, this program would focus on:

- Novel submodules and modular high-voltage power electronic valves; and
- Technologies that enable highly compact multi-terminal converter stations.

The focus on novel high-voltage power electronic valves is to enable lower-cost, vendor-agnostic, and mass-produced kilovolt-level (kV) submodules and greater than 30 kV-rated modular converter valves with standardized interoperability and redundancy. This will enable low-cost and compact multi-terminal converter stations.

Similarly, the focus on MT-HVDC converter station technology is to develop standardized, highly compact, vendor-agnostic, lower-cost stations enabling high grid resiliency, capacity release of the existing grid, and significantly improved flexibility and operational performance. The goal is to enable conversion of existing AC substations into HVDC converter stations for a networked DC grid via a 65% footprint reduction from the conventional HVDC stations. Additionally, an 80% volume reduction of offshore converter stations is required to achieve lower-cost and higher-speed offshore wind technology deployment. This ambitious effort to lower costs, standardize the MT-HVDC designs, and reduce the size of converter stations will fast-track transmission build-out on existing infrastructure and rights-of-way.

Furthermore, the program would aim to develop high-fidelity electromagnetic transient models of submodules, valves, HVDC converters, and associated components to aid real-time simulations and emulations and multi-terminal AC and DC mixed grid operation. The fidelity of certain models would be validated with hardware developed under this potential future program.



ARPA-E held a workshop on this topic in June 2024. Information on this workshop can be found at <https://arpa-e.energy.gov/events/macro-electronic-multi-terminal-grid-workshop>.

ARPA-E strongly encourages outstanding scientists and engineers from different organizations, scientific disciplines, and technology sectors to form new project teams, particularly with expertise in power electronics and other related fields. Partnership with system integrators, equipment vendors, developers, and utilities and/or independent system operators (ISOs) is expected. Interdisciplinary and cross-sector collaboration spanning organizational boundaries enables and accelerates scientific and technological outcomes that were previously viewed as extremely difficult, if not impossible, to achieve.

The Teaming Partner List is being compiled to facilitate the formation of new project teams. The Teaming Partner List will be available on ARPA-E eXCHANGE (<http://arpa-e-foa.energy.gov>), ARPA-E's online application portal, starting in October 2024. The Teaming Partner List will be updated periodically until the close of the Full Application period to reflect new Teaming Partners who have provided their information.

Any organization that would like to be included on this list should complete all required fields in the following form: <https://arpa-e-foa.energy.gov/Applicantprofile.aspx>. Required information includes Organization Name, Contact Name, Contact Address, Contact Email, Contact Phone, Organization Type, Area of Technical Expertise, and Brief Description of Capabilities.

By submitting your information to this Teaming Partner List, you consent to the publication of the above-referenced information. **By facilitating this Teaming Partner List, ARPA-E does not endorse or otherwise evaluate the qualifications of the entities that self-identify for placement on the Teaming Partner List.** ARPA-E will not pay for the provision of any information, nor will it compensate any respondents for the development of such information. Responses submitted to other email addresses or by other means will not be considered. **Participation in and utilization of this list is completely voluntary.** ARPA-E will not identify or facilitate connections through the list and participation in the list has no bearing whatsoever on the evaluation of applications submitted to the potential funding opportunity.

This list does not constitute a NOFO. A NOFO does not exist at this time. Applicants must refer to the NOFO, expected to be issued by November 2024, for instructions on applying and for details on how projects will be funded.