



U.S. Department of Energy
Advanced Research Projects Agency – Energy
Announcement of Teaming Partner List
for an upcoming Funding Opportunity Announcement:
SOLID ION CONDUCTORS FOR ELECTROCHEMICAL ENERGY
TECHNOLOGIES

The Advanced Research Projects Agency – Energy (ARPA–E) intends to issue a new Funding Opportunity Announcement (FOA) in January, 2016 for technologies to transform the properties of solid ion conductors for devices using alkaline exchange membranes (e.g., fuel cells and electrolyzers), lithium metal batteries, flow batteries, and other electrochemical technologies. Many technology gaps in these devices stem from deficiencies in solid ion conductors, which lack an optimized suite of properties such as: ionic conductivity, selectivity, chemical stability, electronic conductivity, thermal stability, mechanical properties, processing, device integration, and cost. The intended goal of the this program is to create new ion conductors that achieve a much more complete set of desired properties by overcoming difficult technical tradeoffs that historically have hindered commercial success (e.g. tradeoffs between ionic conductivity and chemical stability). This program will likely operate at the intersection of materials development, processing, and device integration. ARPA–E held a workshop on this topic in February 2015; information on this workshop can be found at the webpage <http://arpa-e.energy.gov/?q=workshop/solid-ion-conductors-energy-applications-workshop> . ARPA-E also released a request for information on this topic in August found at the website <https://arpa-e-foa.energy.gov/Default.aspx?Archive=1#FoalDc59463ae-110a-40c9-a347-5da6e23069ae>.

Currently, ARPA–E anticipates that this program will have four areas of interest.

1. Chemically-stable alkaline conductors
2. Lithium conductors that enable the use of lithium metal for batteries
3. Highly selective conductors for flow batteries or other liquid reactant cells
4. Other ion conductors with high impact in energy applications that impact ARPA-E mission areas

In order to realize the goals of this program, expertise in the following areas may be useful:

(i) solid state ionics, (ii) polymer chemistry, (iii) ceramic materials, (iv) polymer/inorganic composites, (v) mechanical properties of materials, especially at interfaces, (vi) functional glasses, (vii) morphological engineering of ion conduction channels, (viii) self-forming and self-healing mechanisms, (ix) low temperature, continuous processing of inorganic materials, (x) process engineering and scale up, etc.

As a general matter, ARPA–E strongly encourages outstanding scientists and engineers from different organizations, scientific disciplines, and technology sectors to form new project teams. Interdisciplinary and cross-sector collaboration spanning organizational boundaries enables and accelerates the achievement of scientific and technological outcomes that were previously viewed as extremely difficult, if not impossible.

The Teaming Partner List is being compiled to facilitate the formation of new project teams. ARPA-E intends to make the Teaming Partner List available on ARPA–E eXCHANGE (<http://ARPA-E-foa.energy.gov>), ARPA–E’s online application portal, in December 2015. Once posted, 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 the Teaming Partner list should complete all required fields in the following link: <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 a response to this Notice, 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 themselves 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.

This Notice does not constitute a FOA. No FOA exists at this time. Applicants must refer to the final FOA, expected to be issued in January 2016, for instructions on submitting an application and for the terms and conditions of funding.