



**U.S. Department of Energy  
Advanced Research Projects Agency – Energy**

**Announcement of Teaming Partner List for an upcoming  
Funding Opportunity Announcement:**

***New Program in Life Cycle Assessment for Carbon Negative Buildings***

The Advanced Research Projects Agency – Energy (ARPA-E) is considering issuing a new Funding Opportunity Announcement (FOA) to utilize atmospheric CO<sub>2</sub> in the manufacture of building materials and design of whole-buildings that are capable of storing carbon within the finished product (Primary Solicitation). The objective of this program would be to nullify embodied emissions while driving the transformation of buildings into carbon sinks. As a component of this program, ARPA-E is considering funding a team (or teams) through a separate solicitation to perform Life Cycle Assessments (LCAs) in conjunction with the Building Materials and Design Teams, which would be selected under the Primary Solicitation, to analyze the environmental impacts of various carbon negative building materials under development through the program and to enable comparisons between materials and entire buildings consistently and transparently with sensitivity analyses.

ARPA-E anticipates that in order to successfully analyze the program's Building Materials and Design Teams' projects, an LCA team would need to develop:

- (1) Cradle-to-grave LCA modeling frameworks for rapid screening and quantification of LCA impacts of building materials and/or whole buildings, including comparative LCAs between proposed building materials and incumbent materials, as well as hot spot analyses for nascent materials. These materials could be derived from a variety of feedstocks, including purpose grown and residue biomass, as well as, direct air capture and point source CO<sub>2</sub>, and use a wide range of processing methods.
- (2) Dynamic LCA frameworks that track cumulative and temporal life cycle impacts over a building's lifetime. ARPA-E is interested in a framework that leverages dynamic LCA to understand how life cycle impacts change and accumulate over time.
- (3) Spatial-temporal modeling tools to estimate site-specific parameters important for LCA of different feedstocks for building materials, leading to the incorporation of land use change impacts in product level LCAs.

ARPA-E held a workshop on these topics on March 23 and 25, 2021. Information from this workshop can be found at the event webpage (<https://arpa-e.energy.gov/events/carbon-negative-building-materials-workshop>).

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. Multidisciplinary 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. Furthermore, ARPA-E strongly encourages involving industry partners to advise and collaborate with these project teams, with the goal of achieving successful industry adoption and integration of the innovative technologies these projects teams develop.

A 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 (<https://arpa-e-foa.energy.gov>), ARPA-E's online application portal, in July 2021. 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 Announcement, respondents 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.

**This Announcement does not constitute a Funding Opportunity Announcement (FOA). No FOA exists at this time.** Applicants must refer to the final FOA, expected to be issued August 2021, for instructions on submitting an application, the desired technical metrics, and for the terms and conditions of funding.