



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

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

**Establishing validation sites for field-level emissions quantification of
agricultural bioenergy feedstock production**

The Advanced Research Projects Agency – Energy (ARPA-E), concurrently with this Teaming Partner List Announcement, is issuing a new Targeted Topic under Funding Opportunity Announcements (FOAs) DE-FOA-0001953 and DE-FOA-0001954 to (1) focus attention of technical and research communities on the challenges and benefits of establishing “ground truth” sites in feedstock production environments as a means to validate emerging sensors and sensor systems capable of quantifying field-level emissions, (2) encourage dialogue amongst technology developers, feedstock producers and relevant agricultural stakeholders about leveraging these field sites, and (3) provide a timetable for the submission of Full Applications.

Ethanol and other bio-based fuels have the potential to provide an emissions-free source of energy on a net basis, but not without a shift in feedstock production practices. Current feedstock production practices are driven by yield, and low profit margins leave feedstock growers with limited options for increasing productivity; often, this comes in the form of over-fertilization, which produces unnecessary emissions, impacts water quality, and has uncertain returns (e.g. an estimated \$267–702 million dollars of fertilizer value is lost each year). While these impacts become clear when aggregated to the regional or national scale, field-level contributions remain unknown. This lack of visibility, combined with the absence of economic incentives beyond yield, leaves feedstock producers to estimate and assume the risk of new management practices to their primary revenue stream (i.e. yield). By establishing sites and protocols for measuring the impact of management practices on both yield and the environment, this funding opportunity aims to bridge the technology gap between feedstock producers and existing market incentives that can de-risk sustainable management practices and defray the cost of monitoring their impact.

ARPA-E will provide financial support to teams that include production farms that could market directly to ethanol and other biofuel producers to develop datasets of current production inputs (e.g. fertilizer, chemicals, fuel) and outcomes (e.g. yield, emissions, water quality) in a commercial production environment. In doing so, this funding opportunity aims to fund the creation of “gold-standard” datasets to (i) pilot data capture and transfer methods for supply-chain-wide LCA, (ii) validate new, low-cost technology approaches to measuring and improving feedstock production efficiency, and (iii) provide new high-resolution data to the R&D community for technology development (e.g. remote sensing to reduce physical footprint of high-resolution monitoring; new modeling, prediction and extrapolation techniques). ARPA-E held a workshop on this topic in February 2018; information on this workshop can be found at the webpage (<https://arpa-e.energy.gov/?q=workshop/energy-smart-farm-distributed-intelligence-networks-highly-variable-and-resource>).



ARPA-E seeks to fund the development of “ground truth” solutions that establish measurements and protocols for emissions monitoring at the field level and provide agronomic insight. The primary goal of this targeted topic is to fund project teams to establish publically available open-source, high-resolution datasets to support testing and validation of emerging biofuel production monitoring technologies. In order to realize the goals of this program, expertise in the following areas may be useful:

(i) Establishing a data protocol for quantifying field-level emissions, including soil carbon storage; (ii) Developing clear methods for assessing commercial solutions for emissions quantification at the field level; (iii) Garnering stakeholder input and collaboration across the supply chain. (iv) Securing and sharing field-level datasets both during and after the period of performance; (v) Engaging community members across the energy-water-food nexus to share best practices, collaborate on technology challenges, and encourage data standardization and transparency.

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 teams, with the ultimate goal of achieving successful industry adoption and integration of a new risk-driven operational and planning paradigm.

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 September 2019. 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, 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 Announcement does not constitute a FOA. Applicants must refer to the final Targeted Topic issued under DE-FOA-0001953 and DE-FOA-0001954, for instructions on submitting an application and for the terms and conditions of funding.