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

Announcement of Teaming Partner List for Upcoming Funding Opportunity Announcement: Grid Overhaul with Proactive, High-speed Undergrounding for Reliability, Resilience, and Security (GOPHURRS)

The Advanced Research Projects Agency Energy (ARPA-E) intends to issue a Funding Opportunity Announcement (FOA) entitled Grid Overhaul with Proactive, High-speed Undergrounding for Reliability, Resilience, and Security (GOPHURRS) to solicit applications for financial assistance to fund technologies to transform the construction of underground medium voltage power distribution grids in urban and suburban areas by rapidly drilling shallow subsurface along the terrain and concurrently installing conduits, while avoiding hidden underground obstacles (e.g., geologic anomalies, existing infrastructure) with advanced look-ahead sensors.

The program's overarching goal is to significantly reduce the cost, increase the speed, and improve the safety of the undergrounding operations and the surrounding community, resulting in rapid expansion and conversion of the distribution grid to an underground system, providing greater reliability, resilience, and security of power infrastructure in the United States.

To achieve this goal, GOPHURRS intends to fund innovative underground civil construction technologies that are minimally disruptive to the surface (e.g., small rig footprint, fast mobilization/demobilization, low power requirement, low noise and hazardous wastes), automated to the greatest extent possible (with the ultimate goal of autonomous drilling, concurrent construction of conduits, ducts, vaults), and equipped with enhanced situational intelligence (e.g., real-time detection of other buried utilities and obstacles, steerable drilling tools to avoid damages) will need to be developed.

ARPA-E held a workshop on this topic in July 2022; Information on this workshop can be found at https://arpa-e.energy.gov/events/undergrounding-workshop.

As described in more detail below, the purpose of this announcement is to facilitate the formation of new project teams to respond to the upcoming GOPHURRS FOA. The FOA will provide specific program goals, technical metrics, and selection criteria; and the FOA terms are controlling. For purposes of the Teaming Partner List, the following summarizes current planning for the FOA:

ARPA-E anticipates that the FOA will target research of two technical categories with an option to develop an integrated system of both categories:
Category 1: Construction tools with high speeds (complete conduit installation within boring time of conventional tools) and maneuverability in order to create >5" I.D. conduits suitable for pulling medium voltage power cables at depths of up to 6 feet with minimal disruptions to the surface.

Category 2: Sensors that characterize near-surface geology, existing underground infrastructure and obstacles in order to provide real-time, look-ahead underground intelligence to assist underground construction operations with required speed and minimal risk of utility strikes and cross borings.

Expertise in the following Technical Areas may be useful in responding to the FOA: (i) drilling tools and operations (e.g. experience in drilling for infrastructure installation, oil and gas, mining, geothermal exploration), (ii) robotics and remote operations, (iii) underground civil construction and engineering, (iv) materials, coatings, liners for power conduit construction, (v) additive/subtractive manufacturing, (vi) integrated multi-sensor platforms, (vii) AI/ML, data analytics, and digital twin, (viii) near-surface characterization (ix) novel underground sensors based on emerging technologies (e.g., quantum sensors).

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. 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 November 2022. 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 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, respondents consent to the publication of the above-referenced information. **By facilitating and publishing this Teaming Partner List, ARPA-E is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are self-identifying themselves for placement on this Teaming Partner List. ARPA-E reserves the right to remove any inappropriate responses to this Announcement (including lack of sufficient relevance to, or experience with, the technical topic of the Announcement).** 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 Funding Opportunity Announcement (FOA). No FOA exists at this time. Applicants must refer to the final FOA, expected to be issued in December 2022, for instructions on submitting an application, the desired technical metrics, and for the terms and conditions of funding.