



**U.S. Department of Energy
Advanced Research Projects Agency – Energy
Announcement of Teaming Partner List
for Upcoming Funding Opportunity Announcements:
Grid Overhaul with Proactive, High-speed Undergrounding for
Reliability, Resilience, and Security (GOPHURRS & GOPHURRS
SBIR/STTR)**

The Advanced Research Projects Agency-Energy (ARPA-E) intends to issue a Funding Opportunity Announcements (FOA), entitled, “Grid Overhaul with Proactive, High-speed Undergrounding for Reliability, Resilience, and Security” (GOPHURRS & GOPHURRS SBIR/STTR) to solicit applications for financial assistance to fund the development of 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, and reducing human errors for cable splice installations.

The GOPHURRS program's overarching goal is to significantly reduce the cost, increase the speed, reduce errors, 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 & GOPHURRS SBIR/STTR intend to fund the development of 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 automated cable splicing), and equipped with enhanced situational intelligence (e.g., real-time detection of other buried utilities and obstacles, steerable drilling tools to avoid damages).

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 & GOPHURRS SBIR/STTR FOAs. The FOAs 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 FOAs:

ARPA-E anticipates that the FOAs will target research of three technical categories with an option to develop an integrated system of more than one category:



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.

Category 3: Automated cable splicing machines that can fully or partially automate steps involved in cable splicing in order to eliminate human errors and to further improve the reliability of underground power lines. Advanced splices with machine operable designs and/or improved performance.

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.

ARPA-E is compiling a Teaming Partner List for GOPHURRS & GOPHURRS SBIR/STTR as an optional tool that potential applicants may choose to utilize to facilitate the formation of new project teams and identify potential collaborations. Teaming partners include organizations and individuals who can offer expertise, facilities, or other complementary resources toward a potential ARPA-E project. The teaming list identifies partners' capabilities as well as their areas of interest, understanding that expertise and experience in one field can often be applied successfully to a new field. **This list is completely voluntarily to participate in and utilize.** ARPA-E will not identify or facilitate connections through the teaming list and participation in the list has no bearing whatsoever on the evaluation of applications submitted to the GOPHURRS & GOPHURRS SBIR/STTR FOAs.

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 FOAs, expected to be issued in January ~~January~~ **March** 2023, for instructions on submitting an application, the desired technical metrics, and for the terms and conditions of funding.