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LEGAL ALERT

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DOE'S Advanced Research Projects Agency - Energy Announced A $125 Million Open Funding Opportunity To Support Disruptive New Technologies

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On January 7, 2015, the Department of Energy's Advanced Research Projects Agency - Energy ("ARPA-E") announced an open funding opportunity for up to $125 million ("OPEN 2015"). The program supports energy research and development projects for disruptive technologies in transportation and stationary applications.

OPEN 2015 may be accessed by clicking here: http://1.usa.gov/1wZGnVB.

The OPEN 2015 solicitation is ARPA-E's third solicitation, since ARPA-E's launch in 2009, seeking to support new disruptive technologies, the previous two solicitations having been issued in 2009 and 2012. The OPEN 2015 solicitation is in addition to any funding opportunity announcements ("FOAs") that ARPA-E may periodically issue. Unlike the FOAs, which generally fund specific technical innovations in a specific energy area, the OPEN 2015 solicitation is aimed at supporting a full-range of energy-related technologies. ARPA-E anticipates modifying the OPEN 2015 solicitation in May 2015 to provide more details and information.

Application Eligibility

OPEN 2015 seeks to fund transformational projects that pursue novel approaches to energy innovation across a full spectrum of energy technologies. ARPA-E provided a list of technologies that is not intended to limit, but may exemplify, eligible areas of research, which are:

- Renewable and non-renewable electricity generation;
- Electricity transmission, storage, and distribution;
- Energy efficiency for buildings, manufacturing, commerce, and personal use; and
- All aspects of transportation, including the production and distribution of renewable and non-renewable fuels, electrification, and energy efficiency in transportation.

There are no well-defined technical targets that an applicant must meet to be eligible under the OPEN 2015. However, ARPA-E is interested in supporting high-impact technologies that:

- Reduce imported energy;
- Reduce energy-related emissions; and
- Improve energy efficiency.

ARPA-E will only consider technologies that have the high potential to change the energy future. The burden of demonstrating the high potential of any technology applying for the OPEN 2015 rests with the applicant.

Along with the requirement for high potential technologies, ARPA-E will not consider applications that contain or consist of any of the following:

- Submitted in response to a current FOA or renewal submissions;
- Basic research aimed at discovery or fundamental knowledge generation;
- Large-scale demonstration projects of existing technologies;
- Incremental improvements to existing technologies;

- Not based on sound scientific principles (e.g., violates a law of thermodynamics);
- Not transformational technology;
- No potential to become disruptive;
- Not scientifically distinct from activities funded by other entities, including the Department of Energy;
- Do not propose an R&D plan; or
- Do not meet the eligibility criteria and do not fall into a category, as set forth below.

Technology Categories

The OPEN 2015 solicitation requires applicants to identify a category among the following:

- Category 1: Renewable Power (Non-Bio)
  - Wind, including capture and conversion technologies, blade design and materials, generation, magnetic materials, and other;
  - Geothermal, including pumps, drilling, resource identification technologies, robust equipment, low temperature generation, and other;
  - Hydro, including ocean, osmotic, tidal, and other;
  - Solar, including concentrators, materials, cell configurations, conversions into fuel, conversions without PV conversion, solar thermal conversions, and other;
  - Power electronics, including semiconductors, magnetic materials, transistors, substrates, device packaging, and other; and
  - Other technologies that do not fit in the above sub-categories.
- Category 2: Bioenergy
  - Biomass, including technologies that increase yield and sustainability and decrease cost of production and water use;
  - Biofuel, including conversions of feedstock into fuels by using biological agents, thermochemical conversions, hybrid approaches to biomimetics, and other;
  - Bioenergy supply chain, including feedstock collection and handling; and
  - Other bioenergy technologies, such as bioreactors, biosensors, microbial fuel cells, bioproducts, and other technologies that do not fit in the above categories.
- Category 3: Transportation
  - Alternative fuels, including non-bio based substitutes for gasoline/ diesel;
  - Engines, including improved internal combustion, turbines, and other;
  - Electric motors;
  - Fuel cells;
  - Advanced vehicle designs and materials, including ultralightweight vehicles, advanced components, new vehicle designs and architectures, and other;
  - Transportation management, including traffic management, self-driving cars, transportation behavior, and other advanced scenarios;
  - Power electronics, including semiconductor materials, magnetic materials, substrates, transistors, capacitors, and other;
  - Non-vehicular transportation, include advanced airplanes, marine vessels, trains, human-powered vehicles, and other;

- Batteries, including batteries for hybrid electric vehicles, plug-in hybrid electric vehicles, battery electric vehicles, and other;
- Non-battery storage, including thermal storage, supercapacitor, and other; and
- Other technologies that do not fit in the above sub-categories.

- Category 4: Conventional Generation (Non-Renewable)
  - Combined processes, including conventional generation that use a combination of technologies, such as fuel cells and turbines, and other;
  - Stationary engines and turbines;
  - Stationary fuel cells;
  - Nuclear power generation, including enhanced fission, fusion, materials, and other;
  - Carbon capture, use, and storage;
  - Exploration and extraction, including sensors, imaging technologies, predictive models and algorithms, drills, pumps, and other;
  - Planning and operations technologies;
  - Combustible gas infrastructure, including storage, transportation, handling, monitoring materials, tanks, pipelines, sensors, pumps, and other;
  - Chemical and biological conversions from fossil fuels, including gas-to-liquids, coal-to-liquids, and other;
  - Water conservation, including water recovery and recirculation, dry cooling of power plants, and other; and
  - Other technologies that do not fit in the above sub-categories.
- Category 5: Grid
  - Grid transmission, including AC and DC systems, and other technologies for transmission, planning and operations on a system >69 kV;
  - Grid distribution, including AC and DC systems, and other technologies for distribution, planning and operations on a system ≤69 kV;
  - Modeling, software, algorithms, and control methodologies, including for grid planning, operations, markets, and other;
  - Grid-scale battery storage;
  - Grid-scale non-battery storage, including pumped-hydro, compressed air, high angular velocity flywheels, and other;
  - Grid reliability, including in light of increasing renewable energy sources and distributed generation; and
  - Other technologies that do not fit in the above sub-categories.
- Category 6: Building Efficiency
  - Combined heat and power, including new designs and scenarios;
  - Heating and cooling;
  - Energy demand management, including demand response, smart meters, automatic control systems, and other;
  - Lighting, including advanced and efficient lighting technologies;

- Building envelope, including designs leading to better energy efficiency that can be applied to windows, insulation, roofing, and other; and
- Other technologies that do not fit in the above sub-categories.

- Category 7: Other
  - Water production and reuse, including providing efficient fresh water and other;
  - Thermal energy storage;
  - Advanced manufacturing, including efficient manufacturing methods and other;
  - Behavior and education, including socio-economic technologies, research, and education to use energy in efficient ways; and other;
  - Appliance and consumer electronics, including refrigerators, washers, dryers, televisions, stoves, computers, phones, and other;
  - Data centers and computation, including efficiency of large-scale computers, data centers, computational infrastructure, and other;
  - Industrial material production, including efficient production of glass, paper, iron, steel, plastics, aluminum, and other;
  - Industrial processes;
  - Heat recovery, including thermoelectrics, Sterling engines, heat exchangers, conversion of waste heat, bottoming cycles, heat capture models, materials, devices, and other;
  - High-temperature materials for generation technologies;
  - Semiconductors;
  - Portable power, including piezoelectrics, portable fuel cells, batters, and other;
  - Critical materials, including alternatives for magnetics, phosphors, catalysts, and other; and
  - Other technologies that do not fit in the above categories and sub-categories.

Funding

The OPEN 2015 solicitation may award up to $125 million, subject to the availability of appropriated funds, to any one, multiple, or no awardees. Any individual award may vary between $1 million and $10 million. ARPA-E anticipates making 30-50 awards under the OPEN 2015. The performance period for awards made under OPEN 2015 will be between 18 and 36 months, with an anticipated start date of February 1, 2016.

An award recipient will be required to provide at least 20% of the total project cost, as cost share, and ARPA-E will view favorably any application that provides more than 20% cost share. For certain entities, such as small businesses and educational or non-profit institutions, the cost share may be less than 20%.

Application Deadlines

Applicants interested in applying for the OPEN 2015 solicitation must submit their materials as follows:

Application Steps	Deadline
Notice of Intent	5 pm ET, February 20, 2015
Concept Paper	5 pm ET, February 27, 2015
Full Application	5 pm ET, TBD
Replies to Reviewer Comments	5 pm ET, TBD
Selection Notification	5 pm ET, TBD

To learn more and discuss the parameters of the OPEN 2015 solicitation, please contact:

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