



## Department of Energy Funding Opportunities for Clean Energy

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The following briefly summarizes funding opportunities for “clean energy” projects (which we have defined broadly to include projects like smart grid technology and carbon sequestration) available from the U.S. Department of Energy (DOE). We have divided the list by clean energy area and outlined current Funding Opportunity Announcements (FOAs). The American Recovery and Reinvestment Act of 2009 (ARRA) included \$6.7 billion in authorized funds for energy efficiency and renewable energy programs to be distributed by DOE, and some opportunities described below have already begun to flow from those funds.

### DOE Loan Guarantee Program

ARRA created a new program called the Renewable Energy and Electric Power Transmission Loan Guarantee Program. There are three categories of eligible projects: renewable energy systems that generate electricity or thermal energy, electric power transmission systems, and “leading edge” biofuels projects. Applicants must commit to commence construction by September 30, 2011. The total amount of loans guaranteed is expected to be \$60 billion to \$120 billion depending on the credit quality of the projects receiving guarantees.

DOE has yet to issue regulations to implement this program. We understand, however, that DOE intends to launch the program in July with the publication of a solicitation.

### Smart Grid Technology

DOE has an existing FOA for the Smart Grid Investment Grant Program (SGIG). The goal is to spur development and installation of digital technology to modernize the electricity delivery system. The FOA has a list of smart grid functions that projects may support or advance and a list of eligible investments for funds. Applications are to be submitted under the following topic areas: (i) equipment manufacturing; (ii) customer systems; (iii) advanced metering infrastructure; (iv) electric distribution systems; (v) electric transmission systems; and (vi) integrated and/or crosscutting systems. DOE has \$3.4 billion in funding available to award grants of up to \$20 million for smaller projects and \$200 million for larger projects. **The FOA has three pairs of deadlines by which an applicant may submit a letter of intent followed by an application: July 16 and August 6, 2009; October 23 and November 4, 2009; and February 10 and March 3, 2010.**

DOE has a second existing FOA to demonstrate the effectiveness of technologies and present a case for their implementation nationwide to improve energy efficiency. The FOA has two areas of interest, and the applicant must specify the area of interest in the application. The first area of interest is to demonstrate regional smart grid projects to quantify the costs and benefits, verify the technology, and validate business models. The second area of interest is to demonstrate major, utility-scale, energy storage installations to establish the costs and



benefits and verify the reliability and durability of the technology at a scale that can be readily adapted nationwide. Within the second area of interest, DOE has identified the following energy storage technologies of specific interest: (i) battery storage for utility load shifting or for wind farm diurnal operations; (ii) frequency regulation ancillary services; (iii) distributed energy storage for grid support; (iv) compressed air energy storage; and (v) other promising technologies. DOE has \$615 million in funds available in amounts of up to \$100 million for the first area of interest and up to \$60 million in the second area of interest. **The deadline for applications is August 26, 2009.** View more information on the Smart Grid Investment Grant Program [here](#).

### Carbon Capture and Sequestration

ARRA contained \$3.4 billion of funding for carbon capture and sequestration (CCS). On June 8, 2009, DOE issued the first of two expected FOAs that will distribute \$2.4 billion of that funding. The FOA seeks to increase investment in clean industrial technologies and sequestration projects. The FOA identifies two main technology areas for funding: large-scale industrial CCS projects from industrial sources and innovative concepts for beneficial carbon dioxide use. In the first, projects should demonstrate advanced technologies to capture carbon dioxide from industrial sources and sequester it in underground formations. In the second, projects should demonstrate innovative concepts to use carbon dioxide. DOE has \$1.42 billion in funding available and has structured the FOA to have two phases. After the initial planning and design phase, another cutoff will occur, with the remaining projects receiving much larger grants for the construction and operation phase (up to \$400 million). **The deadline is August 7, 2009.**

A second FOA is for DOE's Clean Coal Power Initiative. The goal is to demonstrate advanced coal-based power generation technologies that use low-emission technology. DOE is seeking projects that can capture carbon dioxide with at least 50 percent efficiency and make progress toward a capture efficiency of 90 percent, sequester a minimum of 300,000 tons per year of carbon dioxide emissions, and increase the cost of electricity less than 10 percent or 35 percent, depending on the type of combustion system. Proposals can integrate with the existing geologic carbon dioxide sequestration FOA. DOE has \$1.4 billion in funds available (\$800 million from the ARRA) to split between projects selected under the prior January 20, 2009, deadline and the August 24, 2009, deadline. There is no limit on the size of awards. **Letters of intent are due July 24, 2009, and final applications are due August 24, 2009.**

DOE has an existing FOA for carbon sequestration site characterization. The goal is to characterize at least ten geographic formations characteristic of local geology with the potential to store at least 30 million tons of carbon dioxide. The FOA seeks to develop data sets of formation characteristics to determine the usefulness of these sites based on an assessment set forth in the FOA. DOE has \$49.75 million of ARRA funds available to grant at least ten cooperative agreements of up to \$4.975 million. **The deadline is August 3, 2009.**



## Biomass

DOE has announced its intent to issue two FOAs this summer related to ethanol blends and algal and advanced biofuels. The FOAs will (1) fund an expansion of infrastructure for ethanol fuels at retail fuel locations and (2) seek to advance algal biofuels and fungible biofuels research and development. DOE's announcement did not include potential funding amounts or timelines, other than the expectation that the FOAs will be issued this summer.

### Advanced Research Projects Agency – Energy

DOE has an existing FOA for the Advanced Research Projects Agency – Energy (ARPA-E). The goal of ARPA-E is to fund transformational energy-related technologies, which are designed to disrupt the status quo and revolutionize industry. Funding is designed to move promising technologies beyond one of two points. First, funding can be used to determine whether laboratory-stage technology can become real-world technology. Second, funding can be used to develop an immature technology to the point that the risks are low enough for industry funding to take over. **Concept papers were due by June 10, 2009.** DOE will then notify applicants whether they are eligible to submit a full application. DOE expects to award up to \$150 million, primarily in the \$2-5 million range, but potentially as high as \$20 million.

### Geothermal

DOE has an existing FOA for Enhanced Geothermal Systems (EGS) Demonstrations. DOE is seeking projects in a variety of geologic formations that will quantitatively demonstrate and validate stimulation techniques that successfully sustain sufficient fluid flow and heat extraction rates for five to seven years that produce up to 50 MW per year per project. DOE will also consider projects targeting underutilized geothermal resources. DOE expects to make up to 10 awards of up to \$25 million and has a total of \$90 million available. **The deadline is July 30, 2009.**

DOE has a second existing FOA related to EGS. DOE has targeted 23 specific areas of enhanced reservoir creation and is seeking projects to advance the technology in those areas toward targeted goals. DOE expects to give \$56 million in grants in 2009. DOE expects to make 20 to 30 awards with maximum grant amounts varying based on the area of research. **The deadline is July 17, 2009.**

DOE has an existing FOA for its geothermal technologies program. The FOA has three topic areas: (i) validation of innovative exploration technologies; (ii) geothermal energy production from low temperatures, coproduced fluids, and geopressured resources; and (iii) geothermal data development. DOE expects to give a total of \$170 million in grants, with \$100, \$50, and \$20 million going to the three topics, respectively. DOE expects to make up to 65 grants of varying amounts based on topic area. **The deadline is July 22, 2009.**

DOE has an existing FOA for geothermal heat pump installation. The FOA seeks to promote ground source heat pumps through funding technology demonstration projects to overcome



commercialization barriers for geothermal heat pumps. Other topics under the FOA include data gathering and analysis on system costs, performance, and installation techniques and creation of a national certification standard for the industry. DOE has \$50 million of ARRA funds from which it intends to grant up to 21 awards of up to \$5 million, depending on topic area. **The deadline is August 6, 2009.**

### Solar

DOE has an existing FOA to study the effects of high-penetration solar electricity on the reliability and stability of the power grid. DOE is seeking projects in four topic areas: (i) development of modeling tools; (ii) field verification of high-penetration of solar power into the distribution grid; (iii) modular power architecture; and (iv) demonstration of photovoltaics and energy storage for smart grids. Projects must include a utility partner. DOE intends to issue 11 awards of up to \$18 million depending on topic area. **The deadline is July 30, 2009.**

### Wind

DOE has an existing FOA for construction of a Turbine Drivetrain Testing Facility. DOE intends to make a single grant for up to \$45 million to support the construction of a drivetrain testing facility featuring an instrumented dynamometer test stand that can accommodate drivetrains rated 5 to 15 MW. **A mandatory letter of intent is due July 22, 2009, and final applications are due August 13, 2009.**

### Vehicle Technologies Program

DOE had an FOA that just closed on May 13, 2009 to accelerate the introduction of electric drive vehicles into the consumer market. The goal of the FOA was to quickly reach a high volume of production of such vehicles in order to reduce oil consumption. The program emphasized, but was not limited to, Plug-in Hybrid Electric Vehicles and included grants for infrastructure improvements to support electric drive vehicles. \$378 million available for grants through funding from the stimulus package.

*For further information on this topic, please contact V&E attorneys [John S. Decker](#) or [Christopher J. Terhune](#). Visit our website to learn more about Vinson & Elkins' [Energy](#), [Energy Regulation](#), and [Climate Change Regulation](#) practices. If you are interested in these topics, visit our [Stimulus Act Insights Website](#).*

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