



U.S. DEPARTMENT OF ENERGY LOAN PROGRAMS OFFICE

Advanced Fossil Energy Projects Loan Guarantee Solicitation

The Loan Programs Office (LPO) has issued the Advanced Fossil Energy Projects Solicitation, which makes up to \$8 billion in loan guarantees available to support innovative, advanced fossil energy projects in the U.S. that reduce, avoid, or sequester greenhouse gases. Eligible projects can utilize any fossil fuel and may come from across the spectrum of production and use, including resource development, energy generation, and end use.

Fossil fuels currently account for more than 80 percent of U.S. energy production and are projected to remain a significant energy source in the future. As a result, President Obama's Climate Action Plan directed LPO to issue this solicitation to accelerate the commercialization of cleaner and more efficient fossil energy technology. This is an important part of the Administration's long-term plan to achieve a cleaner and more secure energy future as part of its "all-of-the-above" energy strategy.

The Advanced Fossil Energy solicitation is authorized by Title XVII of the Energy Policy Act of 2005 through Section 1703 of the Loan Guarantee Program. LPO currently manages a more than \$30 billion portfolio of approximately 30 closed and committed projects nationwide, including leading edge renewable energy projects, advanced vehicle manufacturing facilities, and one of the first new nuclear reactors being constructed in the U.S. in more than three decades.

THE SOLICITATION IDENTIFIES FOUR ADVANCED FOSSIL ENERGY TECHNOLOGY AREAS

The solicitation seeks applications for projects that cover a range of technologies. These technologies could include any fossil technology that is new or significantly improved, as compared to more established technologies in service in the U.S., and reduces greenhouse gas emissions. While eligibility will ultimately be evaluated on a project by project basis, LPO has identified four technology areas of interest under this solicitation:

Technology Area 1: Advanced Resource Development

Resource development and extraction can be an energy intensive process and a major contributor of lifecycle greenhouse gas emissions associated with fossil fuel use. Together, the processes account for roughly five percent of the United States greenhouse gas emissions. Advances in technologies and practices associated with developing coal, natural gas, and oil resources offer the ability to improve efficiencies and reduce upstream greenhouse gas emissions associated with producing and delivering fossil energy to end users. DOE anticipates qualifying projects may include, but are not limited to, the following: novel oil and gas drilling, stimulation, and completion technologies that avoid, reduce, or sequester greenhouse gases; use of associated gas production to reduce flaring; coal-bed methane recovery to reduce methane emissions into the atmosphere associated with coal mining; underground coal gasification; and methane emissions capture from energy production, transmission, or distribution.

Technology Area 2: Carbon Capture

Fossil-based energy systems are point-sources that generate CO₂ in their processes and typically emit large volumes of CO₂ into the atmosphere. Currently, these facilities account for over half of the United States' annual greenhouse gas emissions. The purpose of carbon capture technology is to selectively remove CO₂ from process streams and flue gases, and produce a concentrated stream that can be compressed and transported to a permanent storage site. DOE anticipates qualifying projects may

include, but are not limited to, the following: CO₂ capture from synthesis gases in fuel reforming or gasification processes; CO₂ capture from flue gases in traditional coal or natural gas electricity generation; and CO₂ capture from effluent streams of industrial processing facilities.

Technology Area 3: Low-Carbon Power Systems

Fossil-based electricity generation traditionally involves fuel combustion with air as a heat and power source, producing a flue gas with low concentrations of CO₂, and, therefore, making the adoption of carbon capture more difficult. Novel processes have been proposed that generate fossil-based electricity but do not require traditional carbon capture technology in order to reduce CO₂ emissions. DOE anticipates qualifying projects may include, but are not limited to, the following: coal or natural gas oxycombustion; chemical looping processes; hydrogen turbines; and synthesis gas, natural gas, or hydrogen based fuel cells.

Technology Area 4: Efficiency Improvements

Industrial fossil-based systems typically utilize only a fraction of the energy available from their feedstocks, and often reject a large amount of low quality and waste heat from their processes. Technology improvements to increase the efficiency of fossil-based systems can result in reduced emissions-per-product and better fuel utilization. DOE anticipates qualifying projects may include, but are not limited to, the following: combined heat and power; waste heat recovery; novel oil refining technologies high-efficiency distributed fossil power systems; and high temperature materials for fossil-based systems.

UNDERSTANDING THE APPLICATION PROCESS

With the issuance of the Advanced Fossil Energy Projects Solicitation, LPO is now accepting and processing applications.

In an effort to provide timely responses to applicants, applications will undergo a two-part review: Part I will determine the initial eligibility of a project and whether it is ready to proceed. Applications that clear Part I then proceed to Part II, which includes the full application process. Viable projects that are granted a conditional commitment from DOE then undergo the complete underwriting process and negotiation of terms for the loan guarantee.

Under the solicitation, the first deadline for Part I applications is February 28, 2014. The first deadline for Part II applications is May 30, 2014. Following these initial deadlines, there are rolling Part I and Part II deadlines through January 2016.

To submit an application or learn more about the solicitation, please visit lpo.energy.gov.