[6450-01-P]

DEPARTMENT OF ENERGY

Notice of Intent to Prepare an Environmental Impact Statement for Lake Charles Carbon Capture and Sequestration Project, Lake Charles, Louisiana

AGENCY: Department of Energy

ACTION: Notice of Intent to Prepare an Environmental Impact Statement and Notice of Proposed Floodplain and Wetlands Involvement

SUMMARY: The U.S. Department of Energy (DOE) announces its intent to prepare an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), the Council on Environmental Quality's (CEQ) NEPA regulations (40 CFR Parts 1500-1508), and DOE's NEPA implementing procedures (10 CFR Part 1021), to assess the potential environmental impacts of providing financial assistance for the construction and operation of a project proposed by Leucadia Energy, LLC (Leucadia). DOE selected this project for an award of financial assistance through a competitive process under the Industrial Carbon Capture and Sequestration (ICCS) Program.

The Lake Charles Carbon Capture and Sequestration Project (Lake Charles CCS Project) would demonstrate: (1) advanced technologies that capture carbon dioxide (CO_2) emissions at the Lake Charles Cogeneration Gasification Project (the LCC Gasification Project) to be located on the west bank of the Calcasieu River in southern Calcasieu Parish, Louisiana; and (2) permanent storage of a portion of the CO_2 injected as part of existing enhanced oil recovery (EOR) operations in the Hastings oil field south of Houston, Texas. During the DOE demonstration phase of the project, approximately 4 million tons per year of CO_2 from two Acid Gas Removal (AGR) units would be captured, compressed and transported through a new pipeline connecting to Denbury Onshore, LLC's (Denbury's) existing Green Pipeline. The Green Pipeline is designed to transport approximately 800 million standard cubic feet of CO_2 per day (about 17 million tons per year) and currently transports CO_2 from natural sources to existing EOR operations along the Gulf Coast. A comprehensive research monitoring, verification, and accounting (MVA) program would be implemented on a portion of the existing CO_2 EOR

operations at the Hastings field to confirm permanent storage of about one million tons per year during the demonstration period.

The EIS will inform DOE's decision on whether to provide financial assistance to Leucadia for the Lake Charles CCS Project. DOE proposes to provide Leucadia with up to $261.4 million of cost-shared financial assistance. The financial assistance would apply to the planning, designing, permitting, equipment procurement, construction, startup, and demonstration of the CCS technology and MVA program. DOE's contribution of $261.4 million would constitute about 60 percent of the estimated total development and capital cost of the CCS project, which is estimated to be $435.6 million (2010 dollars). The project will further the objective of the ICCS Program by demonstrating advanced technologies that integrate CO_2 capture at industrial sources and monitor the sequestration of CO_2 in underground formations.

DOE is issuing this Notice of Intent (NOI) to: (1) inform the public about DOE's proposed action and Leucadia's proposed project; (2) announce the public scoping meeting; (3) solicit comments for DOE's consideration regarding the scope and content of the EIS; (4) provide notice that the proposed project may involve impacts to floodplains and wetlands; and (5) invite those agencies with jurisdiction by law or special expertise to participate as cooperating agencies in the preparation of this EIS. DOE does not have regulatory jurisdiction over the Lake Charles CCS Project or its connected action, the LCC Gasification Project. DOE's decisions are limited to whether and under what circumstances it would provide financial assistance to the project. As part of the EIS process, DOE will consult with interested Native American Tribes and Federal, state, regional and local agencies.

DATES: DOE invites comments on the proposed scope and content of the EIS from all interested parties. Comments must be received within 30 days after publication of this NOI in the *Federal Register* to ensure consideration. In addition to receiving comments in writing, by email, telephone, or fax [See **ADDRESSES** below], DOE will conduct two public scoping meetings in which government agencies, private-sector organizations, and individuals are invited to present oral and written comments or suggestions with regard to DOE's proposed action, alternatives, and potential impacts. DOE will consider these comments during the development of the EIS. The scoping meetings will be held at Pearland Junior High, 4719 Bailey Road,

Pearland, TX, on May 16, 2011, and at Westlake City Hall, 1001 Mulberry Street, Westlake, Louisiana, on May 17, 2011. Oral comments will be heard during the formal portion of the scoping meeting beginning at 7:00 p.m. [See **Public Scoping Process** below]. The public is also invited to provide comments and learn more about the project and the proposed action at informal sessions at the same locations beginning at 5:00 p.m. Various displays and other information about DOE's proposed action and the Lake Charles CCS Project will be available at the scoping meetings. Representatives from DOE and Leucadia will be present at the informal sessions to discuss the proposed project and the EIS process.

ADDRESSES: Written comments on the scope of the EIS and requests to participate in the public scoping meeting should be addressed to: Ms. Pierina Fayish, U.S. Department of Energy, National Energy Technology Laboratory, 626 Cochrans Mill Road, P.O. Box 10940, Pittsburgh, PA 15236. Individuals and organizations who would like to provide oral or electronic comments should contact Ms. Fayish by telephone (412-386-5428 or toll-free 1-888-322-7436, ext. 5428); fax (412-386-4604); electronic mail (LeucadiaEIS@NETL.DOE.GOV), or formal mail submitted to the address given above.

FOR FURTHER INFORMATION CONTACT: For further information about this project, contact Ms. Pierina Fayish, as described above. For general information on the DOE NEPA process, please contact Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-54), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585; telephone (202-586-4600); fax (202-586-7031); or leave a toll-free message (1-800-472-2756).

SUPPLEMENTARY INFORMATION:

Background

In Section 703 of the Energy Independence and Security Act of 2007 (Public Law 110-140), Congress directed DOE to "carry out a program to demonstrate technologies for the large-scale capture of carbon dioxide from industrial sources." DOE subsequently sought applications in a funding opportunity announcement (FOA) entitled "Carbon Capture and Sequestration from Industrial Sources and Innovative Concepts for Beneficial CO_2 Use" on June 8, 2009 (Financial Assistance Funding Opportunity Number DE-FOA-0000015, amended July 17, 2009). Congress

appropriated funding for ICCS in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering DOE's existing carbon capture and sequestration objectives.

Projects funded under this ICCS program are cost-shared collaborations between the government and industry to increase investment in clean industrial technologies and carbon capture and sequestration projects. Under the ICCS funding opportunity, industrial firms proposed projects to meet their needs and those of their customers while furthering the national goals and objectives of DOE. The successful development of advanced technologies and innovative concepts that reduce emissions of CO_2 is a key objective of the nation's effort to help mitigate the effects of climate change.

The projects are funded, in whole or in part, with funds appropriated by the Recovery Act. The purposes of the Recovery Act are to stimulate the economy and to create and retain jobs. Accordingly, special consideration was given to projects that promote job creation, preservation, and economic recovery in an expeditious manner.

DOE's two specific objectives identified in the FOA were Technology Area 1 – Large-Scale Industrial CCS Projects from Industrial Sources; and Technology Area 2 – Innovative Concepts for Beneficial CO_2 Use. The Lake Charles CCS Project was one of three projects DOE selected under Technology Area 1, which focuses on the demonstration of advanced technologies that capture and sequester CO_2 emissions from industrial sources into underground formations or put the CO_2 to beneficial use in a manner that permanently prevents it from entering the atmosphere. Technology Area 1 includes expanding CO_2 use in EOR and obtaining information on the cost and feasibility of deployment of sequestration technologies. Therefore, under the FOA, DOE sought projects with technologies that have progressed beyond the research and development stage to a point of readiness for operation at a scale that, if successful, could be readily replicated and deployed into commercial practice within the industry.

Purpose and Need for Agency Action

The purpose and need for DOE action is to advance the ICCS program by selecting projects that have the best chance of achieving the program's objectives as established by Congress:

demonstrating the next generation of technologies that will capture CO_2 emissions from industrial sources and either sequester them or beneficially reuse them.

Leucadia's Proposed Project

Site of Proposed Project: Lake Charles, Louisiana and Brazoria County, Texas

The Lake Charles CCS Project would involve the capture and sequestration of the CO_2 from the LCC Gasification Project, a petroleum coke gasification plant to be constructed by Lake Charles Cogeneration, LLC, in Calcasieu Parish, adjacent to the Port of Lake Charles, Louisiana. As part of this project, the CO_2 would be captured, compressed, and transported for use in existing independent CO_2 EOR operations. Approximately 4 million tons per year of CO_2 from two AGR units would be compressed and delivered via a new connecting pipeline to the existing Green Pipeline for transport and use in existing EOR operations along the Gulf Coast. A research MVA program would be conducted over a portion of the existing EOR operations at the Hastings oil field to confirm permanent storage of about one million tons per year during the demonstration period. The MVA activities would supplement on-going monitoring activities conducted in conjunction with existing EOR operations at the Hastings field.

Proposed CO_2 Capture and Compression Facilities

The CCS project involves the design, procurement, installation, and testing of the AGR units, CO_2 compressors and buildings, metering station, and specific ancillary equipment. The CO_2 capture facility would consist of two Lurgi Rectisol Selective AGR units in which CO_2 is separated from the process gas. The compression facilities would include two compressors, the buildings in which the compressors are housed (each approximately 80 feet by 140 feet), and a meter station to monitor the volume of CO_2 that is exported.

Ancillary equipment and systems supporting the CO_2 capture and compression facilities would consist of: the electrical system switchgear supplying the AGR units and CO_2 compressors, load commutated inverters for starting the compressors, a chilled water supply system, two regenerative thermal oxidizers to allow environmentally compliant venting of CO_2 when required, and a propylene refrigeration system for cooling within the AGR units. All other ancillary systems such as cooling water, remote controls, external fire protection system, and

instrument air would be provided through capacity expansion or infrastructure modification prepared in advance of installation of the CO_2 capture and compression facilities.

Proposed CO_2 Pipeline and Associated Ancillary Equipment

As part of the Lake Charles CCS Project, an affiliate of Denbury would construct, own, and operate approximately 11 miles of CO_2 pipeline and associated ancillary equipment. This pipeline would connect to Denbury's existing Green Pipeline. The new pipeline would include a 16-inch outside diameter pipeline and associated valves and meter stations. The pipeline route would include a permanent right-of-way approximately 11 miles long and 50 feet wide that would parallel existing rights-of-way, such as roadways, pipelines, railroads and transmission lines to the extent practicable. The CO_2 pipeline would cross under the Houston River and Interstate Highway I-10 and connect with the existing Green Pipeline near Buhler, Louisiana.

Proposed CO_2 Sequestration and Research Monitoring, Verification and Accounting

MVA activities would be designed and implemented to demonstrate the permanent storage of approximately 1 million tons per year of the CO_2 injected in existing wells located on a portion of the Hastings oil field. This oil field is located between Alvin and Pearland, Texas, near State Highway 35. During the DOE demonstration phase of the project, the proposed research MVA program would supplement privately-funded, ongoing MVA activities conducted in conjunction with Denbury's commercial EOR operations at the Hastings field. While this oil field covers approximately 25 square miles, the MVA program would be limited to approximately 2.8 square miles, or slightly more than 10% of the field. The following MVA activities would be conducted:

- Well Integrity Testing – Logging of existing idle production wells and testing of plugged and abandoned wells to detect CO_2 migration through non-sealing well bores.
- Flood Conformance Testing – Augmentation of measurements to observe and model movement of CO_2 in subsurface formations during the EOR operations.
- Above-zone Monitoring – Monitoring of pressures and geochemical parameters in the formations above the confining layer to detect CO_2 migration beyond the injection zone.

Proposed Project Schedule

Leucadia proposes to construct the connected LLC Gasification Project over an approximate 3-year period projected beginning in the first quarter of 2012. The gasification project is currently undergoing site preparation, including clearing and grading. The CO_2 capture and compression facilities for the Lake Charles CCS project would be constructed simultaneously with the gasification project. Leucadia has obtained the environmental permits and approvals for construction and operation of the gasification project.

The schedule for the CCS Project is contingent on receiving the necessary environmental permits and regulatory approvals for the new connecting CO_2 pipeline, as well as financial closing on all the necessary funding sources for the Lake Charles CCS Project as a whole, including DOE's financial assistance. DOE's decision to provide financial assistance for detailed design, procurement of equipment, construction, and operations will be made after completion of the NEPA process and issuance of the EIS.

Connected and Cumulative Actions

Under the cooperative agreement between DOE and Leucadia, DOE would share in the cost of the planning, designing, permitting, equipment procurement, construction, startup, and demonstration of the Lake Charles CCS Project. As part of the EIS, DOE will also evaluate and consider the impacts associated with the larger gasification project, which is considered a connected action.

The LCC Gasification Project will use a state-of-the-art process in which petroleum coke is converted into synthesis gas (syngas) that will then be converted into methanol. The gasification project would consume 2.6 million tons per year (tpy) of petroleum coke to produce over 2.2 million tpy of methanol. The gasification project would consist of five General Electric (GE) Quench Gasifiers and two trains of syngas processing, two Lurgi Rectisol Selective AGR units, a methanol unit, and Haldor Topsoe wet sulfuric acid production. At design plant capacity, four GE Quench Gasifiers would operate at their design rate, which allows one gasifier to be on hot standby or shut down for maintenance. The syngas processing includes a catalyst to convert carbon monoxide and water into hydrogen and CO_2. Hydrogen sulfide, carbonyl sulfide and CO_2 will be selectively removed from the syngas in the AGR units.

Steam created by the gasification process will generate electricity via turbines and would provide a significant portion of the energy needs of the LCC Gasification Project. Petroleum coke would be transferred from the Port of Lake Charles to the gasification project site via a conveyor system. Raw water would be supplied by pipeline from the Sabine River. The water from the Sabine River Authority (SRA) would be provided through interconnection to the existing SRA intake structure on the Sabine River Diversion Canal. LCC Gasification has received a Louisiana Pollution Discharge Elimination System permit to discharge non-contact cooling water associated with operation of the CO_2 compression system.

DOE will also analyze the cumulative impacts of both the proposed project and any other reasonably foreseeable actions. The cumulative impacts analysis will include analysis of greenhouse gas emissions and global climate change, other air emissions, and cumulative impacts on other resources. Cumulative impacts are the impacts on the environment resulting from the incremental impacts of the proposed action when added to other past, present, and reasonably foreseeable actions.

Alternatives, Including the Proposed Action

NEPA requires that an EIS evaluate the range of reasonable alternatives to an agency's proposed action. The range of reasonable alternatives encompasses those alternatives that would satisfy the underlying purpose and need for agency action. The technologies included in the ICCS program are those that best represent advanced CCS projects that are ready for operation at a demonstration scale. Once demonstrated, those technologies would be ready for deployment at a commercial scale.

DOE's NEPA regulations include a process for identifying and analyzing reasonable alternatives in the context of providing financial assistance through competitive selection of projects proposed by entities outside the Federal government. The range of reasonable alternatives in competitions for grants, loans, loan guarantees and other financial support is defined initially by the range of responsive proposals received by DOE. Unlike projects undertaken by DOE itself, the Department cannot mandate what outside entities propose, where they propose to locate their project, or how they propose to operate their project beyond expressing basic requirements in the funding opportunity announcement; and these express requirements must be limited to those that

further the program's objectives. DOE's decision is then limited to selecting among the applications that meet the ICCS goals.

Section 216 of DOE's NEPA implementing regulations requires the Department to prepare an "environmental critique" that assesses the environmental impacts and issues relating to each of the proposals that the DOE selecting official considers for an award (see 10 CFR § 1021.216). This official considers these impacts and issues, along with other aspects of the proposals (such as technical merit and financial ability) and the program's objectives, in making awards. DOE prepared a critique of the proposals that were deemed suitable for selection in this round of awards for the ICCS program.

After DOE selects a project for an award, the range of reasonable alternatives becomes the project as proposed by the applicant, any alternatives still under consideration by the applicant or that are reasonable within the confines of the project as proposed (e.g., the particular location of the processing units, pipelines, and injection sites on land proposed for the project) and a "no action" alternative.

DOE currently plans to evaluate the project as proposed by Leucadia (with and without any mitigating conditions that DOE may identify as reasonable and appropriate), alternatives still under consideration, and the no action alternative. The EIS will briefly describe alternatives previously considered by Leucadia in developing the proposed project; however, DOE does not plan to analyze these alternatives in detail because they are no longer under consideration by Leucadia and because they were not part of the proposal that Leucadia offered and DOE accepted. DOE also will consider other reasonable alternatives suggested during the scoping period.

Under the no action alternative, DOE would not provide funding to Leucadia. In the absence of financial assistance from DOE, Leucadia could reasonably pursue several options: the LCC Gasification Project would not go forward; the LCC Gasification Project would go forward without the use of CO_2 for sequestration and EOR; or both the LCC Gasification Project and Lake Charles CCS Project would proceed without monitoring of the sequestered CO_2. For the purpose of making a meaningful comparison between the impacts of DOE providing and withholding financial assistance, DOE will analyze the impacts under these three options as sub-

alternatives of the no-action alternative. Consequently, in the absence of DOE funding Denbury would continue to conduct its ongoing EOR operations.

Floodplains and Wetlands

Sections of the connected LCC Gasification Project site are within 100-year or 500-year floodplains. Site development activities include the addition of fill material that would result in elevations significantly above the local 100-year and 500-year base flood elevations. The U. S. Army Corps of Engineers (COE) conducted a jurisdictional wetland determination, and the Port of Lake Charles mitigated impacts to 26.2 acres of the wetlands through agreement with the COE and Stream Wetland Services, LLC. A COE permit to develop the LCC Gasification Plant site was issued on October 18, 2008.

With respect to the Lake Charles CCS Project, temporary and localized floodplains and wetlands impacts may occur during the construction of stream and wetlands crossings associated with pipeline construction. Wetlands also may be impacted by development of the 50-foot-wide right-of-way. Several small isolated wetlands have been identified in the U.S. Fish and Wildlife Service National Wetland Inventory (USFWS, 2010) within the Hastings MVA project area.

Potential impacts to floodplains and wetlands for all aspects of the proposed Lake Charles CCS Project and any connected actions would be evaluated in the EIS. If potential impacts are identified, DOE will include a floodplain and wetland assessment in the EIS, in accordance with its regulations in 10 CFR Part 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements.*

Preliminary Identification of Environmental Issues

DOE intends to address the issues listed below when considering the potential impacts resulting from the construction and operation of the Lake Charles CCS Project and any connected actions. This list is neither intended to be all-inclusive, nor to be a predetermined set of potential impacts. The list is presented to facilitate public comment on the planned scope of the EIS. Additions to or deletions from the list may occur as a result of this scoping process. The preliminary list of potentially affected resources or activities and their related environmental issues includes:

- *Air quality resources*: potential air quality impacts from emissions during construction and operation of the proposed project and connected actions on local sensitive receptors, local environmental conditions, and special-use areas, including impacts to smog and haze and impacts from dust and any significant vapor plumes, including greenhouse gas emissions;
- *Climate change*: potential impacts on climate as a result of CO_2 and other greenhouse gas emissions.
- *Water resources*: potential impacts from water use and consumption, wastewater discharges, and releases to streams during construction and operation of the proposed project and connected actions;
- *Infrastructure and land use*: potential environmental and socioeconomic impacts associated with the proposed project and connected actions, including delivery of materials and distribution of products (e.g., access roads, pipelines);
- *Solid wastes*: pollution prevention and waste management issues (generation, treatment, transport, storage, disposal or use), including potential impacts from the proposed project and connected actions on the generation, treatment, storage and management of hazardous materials and other solid wastes;
- *Ecological resources*: potential on-site and off-site impacts to vegetation, wildlife, threatened or endangered species and ecologically sensitive habitats from the proposed project and connected actions;
- *Floodplains and wetlands*: potential wetland and floodplain impacts from construction and operation of the proposed project, pipelines and connected actions;
- *Transportation and traffic*: potential impacts from the construction and operation of the proposed project, pipeline and connected actions, including changes in local traffic patterns, roads and rail lines, traffic hazards and traffic controls;
- *Historic and cultural resources*: potential impacts related to development of the site for the proposed project and connected actions and pipeline construction;

- *Geology and soils*: potential impacts to existing geologic and soil resources from construction and operation of the proposed project and connected actions;
- *Public health and safety issues*: potential construction-related safety, process safety and impacts associated with CO_2 capture and transport to and usage in EOR at the sequestration site;
- *Socioeconomics*: potential impacts on public services and infrastructure (e.g. schools, utilities), the creation of jobs, use of community resources and state and local tax incentives associated with the proposed project and connected actions;
- *Environmental justice*: potential disproportionate adverse impacts on minority and low-income populations associated with the proposed project and connected actions;
- *Noise*: potential impacts from construction, transportation of materials and facility operations for the proposed project and connected actions;
- *Cumulative effects*: incremental impacts of the proposed project and connected actions when added to other past, present and reasonably foreseeable future projects, including emissions of greenhouse gases and global climate change;
- *Compliance with regulatory and environmental permitting requirements*: environmental compliance and monitoring plans associated with the carbon capture equipment, pipeline construction, CO_2 sequestration activities and connected actions.

Public Scoping Process

This Notice of Intent initiates the scoping process under NEPA, which will guide the development of the Draft EIS. To ensure identification of issues related to DOE's Proposed Action and Leucadia's Proposed Project, DOE seeks public input to define the scope of the EIS. The public scoping period will end 30 days after publication of this NOI in the Federal Register. Interested government agencies, private-sector organizations and individuals are encouraged to submit comments or suggestions concerning the content of the EIS, issues and impacts that should be addressed, and alternatives that should be considered. Scoping comments should clearly describe specific issues or topics that the EIS should address. Written, e-mailed, or faxed comments should be received by May 29, 2011(see **ADDRESSES**).

DOE will conduct two public scoping meetings, to be held at Pearland Junior High, 4719 Bailey Road, Pearland, TX, on May 16, 2011, and at Westlake City Hall, 1001 Mulberry Street, Westlake, LA, on May 17, 2011. Oral comments will be heard during the formal portion of the scoping meeting beginning at 7:00 p.m. The public is also invited to provide comments and learn more about the project at informal sessions at these locations beginning at 5:00 p.m. DOE requests that anyone who wishes to provide oral comments at this public scoping meeting should contact Ms. Pierina Fayish, either by phone, e-mail, fax, or postal mail (see **ADDRESSES**).

Those who do not arrange in advance to speak may register at the meeting (preferably at the beginning of the meeting) and may be given an opportunity to speak after previously scheduled speakers. Speakers will be given approximately 5 minutes to present their comments. Those speakers who want more than 5 minutes should indicate the length of time desired in their request. Depending on the number of speakers, DOE may need to limit all speakers to 5 minutes initially and provide second opportunities as time permits. Individuals may also provide written materials in lieu of, or supplemental to, their presentations. Oral and written comments will be given equal consideration.

DOE will begin the formal meeting with an overview of Leucadia's project. The meeting will not be conducted as an evidentiary hearing, and speakers will not be cross-examined. However, speakers may be asked questions to help ensure that DOE fully understands the comments or suggestions. A presiding officer will establish the order of speakers and provide any additional procedures necessary to conduct the meeting. A stenographer will record the proceedings, including all oral comments received.

Issued in Washington, DC, this ___ day of April 2011.

Victor K. Der
Acting Assistant Secretary
Office of Fossil Energy