[6450-01-P]

## DEPARTMENT OF ENERGY

**Notice of Intent to Prepare an Environmental Impact Statement and Notice of Proposed Floodplain and Wetlands Involvement for the Kemper County IGCC Project, Kemper County, MS**

**AGENCY:** Department of Energy

**ACTION:** Notice of Intent 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 (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*), the Council on Environmental Quality NEPA regulations (40 CFR Parts 1500-1508), and the DOE NEPA regulations (10 CFR Part 1021), to assess the potential environmental impacts associated with the construction and operation of a project proposed by Southern Company, through its affiliate Mississippi Power Company (Mississippi Power), which has been selected by DOE for consideration for cost-shared funding under the Clean Coal Power Initiative (CCPI) program. In addition, the U.S. Army Corps of Engineers will

be a cooperating agency in the preparation of the EIS, and the U.S. Environmental Protection Agency Region IV has expressed an interest in also participating in the preparation of the EIS as a cooperating agency. The proposed project would demonstrate Integrated Gasification Combined Cycle (IGCC) technology using lignite coal as a feedstock for a new electrical generating plant at a site in Kemper County, Mississippi. The facilities would convert lignite coal into synthesis gas for generating electricity while minimizing sulfur dioxide, oxides of nitrogen, mercury, and particulate emissions as compared to conventional lignite-fired power plants.

The EIS will help DOE decide whether to provide a total of $294 million in cost-shared funding (15% or less of the total project cost, which is currently projected to be greater than $2 billion) for the proposed project under the CCPI program. In addition, the EIS would help DOE decide, pending receipt of an application from Mississippi Power, whether to provide a loan guarantee pursuant to the Energy Policy Act of 2005. Accordingly, the EIS will evaluate the potential impacts of the proposed project, connected actions, and reasonable alternatives. The purpose of this Notice of Intent is to inform the public about the proposed project; invite public participation in the EIS process; announce the plans for a public scoping meeting; solicit public comments for consideration in establishing the scope and content of the EIS; and provide notice of proposed floodplain and wetlands involvement.

**DATES:** To ensure that all of the issues related to this proposal are addressed, DOE invites comments on the proposed scope and content of the EIS from all interested parties. Comments must be received by October 23, 2008, to ensure consideration. Late comments will be considered to the extent practicable. In addition to receiving comments in writing and by

telephone, DOE will conduct a public scoping meeting in which agencies, organizations, and members of the general public are invited to present oral comments or suggestions with regard to the range of actions, alternatives, and potential impacts to be considered in the EIS. The scoping meeting will be held at Kemper County High School, 429 Philadelphia Road, DeKalb, Mississippi, at 7 p.m. on October 14, 2008. The public is also invited to learn more about the proposed project at an informal session at this location beginning at 5 p.m. Displays and other forms of information about the proposed agency action and the demonstration plant will be available, and DOE personnel will be present at the informal session to discuss the proposed project and the EIS process.

**ADDRESSES:** Written comments on the proposed EIS scope and requests to participate in the public scoping meeting should be addressed to: Mr. Richard A. Hargis, U.S. Department of Energy, National Energy Technology Laboratory, 626 Cochrans Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940. Individuals who would like to orally or electronically provide comments should contact Mr. Hargis directly by telephone: 412-386-6065; toll-free number: 1-888-322-7436; fax: 412-386-4604; or electronic mail: Richard.Hargis@netl.doe.gov.

**FOR FURTHER INFORMATION CONTACT:** For information about this project or to receive a copy of the draft EIS when it is issued, contact Mr. Richard A. Hargis as described above. For general information on the DOE NEPA process, contact Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-20), U.S. Department of Energy, 1000 Independence Avenue, SW, Washington, D.C. 20585-0103; telephone: 202-586-4600; fax: 202-586-7031; or leave a toll-free message at 1-800-472-2756.

**SUPPLEMENTARY INFORMATION:**

**Background and Need for Agency Action:** Since the early 1970s, DOE and its predecessor agencies have pursued research and development programs that include long-term, technically complex activities that support the development of innovative concepts for a wide variety of coal technologies through the proof-of-concept stage. However, the availability of a technology at the proof-of-concept stage is not sufficient to ensure its continued development and subsequent commercialization. Before any technology can be considered seriously for commercialization, it must be demonstrated at a sufficient scale to prove its reliability and to show economically competitive performance. The financial risk associated with such large-scale demonstration is, in general, too high for the private sector to assume in the absence of strong incentives.

The CCPI program was established in 2002 as a government/industry partnership to implement the President's National Energy Policy recommendation to increase investment in clean coal technology. The goal of the CCPI program is to accelerate commercial deployment of advanced coal technologies that provide the United States with clean, reliable, and affordable energy. Through cooperative agreements established with industry, the CCPI program plans to advance selected coal technologies to commercialization.

The Energy Policy Act of 2005 established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII of the Energy Policy Act of 2005 authorizes the Secretary of Energy to make loan guarantees for a variety of types of projects, in-

cluding projects that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." Section 1703(a)(1), 42 USC § 16513. Mississippi Power has submitted a pre-application to DOE and was invited to submit a formal application for a loan guarantee.

**Proposed Action:** The proposed action for DOE is to provide a total of $294 million in cost-shared funding under CCPI for the proposed project. DOE has already provided a portion of the total funding ($24.4 million) to Southern Company for cost-sharing for preliminary design and project definition, prior to completion of the NEPA process. In addition, DOE may also provide a loan guarantee pursuant to section 1703 of the Energy Policy Act of 2005.

The proposed IGCC electricity generating facility would be constructed on an undeveloped site of approximately 1,650-acres in Kemper County, Mississippi. The site is located in east-central Mississippi near the town of Liberty, approximately 20 miles north of the city of Meridian and consists principally of uplands and some wetlands. The uplands are mostly of managed pine timberlands, large portions of which have been clear-cut, while the wetlands are mostly mixed hardwood forest. Significant portions of the wetlands have been previously altered by human influences, including clear cutting and conversion to grazing areas. Siltation from upland silviculture has also previously impacted some wetlands. The generally undisturbed wetlands on the site have a canopy of red maple, yellow poplar and sweet gum. The site's topography is characterized by undulating sand and clay hills, and elevations vary from 400 feet above sea level along

an unnamed tributary to Chickasawhay Creek in the site's southwestern corner to 500 feet above sea level in the site's northeastern corner.

The IGCC facilities would occupy approximately 150 acres (or less than 10 percent) of the site. The rest of the site would remain undeveloped, with the exception of new transmission lines, a natural gas supply pipeline, a carbon dioxide ($CO_2$) pipeline and site access and fuel handling infrastructure.

The proposed facilities would demonstrate IGCC technology in a new power plant consisting of two lignite coal gasifiers with gas cleanup systems, two gas combustion turbines (CTs), two heat recovery steam generators (HRSG), a single steam turbine, and associated support facilities. On-site non-potable deep wells would provide approximately 6 million gallons per day of groundwater required for cooling water makeup, steam cycle makeup, and other processes. The IGCC facility would produce synthesis gas from lignite coal and use this gas to drive the two CTs. Hot exhaust gas from the gas turbines would generate steam from water in the HRSGs to drive the steam turbine; all three turbines would generate electricity. The gas turbines would be capable of operating on either natural gas or synthesis gas. At full capacity, the two new lignite coal gasifiers would be expected to use about 12,000 tons of lignite coal per day to produce synthesis gas. Combined, the three turbines would generate approximately 550 MW of electricity. This combined-cycle approach of using gas turbines and a steam turbine in tandem increases the amount of electricity that can be generated from a given amount of lignite coal.

The proposed project would minimize sulfur dioxide, oxides of nitrogen, mercury, and particulate emissions as compared to conventional lignite-fired power plants. The project would be expected to remove in excess of 99% of the sulfur dioxide produced in the IGCC process. The removal of nearly all of the fuel-bound nitrogen from the synthesis gas prior to combustion in the gas turbines would result in oxides of nitrogen emissions of less than 0.07 pounds per million Btu. At least 90% of the mercury in the lignite would be removed. Over 99% of the particulates in the synthesis gas would be removed using high-temperature, high-pressure filtration. In addition, the facility is planned for carbon capture systems sufficient to remove approximately 25% of $CO_2$. The $CO_2$ would be piped off-site for geologic sequestration via enhanced oil recovery in Jasper County, approximately 60 miles southwest of the project location. Ash generated by the gasifiers would be stored onsite or made available for appropriate recycling alternatives.

In addition to the gasifiers and turbines, new equipment for the project would include stacks, onsite deep groundwater supply wells, mechanical-draft cooling towers, synthesis gas cleanup facilities, and particulate filtration systems. The height of the proposed main stacks would be approximately 325 feet above ground. The project would also require systems for coal handling and storage, as well as plant roads, administration buildings, water and wastewater treatment systems, and ash handling and management facilities. Connected actions would include a natural gas supply pipeline, planned $CO_2$ capture systems and $CO_2$ pipeline, electric transmission facilities, and a surface lignite mine.

The overall objective of the project is to demonstrate the feasibility of this selected IGCC technology at a size that would be attractive to utilities for commercial operation. The lignite coal

gasifier is based on a technology that Southern Company, KBR Inc., and DOE have been developing since 1996 at a research facility near Wilsonville, Alabama. The technology is unique among coal gasification technologies in that it is cost-effective when using low-rank coal, including lignite, as well as coals with high moisture or high ash content. These coals comprise about half the proven U.S. and worldwide reserves.

Project activities would include engineering and design, permitting, equipment procurement, construction, startup, operations, and demonstration of the commercial feasibility of the technology. If DOE decides to implement the proposed action upon completing the EIS and issuing a Record of Decision, the approximately 3-year construction period would be expected to commence in 2010, and operation of the plant would be expected to begin in 2013. Following a 4.5-year demonstration period, the facility would continue with commercial operations immediately afterward.

**Connected Actions:** While the proposed project under the cooperative agreement would consist of the gasifiers, synthesis gas cleanup systems, two CT/HRSGs, a steam turbine, and supporting facilities and infrastructure, the EIS will also address the construction and operation of the neighboring surface lignite coal mine, associated transmission lines (and substations), $CO_2$ capture systems and $CO_2$ pipeline, and a natural gas pipeline, as connected actions.

The mine would be operated by North American Coal Corporation and would provide the primary source of fuel for the project; the secondary source of fuel would be natural gas. Mining would result in two types of landscape disturbance during the 40-year life of mine area. Actual

mining - the uncovering and removal of lignite - would disturb approximately 275 acres per year for about 40 years, or a total of about 11,000 acres. The mine would use draglines and a truck and shovel operation to remove the overburden, mine the lignite coal, and reclaim the site in accordance with a mine plan approved by the Mississippi Department of Environmental Quality. Actual mining would disturb uplands and wetlands and require stream diversions. The lignite coal would be transported by truck and /or overland conveyor. Following lignite removal, approximately 275 acres per year of mined land would be restored to approximate the pre-mine land contour and re-vegetated to a land use consistent with a mine reclamation plan approved by the Mississippi Department of Environmental Quality.

The second type of landscape disturbance is the associated mining disturbance that would result from the installation of facilities and structures supporting the actual mining operation. Facilities would include an entrance road, office, shop, fuel farm complex, dragline assembly area, employee and equipment parking areas, and electrical substations and transmission lines. Support structures would include temporary reservoirs, ponds, and associated stream diversions to route rainfall and surface water flows (e.g. streams, drainages, and tributaries) from undisturbed areas away from or around areas where actual mining disturbance would occur, and storm water sedimentation control ponds to retain and treat surface runoff from areas disturbed by the mining and reclamation operations. As mining advances, those diversions, ponds and roads that would no longer be needed to support mining would either be restored to their approximate pre-mine contour or retained as permanent post-mine structures with appropriate landowner and regulatory agency approval.

The outer boundary of the mining area would encompass approximately 31,000 acres principally in Kemper County and partially in Lauderdale County. Within this area, a total of approximately 15,500 acres would be disturbed and reclaimed over the life of the mine. These 15,500 acres would include approximately 11,000 acres for mining, approximately 4,000 acres for temporary reservoirs, ponds and stream diversions, and approximately 500 acres for mining support facilities. The mine would produce approximately 3.8 million tons of lignite per year to supply the IGCC project. The mine area has similar topographical characteristics as described for the plant site area above.

The proposed plant site is about 20 miles north of the existing Mississippi Power transmission infrastructure in the Meridian, Mississippi, metro area. New transmission facilities, including appropriate lines and substations, would be constructed to interconnect the plant to the existing grid and to provide firm transmission service for the plant's output. The new transmission lines would include construction of approximately 57 miles of 230 kilovolt (kV) transmission and approximately nine miles of 115 kV transmission. Rights-of-way (ROW) up to 125 feet would be required for these new transmission lines. The IGCC plant would also require approximately 27 miles of existing transmission lines to be upgraded. The new and upgraded transmission lines would be in Kemper, Lauderdale and Clarke counties in Mississippi. An approximately 5-mile natural gas pipeline extending due east from the proposed facilities and an approximately 60-mile $CO_2$ pipeline would also be built. The $CO_2$ pipeline would extend from the plant through Lauderdale and Clarke counties and end in Jasper County, connecting to an existing $CO_2$ pipeline used for enhanced oil recovery. The ROW for these underground facilities would be up to 75 feet wide for the $CO_2$ pipeline and 50 feet wide for the natural gas pipeline.

**Alternatives:** NEPA requires that agencies evaluate the reasonable alternatives to the proposed action in an EIS. The range of reasonable alternatives encompasses those alternatives that would satisfy the underlying purpose and need for agency action. The CCPI program was established to help implement the President's National Energy Policy recommendation to increase investment in clean coal technology, thus improving the reliability and affordability of domestic energy supplies while simultaneously protecting the environment. The CCPI program was structured to achieve National Energy Policy goals by promoting private sector initiatives to invest in demonstrations of advanced coal technologies that could be widely deployed commercially. Rather than being responsible for the siting, construction, and operation of the projects, DOE's role is limited to evaluating applications by project sponsors to determine if they meet the CCPI program goals. The same is true of DOE's role with regard to applications under the loan guarantee program.

In determining the range of reasonable alternatives to be considered in the EIS for the proposed Kemper County IGCC Project, DOE identified the reasonable alternatives that would satisfy the underlying purpose and need for agency action. Because of DOE's limited role in deciding whether to provide cost-shared funding, and possibly a loan guarantee for the project, DOE currently plans to analyze in detail the project as proposed by Mississippi Power (proposed action), the proposed action as modified by conditions (e.g., mitigation), and the no action alternative.

In analyzing the proposed action, DOE will analyze implementing options for the location of the plant footprint within the site boundaries, the route of linear facilities (transmission lines and

pipelines), options for $CO_2$ sequestration (e.g., saline aquifers), and other reasonable alternatives that may be suggested during the public scoping period.

Under the no action alternative, DOE would not provide continued funding under the cooperative agreement or provide a loan guarantee for the project. In the absence of DOE funding, Mississippi Power could reasonably pursue two options. These options will be analyzed under the no action alternative. First, the gasifiers, synthesis gas cleanup systems, CT/HRSGs and supporting infrastructure could be built as proposed without DOE funding; therefore, this option is essentially the same as the proposed action. The connected actions would remain unchanged. Second, Mississippi Power could choose not to pursue the IGCC project. None of the connected actions would likely be built. This option would not contribute to the goal of the CCPI program, which is to accelerate commercial deployment of advanced coal technologies that provide the United States with clean, reliable, and affordable energy. Similarly, the no-action alternative would not contribute to the Federal loan guarantee program goals to make loan guarantees for energy projects that "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies."

Alternatives considered by Mississippi Power in developing the proposed project will be presented in the EIS. An analysis of alternative sites has been prepared by Mississippi Power indicating that the only reasonable site alternative is the Kemper County site based on location of accessible lignite reserves near Mississippi Power's service territory, proximity to infrastructure, topography, including the location of floodplains and wetlands, and available open space. DOE will describe and consider Mississippi Power's site selection process in the EIS, however DOE

does not plan to analyze in detail the alternatives sites considered by Mississippi Power, because DOE agrees with Mississippi Power's conclusion that the sites are not reasonable alternatives.

**Floodplains and Wetlands Involvement:** Plans for siting the IGCC facility on the plant site are such that the IGCC footprint would avoid to the extent practicable wetlands and floodplains impacts. Final design for the access roads from the mine to the coal handling facilities and other ancillary plant facilities is not yet complete, but may involve impacts to both wetlands and floodplains. Impacts on wetlands and floodplains would be avoided to the extent practicable and any unavoidable impacts would be minimized and mitigated appropriately.

Linear facilities include new and upgraded transmission lines, $CO_2$ pipeline, and natural gas pipeline. Wetlands delineation surveys are not yet complete; however, it is expected that some wetland impacts would occur. Construction and operation of the linear facilities are not expected to impact floodplains. Wetland impacts would be avoided to the extent practicable and any direct impacts would be minimized and mitigated appropriately.

As noted above, the lignite mine operations would disturb uplands and wetlands and will require stream diversions. Wetlands delineation surveys are not yet complete; however, wetlands and floodplain impacts are an inevitable part of surface mine operations due to the acreage required for the operation. Minimization and mitigation of these impacts and reclamation of disturbed areas would comply with the Mississippi Department of Environmental Quality approved mine plan.

DOE will prepare a floodplain and wetlands assessment in accordance with its regulations at 10 CFR Part 1022 and include the assessment in the EIS.

**Preliminary Identification of Environmental Issues:** The following environmental issues have been tentatively identified for analysis in the EIS. This list, which was developed from preliminary internal scoping of the proposed technology, permit applications that have been filed for the proposed project, and information from similar projects, is neither intended to be all-inclusive nor a predetermined set of potential impacts, but is presented to facilitate public comment on the planned scope of the EIS. Additions to or deletions from this list may occur as a result of the public scoping process. The environmental issues include:

(1) Atmospheric Resources: Potential air quality impacts resulting from air emissions during construction and operation of the proposed Kemper County IGCC Project and the connected actions (e.g., effects of ground-level concentrations of criteria pollutants and trace metals including mercury, on surrounding areas, including those of special concern such as Prevention of Significant Deterioration Class I areas). Potential effects of greenhouse gas emissions.

(2) Water Resources: Potential effects of groundwater withdrawals and discharges of effluents to surface waters. Potential water resources impacts resulting from construction and operation of the connected actions.

(3) Infrastructure and Land Use: Potential effects on existing infrastructure and land uses resulting from the construction and operation of the proposed IGCC project and connected action facilities. For example, potential traffic effects resulting from the proposed project and potential land use impacts of committing land to power plant or temporary land use impacts of mining.

(4) Solid Waste: Pollution prevention and waste management issues, including potential solid waste impacts caused by the generation, treatment, transport, storage, and management of ash and solid wastes.

(5) Visual: Potential aesthetic impacts associated with new stacks, mechanical-draft cooling tower, two flare derricks, and other plant structures included in the IGCC plant and from the connected actions.

(6) Floodplain: Potential impacts (e.g., impeding floodwaters, re-directing floodwaters, on-site property damage) of siting structures and infrastructure within a floodplain.

(7) Wetlands: Potential effects to wetlands due to construction and operation of the power plant and the connected action facilities.

(8) Ecological: Potential onsite and offsite impacts to vegetation, terrestrial wildlife, aquatic wildlife, threatened and endangered species (other than broadly distributed and wide ranging species such as the bald eagle and red-cockaded woodpecker, the threatened Price's potato bean is the only Federally protected species known to occur in Kemper County), and ecologically sensitive habitats due to the construction and operation of the power plant and connected actions.

(9) Safety and Health: Construction-related safety, process safety, and management of process chemicals and materials.

(10) Construction: Potential impacts associated with noise, traffic patterns, and construction-related emissions.

(11) Community Impacts: Potential congestion and other impacts to local traffic patterns; socioeconomic impacts on public services and infrastructure (e.g., police protection, schools, and utilities); noise associated with project operation; and environmental justice issues with respect to the surrounding community.

(12) Cultural and Archaeological Resources: Potential impacts to such resources associated with construction of the project and connected actions.

(13) Cumulative Effects: The incremental impacts of the proposed project (e.g., incremental air emissions affecting ambient air quality) when added to other past, present, and reasonably foreseeable future actions, including the connected actions. This analysis will include potential impacts on global climate change.

The level of analysis of issues analyzed in the EIS will be in accordance with their level of importance and as determined by the scoping process. The most detailed analyses are tentatively expected to focus on potential impacts on air resources, cultural and archaeological resources, communities (noise and traffic), water resources, wetlands, and ecological resources.

**Public Scoping Process:** To ensure that all issues related to this proposal are properly addressed, DOE will conduct an open process to define the scope of the EIS. The public scoping period will end on October 23, 2008. Interested agencies, organizations, and the general public are encouraged to submit comments or suggestions concerning the content of the EIS, issues and impacts to be addressed in the EIS, and alternatives that should be considered. Scoping comments should clearly describe specific issues or topics that the EIS should address in order to assist DOE in identifying significant issues. Written, e-mailed, faxed, or telephoned comments should be communicated by October 23, 2008 (see "**ADDRESSES**").

In addition, DOE will conduct a public scoping meeting at the Kemper County High School, 429 Philadelphia Road, DeKalb, Mississippi, at 7 PM on October 14, 2008. The public is also invited

to learn more about the proposed project at an informal session at this location beginning at 5 PM. DOE requests that anyone who wishes to speak at this public scoping meeting contact Mr. Richard A. Hargis, either by phone, fax, computer, or in writing (see "**ADDRESSES**").

Individuals who do not make advance arrangements to speak may register at the meeting and will be given the opportunity to speak following previously scheduled speakers. Speakers who need more than five minutes should indicate the length of time desired in their request. Depending on the number of speakers, DOE may need to limit speakers to five-minute presentations initially, but will provide additional opportunities as time permits. Speakers can also provide written material to supplement their presentations. Oral and written comments will be given equal weight.

DOE will begin the formal meeting with an overview of the proposed Kemper County IGCC Project. DOE will designate a presiding officer to chair the meeting. The meeting will not be conducted as an evidentiary hearing, and speakers will not be cross-examined. However, speakers may be asked questions to ensure that DOE fully understands their comments or suggestions. The presiding officer will establish the order of speakers and provide any additional procedures necessary to conduct the meeting.

Issued in Washington, D.C., this 17th day of September, 2008.

**James A. Slutz**
Assistant Secretary (Acting)
Office of Fossil Energy