APPENDIX A

Environmental Synopsis CCPI Round 3

for the

American Electric Power
Mountaineer Commercial Scale
Carbon Capture and Storage Project
Mason County, West Virginia

Contract No. 326849x215
February 2011

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ENVIRONMENTAL SYNOPSIS
CCPI Round 3
DE-PS26-08NT43181
DE-FOA-0000042

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National Energy Technology Laboratory
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INTRODUCTION

The U.S. Department of Energy (DOE or the Department) prepared this Environmental Synopsis pursuant to the Department's responsibilities under section 1021.216 of DOE's National Environmental Policy Act (NEPA) Implementing Procedures set forth in 10 CFR Part 1021. This synopsis summarizes the consideration given to environmental factors and records that the relevant environmental consequences of reasonable alternatives were evaluated in the process of selecting projects seeking financial assistance under Round 3 of the Clean Coal Power Initiative (CCPI). DOE selected five applicants seeking financial assistance under CCPI Round 3 during its merit review process. In addition to financial and technical elements, DOE considered relevant environmental factors and consequences of the projects proposed to DOE in response to the funding opportunity announcements. As required by section 1021.216, this synopsis does not contain business, confidential, trade secret or other information that statutes or regulations would prohibit DOE from disclosing. It also does not contain data or other information that may in any way reveal the identity of the offerors.[1]

BACKGROUND

Coal is an abundant and indigenous energy resource and supplies almost 50 percent of the United States' electric power. Demand for electricity is projected to increase by more than 30 percent by 2030. Based on analyses conducted by the EIA, it is projected that this power increase can only be achieved if coal use is also increased. Furthermore, nearly half of the nation's electric power generating infrastructure is more than 30 years old, with a significant portion in service for twice as long. These aging facilities are - or soon will be - in need of substantial refurbishment or replacement. Additional capacity must also be put in service to keep pace with the nation's ever-growing demand for electricity. Therefore, DOE expects that nearly half of the nation's electricity needs will continue to be served by coal for at least the next several decades. Given heightened awareness of environmental stewardship, while at the same time meeting the demand for a reliable and cost-effective electric power supply, it is clearly in the public interest for the nation's energy infrastructure to be upgraded with the latest and most advanced commercially viable technologies to achieve greater efficiencies, environmental performance, and cost-competitiveness. However, to realize acceptance and replication of these advanced technologies into the electric power generation sector, the technologies must first be demonstrated (i.e., designed and constructed to industrial standards and operated at significant scale under industrial conditions).

Public Law 107-63, enacted in November 2001, first provided funding for the Clean Coal Power Initiative, or CCPI. The CCPI is a multi-year federal program tasked with accelerating the commercial readiness of advanced multi-pollutant emissions control, combustion, gasification, and efficiency improvement technologies to retrofit or repower existing coal-based power plants and for deployment in new coal-based generating facilities. The CCPI encompasses a broad spectrum of commercial-scale demonstrations that target environmental challenges, including reducing greenhouse gas (GHG) emissions, by boosting the efficiency at which coal is converted to electricity or other energy forms. The CCPI is closely linked with DOE's research and development activities directed toward creating ultra-clean, fossil fuel-based energy complexes in the 21st century. When integrated with other DOE initiatives, the CCPI will help the nation successfully commercialize advanced power systems that will produce electricity at greater efficiencies, produce almost no emissions, and create clean fuels. Improving power plant efficiency is a potentially significant way to reduce carbon dioxide (CO_2) emissions in the near- and midterm. In the longer term, the most recent future funding opportunity announcements targeted CCPI technologies employing CO_2 capture and storage, or beneficial reuse. Accelerating

[1] The five projects selected for awards are identified in this synopsis and information on these projects is available on the DOE National Energy Technology Laboratory web site at http://www.netl.doe.gov/technologies/coalpower/cctc/ccpi/index.html.

commercialization of clean coal technologies also positions the United States to supply these technologies to a rapidly expanding world market.

Congress provided for competitively awarded federal cost-shared funding for CCPI demonstration projects. In contrast to other federally funded activities, CCPI projects are not federal projects seeking private investment; instead, they are private projects seeking federal financial assistance. Under the CCPI funding opportunities, industry proposes projects that meet its needs and those of its customers while furthering the national goals and objectives of DOE's CCPI. Demonstration projects selected by the CCPI program become private-public partnerships that satisfy a wide set of industry and government needs. Through the CCPI program, industry may satisfy its short-term need to retrofit or repower a facility, develop new power generating capacity, or obtain critical economic or technical evaluation of emerging commercial-scale technologies, all for the benefit of its customers. By providing financial incentives to the energy sector that reduce risks associated with project financing and technical challenges for emerging clean coal technologies, the government: (a) supports the verification of commercial readiness leading toward the long-term objective of transitioning the nation's existing fleet of electric power plants to more efficient, environmentally sound, and cost-competitive facilities; and (b) facilitates the adoption of technologies that can meet more stringent environmental regulation through more efficient power generation, advanced environmental controls, and production of environmentally attractive energy carriers and byproduct utilization.

DOE selects projects for CCPI funding in a series of rounds, each of which starts with a Funding Opportunity Announcement (FOA) that asks project proponents to submit applications for federal cost-sharing for their demonstration projects. DOE issued the first CCPI FOA (Round 1) in March 2002 and a second FOA (Round 2) in February 2004. These funding opportunities focused on projects involving advanced coal-based power generation, including gasification, efficiency improvements, optimization through neural networking, environmental and economic improvements, and mercury control. For Round 3, DOE issued a Financial Assistance FOA on August 11, 2008 (DE-PS26-08NT43181) to solicit applications and subsequently issued Amendment 005 (as DE-FOA-0000042) on June 9, 2009, to reopen the FOA and provide a second closing date (August 24, 2009) for additional applications. Projects receiving awards under the amended FOA could be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Public Law 111-5.

Applications for demonstrations under CCPI Round 3 were evaluated against specific programmatic criteria:

- Technology merit, technical plan, and site suitability;
- Project organization and project management plan;
- Commercialization potential;
- Funding plan;
- Financial business plan.

Evaluations against these criteria represented the total evaluation scoring. However, the selection official also considered the results of the environmental evaluation and the applicant's budget information and financial management system, as well as program policy factors, in making final selections.

As a Federal agency, DOE must comply with NEPA (42 U.S.C. §§ 4321 et seq.) by considering potential environmental issues associated with its actions prior to deciding whether to undertake these actions. The environmental review of applications received in response to the CCPI Round 3 FOA was conducted pursuant to Council on Environmental Quality Regulations (40 Code of Federal Regulations (CFR) Parts 1500 - 1508) and DOE's NEPA Implementing Procedures (10 CFR Part 1021), which provide directions specific to procurement actions that DOE may undertake or fund before completing the NEPA process.

PURPOSE AND NEED

The purpose and need for DOE's selections of projects under the CCPI Program are to satisfy the responsibility Congress imposed on the Department to demonstrate advanced coal-based technologies that can generate clean, reliable, and affordable electricity in the United States.

The specific objectives of the Round 3 FOAs were:

- The CO_2 capture process must operate at a CO_2 capture efficiency of at least 90 percent;
- Progress is made toward carbon capture and sequestration (CCS) at less than a 10 percent increase in the cost of electricity for gasification systems and less than 35 percent increase for combustion and oxy-combustion systems;
- Progress is made toward CCS of 50 percent of plant CO_2 output at a scale sufficient to evaluate the full impact of the carbon capture technology on plant operations, economics, and performance; and
- At least 300,000 tons per year of CO_2 emissions from the demonstration plant must be captured and sequestered or put to beneficial use.

ALTERNATIVES

DOE received eleven (11) applications in response to the initial FOA (issued August 11, 2008) for CCPI-3, all of which were determined to have met the mandatory eligibility requirements listed in the FOA. The applications covered a wide geographic range, including sites in fourteen different states representing nearly every region of the country. In response to the reopened FOA (issued June 9, 2009), DOE received thirty eight (38) applications, of which twenty five (25) were determined to have met the mandatory eligibility requirements listed in the FOA. The requirements for the reopened FOA were the same as for the initial. The twenty five applications offered projects involving sites in nineteen different states representing nearly all geographic regions of the country. Several applicants in the initial FOA also resubmitted modified applications in response to the reopened FOA. The applications were evaluated against technical, financial and environmental factors. The criteria for evaluating applications received under CCPI-3 were published in the FOA. The technical and financial evaluations resulted in separate numerical scores; the environmental evaluation, while not scored, was considered in making selections. Each applicant was required to complete and submit a standard environmental questionnaire for each site proposed in its application.

The evaluations focused on the technical description of the proposed project, financial plans and budgets, potential environmental impacts, and other information that the applicants submitted. Following reviews by technical, environmental and financial panels and a comprehensive assessment by a merit review board, a DOE official selected those projects that best met the CCPI program's purpose and need. By broadly soliciting proposals to meet the programmatic purpose and need for DOE action and by evaluating the potential environmental impacts associated with each proposal before selecting projects, DOE considered a reasonable range of alternatives for meeting the purpose and need of the CCPI Round 3 solicitation.

For the initial FOA, applications were divided into three broad categories:

- Retrofit of CCS to an existing integrated gasification combined cycle (IGCC) facility or to an IGCC facility under construction;
- Retrofit of CCS to an existing pulverized coal (PC)-fired facility; and
- Construction and operation of new IGCC or Fluidized Bed Combustion (FBC) facilities with integrated CCS.

DOE received no less than two applications in each of the above groupings, which provided DOE with a range of reasonable alternatives for meetings the Department's need to demonstrate, at a commercial scale, new technologies that capture CO_2 emissions from coal-based power plants and either sequester the CO_2 or put it to beneficial reuse. The applications included demonstration of CCS integrated into new facilities using advanced technologies for power generation, as well as retrofits of CCS to existing facilities or ones already under construction, including both advanced and conventional technologies for power generation.

For the reopened FOA, DOE divided the applications into four groups, because of the larger number of submissions received:

- Retrofit of CCS to an existing plant (already permitted and operating);
- Retrofit of CCS to a planned or authorized power plant (but not yet constructed or operating);
- Construction and operation of a new power plant with CCS on an existing industrial site; and
- Construction and operation of a new power plant with CCS on an undeveloped site.

DOE received no less than four applications in each of the above groupings.

ENVIRONMENTAL REVIEW

DOE assembled environmental review teams to assess all applications that met the mandatory requirements. The review teams considered twenty (20) resource areas that could potentially be impacted by the projects proposed under CCPI-3. These resource areas consisted of:

Aesthetics	Floodplains	Soils
Air Quality	Geology	Surface Water
Biological Resources	Ground Water	Transportation and Traffic
Climate	Human Health and Safety	Utilities
Community Services	Land Use	Wastes and Materials
Cultural Resources	Noise	Wetlands
Environmental Justice	Socioeconomics	

The review teams were composed of environmental professionals with experience evaluating the impacts of power plants and energy-related projects, and with expertise in the resource areas considered by DOE. The review teams considered the information provided as part of each application, which included narrative text, worksheets, and the environmental questionnaire(s) for the site(s) proposed by the applicant. In addition, reviewers independently verified the information provided to the extent practicable using available sources commonly consulted in the preparation of NEPA documents, and conducted preliminary analyses to identify the potential range of impacts associated with each application. Reviewers identified both direct and indirect, as well as short-term impacts, which might occur during construction and start-up, and long-term impacts, which might occur over the expected operational life of the proposed project and beyond. The reviewers also considered any mitigation measures proposed by the applicant and any reasonably available mitigation measures that may not have been proposed.

Reviewers assessed the potential for environmental issues and impacts using the following characterizations:

- **Beneficial** – Expected to have a net beneficial effect on the resource in comparison to baseline conditions.

- **None (negligible)** – Immeasurable or negligible in consequence (not expected to change baseline conditions).
- **Low** – Measurable or noticeable but of minimal consequence (barely discernable change in baseline conditions).
- **Moderate** – Adverse and considerable in consequence but moderate and not expected to reach a level of significance (discernable, but not drastic, alteration of baseline conditions).
- **High** – Adverse and potentially significant in severity (anticipated substantial changes or effects on baseline conditions that might not be mitigable).

Applications in Response to the Initial FOA

Based on the technologies and sites proposed, none of the applications for the initial FOA were deemed to have a high potential for adverse impacts in nineteen of the twenty resource areas. However, four applications could have a potential for high adverse impacts to biological resources. The following impacts by resource area were considered in the selection of candidates for award:

Aesthetics – No impacts would be expected for one project at an existing power plant. Low to moderate impacts would be expected for other existing facilities or facilities to be constructed. Impacts ranged from temporary impacts during construction to new construction within the line-of-sight of public property, including nearby roads and highways.

Air Quality – Low to moderate impacts would be expected from emissions of criteria pollutants from new sources and fugitive emissions of dust. Compliance with Prevention of Significant Deterioration increments would be required for three projects; and new source reviews would be required for four projects. Increased emissions of volatile organic compounds (VOCs) and ammonia would be expected for more than half of the projects. Some increase in cooling tower drift could be expected for two projects.

Biological Resources – Four applications could potentially impact threatened or endangered species or their critical habitat, waterfowl and other migratory bird flyways or their crucial habitat, or wildlife refuges either because of new plant construction or installation of pipelines for CO_2 transport. No impacts were expected for two projects at existing plants. Low to moderate potential impacts would be expected for five applications.

Climate – No impacts would be expected for four projects at existing power plants. Low to moderate impacts would be expected for other existing facilities or facilities to be constructed. Impacts ranged from potential operational impacts from severe weather to localized increases in fogging or icing. Successful demonstration of CCS could contribute to reduced carbon footprints of fossil-fuel power plants.

Community Services – No impacts would be expected at the sites of two existing plants. Low to moderate impacts would be expected for the remaining applications. Generally, projects anticipating a larger temporary workforce during construction would be expected to place a higher demand on community services – particularly in smaller, more rural communities where currently existing community services are more limited.

Cultural Resources – No impacts would be expected at three existing facilities. Low to moderate impacts would be expected for the remaining applications. Potential impacts include tribal concerns over pipeline routes. Impacts would vary with the extent of known tribal claims and their proximity to the proposed project or pipeline route.

Environmental Justice – No impacts would be expected for five applications with no environmental justice populations present. There is a moderate potential for environmental justice issues at all but one of the remaining sites either because of environmental justice populations near the proposed site or along a

proposed pipeline route. Potential impacts at the remaining site are expected to be low because of more limited environmental justice populations in the project area.

Floodplains – No impacts would be expected for two proposed projects. Low to moderate potential impacts during construction or pipeline routing would be expected for the remaining proposed projects.

Geology – The potential for low to moderate impacts exists for all applications either from CO_2 injection into saline aquifers or use for enhanced oil recovery. Some impacts could be expected from increased demand for coal if such demand contributes to opening new coal mines or expanding existing mines.

Ground Water – No impacts would be expected for one application involving an existing facility. Low to moderate impacts could be expected for the other applications. Impacts could include displacement of saline waters in reservoirs targeted for CO_2 injection or loss of CO_2 containment should injection pressures be too high.

Human Health and Safety – Potential impacts would be low to moderate and consist mainly of hazards associated with construction. The level of risk is generally related to the size and complexity of the planned construction. There could also be risk to human health and safety from loss of containment of CO_2 during transport and injection. This risk is present for all applications and generally varies from low to moderate with distance and population density along the CO_2 transport route where shorter routes through sparsely populated areas would have a lower risk than longer routes through regions of higher population.

Land Use – No impacts were identified for applications at existing facilities where the proposed project would not increase the footprint of the existing plant. Low to moderate impacts would be expected for applications proposing new construction. The level of potential impacts would generally be higher for new facilities on land currently used for other than industrial purposes. The assessment of impacts included both the plant site, sequestration site, and required pipeline routes for CO_2 transport.

Noise – No impacts would be expected for one project at an existing power plant. Low to moderate impacts could result from increases to ambient noise during construction and operation. Impacts would generally vary with distance and population density.

Socioeconomics – Expected impacts would be low for all applications. All applications would provide some additional employment during construction and operations. Most employment opportunities would be in the local area.

Soils – No impacts would be expected for one project at an existing power plant. Low impacts related to increased erosion during construction would be expected for other existing facilities requiring new pipelines or new facilities to be constructed.

Surface Water – Low to moderate impacts, including increased demand for cooling water and discharges to surface waters, would be expected for most of the applications. Some applications offered plans to maximize on-site reuse of water. Sediment control during construction was also considered.

Transportation and Traffic – Low to moderate impacts to traffic flow would be expected for all applications. Impacts would generally be higher during construction. Impacts expected during operations vary depending on increased rail or truck traffic. Projects in more rural areas would generally have lower impacts than new or existing facilities in more urban areas, where some increases in travel time could be expected during periods of peak construction.

Utilities – Low to moderate impacts would be expected for all applications. These would include an energy penalty for CCS retrofitted to existing power plants and increased demand for natural gas, potable water and wastewater treatment and disposal. Expected impacts would be higher for new plants proposed at sites not previously serviced by public utilities.

Wastes and Materials – Low to moderate impacts would be expected for all applications. Applications for projects that would include associated construction and operation of a new power plant would generally involve more material and waste impacts than would retrofits to existing plants.

Wetlands – No wetlands are located on the preferred site for one application. The potential for low to moderate impacts could be expected to small jurisdictional wetlands located on the proposed site or near proposed pipeline routes.

Applications in Response to the Reopened FOA

Based on the technologies and sites proposed, none of the applications for the reopened FOA were deemed to have a high potential for adverse impacts in sixteen of the twenty resource areas. All applications that would involve construction and operation of a new power plant were considered to have potentially high air quality impacts based on the need for new source permitting. Four applications were determined to have high potential for adverse impacts on biological resources; three applications were determined to have high potential for adverse impacts on surface waters; and one was determined to have high potential for adverse impacts on floodplains. The following impacts by resource area were considered in the selection of candidates for award:

Aesthetics – Impacts would be negligible for six projects that would involve retrofit or new construction at existing power plants or industrial sites. Low to moderate impacts would be expected for other retrofits to existing facilities or new facilities to be constructed. Moderate adverse impacts would result in the case of four applications involving construction of new power plants that would introduce line-of-sight impacts from superstructure and exhaust stacks where similar structures do not exist.

Air Quality – Impacts would result from emissions of criteria pollutants from new sources and fugitive emissions of dust. Twelve projects would have potentially high adverse impacts relating to emissions from proposed new plants. Lowest potential impacts would result from retrofits to existing or already-planned power plants.

Biological Resources – Four applications could potentially impact threatened or endangered species or their critical habitat, waterfowl and other migratory bird flyways, crucial habitat, or wildlife refuges either because of new plant construction or installation of pipelines for CO_2 transport. Moderate potential impacts would be expected for seven applications based on the locations of pipelines and other features. Low potential impacts would be expected for fourteen applications.

Climate – All applications were considered to present net beneficial effects on climate, because successful demonstration of CCS could contribute to reduced carbon footprints for fossil-fuel power plants. Potential adverse climate effects on plant operations were considered more from the perspective of engineering and design challenges to plant construction and maintenance.

Community Services – Negligible to low impacts would be expected for twenty applications. Five applications were determined to have potential for moderate impacts based on the size of the proposed projects to be located in smaller, more rural communities where existing community services are more limited.

Cultural Resources – Low potential for impacts would be expected for seventeen applications, including most retrofit projects. Moderate impacts would be expected for eight applications that could involve construction of structures or pipelines in proximity to tribal areas or historic sites.

Environmental Justice – Negligible to low potential for impacts would be expected for twenty three applications involving locations where environmental justice populations are not present. There is a moderate potential for environmental justice issues relating to the two remaining applications because of low-income or minority populations near the proposed site or along a proposed pipeline route.

Floodplains – One application would involve construction of structures within a 100-year floodplain with high potential for adverse impacts. Four applications were determined to have moderate potential impacts

during construction of structures or pipelines. Negligible to low potential for impacts would be expected for twenty applications that do not directly involve actions in floodplains.

Geology – Negligible to low potential for impacts would be expected for twenty two applications based on CO_2 injection into saline aquifers or use for enhanced oil recovery. Three applications would have potential for moderate impacts based on limited information and uncertainties relating to target formations for proposed CO_2 injection.

Ground Water – Negligible to low potential for impacts would be expected for eighteen applications. Moderate impacts could be expected for the seven other applications relating to limited information about groundwater capacity to supply plant operations or the potential effects on groundwater sources from required dewatering operations.

Human Health and Safety – Moderate potential for impacts would be expected for seventeen applications; low potential would be expected for eight. The level of risk is generally related to the size and complexity of the planned construction. There could also be risk to human health and safety from loss of containment of CO_2 during transport and injection. This risk is present for all applications and generally varies from low to moderate with distance and population density along the CO_2 transport route.

Land Use – Negligible to low potential for impacts would be expected for twenty applications, mainly including projects involving retrofit at existing facilities or new construction on industrial sites. Moderate potential for impacts would be expected for five applications particularly requiring new construction on land currently used for other than industrial purposes.

Noise – Negligible to low potential for impacts from increases to ambient noise during construction and operation for all applications. Moderate potential for impacts could occur in the cases of five applications if coal would be transported by truck instead of by rail.

Socioeconomics – All applications were determined to provide beneficial impacts to the respective host areas based on economic multipliers associated with project spending as well as additional employment during construction and operations.

Soils – Low potential for impacts would be expected for twenty applications, mainly including projects involving retrofit at existing facilities or new construction on industrial sites. Moderate potential for impacts would relate to increased erosion during construction of structures or pipelines for five applications.

Surface Water – Three applications could have high potential for impacts attributable to substantial planned withdrawals from surface waters for plant operations, construction of pipelines along impaired surface waters, or planned discharges to surface waters. Moderate potential for impacts would be expected for eight applications; low potential would be expected for fourteen, including most retrofit projects.

Transportation and Traffic – Negligible to low potential for impacts could result from increases in traffic during construction and operation for all applications. Moderate potential for impacts could occur in the cases of five applications if coal would be transported by truck instead of by rail.

Utilities – Low potential for impacts would be expected for twelve applications that would not require extensive new pipelines and transmission lines. Thirteen applications would have potential for moderate impacts based on the need for longer pipeline and/or transmission line construction.

Wastes and Materials – Low potential for impacts would be expected for nine applications, including most projects proposing retrofits. Sixteen applications would have potential for moderate impacts based on the development of new facilities or new processes at existing facilities that would increase demands for management of materials and wastes.

Wetlands – The potential for negligible to low impacts could be expected for nineteen applications. Six applications would have potential for moderate impacts based on the lengths and routing of utility features and the potential for encountering wetlands along corridors.

CONCLUSION

The applications received in response to the CCPI-3 FOAs provided reasonable alternatives for accomplishing the Department's purpose and need to satisfy the responsibility Congress imposed on DOE to demonstrate advanced coal-based technologies that can generate clean, reliable and affordable electricity in the United States. The alternatives available to DOE would also meet the Department's goal of accelerating the deployment of carbon capture and storage. An environmental review was part of the evaluation process of these applications. DOE prepared a critique containing information from this environmental review. That critique, summarized here, contained summary as well as project-specific environmental information. The critique was made available to, and considered by, the selection official before selections for financial assistance were made.

DOE determined that selecting two applications in response to the initial FOA, and three applications in response to the reopened FOA, would meet its purpose and need. The following provides a list of the projects selected, their locations, brief descriptions of the projects, and the anticipated level of NEPA review:

CCPI-3 initial FOA:

- Hydrogen Energy California Project (Kern County, CA). Hydrogen Energy International LLC, a joint venture owned by BP Alternative Energy and Rio Tinto, would design, construct, and operate an IGCC power plant that would take blends of coal and petroleum coke, combined with non-potable water, and convert them into hydrogen and CO_2. The CO_2 would be separated from the hydrogen using the methanol-based Rectisol process. The hydrogen gas would be used to fuel a power station, and the CO_2 would be transported by pipeline to nearby oil reservoirs where it would be injected for storage and used for enhanced oil recovery. The project, which would be located in Kern County, California, would capture more than 2,000,000 tons per year of CO_2. The anticipated level of NEPA review for this project is an EIS.
- Basin Electric Power Cooperative - Post Combustion CO_2 Capture Project - Basin Electric Power Cooperative proposed to add CO_2 capture and sequestration (CCS) to Basin Electric's existing Antelope Valley Station, located near Beulah, N.D. Negotiations are still ongoing to define the project scope and schedule.

CCPI-3 reopened FOA:

- Mountaineer Carbon Dioxide Capture and Storage Demonstration (New Haven, WV). American Electric Power (AEP) would design, construct, and operate a chilled ammonia process that is expected to effectively capture at least 90 percent of the CO_2 (1.5 million metric tons per year) in a 235 megawatt (MW) flue gas stream at the existing 1,300 MW Appalachian Power Company (APCo) Mountaineer Power Plant near New Haven, WV. The captured CO_2 would be treated, compressed, and then transported by pipeline to proposed injection sites located near the capture facility. During the operation phase, AEP proposed to permanently store the entire amount of captured CO_2 in two separate saline formations located approximately 1.5 miles below the surface. The project team includes AEP, APCo, Schlumberger Carbon Services, Battelle Memorial Institute, CONSOL Energy, Alstom, and an advisory team of geologic experts. The anticipated level of NEPA review for this project is an EIS.
- The Texas Clean Energy Project. Summit Texas Clean Energy, LLC (Bainbridge Island, WA) would integrate Siemens gasification and power generating technology with carbon capture technologies to effectively capture 90% of the carbon dioxide (2.7 million metric tons per year) at a 400 MW plant to

be built near Midland-Odessa, TX. The captured CO_2 would be treated, compressed and then transported by CO_2 pipeline to oilfields in the Permian Basin of West Texas, for use in enhanced oil recovery (EOR) operations. The Bureau of Economic Geology (BEG) at the University of Texas would design and assure compliance with a state-of-the-art CO_2 sequestration monitoring, verification, and accounting program. The anticipated level of NEPA review for this project is an EIS.

- The Parish Post-Combustion CO_2 Capture and Sequestration Project (Thompsons, Texas). NRG Energy, Inc. (NRG) would design, construct, and operate a system that would capture and store approximately 400,000 tons of carbon CO_2 per year. The system would employ Fluor's Econamine FG Plus technology to capture at least 90 percent of the CO_2 from a 60 MW flue gas stream of the 617-MW Unit 7 at the W.A. Parish Generating Station located in Thompsons, Texas. Fluor's Econamine FG Plus CO_2 capture system features advanced process design and techniques, which lower the energy consumption of existing amine-based CO_2 capture processes by more than 20 percent. The captured CO_2 would be compressed and transported by pipeline to a mature oil field for injection into geologic formations for permanent storage through an enhanced oil recovery operation. The site would be monitored to track the migration of the CO_2 underground and to establish the permanence of sequestration. DOE is in the process of evaluating the appropriate level of NEPA documentation for this project.