DOE/EIS-0357D-S1

SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE GILBERTON COAL-TO-CLEAN FUELS AND POWER PROJECT

GILBERTON, PENNSYLVANIA

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RESPONSIBLE AGENCY

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TITLE

Supplement to the Draft Environmental Impact Statement for the Gilberton Coal-to-Clean Fuels and Power Project (DOE/EIS-0357D-S1)

LOCATION

Gilberton, Pennsylvania

CONTACTS

Additional copies or information concerning this Supplement to the Draft Environmental Impact Statement (EIS) can be obtained from Ms. Janice L. Bell, National Environmental Policy Act (NEPA) Document Manager, U.S. Department of Energy, National Energy Technology Laboratory, 626 Cochrans Mill Road, P.O. Box 10940, Pittsburgh, PA 15236-0940. Telephone: 412-386-4512. E-mail: janice.bell@netl.doe.gov.

This Supplement to the Draft EIS (DOE/EIS-0357D-S1) is available on the Internet via the DOE National Environmental Policy Act (NEPA) web site at *http://www.eh.doe.gov/nepa*, or via the National Energy Technology Laboratory web site at *http://www.netl.doe.gov*. In addition, the Supplement and the Draft EIS (DOE/EIS-0357) can be obtained from Ms. Janice Bell at the above address. In addition, this Supplement to the Draft EIS has been distributed to persons who received a copy of the Draft EIS and to those who have expressed an interest since its publication.

For general information on DOE's 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, DC 20585-0103. Telephone: 202-586-4600, or leave a toll-free message at 1-800-472-2756.

ABSTRACT

The DOE has prepared this Supplement to the Draft EIS to correct information regarding carbon dioxide (CO_2) emissions from the proposed Gilberton plant, to provide information on the feasibility of carbon sequestration of the CO_2 emissions from the Gilberton plant, and to present additional information regarding CO_2-related cumulative impacts associated with potential future deployment of the proposed technology.

The Draft EIS for the Gilberton Coal-to-Clean Fuels and Power Project (DOE/EIS-0357), issued in December 2005, assesses the potential environmental impacts that would result from a proposed DOE action to provide cost-shared funding for construction and operation of facilities near Gilberton, Pennsylvania, which have been proposed by WMPI PTY, LLC, for producing electricity, steam, and liquid fuels from anthracite coal waste (culm). The proposed project was selected by DOE for further consideration under the Clean Coal Power Initiative (CCPI) to demonstrate the integration of coal waste gasification and Fischer-Tropsch (F-T) synthesis of liquid hydrocarbon fuels at commercial scale. The Draft EIS evaluates potential impacts of the proposed facilities on land use, aesthetics, air quality, geology, water resources, floodplains, wetlands, ecological resources, socioeconomic resources, waste management, human health, and noise. The Draft EIS also evaluates potential impacts on these resource areas for a scenario resulting from the no-action alternative (DOE would not provide cost-shared funding) in which the proposed facilities would not be built or operated.

DOE received comments from the Natural Resources Defense Council (NRDC) regarding how the Draft EIS addressed carbon dioxide (CO_2) emissions from the proposed project in letters dated February 7, 2006, June 2, 2006, June 5, 2006, and August 9, 2006 (see Attachment). In addition, DOE staff met with NRDC representatives on June 27, 2006, to ensure that the Department understood the comments. The comments expressed concern about the potential impacts on global warming and questioned the accuracy of the annual rate of CO_2 emission reporting in the Draft EIS. These comments also requested DOE to enhance the analysis of potential CO_2-related cumulative impacts, to further explore the feasibility of CO_2 sequestration, and to provide a public comment opportunity on the revised sections of the EIS. Comments on CO_2 emissions and carbon sequestration were also received from the following organizations and members of the public: the Coalition of Concerned Coal Region Citizens; the Mid-Atlantic Environmental Law Center; the Citizens for Pennsylvania's Future (Penn's Future); Mike Ewall; Edward and Helen Sluzis; and James Kotcon (see Attachment). These comments were similar in nature to those received from the NRDC, and therefore, are addressed as described below.

In considering these comments, DOE found that the annual rate of CO_2 emissions reported in the Draft EIS included only the total quantity of CO_2 that would be emitted directly from the proposed facilities. The reported quantity did not include a larger quantity of CO_2 in a concentrated stream exiting the Rectisol unit that would also be emitted. It was previously anticipated that this stream would be sold; however, the industrial participant has informed DOE that the commercial sale of the CO_2 would not occur in the foreseeable future, and therefore, all of the CO_2 would be emitted to the atmosphere. In response to comments, DOE has revised the document to clarify the total CO_2 emissions rate. In addition, DOE has enhanced the discussion of cumulative impacts and the discussion of the feasibility of carbon sequestration.

To further the purposes of NEPA, DOE is issuing for public comment these revised pages of the EIS that address CO_2. Please note that this Supplement to the Draft EIS contains only those sections/pages affected by comments related to CO_2 emissions and associated issues, including carbon sequestration. DOE is requesting comments only on these sections. ***All changes to the text contained in the Draft DOE/EIS-0357 are shown in boldface italics font (as is this sentence).***

PUBLIC COMMENTS

DOE encourages public participation in the NEPA process and invites the public to comment on this Supplement to the Draft EIS during a 45-day comment period ending February 27, 2007. DOE will consider late comments to the extent practicable. Comments may be submitted in writing to Ms. Janice L. Bell at the above address. Comments may also be submitted by fax to: (412) 386-4806; electronically to: jbell@netl.doe.gov; or via a toll-free telephone number: 1-866-576-8240. DOE will consider comments on this Supplement to the Draft EIS in preparing the Final EIS, together with comments on the Draft EIS. Commenters do not need to resubmit their earlier comments.

REVISIONS TO CO_2-RELATED DISCUSSIONS IN DRAFT DOE/EIS-0357

Pursuant to 10 CFR 1021.314, this Supplement to the Draft Environmental Impact Statement (DOE/EIS-0357) for the Gilberton Coal-to-Clean Fuels and Power Project was prepared in response to comments received concerning carbon dioxide (CO_2) emission totals and the potential of the proposed action to capture and sequester CO_2 emissions. The primary focus of the comments was the total amount of CO_2 emissions that would be generated by the integrated facility. In response to comments, DOE has determined that the concentrated CO_2 stream exiting the gas cleanup system had not been included in the CO_2 emission total. This Supplement presents the sections of the Draft EIS that were modified to revise the CO_2 emission total and other sections of the Draft EIS related to CO_2 emissions and carbon sequestration, including sections that consider the impacts of commercial operation and cumulative impacts. It should be noted that this Supplement contains only those sections/pages affected by comments related to CO_2 emissions and sequestration. The U.S. Department of Energy is requesting comments only on these sections. ***All changes to the text contained in the Draft DOE/EIS-0357 are shown in boldface italics font (as is this sentence).***

From the **Summary**

Carbon dioxide emissions to the atmosphere resulting from the operation of the proposed facilities would include CO_2 emitted by facility operations (832,000 tons per year) and concentrated CO_2 exiting the gas cleanup system (1,450,000 tons per year). While it was previously anticipated that the concentrated CO_2 stream would be sold as a byproduct, the industrial participant has informed DOE that the commercial sale of the CO_2 would not occur in the foreseeable future. Therefore, all of the CO_2 would be emitted to the atmosphere. In combination, these sources would increase global CO_2 emissions by about 2,282,000 tons per year, adding to global emissions of CO_2 resulting from fossil fuel combustion, which are estimated to have been 26,000,000,000 tons in the year 1999 (IPCC 2001).

From **Section 2 The Proposed Action and Alternatives**

2.1 Proposed Action

2.1.6 Outputs, Discharges, and Wastes

2.1.6.1 Air Emissions

Based on a plant operating rate of 7,500 hours per year (an 85% capacity factor), air emissions from the proposed facilities would total less than 100 tons per year for each of the criteria pollutants. SO_2 emissions would be about 29 tons per year, NO_x emissions would be about 70 tons per year, particulate emissions would be about 23 tons per year, and CO emissions would be about 54 tons per year. VOC emissions would be about 28 tons per year (see footnote b of Table 2.1.1 for potential-to-emit annual emissions included in the air permit application submitted to the Pennsylvania Department of Environmental Protection). Trace emissions of other pollutants would include

mercury, beryllium, sulfuric acid mist, hydrochloric acid, hydrofluoric acid, benzene, arsenic, and various heavy metals, which are not yet quantified but for which an air quality permit has been issued by the Pennsylvania Department of Environmental Protection with annual limits to ensure that the proposed facilities would be a minor new source of the pollutants (Section 4.1.2.2). ***The proposed facilities would also produce about 2,282,000 tons per year of CO_2. Although CO_2 is not regulated as an air pollutant, it is a greenhouse gas that is generally regarded by a large body of scientific experts as contributing to global warming and climate change (IPCC 2001).***

From **Section 4 Environmental Consequences**

4.1 Proposed Action

4.1.2 Atmospheric Resources and Air Quality

4.1.2.2 Operation

Global Climate Change

A worldwide environmental issue is the possibility of changes in the global climate (e.g., global warming) as a consequence of increasing atmospheric concentrations of greenhouse gases. ***International scientific consensus has indicated that the earth's climate is changing and that human activity is a factor (IPCC 2001).*** The atmosphere allows a large percentage of incoming solar radiation to pass through to the earth's surface and be converted to heat energy (infrared radiation) that does not pass back through the atmosphere as easily as the solar radiation passes in. The result is that heat energy is "trapped" near the earth's surface.

Greenhouse gases include water vapor, CO_2, methane, nitrous oxide, O_3, and several chlorofluorocarbons. The greenhouse gases constitute a small percentage of the earth's atmosphere; however, their collective effect is to keep the temperature of the earth's surface about 60°F warmer, on average, than it would be if no atmosphere existed. Water vapor, a natural component of the atmosphere, is the most abundant greenhouse gas. The second-most abundant greenhouse gas is CO_2. ***It has been estimated that CO_2 concentrations in the atmosphere have increased by 31% since 1750 (IPCC 2001) and by 19% from 1959 to 2003 (Keeling and Whorf 2005).*** Fossil fuel burning is the primary contributor to increasing concentrations of CO_2 ***(IPCC 2001).*** The increasing CO_2 concentrations ***likely*** have contributed to a corresponding increase in ***temperature in the lower atmosphere***. ***The*** globally averaged temperature in the lower atmosphere ***has increased by about 1 to 1.4 ºF in the last hundred years (IPCC 2001).*** Because CO_2 is ***relatively*** stable in the atmosphere and essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact ***of CO_2 emissions*** does not depend on ***where the emissions occur***.

Carbon dioxide emissions resulting from the operation of the proposed facilities would add about 2,282,000 tons per year to global CO_2 emissions, thus adding to global emissions of CO_2 resulting from fossil fuel combustion, which are estimated to have been 26,000,000,000 tons in the

year 1999 (IPCC 2001). A more recent study estimated global emissions of CO_2 from fossil fuel combustion to be 28,320,940,000 tons in the year 2003 (Marland et al. 2006). The total emissions from WMPI would include CO_2 emitted directly to the atmosphere by facility operations (832,000 tons per year) plus the concentrated CO_2 stream separated in the gas cleanup system (1,450,000 tons per year; Radizwon 2006), which would be emitted at the site. Section 5.1.4 discusses the possible feasibility of CO_2 sequestration during the 50-year life of the plant.

From **4.2 POLLUTION PREVENTION AND MITIGATION MEASURES**

Pollution prevention and mitigation measures have been incorporated by WMPI as part of the design of the proposed project. The proposed facilities' use of anthracite culm as feedstock would allow reclamation of land currently stockpiled with culm and would provide a beneficial use for ***this waste*** material. Also, the quality of water returned to the mine pool following use by the proposed facilities would be improved. WMPI plans to sell the coarse slag and elemental sulfur as byproducts to offsite customers. In addition, mitigation measures have been developed to minimize potential environmental impacts. Table 4.2.1 lists the pollution prevention and mitigation measures that WMPI would provide during the construction and operation of the proposed facilities.

Additional mitigation measures have been considered for the concentrated stream of CO_2 exiting the Rectisol unit. The measures considered include the sale of the concentrated CO_2 stream and geologic sequestration of this stream. However, it has been determined that these options would not be feasible during the project demonstration phase. The industrial participant has informed DOE that sale of the CO_2 byproduct would not occur in the foreseeable future. In addition, DOE has considered the potential to reduce project CO_2 emissions using geologic sequestration. This is not a reasonable option because sequestration technology is not sufficiently mature to be implemented at production scale during the demonstration period for the proposed facilities. The future potential for geologic sequestration of CO_2 during commercial operation of the proposed facilities is discussed in Section 5.1.4.

From **Section 5 IMPACTS OF COMMERCIAL OPERATION**{tc "5. IMPACTS OF COMMERCIAL OPERATION"}

Following completion of the 3-year demonstration, three scenarios would be reasonably foreseeable: (1) a successful demonstration followed immediately by commercial operation of the facilities at approximately the same production level; (2) an unsuccessful demonstration followed by conversion of the facilities to an integrated gasification combined-cycle power plant; and (3) an unsuccessful demonstration followed by dismantlement of the facilities. ***The following sections discuss the potential environmental consequences of these three scenarios. For*** the first two scenarios, the expected operating life of the facilities ***is assumed to be 50*** years.

From 5.1 COMMERCIAL OPERATION FOLLOWS DEMONSTRATION

Under the first scenario, the level of ***most*** short-term impacts during commercial operation would not change from those described for the demonstration (Section 4) because the proposed facilities would continue operating 24 hours-per-day with the same operating characteristics. ***There could be differences, however,*** for impacts that accumulate with time (e***.g., resource consumption***, solid waste disposal, ***and buildup of greenhouse gases in the atmosphere). Also, changes in the environmental setting and other changes external to the facilities could result in changes in project impacts.***

From ***5.1.4 Carbon Dioxide (CO_2) Emissions***

Over the 50-year duration of commercial operation, the facilities could release a total of about 114,000,000 tons of CO_2 to the global atmosphere, consisting of about 42,000,000 tons of CO_2 emissions from facility operations and 72,000,000 tons of CO_2 recovered in the Rectisol unit. In the long term (following the demonstration phase), the industrial participant may negotiate the sale of the concentrated CO_2 stream for use in other types of industrial or commercial operations. In addition, during the 50-year period it might become feasible to reduce the project's contribution to global climate change by sequestering some of the recovered CO_2 (1,450,000 tons/yr) underground.

Underground storage, or geologic sequestration, of CO_2 is a promising technology[1] being actively investigated and tested nationally and internationally by DOE and other organizations (Davison et al. 2001, IPCC 2005). Most of the research projects being conducted are at a pilot or smaller scale. Large-scale commercial deployment of the most promising carbon sequestration technologies is expected to be technically practicable within the next 15 years (CO_2 Capture and Storage Working Group 2002). During the 50-year duration of commercial operation, a combination of economic incentives and new legal requirements might result in the industrial participant investigating the option to sequester CO_2 recovered from the proposed facilities.

The feasibility of any potential sequestration technology requires the availability of a suitable geologic setting. Based on geologic factors, there are two theoretically possible scenarios for future geologic sequestration of CO_2 from the proposed facilities: (1) sequestration at a regional sequestration site and (2) sequestration in the Schuylkill County area.

In the first scenario, regional sequestration could occur in Western Pennsylvania, where the Midwest Regional Carbon Sequestration Partnership has identified a potential for geologic sequestration of 76 gigatonnes (83 billion tons) of CO_2 in saline formations, depleted oil and gas

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[1] Potential geologic sequestration technologies include injection into depleted oil and gas fields (to enhance recovery of residual hydrocarbons in addition to trapping CO_2); injection into deep saline formations (in which CO_2 is trapped physically and also reacts chemically with dissolved substances in ground water, precipitating to form solid compounds that remain in the formation); and injection into unmineable coal seams (in which adsorption of CO_2 onto the coal displaces trapped methane, which can be extracted for sale as natural gas).

fields, and coal seams (Battelle 2005). The region's sequestration capacity would be more than sufficient for the 72,000,000 tons of CO_2 that would be recovered during the facilities' 50-year operating life. A buried pipeline (similar to a natural gas pipeline) or extensive rail transportation (about 14,500 100-ton or 10,360 140-ton rail tanker cars per year) would be required to transport the CO_2 to an injection site in Western Pennsylvania (150 miles or more from Gilberton). Multiple injection wells would need to be installed and operated to receive the CO_2; multiple extraction wells also would be needed for CO_2 sequestration in depleted oil and gas fields or methane-bearing coal beds.

In the second scenario, sequestration could occur in the Schuylkill County area, in deep unmineable coal seams, while producing coal bed methane for sale as natural gas. While Midwest Regional Carbon Sequestration Partnership geologic mapping did not extend into Eastern Pennsylvania (Gupta 2006), analyses of the region's geology, geologic history, geologic structure, mining history, and measurements on coal samples suggest a considerable potential to recover methane from unmineable coals in the anthracite region (Milici 2004a and 2004b, Milici and Hatch 2004). DOE estimates[2] that a local carbon sequestration and coal bed methane production operation could sequester only a portion of the facilities' concentrated CO_2 stream, as the potential sequestration capacity in Schuylkill County could not accommodate the facilities' lifetime CO_2 production (72,000,000 tons).

Under either scenario, carbon sequestration operations could have environmental impacts from the use and disturbance of land (for exploration activities, well fields, and CO_2 pipelines) and possibly from rail or truck transportation of CO_2. Any oil or gas production associated with CO_2 sequestration would produce local economic benefits along with potential environmental impacts from refining, storing, and transporting the hydrocarbon fuels. In addition, sequestration

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[2] ***The presence of methane in the area's coal is indicated by measurements on coal samples and by a history of "fire-damp" (methane) explosions in anthracite mines during the early years of mining (Milici 2004b). While the anthracite region's complex geologic structure would inhibit coal bed methane recovery, the U.S. Geological Survey has identified several areas in the Southern Anthracite Field (i.e., central Schuylkill County) where coal bed methane recovery might be feasible because rock strata are subhorizontal to gently inclined. Total coal bed thicknesses of 50 to 100 ft within the interval about 500 to 2,000 ft below the ground surface (Milici 2004a and 2004b) and in-place gas content expected to average around 300 ft^3/ton may support future development of a commercially viable natural gas production operation, particularly if angled drill holes are used (Milici 2006).***

To estimate potential sequestration capacity in Schuylkill County, DOE assumed the coal has an average gas-in-place methane content of 100 ft^3/ton (USGS data suggest that this is a conservative estimate); the density of CO_2 gas is 17,250 ft^3/ton; 90% of the methane contained in the coal could be extracted and replaced by CO_2; and the volume of CO_2 sequestered would be twice the volume of methane extracted (Battelle 2005). Based on these assumptions, if one year's production of CO_2 from the proposed facilities (1,450,000 tons/year, or about 25 billion ft^3/yr as gas) were injected, the injected material would utilize the CO_2 storage capacity of about 140,000,000 tons of in-place coal, while producing about 12.5 billion ft^3/year (about 34,,000m000 ft^3/day) of natural gas (methane). Assuming that anthracite coal has a density of 1,500 kg/m^3 (93 lb/ft^3) and the average total thickness of suitable coal is 50 ft, sequestration of one year's CO_2 production would utilize the coal under 1,380 acres.

To sequester the entire 72,000,000 tons of CO_2 generated over the proposed facilities' 50-year operating life would require 6.9 billion tons of in-place coal, which exceeds the total unrecoverable coal reserve in Schuylkill County (Section 3.3.3).

combined with coal bed methane recovery could result in impacts from the pumping and disposing of water from the methane-bearing coal beds. In extracting coal bed methane, water is pumped from the coal beds to lower the pressure that keeps methane adsorbed to the surface of the coal, thus stimulating desorption of methane (USGS 2000). In the anthracite region, unmineable coal and surrounding rock layers are likely to contain abundant groundwater, which would contribute to the potential for impacts (Milici 2004b).

From **Section 6 Cumulative Impacts**

6.1 Air Quality

As discussed in Section 4.1.2.2, ***the operation of the*** proposed facilities would increase global CO_2 emissions by about ***2,280,000*** tons per year, ***adding to global emissions of CO_2 resulting from fossil fuel combustion, which are estimated to have been 26,000,000,000 tons in the year 1999 (IPCC 2001).***

In addition, the successful demonstration of the integration of coal waste gasification and F-T synthesis of liquid hydrocarbon fuels at a commercial scale may encourage the development of similar facilities producing liquid hydrocarbon fuels from coal. Therefore, another consideration for evaluating potential cumulative impacts from the proposed facilities on greenhouse gas emission totals was to compare the greenhouse-gas contribution from the coal-to-liquids (CTL) technology to be demonstrated with the greenhouse-gas contribution from conventional technologies for producing liquid transportation fuels. Because coal has a higher carbon-to-hydrogen ratio than crude oil, production of liquid hydrocarbon fuel from coal generates more excess carbon (released as CO_2) than production of the same quantity of liquid fuel from petroleum.

Over the entire fuel cycle (from production of the raw material in a coal mine or oil well through utilization of the fuel in a vehicle) and considering all greenhouse gases, production and delivery of liquid transportation fuels from coal has been estimated to result in about 80% more greenhouse-gas emissions than from production and delivery of conventional petroleum-derived fuels (Marano and Ciferno 2001, Williams and Larson 2003, Williams et al. 2006). However, recovery and sequestration of CO_2 at a CTL production facility (Section 5.1) could reduce greenhouse gas emissions from CTL fuel production to levels below conventional petroleum-derived fuel production (Marano and Ciferno 2001). Based on a conceptual analysis of potential CO_2 capture and sequestration at facilities that produce liquid fuels from coal using technologies similar to those included in the proposed project, it has been estimated that CO_2 sequestration could reduce total fuel-cycle greenhouse gas emissions to 8% more than from the conventional petroleum-derived fuel cycle (Williams et al. 2006). With technology advancements, future large-scale CTL facilities are expected to be able to achieve higher rates of CO_2 capture and sequestration (Larson and Tingjin 2003, Southern States Energy Board 2006), potentially resulting

in life-cycle greenhouse-gas emissions that are lower than those resulting from use of conventional petroleum refineries that are not equipped for CO_2 capture and sequestration.

In estimating how increased use of CTL technology could affect total greenhouse gas emissions associated with liquid transportation fuels, DOE considered forecasts of the potential extent of CTL utilization in 2030. Using reference case assumptions, the Energy Information Administration (2006) has forecast that by 2030 U.S. CTL production will consume 94,000,000 tons of coal annually (5% of the nation's coal use) and produce the equivalent of 277,000,000 barrels of crude oil, supplying 2.75% of the nation's petroleum needs[3]. Based on this forecast and assuming the CTL fuel cycle generates 80% more greenhouse-gas emissions than production and delivery of conventional petroleum-derived fuels (Marano and Ciferno 2001, Williams and Larson 2003, Williams et al. 2006), the use of CTL technology for producing transportation fuels would cause the U.S. "petroleum" sector to release 2% more greenhouse gases in the year 2030 than if the same quantity of liquid fuel was produced from petroleum. If all CTL facilities employed carbon sequestration that reduced greenhouse-gas emissions from the CTL to about 8% more than the petroleum-derived liquid fuel cycle, the greenhouse-gas emission contribution of the U.S. "petroleum" sector in that same year would be about 0.2% higher than if the same quantity of liquid fuel was produced from petroleum. If fuel-cycle emissions from CTL technologies were reduced to 10% less than conventional petroleum technologies due to a combination of more efficient carbon capture and sequestration at CTL production facilities, increased capture of the methane released during coal mining, and other potential mitigation measures (Marano and Ciferno 2001), the greenhouse-gas emission contribution of the U.S. "petroleum" sector would be about 0.3% less than if the same quantity of liquid fuel was produced from petroleum.

Using high-range estimates of future oil prices (high oil prices would encourage more CTL production), the Energy Information Administration (2006) has forecast that in the year 2030 U.S. CTL production would consume 207,000,000 tons of coal (10% of the nation's coal use) and produce the equivalent of 617,000,000 barrels of crude oil, supplying 6.7% of the nation's petroleum needs. Based on this forecast and assuming the CTL fuel cycle generates 80% more greenhouse-gas emissions than production and delivery of conventional petroleum-derived fuels, expanded use of CTL technology to produce transportation fuels could cause the U.S. "petroleum" sector to release about 5% more greenhouse gas emissions than if the same quantity of fuel was produced from petroleum. However, carbon sequestration that reduced greenhouse-gas emissions from the CTL fuel cycle to about 8% more than the petroleum-derived liquid fuel cycle could reduce this greenhouse-gas emission increment to about 0.5% more than if the same quantity of

[3] On December 5, 2006, the Energy Information Administration made an early release of a portion of its *2007 Energy Outlook* (http://www.eia.doe.gov/oiaf/aeo/index.html, accessed December 7, 2006), including reference case projections for 2030, but no projections for other sets of assumptions. The reference case projections indicate 19% more CTL production in 2030 than was projected in the 2006 analysis. Resulting contributions to greenhouse gas emissions from the liquid fuels sector would be roughly 19% higher for the reference case than the values estimated based on 2006 projections. DOE expects to revise the final EIS to reflect the *2007 Energy Outlook* report, which is planned for release early in 2007.

liquid fuel was produced from petroleum. If fuel-cycle emissions from CTL technologies were reduced to 10% less than conventional petroleum technologies due to more efficient CO_2 capture and sequestration and other measures, as discussed above, the greenhouse-gas emission contribution of the U.S. "petroleum" sector would be about 0.7% less than if the same quantity of liquid fuel was produced from petroleum.

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Attachment

Public Comment Letters

Letters Received from the
Natural Resources Defense Council

NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

February 7, 2006

Janice L Bell
National Environmental Policy Act Document Manager
U.S. Department of Energy
National Energy Technology Laboratory
626 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236-0940

Re: Comments on Draft EIS for the Gilberton, PA, Waste Coal Plant

Dear Ms. Bell,

The Natural Resources Defense Council (NRDC) appreciates this opportunity to comment on the environmental impact statement (EIS) conducted by the US Department of Energy (DOE) regarding the proposed combined cycle coal plant in Gilberton, PA. [*See*: 70 Fed. Reg., 73003 (Dec 8, 2005).] NRDC is a non-profit membership organization dedicated to protecting the global environment and preserving the Earth's natural resources. *See* www.nrdc.org. Thirty thousand of NRDC's six hundred and fifty thousand members reside in Pennsylvania.

NRDC has two primary areas of concern with the draft EIS. First, the draft EIS dismisses carbon dioxide (CO_2) emissions from the plant as insignificant based upon reasons that do not reflect the true impact on the climate of releasing CO_2 into the atmosphere and that ignore obligations of the federal government to factor climate change considerations into significant actions such as this proposal to provide federal financial assistance to stimulate the development of a coal-to-liquids industry. Second, the draft EIS does not provide a sufficient discussion of compliance with several relevant National Environmental Policy Act (NEPA) requirements regarding both DOE's Clean Coal Power Initiative (CCPI) and the specific technologies proposed for the Gilberton plant. The project and program outlined in the EIS will result in significant increases in greenhouse gas emissions from the production and use of transportation fuels yet the EIS fails to discuss reasonable alternatives to the proposed federal action. In particular, the EIS fails to discuss the alternative of funding a demonstration plant that incorporates CO_2 capture and storage as an integral part of the project's design and operation as a means of mitigating CO_2 emissions from this plant and from other such plants that may be stimulated by the proposed action.

Treatment of Carbon Dioxide (CO_2)

The EIS contends that "an increase in CO_2 emissions at a specific source is effective in altering CO_2 concentrations only to the extent that it contributes to the global total of fossil fuel burning that increases global CO_2 concentrations," arguing further that since the proposed plant's CO_2 emissions equate to only a small fraction of total global emissions that these new emissions are therefore not significant enough to merit further consideration. (EIS, 4-11)

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NRDC finds this argument problematic for several reasons. First, under such a test no individual source of CO_2 would ever have its emissions regulated given the improbability of a single source ever constituting a significant percentage of total global emissions. Second, DOE's argument does not reflect the current science about the implications that the increasing CO_2 concentrations have on climate change. The negative impact of CO_2 is due to the unnatural and accelerated rate at which it is being emitted into the atmosphere. Such emissions are attributed primarily to the burning of fossil fuels, a fact acknowledged by a DOE report cited in this EIS.[1] The US is the largest emitter of global warming gases accounting for roughly 25% of total global emissions. Of that amount, the coal fired electricity generating sector accounts for about a third, or roughly 8% of total global CO_2 emissions, making the Gilberton plant part of the single most significant CO_2 emitting sector worldwide. Third, the United Nations Framework Convention on Climate Change (UNFCCC), to which the United States is a party and which has the status of federal law, commits the federal government to consider the impacts of its decisions on emissions of greenhouse gases and includes a pledge to develop programs that aim to return anthropogenic emissions of carbon dioxide and other greenhouse gases to 1990 levels.[2] President Bush has reaffirmed the federal government's commitment to the UNFCCC's objective of "stabiliz[ing] atmospheric greenhouse gas concentrations at a level that will prevent dangerous human interference with the climate."[3]

Given these reasons, each source of CO_2 merits more serious consideration, particularly new sources supported by federal funds that represent a net increase in emissions. The Gilberton plant by itself will release an estimated 832,000 tons/year of CO_2 into the atmosphere which is the equivalent of adding 166,400 cars to the road. Such a large amount of CO_2 requires DOE to address these emissions and potential mitigation strategies more extensively.

NEPA Requirements

Numerous courts have now held that agencies must consider the contribution of potential projects or actions to global warming. This includes not only the impact of a particular project, but also an evaluation and consideration of the cumulative impacts on global warming that come from replication of the project or action under review.[4]

The draft EIS either lacks sufficient explanation of compliance or simply does not comply with NEPA guidelines in the following three areas:

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[1] DOE (U.S. Department of Energy) 1989. Clean Coal Technology Demonstration Program, Final Programmatic Environmental Impact Statement, DOE/EIS-0146, Washington, D.C., November.

[2] United Nations Framework Convention on Climate Change (UNFCCC), Art. 4, Para. 2, Cls. (a), (b); 138 Cong. Rec. 33521-27 (Oct. 7, 1992) (Senate ratification).

[3] Address by President George W. Bush to the National Oceanic and Atmospheric Administration (Feb. 14, 2002).

[4] See, e.g., Mid-States Coalition for Progress v. Surface Transp. Bd., 345 F.3d 520, 548-50 (8th Cir. 2003) (addressing a challenge to the approval by the Surface Transportation Board of a railroad to coal mines in Wyoming's Powder River Basin and holding that the EIS was inadequate because, inter alia, it failed to examine the reasonably foreseeable effect on global warming of the subsequent increase in coal consumption); Friends of the Earth v. Watson, 2005 WL 2035596, *2-6 (N.D. Cal. 2005) (case concerning global warming impacts of Overseas Private Investment Corporation ("OPIC") projects finding that the plaintiffs evidence of global warming and its potential impacts were sufficient to demonstrate a reasonable probability that the projects funded by the defendants would harm the plaintiffs' interests); Border Power Plant Working Group v. Dept of Energy, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (addressing a challenge to a FONSI issued for California-Mexico border power plants permits and concluding that the agency had failed to provide adequate environmental analysis, in part because the EA failed to disclose and analyze the effects of carbon dioxide emissions as a greenhouse gas contributing to global warming).

1) *Programmatic EIS* – The courts have held that NEPA requires agencies to conduct EIS statements on research and development programs.[5] Although DOE conducted an EIS on the Clean Coal Technology Demonstration Program which was the precursor to CCPI, that EIS occurred nearly two decades ago and reflected a program focused on vastly different environmental challenges, something the CCPI website itself proclaims. CCPI is a research and development program based upon discovering the next generation of coal fired plant designs that could substantially impact the environment. The stated mission of CCPI is to invest in risky, advanced technology with the hopes of accelerating their introduction into the market by demonstrating a commercial sized version that garners environmental and economic benefits over existing coal technologies. The program itself has chosen a dozen technologies in which to invest at various locations around the US. Given the investments into these coal-fired energy production technologies that have previously not existed on the commercial scale, NEPA requires a programmatic EIS to determine the potential impacts of CCPI investments on the environment. Moreover, considering that the average operating life of a coal-fired power plant ranges from fifty to sixty years it is important for DOE to consider the projected lifetime emissions of the plants funded through CCPI.

2) *Cumulative Impacts* – Since the CCPI program chooses technologies that it hopes will catch on commercially, the EIS is required to include at least some reasonable degree of forecasting. In Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission, the court concluded:

> To wait until a technology attains the stage of complete commercial feasibility before considering the possible adverse environmental effects attendant upon ultimate application of the technology will undoubtedly frustrate meaningful consideration and balancing of environmental costs against economic and other benefits.[6]

The draft EIS does not include any consideration of the cumulative impact of the specific technology proposed for the Gilberton plant. By undertaking a quick analysis of the Gilberton plant specifically, we can illustrate how this technology, when applied more broadly, would be worse in terms of CO_2 emissions. The Gilberton plant is designed not only to create electricity from waste coal through a gasification process, but to use Fischer-Tropsch (F-T) coal to liquid technology to produce liquid transportation fuel. Analysis indicates that the life cycle CO_2 emissions from these fuels will be substantially greater than comparable fuels made from crude oil. Moreover, as documented in a 2001 DOE study, the bulk of these emissions occur during the F-T production process.[7]

Based on a review of the production of fuel, electricity, and carbon dioxide reported in the EIS for the Gilberton plant, we find that the net fuel cycle emissions of the F-T liquids produced at the plant would be 35 to 60 percent *higher* than the comparable emissions from conventional gasoline or diesel fuel made from crude oil. The range depends on the emissions credit allocated to the electricity produced at the plant.[8] We believe that a reasonable benchmark is the emission rate of a natural gas combined cycle power plant since this is the most likely source of electricity to be displaced by the operation of such plants. Using this assumption, the fuel produced using the process summarized in the EIS would have 50 percent greater fuel cycle emissions than

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[5] Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n, 481 F.2d 1079 (D.C. Cir. 1973) (case concerning the Commission choosing only to conduct an EIS on a specific nuclear plant instead of the larger R&D program under which it was funded. The court found that the entire program fell under NEPA and that an EIS of the program was necessary, stating further that an agency could not avoid drafting an impact statement even if it requires some forecasting.)

[6] Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n, 481 F.2d 1079 (D.C. Cir. 1973

[7] DOE, National Energy Technology Lab. "Life-Cycle Greenhouse Gas Emissions Inventory for Fischer-Tropsch Fuels". June 2001. Prepared by Energy and Environmental Solutions, LLP.

[8] The most favorable comparison credits the electricity generated at the emission rate of conventional coal; the least favorable credits the electricity at the emission rate of coal with carbon capture and disposal.

conventional gasoline. Even if a conventional coal plant emission rate is used as the benchmark, the fuel cycle emissions of all of the liquid fuel produced by this and similar plants (without CO_2 capture) would be 35 percent higher than gasoline from crude oil. Since one of the stated purposes of the proposed federal action is to facilitate broad application of the F-T process as a source of transportation fuels, the impacts of CO_2 increases resulting from introduction of a significant number of such plants must be addressed. A cumulative impact assessment is required to address how many such plants might be built if this demo project succeeds; what amount or fraction of oil supply might be replaced with F-T liquids; and what would be the resulting total CO_2 increase.

Peer-reviewed studies indicate that in order for greenhouse gas concentrations to stabilize soon enough to prevent dangerous climate change, "as much as 98% of the capital stock of U.S. fossil power plants would need to be replaced with state-of-the-art CO_2 capture and storage (CCS)-enabled power plants by the year 2050."[9] As aforementioned, considering that the operational life of a coal-fueled power plant is fifty to sixty years, federal action on the new coal-fueled plants currently being proposed without CCS (and without technologies that facilitate implementation of CCS) will have a significant impact on the ability of the federal government to meet its stabilization commitment. Federal law requires the United States government, as a partial means of meeting that commitment, to "[t]ake climate change considerations into account" in its "social, economic and environmental policies and actions."[10]

3) *Primary and Secondary Alternatives* – Though many primary alternatives such as renewable energy fall outside the scope of CCPI, that does not release DOE from needing to consider secondary alternatives that include alterations on the planned plant design aimed at mitigating the environmental impacts. In the case of the Gilberton plant, CCS technologies would help mitigate the impacts of the plant's CO_2 emissions. There is no consideration in the EIS of the option of mitigating CO_2 emissions by incorporating CCS into the plant design. Coal-based liquids, in particular F-T liquids, can be made with lower fuel cycle CO_2 emissions than conventional gasoline, but only if the CO_2 produced in the conversion process is captured and safely disposed of in an appropriate geologic formation. Very low net fuel cycle emissions (comparable to those from cellulosic ethanol or hydrogen made with CO_2 capture) can be achieved if some biomass is used as a feedstock along with coal in conjunction with carbon capture and disposal.

As the source of federal funds for the project, DOE is obligated to factor climate change considerations into its EIS for the Gilberton plant. The CCPI's goals of fostering commercially viable, environmentally acceptable technologies for coal generated energy cannot be met by ignoring the increased CO_2 emissions from demonstration projects and NRDC submits this technology cannot be demonstrated to be commercially viable and environmentally acceptable without demonstrating application of CCS as part of this project. It is evident that CCS technology is essential to achieve significant reductions in CO_2 emissions when using coal to produce power or fuel. Given the U.S. commitment to honor the Framework Convention's objective of stabilizing greenhouse gas concentrations, it is critical, given limited resources and limited timeframes for effective action, to include CCS from the start.

Adding carbon capture to this project is compatible with DOE's existing CCS programs. Consideration of this alternative is particularly appropriate given the government's funding of Regional Carbon Sequestration Partnerships. A component of those partnerships is to demonstrate large-scale injection of CO_2 into geologic formations. As is obvious from the EIS, the Gilberton plant is a large new source of CO_2 that could supply a geologic storage demonstration project in Pennsylvania. By integrating these programs, the federal government

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[9] J.J. Dooley, *et al.*, Accelerated Adoption of Carbon Dioxide Capture and Storage Within the United States Electric Utility Industry: The Impact of Stabilizing at 450 PPMV and 550 PPMV, Seventh International Conference on Greenhouse Gas Control Technologies (GHGT7) (Dec. 3, 2004)
[10] UNFCCC, Art. 4, Para. 1, Cl. (f).

could use taxpayer dollars more efficiently, demonstrate F-T technology that manages greenhouse gases, and avoid the CO_2 emissions associated with this project and others modeled on it.

The technology proposed for the Gilberton plant will make global warming worse unless the carbon dioxide produced at such plants is captured and safely disposed of. Since CCPI aims to accelerate the next generation of cleaner coal technologies into commercial viability and DOE has a potentially willing partner in the Commonwealth of Pennsylvania, we urge that this action be modified to incorporate carbon capture and geologic disposal in the project design and operation.

Thank you for considering these comments. If you have any questions, please feel free to contact me, either at the address or telephone number that appears on the first page.

Sincerely,

David Doniger
Policy Director, Climate Center

NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

June 2, 2006

Ms. Carol M. Borgstrom
Director
Office of NEPA Policy and Compliance
United States Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Ms Borgstrom,

On December 8, 2005, the US Department of Energy released the draft Environmental Impact Statement (EIS) for a coal to liquids facility proposed in Gilberton, PA. DOE is considering funding $100 million of the plant's construction cost under the Clean Coal Power Initiative (CCPI) program. Given the mandate of the CCPI program to fund technologies that specifically deal with mercury, particulate matter and greenhouse gas emissions, NRDC took particular notice of the estimated carbon dioxide (CO2) emissions of the plant. The draft EIS estimates CO2 emissions of 832,000 tons per year; however, no further detail is offered regarding the input assumptions used to calculate that estimate. Since CO2 is the primary pollutant responsible for global warming and deployment of coal to liquids plants for transportation fuels would have a major impact on CO2 emissions, the EIS should accurately reflect these emissions from the proposed project as well as from wider scale deployment of this technology. We have not been able to verify the basis for the stated emissions in the current draft.

Based upon the operation assumptions provided in the draft EIS and using the US Environmental Protection Agency's (EPA) published emission factors for anthracite culm (the feedstock to be used at the Gilberton plant), NRDC calculates annual CO2 emissions to be roughly 55% higher (1.3 million tons) than the draft EIS estimate.

Over the past month, NRDC has made several attempts to obtain information regarding the CO2 emissions for the proposed Gilberton project. We understand that the estimate contained in the draft EIS was provided by the company applying for the permits (WMPI PTY, LLC) and was not independently verified by DOE or their consultants. Accordingly, NRDC staff attempted to obtain the basis for the CO2 emissions estimated by WMPI for this plant. While we have had several conversations with DOE staff, we have yet to get the information requested.

For your convenience this letter summarizes our efforts to obtain this information with the request that the process be expedited.

- *May 2*: Mr. Tim Greeff of NRDC contacted Janice Bell, National Environmental Policy Act (NEPA) Document Manager, and Carol Borgstrom, Director, Office of NEPA Policy and Compliance, both of whom are listed in the draft EIS as contacts for further information. Mr. Greeff left a message for Ms. Bell. Ms. Borgstrom directed us to Eric Cohen who heads the office responsible for the final draft. Mr. Cohen contacted NRDC to validate that our request had been received and was being investigated.

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- *May 3*: Ms. Bell contacted NRDC and recommended we contact Bob Miller of Oak Ridge National Laboratories who is the consultant drafting the EIS. Shortly thereafter, NRDC had a discussion with both Mr. Miller and Ms. Bell requesting the information about the CO2 estimate. Mr. Miller informed NRDC that the emission estimates in the EIS had been sent to him by WMPI and he would need to contact them to get the input assumptions for the calculations.

- *May 11*: NRDC received an email from Ms Bell containing the response from WMPI. WMPI did not provide the basis for its emissions estimates for the plant (for example, the carbon content of the anthracite culm feedstock), but rather simply broke the daily emissions down into various emission points at the plant (i.e. gas turbine stack emissions, process heater stack emissions, and AGR (Rectisol) and SRU stack emissions), totaled those daily emissions and multiplied that total by 365 to show annual emissions of 832,000 tons.

- *May 15*: Mr. Greeff responded to Ms Bell, Mr. Miller and Mr. Cohen in an email informing them of the problem and reiterating what exact information we wanted. A few days later, NRDC followed up with Ms Bell by phone and she confirmed that she had received our request and forwarded it on to WMPI. She mentioned that it would take some time for WMPI to get us the information we requested.

- *May 22*: Ms Bell sent a confirmation email to NRDC officially acknowledging receipt of our second request for the information.

As of the date of this letter, NRDC has received no further information or contact from DOE or WMPI. Our inability to obtain this information raises serious concerns about the adequacy of the EIS and our ability to comment on it. Since WMPI provided the emissions estimate contained in the draft EIS to ORNL, the basis for the estimate should be readily available upon request. Moreover, the requests for those assumptions were sent twice by DOE and ORNL. We do not understand why this information is not being made available to us.

In light of the above, we repeat our request for a detailed description of the calculations made to produce the estimated emissions from the Gilberton facility for CO2 and other emissions. Further, we request an explanation for why it has not been possible to provide us with this information in a timely manner.

Please let us know if you have any further questions. We appreciate your prompt attention to this matter.

Sincerely,

David Hawkins
Director, Climate Center

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NATURAL RESOURCES DEFENSE COUNCIL

Ms. Carol M. Borgstrom
Director
Office of NEPA Policy and Compliance
United States Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Ms. Borgstrom:

On Friday, June 2, 2006, we sent you a letter regarding our inability to get underlying data and assumptions used to calculate the annual carbon dioxide emissions for the proposed coal to liquids facility in Gilberton, PA. That letter contained an incorrect estimate of the potential carbon dioxide emissions from the plant.

I enclose a corrected version of our letter, which repeats our request for the information used to calculate the plant's carbon dioxide emissions and for an explanation of the reasons that information has not been provided to us to date.

Please replace the June 2 letter with this corrected version.

Thank you for your attention to this matter.

Sincerely,

David G. Hawkins
Director, Climate Center

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NATURAL RESOURCES DEFENSE COUNCIL

June 2, 2006 (corrected copy, June 5, 2006)

Ms. Carol M. Borgstrom
Director
Office of NEPA Policy and Compliance
United States Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Ms Borgstrom:

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Based upon the information presented in Table 2.1.1 and Table 2.1.3 of the draft EIS, NRDC estimates the annual CO2 emissions to be significantly higher than the estimate in the draft EIS: 2.1 million tons annually rather than the draft estimate of 832,000 tons.

Over the past month, NRDC has made several attempts to obtain information regarding the CO2 emissions for the proposed Gilberton project. We understand that the estimate contained in the draft EIS was provided by the company applying for the permits (WMPI PTY, LLC) and was not independently verified by DOE or their consultants. Accordingly, NRDC staff attempted to obtain the basis for the CO2 emissions estimated by WMPI for this plant. While we have had several conversations with DOE staff, we have yet to get the information requested.

For your convenience this letter summarizes our efforts to obtain this information with the request that the process be expedited.

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Please let us know if you have any further questions. We appreciate your prompt attention to this matter.

Sincerely,

David Hawkins
Director, Climate Center

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August 9, 2006

Ms. Carol M. Borgstrom
Director
Office of NEPA Policy and Compliance
United States Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0119

Dear Ms. Borgstrom:

In a June 27th meeting, the Department of Energy (DOE) admitted to the Natural Resources Defense Council (NRDC) that there was a major misstatement of the amount of CO_2 emissions reported in the Draft Environmental Impact Statement (EIS) of the "Gilberton coal-to-clean fuels and power project" (DOE/EIS-0357). **The actual CO_2 emissions of the Gilberton plant are nearly 3 times higher than the CO_2 emissions originally reported in the draft EIS (see Table 1).**

We were informed that the misstatement of the reported CO_2 emissions in the Draft EIS stemmed from the fact that the project developer, WMPI, LLP, claimed it intended to sell a portion of the Gilberton plant's CO_2 emissions. Furthermore the US News and World Report article, entitled "The Oil Rush" by Marianne Lavelle (April 24, 2006) mentioned the project developer planned to sell to the carbonated beverage industry. However, even if the sale of some portion of the CO_2 emissions is accomplished, the carbonated beverage industry does not represent a permanent method of carbon sequestration.

The DOE staff that we met with on June 27th, 2006 have agreed to correct this misstatement in the revised EIS, along with some mischaracterizations of the impact of the Gilberton plant on global warming. In addition, DOE has agreed that a consideration of the feasibility of carbon sequestration for the CO_2 emissions of the Gilberton plant is a necessary component of the revised EIS, given that DOE is supplying $100 million in funding to the plant under the Clean Coal Power Initiative, the purpose of which is to address, among other things, "the potential global climate-altering impact of greenhouse gasses."

Furthermore, 40 C.F.R. § 1502.9 requires DOE to "prepare, circulate, and file a supplement to a statement in the same fashion . . . as a draft and final statement" whenever "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." The errors

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and corrections to the Gilberton DEIS clearly qualify under this requirement. Thus, in order to complete the NEPA review process, DOE must also provide an opportunity for public comment on the updated information.

Given the important implications of these substantive corrections and additions to the Gilberton EIS for global warming and for the Clean Coal Power Initiative, NRDC believes that the revised EIS should be made available for public comment before the final EIS is issued.

Table 1. Reported versus Actual CO_2 Emissions from the Gilberton Coal-to-Liquids Plant

CO_2 emissions reported in draft EIS	0.8 million tons CO_2/year
Actual CO_2 emissions, to appear in corrected EIS	2.3 million tons CO_2/year

Please consider and respond to this request for a renewed period of public comment on the revised EIS for the "Gilberton coal-to-clean fuels and power project."

Thank you,

David Hawkins, Esq.

Director, Climate Center

Natural Resources Defense Council

Excerpt from Letter from the
Coalition of Concerned Coal Region Citizens, Schuylkill County, PA

Noting global CO_2 emissions in this EIS does not focus on the actual CO_2 limits established by regulation for this particular area. The entire US is responsible for 28% of global CO_2 emissions, yet this one facility, as a demonstration, is anticipated to be 0.003% of all global emissions. The EIS states that increases in CO_2 emissions "would be large in terms of number of tons per year." Will the Department quantify those tons in respect to the local (and not the global, worldwide) environment to ensure compliance?

Excerpt from Letter from the Mid-Atlantic Environmental Law Center, Wilmington, DE

7. Global Warming Impacts. It is astounding that in an era when the consequences of global warming are already beginning to be felt, and the Administration acknowledges the role of human activity in the global warming phenomenon, that government documents purporting to catalog environmental impacts would characterize 832,000 tons per year of carbon dioxide as insignificant. It is completely irresponsible for DOE to do so in this DEIS. It is also ironic that the DOE program promoting and subsidizing clean coal technologies includes those that find a way to minimize or sequester carbon emissions. In fact, coal gasification itself, one of the very technologies advanced in the WMPI project, is considered so promising in part because of aspects that minimize or sequester carbon. Most unfortunately, the lack of any component to this project that would minimize carbon emissions has not dissuaded DOE from the determination to back this project with public dollars.

Excerpt from Letter from the Citizens for Pennsylvania's Future (Penn's Future), Harrisburg, PA

1. The DEIS fails to analyze the alternative of carbon sequestration.

The DEIS states that "[t]he proposed facilities would increase global CO_2 emissions by about 832,000 tons per year, which is about 0.003% of global emissions resulting from fossil fuel combustion." (DEIS, p. xxi) The DEIS also indicates that the "Rectisol unit" would recover an unidentified portion of this carbon dioxide, some of which would be sold to specialty gas companies, and the remainder of which "could be sequestrated in the future (although no firm plans currently exist)." (DEIS, p. 2-7) This "CO_2 Sequestration" option also is shown in the generalized schematic diagram on page 2-4 of the DEIS.

The DEIS says little about the alternative of CO_2 sequestration beyond indicating that there are no firm plans today to sequester the carbon dioxide that is separated from the gasses prior to Fischer-Tropsch synthesis. Sequestration is not among the "Alternatives Dismissed from Further Consideration" discussed in Section 2.2.2 of the DEIS, nor should it be. In light of the scientific consensus that greenhouse gas emissions must be curbed, where a production process already includes recovery of carbon dioxide, it is a shame to see that captured CO_2 vented to the atmosphere rather than permanently sequestered beneath the ground. The DEIS should discuss that alternative, and WMPI and the Commonwealth of Pennsylvania should vigorously pursue it in order to demonstrate another important technology, reduce the new plant's greenhouse gas emissions, and remove a potential obstacle to replication elsewhere.

Excerpt from Letter from Mike Ewall, Philadelphia, PA

35) CO2 Emissions Downplayed, Yet are Worse than Petroleum Diesel or Coal with Sequestration

Without CO2 capture and sequestration, CO2 emissions from producing and consuming a gallon of diesel from coal would result in 1.8 times as much CO2 as a gallon of diesel from petroleum. Even with CO2 capture and sequestration (which isn't planned for the WMPI refinery), Fischer-Tropsch diesel would emit 1.1 times as much CO2 over its lifecycle as diesel from petroleum.[10]

The DEIS comments on global climate change attempt to minimize the global warming emissions by comparing to global emissions. With this sort of comparison, *any* single facility would look like an insignificant contributor. Would one make the same comparison for mercury or other toxic emissions? This is a really inappropriate way of viewing pollution and only serves a public relations purpose, not a defensible scientific purpose. Since Pennsylvania is already responsible for about 1% of global greenhouse gas emissions and since the global emissions are already excessive and causing irreversible climate disruption, no added amount of greenhouse gas emissions is justifiable. Making things worse, the 1% figure doesn't include mine fires and Pennsylvania is responsible for about 94% of mine fires in the U.S. It also doesn't account for the fact that three large new waste coal burning power plants were permitted in the past year… each of which would use fluidized bed boilers, which are known to convert nitrogen into nitrous oxide (a greenhouse gas), resulting in a net 15% increase in greenhouse gas emissions over traditional coal-fired boilers. This refinery is adding insult to injury in the global warming department and no means of minimizing or downplaying the numbers can change that fact.

Excerpt from Letter from Edward and Helen Sluzis, Mahoney City, PA

We are residents of Morea, Pa., in Mahanoy Township and will be directly impacted by the proposed coal-to-oil gasification plant and the pollution it will generate. According to the DOE's Environmental Impact Statement, the air pollution generated will include significant amounts of CO2, which will be released freely into the air. CO2 is known to contribute to global warming and the DOE should not fund an energy project that does not address the CO2 problem. Instead, DOE should seek to fund projects that are designed to capture and sequester the CO2 generated.

Excerpt from Letter from James Kotcon, Morgantown, WV

2. The summary of air impacts (page 2-20) fails to adequately analyze global warming impacts. This is an issue that was identified during scooping as being significant, yet no serious attempt to estimate the emissions of this versus other alternatives is presented. The cursory statement that emissions would be large, "but small in comparison to global totals", is condescending and completely misses the point. Because coal is a relatively inefficient fuel and releases large amounts of fossil carbon dioxide, further development of coal facilities that do not include carbon dioxide sequestration will produce a disproportionate impact on global warming. A Supplemental DEIS is needed to fully address the issues (such as global warming) raised during scoping.

4. The conclusion that greenhouse gas emissions would be "small in comparison to global totals" (page 4-11) does not provide adequate analysis of the potential impact. An increase of 0.003 % of global emissions is significant, particularly given the need to reduce, rather than stimulate increases in, emissions. By cavalierly dismissing this increase as "small", the DEIS infers that this is the same as "not significant" without any factual analysis of the statement, and thereby misinforms decision makers and the public. Particularly if the project is successful in stimulating further commercial development of coal conversion facilities, the cumulative impact is likely to be much greater than is presented here. A supplemental DEIS is needed that provides a factual basis for the inference that the impacts of these emissions, and any cumulative emissions that this project would reasonably stimulate form similar new facilities, would be "small".

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