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Sent: Friday, January 11, 2008 4:01 PM
To: Bill.Storm@state.mn.us; Richard.Hargis@NETL.DOE.GOV
Cc: Kristin.Henry@sierraclub.org; ckearns@qwest.net
Subject: Sierra Club Comments on the Mesaba Energy Project 's Draft Environmental Impact Statement [PUC Docket No. E6472/GS-06-668, DOE/EIS-0382D]

Attachments: Sierra Club Comments on the DEIS for the Mesaba power plant.PDF



Sierra Club
Comments on the DE

Dear Mr. Storm and Mr. Hargis,

Attached are the Sierra Club's written comments on the Department of Energy's and Minnesota's Department of Commerce Draft Environmental Impact Statement ("DEIS") for Excelsior Energy's proposed Mesaba Energy Project in Minnesota.

(See attached file: Sierra Club Comments on the DEIS for the Mesaba power plant.PDF)

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VIA: Electronic Mail and U.S., First-Class Mail

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Re: Comments on the Mesaba Energy Project's Draft Environmental Impact Statement [PUC Docket No. E6472/GS-06-668, DOE/EIS-0382D]

Dear Mr. Strom and Mr. Hargis,

The purpose of this letter is to provide written comments on the Department of Energy's ("DOE") and Minnesota's Department of Commerce ("MDOC") Draft Environmental Impact Statement ("DEIS") for Excelsior Energy's proposed Mesaba Energy Project ("Mesaba coal-fired power plant" or "Mesaba power plant") in Minnesota. This comment letter is being submitted on behalf of the Sierra Club.

Excelsior Energy is proposing to build the Mesaba Energy Project power plant north of Taconite in Itasca County, MN. The \$2 billion integrated gasification combined cycle ("IGCC") plant would be built in two phases, with each capable of producing approximately 600 megawatts (1,200 megawatts total), and, if built, it would be the largest IGCC power plant. Excelsior Energy has no plans to capture the estimated 5 million tons of carbon dioxide, a major contributor to global warming, that the proposed Mesaba plant will emit.

On the local level, this project will cause direct and irreparable impacts by emitting mercury, particulate matter, ozone generating pollutants, and other pollutants that will adversely impact local air quality. The project will harm imperiled fish and wildlife resources in the area.

On the regional level, pollution from this facility will have several irreparable environmental impacts. Millions of tons of air pollution (including mercury and

selenium) will be spewed into the atmosphere causing further degradation and contamination of the region's land and waterways. There are four Class I areas in close proximity to the proposed plant, including the Boundary Waters Canoe Area Wilderness, that will be adversely impacted by this plant's emissions. This will in turn hurt the regional economy, which is largely supported by recreation.

On the national and international levels, the emission of over five millions of tons of greenhouse gas pollution from this facility into the atmosphere will worsen the ongoing risks posed by global warming – creating conditions which further threaten life on the planet.

For the reasons set forward below, the undersigned organizations hereby recommend that the DOE and MDOC reject the proposed Mesaba power plant and instead adopt a true “No Action” alternative, which was not adequately analyzed or considered in the DEIS.

I. Introduction

The National Environmental Policy Act (“NEPA”) is our “basic national charter for the protection of the environment.” 40 C.F.R. § 1500.1. Congress enacted NEPA “[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation.” 42 U.S.C. § 4321. To accomplish these purposes, NEPA requires all agencies of the federal government to prepare a “detailed statement” that discusses the environmental impacts of, and reasonable alternatives to, all “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). This statement is commonly known as an environmental impact statement (“EIS”). *See* 40 C.F.R. Part 1502.

The EIS must “provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” 40 C.F.R. § 1502.1. This discussion must include an analysis of “direct effects,” which are “caused by the action and occur at the same time and place,” as well as “indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8. An EIS must also consider the cumulative impacts of the proposed federal agency action together with past, present and reasonably foreseeable future actions, including all federal and non-federal activities. 40 C.F.R. § 1508.7. Furthermore, an EIS must “rigorously explore and objectively evaluate all reasonable alternatives.” to the proposed project. 40 C.F.R. § 1502.14(a).

In this case, NEPA requires that DOE and MDOC's DEIS must assess all impacts of the Mesaba power plant, including any associated energy generation and transmission

facilities. 40 C.F.R. §§ 1502.14 & 1502.16. Specifically, the EIS must “present the environmental impacts of the proposal and the alternatives in a comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public.” 40 C.F.R. § 1502.14. In order to adequately assess the environmental impacts of the project and of reasonable alternatives to the proposed project (including, but not limited to, the proposed project plus additional mitigation measures), the DOE and MDOC’s DEIS must assess the direct, indirect, and cumulative impacts that the proposed project and each alternative would have.

For example, the DEIS must consider:

[E]nvironmental impacts of the alternatives including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.

* * *

Possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.

* * *

Energy requirements and conservation potential of various alternatives and mitigation measures. Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures . . . [H]istoric and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.

40 C.F.R. § 1502.16.

II. Purpose and Need Statement – Chapter 1

A. The DEIS Failed To Reasonably Define Purpose And Need

The definition of purpose and need in the DEIS is critically important because it determines the range of alternatives that may be considered “reasonable” — based on their ability to satisfy the stated purpose and need. Here, the DEIS has arbitrarily constrained the alternatives analysis by narrowly defining the purpose and need to a coal-generation facility without assessing whether the actual generating needs could be met through renewable energy, conservation and

efficiency or other sources of fuel, such as natural gas.. This violates NEPA. *See, e.g., Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 198 (D.C. Cir. 1991) (explaining that an “agency may not define the objective of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency’s power would accomplish the goals of the agency’s action”).

The NEPA regulations make clear that “[e]nvironmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than just justifying decisions already made.” 40 C.F.R. §1502.2. Instead, the DOE and MDOC must consider all reasonable alternatives, even those that are “not within the jurisdiction of the lead agency.” In preparing the DEIS, it is clear that the DOE and MDOC have violated the “letter and spirit” of NEPA. 40 C.F.R. §1500.1 More specifically, the DOE and MDOC have violated NEPA and its implementing regulations by limiting its analysis of impacts and alternatives to coal-based generation options. Specifically, it is stated numerous times throughout the DEIS that the proposed project’s purpose is to test the “commercial readiness of the Conoco-Phillips E-Gas™ gasification technology in a fully integrated and quintessential IGCC utility-scale application.” As such, the DOE and MDOC’s DEIS is deficient because it simply is “justifying decisions already made” – to build an IGCC plant that utilizes Conoco-Phillips E-Gas™ gasification technology. It is also clear that the DOE and MDOC refused to consider any alternatives it deemed not consistent with the this basic premise – coal-based generation technology which tests the commercial readiness of IGCC. Thus, the DEIS is fundamentally flawed from the start. As such, the DEIS must be reissued without the illegal limitations placed on it by the DOE and MDOC.

The caselaw on NEPA issues of “purpose and need” makes clear that the DEIS violates NEPA. For example:

- “An agency cannot define a project’s purpose so narrowly that it precludes consideration of alternatives and can be accomplished only by the preferred alternative. *Friends of the Southeast’s Future v. Morrison*, 153 F.3d 1059, 1066 (9th Cir. 1998); *Colorado Environmental Coalition v. Dombeck*, 185 F.3d 1162, 1174 (10th Cir. 1999).
- “One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing ‘reasonable alternatives’ out of consideration (and even out of existence)...The federal courts cannot condone an agency’s frustration of Congressional will. If the agency constricts the definition of the project’s purpose and thereby excludes what are truly reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act.” 42 U.S.C. 4332(2)(E). *Simmons v. U.S. Army Corps of Engineers*, 120 F.3d 664, 666 (7th Cir. 1997).

B. Failure to Consider Adequate Alternatives

Because the DEIS fails to fairly define the purpose and need for this project, and further fails to consider the true costs of building and operating the Mesaba coal plant (discussed in detail later), it summarily rejects environmentally preferable alternatives on grounds that they are not coal-based generation technology and cannot satisfy MDOC's requirements for base-load power, job creation, and a generating facility in Northeast Minnesota. This failure to undertake meaningful consideration of alternatives violates NEPA. As NEPA's implementing regulations make clear, consideration of alternatives "is the heart of the environmental impact statement ... sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14.

Here, the DEIS leaves DOE, MDOC, and the public with the false impression that there is no viable alternative except building yet another coal-fired power plant.

1. The DEIS Improperly Dismissed Alternatives Using Renewable Energy.¹

The DEIS also fails to fully consider other economically beneficial means of generating electricity in a less environmentally harmful manner – such as use of renewable energy like solar, geothermal, and wind. There are ample renewable resources available to serve the base-load electricity needs in Minnesota. The DEIS is flawed because it fails to consider any technology for meeting the Statement of Need other than through coal-based generation technology.

First, without any detailed consideration, the DEIS dismissed alternatives that rely on renewable energy, including wind and solar power because they are not forms of coal-based generation. Since renewable alternatives were never evaluated, the DEIS does not discuss whether it is possible to generate 1,200 megawatts of power from renewable sources. Moreover, the DEIS never explores whether renewable energy could meet a smaller base-load demand. Nor does the DEIS offer a comparison between the realistic costs of electricity from Mesaba and up-to-date costs of delivered wind, solar, or geothermal power.

2. The DEIS Improperly Dismissed the Potential Role of Conservation and Efficiency Programs in Assessing Alternatives to a New Coal Plant.

The Statement of Need in the DEIS is also flawed because it fails to consider that any future electricity demand can be significantly offset by implementation of environmentally beneficial energy efficiency and conservation measures. The

¹ Minnesota state legislature decided that Excelsior Energy may use the state's Renewable Development fund to finance this project. There should be no mistake; the Mesaba coal-fired power plant is not a form of the renewable energy. In fact, the legislature should not allow Excelsior access to this fund because Minnesota statute clearly states that funds in the Renewable Development are to be granted "only for development of renewable energy sources." Minn. Stat. § 116C.779.

failure to consider energy efficiency/conservation alternatives is a fatal flaw of the DEIS. Had such an alternative been considered, it would severely undercut the Statement of Need for the Mesaba power plant.

Efficiency is the cheapest, fastest, cleanest and safest way to generate power. That is why a number of states and power companies are investing in improving conservation and efficiency. States with high growth, such as Florida and North Carolina, are engaging aggressive energy efficiency and renewable standards to meet energy needs cheaply and cleanly, while at the same time rejecting plans to build new coal-fired power plants. In the Carolinas, Duke and Progress have launched initiatives to generate thousands of megawatts – more than the 6,000 megawatts of base-load power needed to meet demand in Minnesota.

The DOE and MDOC, on the other hand, are taking the opposite approach. They are proposing to build a new coal-fired power plant rather than investing conservation and efficiency. This is the wrong answer for Minnesota. The state of Minnesota and its electric utility industry can introduce a number of conservation and efficiency measures that would mitigate the need for new electricity generating units. Efficiency and renewables also produce more local jobs than a highly automated coal-fired power plant, which burns Power River Basin coal from other states.

Therefore, the DOE and MDOC must consider how to meet this demand with demand side management. A list of some, but not all, demand side management options that should have been considered include the following:

- switching to compact fluorescent lights (CFL) or LED lighting;
- improved insulation and weatherization;
- energy efficiency appliances, such as refrigerators, air conditioners, geothermal heating systems, and hot water heaters;
- switching from electric to natural gas appliances such as heating systems and hot water heaters;
- energy efficient improvements in industrial application such as electric motors and HVACs;
- cycling programs for heating and cooling systems;
- programmable thermostats and down comforters;
- passive solar;
- energy audits;
- general energy education on conservation and efficiency; and
- efficient mobile home purchasing.

By undertaking an independent analysis of conservation and efficiency savings that would reduce energy needs, the DOE and MDOC would also broaden the range of reasonable alternatives.

III. Description of Proposed Action and Alternatives – Chapter 2

NEPA requires federal agencies to consider reasonable and feasible alternatives to the proposed action. Chapter 2 of the DEIS provides a description of the Proposed Action and Alternatives. The DEIS is flawed because it fails to consider any real and meaningful alternatives to the proposed action. The DEIS only considers three alternatives: the “no action alternative” and an identical, IGCC coal-fired power plant at two different locations. As such, other than the “no action” alternative, which is required by law, the DEIS does not present any meaningful alternative to the proposed action in terms of minimizing environmental impacts. Therefore, the DEIS is fundamentally flawed.

A. Failure to consider “clean energy alternatives”

The significant flaw in the DEIS stems from the fact that DOE and MDOC wrongfully eliminated all meaningful clean energy alternatives in the NEPA scoping and DEIS process. In essence, the DOE and MDOC wrongly concluded that none of the renewable energy technologies could provide 1200 MW of power, or a smaller base-load amount. This conclusion is flawed for several reasons. First, it is entirely reasonable that 1,200 MW of electricity could be generated from renewable resources, through staged renewable resource development. This would be a viable alternative to the Mesaba coal-fired power plant. Contrary to the finding in the DEIS, which rejected this alternative out of hand without any mention or analysis, these renewable alternatives are viable and being constructed in the Midwestern United States.

The DEIS also completely fails to consider whether some of the energy needs could be offset by clean and viable energy conservation and efficiency. As noted above, many states are reducing the base-load demand by implementing demand side management programs. Implementation of these programs would also reduce emissions of greenhouse gases and conventional pollutants. Implementation of these efficiency measures would also reduce the overall purpose and need of the Mesaba power plant. By eliminating the need for the project, the benefits of moving forward would be obviated—especially when compared to the adverse environmental impacts. Accordingly, the DEIS should analyze an energy efficiency/conservation alternative to determine whether purported purpose and need for the DFS could be met by these environmentally beneficial alternatives. As stated by EPA Region 9 in its recent comments on the White Pine DEIS “[I]ncreased energy efficiency offers an attractive, cost-effective alternative to building new power plants, and in some cases, even to generating electricity from existing power plants. The FEIS should discuss on-going and planned energy conservation programs undertaken by power distributors and how energy conservation may affect the need for this project.” EPA Region 9, Comments on White Pine DEIS. This statement also applies to the Mesaba DEIS.

In fact, the spirit of Minnesota law requires MDOC to consider these alternatives. Minn. Stat. § 216B.243, subd. 3 (Minnesota Public Utilities Commission precluded from issuing a “Certificate of Need” for a proposed power plant until and unless the applicant proved demand “cannot be met more cost-effectively through energy conservation and load management measures...”). It is the policy of Minnesota to promote energy conservation and renewable energy alternatives. As the current statute states, “It is the energy policy of the state of Minnesota to achieve annual energy savings equal to 1.5 percent of annual retail energy sales of electricity and natural gas directly through energy conservation improvement programs and rate design, and indirectly through energy codes and appliance standards, programs designed to transform the market or change consumer behavior, energy savings resulting from efficiency improvements to the utility infrastructure and system, and other efforts to promote energy efficiency and energy conservation” (emphasis added) (Minn. Stat. § 216B.2401).

B. Failure to consider other fuel alternatives

The DEIS also fails to consider alternative fuels in its alternatives analysis such as biomass. Biomass can be co-fired with coal to reduce the emissions of regulated pollutants, including carbon monoxide, as well as to reduce carbon dioxide emissions. There are numerous examples of coal plants co-firing biomass that provide a roadmap for such consideration in the DEIS alternatives analysis. For example, the St. Paul heating plant burns approximately sixty-percent biomass and forty percent coal. The biomass is primarily waste wood from tree trimmings and other industrial activities. The Xcel Bay Point power plant in Ashland, Wisconsin, also burns large amounts of wood waste, consisting primarily of sawdust. While these plants are not IGCC plants, they can still serve as a reference point.

The U.S. Department of Energy has urged federal facility managers to consider co-firing up to 20 percent biomass in existing coal-fired boilers. In the Netherlands, all four electricity generation companies (EPON, EPZ, EZH and UNA) have developed plans to modify their conventional coal-burning plants to accommodate woody biomass as a co-fuel.

In short, the DOE and MDOC should consider as part of the DEIS alternatives analysis the co-firing of biomass as a means to mitigate CO and CO₂ emissions. The possible types of biomass include wood wastes, agricultural waste, switchgrass and prairie grasses.

C. Improper rejection of “no action” alternative

The DOE and MDOC rejects the no “action alternative” because it would not advance the commercialization of IGCC. As noted herein, any existing energy demand in the Midwestern United States should be met first by energy efficiency/conservation measures and then by renewable energy. Moreover,

MDOC's conclusion that it needs 3,000 to 6,000 megawatts of baseload capacity does not discuss whether this need can be met through other proposed coal plants in the Midwest. Failure to consider whether these other alternative power plants can meet the purpose and need of the MDOC is a fatal flaw of the DEIS.

D. Failure to adequately consider the impacts of coal combustion waste disposal, including cumulative impacts on the region of waste disposal from numerous new coal generating facilities.

The DEIS fails to adequately consider the impacts on land, water, and local public health related to the disposal of the many tons of toxic coal combustion wastes from this facility annually. These wastes contain arsenic, mercury, selenium and other toxic constituents and have caused drinking water contamination at other sites in the U. S. In particular the cumulative impacts on the region of the coal combustion waste disposal from this project combine with the similar requests other proposed coal plants to dispose of coal waste on local landfills.

IV. Discussion of the Affected Environment – Chapter 3

A DEIS must “fulfill and satisfy to the fullest extent possible the requirements established for final statements.” 40 C.F.R. § 1502.9(a). “If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portions.” *Id.* A crucial and significant role for an EIS in draft or final form is providing a “springboard for public comment.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 370 (1989). Thus a DEIS is defective if it references ongoing or incomplete studies which may or may not be included in the final EIS because the DEIS does not provide enough information to allow for meaningful public comment. This information must be made available for public review in advance of the FEIS. Post-hoc monitoring is not a sufficient examination of the affected environment for NEPA purposes. Rather the affected environment must be identified and analyzed before the federal agency authorizes an irretrievable commitment of resources. A statement about possible effects absent meaningful analysis before an action takes place does not satisfy NEPA's hard look requirement. *See e.g., Sierra Club, Inc. v. Austin*, 82 Fed. App'x. 570, 573 (9th Cir. 2003) (citing *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372 (9th Cir. 1998)).

In numerous instances, the “Affected Environment” section of the DEIS (Chapter 3) is defective because it does not contain adequate information or relies on future studies or determinations. The BLM must analyze the affected environment before an irretrievable commitment of resources is made. For the reasons stated below, the DEIS is legally defective and premature because it fails to contain vital information on the affected environment.

A. Air impacts not considered.

Section 3.3-6 of the DEIS fails to adequately discuss the health impacts associated with PM 2.5 emissions from the proposed Mesaba plant. While the DEIS mentions the National Ambient Air Quality Standards (“NAAQS”), the secondary standards and Minnesota Ambient Air Quality Standards (“MAAQS”) for all associated air pollutants, including PM 2.5 emissions, the DEIS does not discuss the health impact of fine particulate matter pollution from the Mesaba power plant.

In 2006, the U.S. EPA stated, after conducting its review of the National Ambient Air Quality Standards for PM10 and PM 2.5, that PM 2.5, which the U.S. EPA sometimes refers to as “fine particulate matter” has a variety of adverse health effects including premature mortality, increased hospital admissions, emergency room visits and development of chronic respiratory disease. 71 Fed. Reg. 2,620 (Jan. 17, 2006).

U.S. EPA has also stated:

The research on which EPA based the 1997 standards did not identify a specific threshold concentration below which individuals have no PM related health effects, meaning that emissions reductions resulting in reduced concentrations below the level of the standards may continue to provide additional health benefits to the local population.

70 Fed. Reg. 65,983, 65,988 (Nov. 1, 2005). In U.S. EPA’s most recent review of the PM10 and PM2.5 National Ambient Air Quality Standards, U.S. EPA was unable to find evidence supporting the selection of a threshold level of PM2.5 under which the death and disease associated with PM 2.5 would not occur at the population level. 71 Fed. Reg. 2,620, 2,635 (Jan. 17, 2006). The US EPA also noted that in “the extended ACS [American Cancer Society] study, the authors reported that the associations for all-cause, cardiovascular and lung cancer mortality “were not significantly different from linear associations.” *Id.* A linear relationship means that more pollution tends to cause more health impacts at the population level.

For the foregoing reasons, the amount of PM 2.5 emissions from Mesaba power plant must be quantified and the associated human health impacts analyzed and compared against a true no action alternative.

B. Failure to consider impact to “global” environment

The U.S. Department of Interior Director’s Order No. 3226 (U.S Dep’t of Interior, Jan. 19, 2001) acknowledges that “[t]here is a consensus in the international community that global climate change is occurring and that it should be addressed in government decisionmaking.” That Order further instructs “[e]ach bureau and office of the Department [of Interior] [to] consider and analyze potential climate change impacts . . . when making major decisions regarding the potential utilization of resources under the

Department's purview."² The same should apply to branches of the Department of Agriculture.

As noted elsewhere herein, the DEIS fails to adequately list the affect the Mesaba power plant will have on the broader global environment. For example, the DEIS fails to adequately analyze the broader environmental affects the emission of over 5 million tons of global warming pollution each year from the Mesaba power plant. Chapter 3 of the DEIS fails to adequately characterize the potential effect to the global environment caused by the Mesaba power plant's release of over 5 million annual tons of global warming pollution: global climate change, global temperature change, rising sea levels, effect on wildlife (corals, polar bears), glacier reduction, less snow, more rain and earlier snowmelt runoff. The DEIS is flawed for failing to characterize this impact to the global environment.

C. Failure to list impacts of other U.S. government actions

Moreover, the DEIS fails to analyze that these same environments will be affected by the cumulative impacts of the actions of the U.S. government regarding numerous pending coal-fired power plant proposals currently undergoing NEPA review, including the White Pine power plant, the Toquop plant, the Ely Energy Center, the Bonanza plant, the Big Stone II plant and others in the United States.

D. Failure to consider impacts to visibility from emissions

Section 3.3 of Chapter 3 (Visibility and Regional Haze) fails to recognize that emission of pollutants from the Mesaba will affect visibility, including visibility at nearby Class I areas. Instead, the DEIS notes that under the new federal Regional Haze Act, the plant may be regulated in the future to address haze. These visibility impacts caused by pollutants must be acknowledged and analyzed now and not put off until some undetermined future point in time.

E. Failure to specifically consider exposure to coal combustion waste

The DEIS fails to note that groundwater resources could be impacted from coal combustion waste disposal at the power plant site. The DEIS notes that sludge and waste from the Mesaba power plant would be taken to a local landfill for disposal. Given the history of coal combustion waste causing groundwater contamination, the DEIS must not only acknowledge this potentially affected environment, but also analyze potential public health impacts. The DEIS must characterize the pollutants of concern, the pathways of exposure and the human health risk as a result of coal combustion waste produced throughout the life of the mine and power plant.

F. Failure to acknowledge potential impact of groundwater pumping on area springs and seeps

² http://elips.doi.gov/app_so/act_getfiles.cfm?order_number=3226

Abandoned mine pits would be the primary source of water for the proposed Mesaba power plant. A water pipeline and pumping system would convey water from the abandoned mine pits to the Mesaba Generating Station. The DEIS fails to acknowledge impacts to area surface waters, springs, and seeps as a result of groundwater pumping to serve the Mesaba power plant. In addition, the DEIS should explore whether this pumping would have any impact on the water resources of the Boundary Waters Canoe and Wilderness Area. This impact must be acknowledged and analyzed.

G. Failure to acknowledge potential impact of groundwater pumping on existing groundwater wells

The DEIS fails to acknowledge impacts to existing water wells as a result of groundwater pumping to serve the Mesaba power plant. This impact must be acknowledged and analyzed.

H. Failure to analyze electromagnetic field impacts

The DEIS fails to identify electromagnetic fields generated by the power plant and transmission facilities as part of the effected environment. The DEIS must analyze impacts to public health and the environment as a result of electromagnetic fields.

I. Lack of project design plans in Draft EIS

There are no detailed design plans (stack heights, schematics of conveyance systems, road improvements, etc.) included in the DEIS. This prevents a complete analysis of the proposed Mesaba power plant.

J. Human health risk assessment

The DEIS also largely fails to acknowledge that emissions and releases from the plant will pose risks to human health. The DEIS must acknowledge these risks and quantify the impacts from the plant against a true no action alternative.

V. Environmental Consequences- DEIS Chapter 4

A. Failure to Adequately Examine Global Warming Impacts

The Mesaba facility would emit approximately 5 million tons of CO₂ and would operate for at least 40 years. Thus, the total emission of CO₂ over the life of the plant is expected to be 200 million tons of CO₂.

NEPA requires governmental agencies to consider impacts on the global environment, as well as local and regional impacts. For example, NEPA Section 102(F) requires that the federal government “recognize the world-wide and long-range character of environmental problems and, where consistent with the foreign policy of the United

States, lend support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment." This includes global climate change. As the Ninth Circuit recently held, federal agencies have an obligation to evaluate "the expected amount of CO₂ emitted" as a result of their activities, and the "incremental impact" that these emissions will have "on climate change or on the environment more generally in light of other past, present, and reasonably foreseeable actions" *Center for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 2007 U.S. App. LEXIS 26555 at *111 (9th Cir. Nov. 15, 2007).

The Intergovernmental Panel on Climate Change ("IPCC") was established by the World Meteorological Organization ("WMO") and the United Nations Environment Programme ("UNEP") in 1988. The IPCC's mission is to comprehensively and objectively assess the scientific, technical and socio-economic information relevant to human-induced climate change, its potential impacts, and options for adaptation and mitigation. *See* <http://www.ipcc.ch/about/about.htm>. The IPCC completed its First Assessment Report in 1990, its Second Assessment Report in 1995, and its Third Assessment Report in 2001. *Id.*

In February 2007, the Intergovernmental Panel on Climate Change ("IPCC") released a summary of the contribution of Working Group I to its Fourth Assessment Report. The Summary concludes, among other things:

- The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm in 2005;
- The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years;
- The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use;
- There is at least a 9 out of 10 chance that the global average net effect of human activities since 1750 has been one of warming;
- Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level;
- At continental, regional and ocean basin scales, numerous long term changes have been observed. These include changes in arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones;

- There is greater than a 90% likelihood that most of the observed increases in global average temperatures since the mid-20th century are due to the observed increases in anthropogenic greenhouse gas emissions;
- For the next two decades, warming of about 0.2 Degrees Celsius per decade is projected for a range of emission scenarios;
- There is greater than a 90% likelihood that hot extremes, heat waves and heavy precipitation events will continue to become more frequent; and
- Anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized.

In April 2007, the IPCC released a summary of the Contribution of Working Group II to its Fourth Assessment Report. Working Group II is responsible for assessing the vulnerability of socio-economic and natural systems to climate change, the consequences of climate change, and the options for adapting to it. <http://www.ipcc.ch/about/about.htm>. The Working Group II Summary concludes, among other things:

- By mid-century, annual average river runoff and water availability are projected to decrease by 10-30% over some dry regions at mid-latitudes and in the dry tropics, some of which are presently water stressed areas;
- In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives;
- Warming in the mountains of western North America is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources;
- Drought-affected areas will likely increase in extent. Heavy precipitation events which are very likely to increase in frequency, will augment flood risk;
- Increases in the frequency of droughts and floods are projected to affect local crop production, especially in subsistence sectors at low latitudes. (The DEIS then fails to consider how emitting over 5 million tons of CO₂ annually would impact the current drought.
- Poor communities can be especially vulnerable, in particular those concentrated in high-risk areas. They tend to have more limited adaptive capacities, and are more dependent on climate-sensitive resources such as local food and water supply;

- Disturbances from pests, disease and fire are projected to have increasing impacts on North American forests, with an extended period of high fire risk and large increases in area burned;
- In North America, major challenges are projected for crops that are near the warm end of their suitable range or depend on highly utilized water resources;
- The resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought, wildfire, insects, ocean acidification), and other global change drivers (e.g., land use change, pollution, over-exploitation of resources);
- Approximately 20-30% of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperatures exceed 1.5-2.5 Degrees Celsius;
- For increases in global average temperature exceeding 1.5-2.5 Degrees Celsius and in concomitant atmospheric carbon dioxide concentrations, there are projected to be major changes in ecosystem structure and function, species' ecological interactions, and species' geographic ranges, with predominantly negative consequences for biodiversity, and ecosystem goods and service, e.g., water and food supply;
- Projected climate change-related exposures are likely to affect the health status of millions of people, particularly those with low adaptive capacity; and
- Even the most stringent mitigation efforts cannot avoid further impacts of climate change in the next few decades, which make adaptation essential, particularly in addressing near-term impacts. Unmitigated climate would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt.

On or about May 4, 2007, the IPCC released a summary of the contribution of Working Group III to its Fourth Assessment Report. Working Group III is responsible for assessing options for limiting greenhouse gas emissions and otherwise mitigating climate change. <http://www.ipcc.ch/about/about.htm> The Working Group III Summary, concludes, among other things:

- Global greenhouse gas (GHG) emissions have grown since pre-industrial times, with an increase of 70% between 1970 and 2004;
- The largest growth in global GHG emissions between 1970 and 2004 has come from the energy supply sector (an increase of 145%);
- With current global climate change mitigation policies and related sustainable development practices, global GHG emissions will continue to grow over the next few decades;

- There is substantial economic potential for the mitigation of global GHG emissions over the coming decades, that could offset the projected growth of global emissions or reduce emissions below current levels;
- There are mitigation opportunities with net negative costs, in other words, for which the benefits such as reduced energy costs and reduced emissions of pollutants equal or exceed their costs to society, excluding the benefits of avoided climate change;
- Fuel switching from coal to gas, renewable heat and power (hydropower, solar, wind, geothermal and bioenergy), and early applications of carbon capture and storage (e.g., storage of removed carbon dioxide from natural gas) are key mitigation technologies and practices currently commercially available;
- Near-term health co-benefits from reduced air pollution as a result of actions to reduce GHG emissions can be substantial and may offset a substantial fraction of mitigation costs;
- It is often more cost-effective to invest in end-use energy efficiency improvement than in increasing energy supply to satisfy demand for energy services. Efficiency improvement has a positive effect on energy security, local and regional air pollution abatement and employment;
- Renewable energy generally has a positive effect on energy security, employment and on air quality; and
- In order to stabilize the concentrations of GHGs in the atmosphere, emissions would need to peak and decline thereafter.

Hansen and others have stated that global emissions of CO₂ and other global warming pollutants must be immediately reduced to avoid exceeding the 475 ppm ceiling for significant irreversible impacts.³ The World Health Organization has estimated that approximately 154,000 human lives are lost each year as a result of global warming.⁴

DOE and MDOC should consider the entirety of the Fourth Assessment Report and make it part of the administrative record for the DEIS. Due to the severe impacts of the Mesaba power plant's carbon dioxide emissions on the health, welfare, economy, and environment of the state of Minnesota, the nation, and the planet as a whole as described

³ Hansen, et al. *Global Temperature Change*, PNAS published online September 25, 2006; doi:10.1073/pnas.0606291103. See also, Hansen, et al. 2006, *Dangerous Human-made Interference with Climate: A GISS modelE study*; available at <http://arxiv.org/abs/physics/0610115>.

⁴ World Health Organization (WHO) 2002, *The World Health Report*, available at <http://www.who.int/whr/2002/en/index.html>.

in the IPCC report, the DEIS should examine alternatives and mitigation measures designed to eliminate or minimize carbon dioxide emissions.

The DEIS should also assess the impacts of global warming pollution on different environmental receptors—such as wildlife, vegetation, water resources, humans, or land. The DEIS should analyze the local, regional, and global environmental impacts of CO₂ emissions from the Mesaba power plant. The DEIS should also consider the economic impacts of CO₂ emissions from the Mesaba power plant. In addition, the DEIS should consider the cumulative impacts of this significant new source of CO₂ emissions in combination with other existing and proposed CO₂ sources.

B. Failure to Adequately Consider Impacts of Ozone Pollution

On July 11, 2007, EPA published proposed revisions to strengthen the national ambient air quality standards for ozone. *See* 72 Fed. Reg. 37,818. In October 2006, the EPA Clean Air Scientific Advisory Committee unanimously and unambiguously advised EPA Administrator Stephen Johnson: “(1) There is no scientific justification for retaining the current primary 8-hr NAAQS of 0.08 parts per million (ppm), and (2) The primary 8-hr NAAQS needs to be substantially reduced to protect human health, particularly in sensitive subpopulations.”⁵ The Committee also unanimously agreed upon a recommended range: “Therefore, *the CASAC unanimously recommends a range of 0.060 to 0.070 ppm for the primary ozone NAAQS.*”⁶ These recommendations leave no room for misinterpretation. Indeed, the CASAC pointedly found that “*there is no longer significant scientific uncertainty regarding CASAC’s conclusion that the current 8-hr primary NAAQS must be lowered*” and “[r]etaining this standard would continue to put large numbers of individuals at risk.”

*[T]here is no longer significant scientific uncertainty regarding the CASAC’s conclusion that the current 8-hr primary NAAQS must be lowered. A large body of data clearly demonstrates adverse human health effects at the current level of the 8-hr primary ozone standard. Retaining this standard would continue to put large numbers of individuals at risk for respiratory effects and/or significant impact on quality of life including asthma exacerbations, emergency room visits, hospital admissions and mortality.*⁷

In sum, CASAC unequivocally found that there is no basis in public health considerations for EPA to retain the current standard.

The scientific evidence of mortality effects is one of the significant scientific developments since EPA’s 1997 decision to lower the ozone health standard. The

⁵ Dr. Rogene Henderson, Chair, CASAC, to Stephen Johnson, EPA Administrator, “Clean Air Scientific Advisory Committee’s (CASAC) Peer Review of the Agency’s 2nd Draft Ozone Staff Paper,” (Oct. 24, 2006).

⁶ *Id.* at 2 (italics in original).

⁷ *Id.* at 5 (italics in original).

CASAC expressly pointed to the studies on ozone mortality effects as part of the body of evidence documenting adverse health effects below the current health standard. The CASAC found:

- “Several new single-city studies and large multi-city studies designed specifically to examine the effects of ozone and other pollutants on both morbidity and mortality have provided more evidence for adverse health effects at concentrations lower than the current standard.”⁸
- “[A]dverse health effects due to low-concentration exposure to ambient ozone (that is, below the current primary 8-hour NAAQS) found in the broad range of epidemiologic and controlled exposure studies cited above include . . . an increase in mortality (non-accidental, cardio-respiratory deaths) reported at exposure levels well below the current standard.”⁹
- “Retaining this [the current] standard would continue to put large numbers of individuals at risk for . . . mortality.”¹⁰

CASAC’s series of statements in its October 2006 correspondence to the Administrator placed CASAC’s full force, unanimously, on the evidence of mortality and other health effects in compelling EPA to adopt a lower standard to protect public health with an adequate margin of safety.

In addition, both CASAC and EPA found that ozone has serious adverse welfare effects at concentrations well below the current ambient standard. These welfare effects are addressed in the October 2006 CASAC letter to EPA Administrator Stephen Johnson and EPA’s July proposal on the national ambient air quality standards for ozone. *See* 72 Fed. Reg. 37,818. Both documents are incorporated here by reference as part of the administrative record for this proceeding.

DOE and MDOC must fully evaluate the potential for the proposed Mesaba power plant to contribute to elevated ozone concentrations that threaten human health and the environment. In such analysis, the extensive ozone-forming pollution associated with the Mesaba power plant must be evaluated together with all other emission sources in the region.

3. Failure to Adequately Consider Impacts to National Parks and Class I areas

Within a 300 km range of the Mesaba power plant there are numerous Class I areas, the Boundary Waters Canoe Area, Rainbow Lake Wilderness Area, Voyageurs National Park, and Isle Royale National Park. DEIS at 3.3-6. These Class I areas are already under

⁸ *Id.* at 3 (citations omitted).

⁹ *Id.* at 4.

¹⁰ *Id.* at 5.

tremendous pressure from numerous existing and proposed coal-fire power plants and other emission sources in Minnesota and the Midwestern United States.

In 1977 Congress amended the Clean Air Act and designated certain federal lands as class I areas, giving them the greatest level of protection under the Act. To protect the air in class I areas, Congress created the prevention of significant deterioration or PSD program. PSD seeks to “preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special ... natural, recreational, scenic or historic value.” Clean Air Act Sec. 160.

Under PSD, Congress established limits (known as increments) on additional amounts of pollution in class I areas over baseline conditions that existed in 1977 when PSD was enacted. Increments are in place for emissions of sulfur dioxide, particulate matter, and nitrogen oxides. Because Congress sought to protect air quality not just from long-term pollution increases, but also from fluctuations and “spikes” that occur at certain times of year (e.g., peak summer energy demand), it created both annual and short-term (3 and 24 hours) increments for these pollutants.

Since Congress wants class I areas to have the cleanest air in the country, these parks and wilderness areas have the smallest increments, or allowable amounts of new pollution. The DOE and MDOC need to do a study (known as an increment analysis) to show how much pollution is already in the class I area and how much additional pollution it will add.

While DOE and MDOC performed an increment analysis this was flawed in many ways. When the draft air permit for this facility is issued, Sierra Club will submit extensive comments on the deficiencies with this increment analysis, including problems associated with the modeling. The Sierra Club hereby incorporates by reference any future comments by the Club on air impacts.

The Mesaba power plant will likely have impacts at these Class I areas, as well as on regional haze. The National Park Service, U.S. EPA, and Forest Service will probably be commenting on the proposed Mesaba power plant air permit. The Sierra Club thus request that finalization of the EIS be delayed until the Park Service, Forest Service and U.S. EPA have formally commented on the air permit. The Sierra Club hereby incorporate herein by reference any future comments regarding air impacts from the Mesaba power plant from any governmental agency, including but not limited to the Park Service, EPA, and National Forest divisions.

Further, states will soon have to comply with the federal regional haze rule which will require improvements to visibility on the best days and no impairment on the worst days. The DEIS should analyze how the Mesaba power plant, and all other proposed coal plants cumulatively, will impact the federal regional haze rule.

4. Failure to Evaluate Mercury Deposition in Class I areas

The DEIS fails to properly evaluate mercury deposition in Class I areas. This impact must be recognized and analyzed against a no action alternative. The DEIS should also include a cumulative impact analysis of the combined impacts of mercury deposition from all existing and proposed power plants in the region.

Numerous scientific studies show that elemental mercury accumulates closely around the point of emission.¹¹ The two possible sites are 40 and 100 kilometers from the Boundary Waters Canoe and Recreation Area, which is a popular area for angling and canoeing. Once emitted into the environment, elemental mercury is transformed by biochemical processes into methylmercury. Methylmercury is highly toxic to humans and wildlife, even in minute amounts. For these reasons, the American Medical Association says that allowing power plants to escape mercury cleanup through cap-and-trade “is inconsistent with the AMA’s health-protective approach to air pollution.”¹²

- Research in the eastern United States shows significant bioaccumulation of methylmercury in salamanders, Peregrine falcons and forest songbirds. In recent decades, the number of wood thrushes in the southeast region has declined 45 percent, and researchers now suspect that accumulation of airborne mercury in forest ecosystems could be part of the cause.
- Monitoring has shown that concentrations of methylmercury in game fish from many interior lakes in Voyageurs National Park in northern Minnesota substantially exceeds criteria for the protection of human health. Researchers recently concluded that nearly all of the mercury in fish in this seemingly pristine environment was derived from industrial emissions.¹³
- Extremely high mercury levels were recently found in the endangered Indiana bats living in Mammoth Cave National Park in Kentucky, which is located in an area that has among the greatest concentrations of coal-fired power plants of anywhere in the country.¹⁴

The DEIS fails to discuss or provide any data on the mercury levels in Minnesota’s air and water.

5. The DEIS Does Not Adequately Analyze Impacts to Wilderness

¹¹ E.g., Gerald J. Keeler, M.S. Landis, G.A. Norris, E.M. Christianson, and J.T. Dvonch, “Sources of Mercury Wet Deposition in Eastern Ohio, USA,” *Environmental Science and Technology* (American Chemical Society), Vol. xx, No. xx, xxx (published online September 8, 2006).

¹² American Medical Association,
<http://www.ama-assn.org/ama/pub/category/17086.html>.

¹³ J.G. Wiener, B.C. Knights, M.B. Sandheinrich, J.D. Jeremianson, M.E. Brigham, D.R. Engstrom, L.G. Woodruff, W.F. Cannon, and S.J. Balough, “Mercury in Soils, Lakes and Fish in Voyageurs National Park (Minnesota): Importance of Atmospheric Deposition and Ecosystem Factors,” *Environmental Science and Technology* (American Chemical Society), vol. 40, no. 20 (September 6, 2006).

¹⁴ The Louisville Courier-Journal, “Contaminated BATS? Mercury found in animals at Mammoth Cave,” August 7, 2005

The DEIS fails to analyze the impacts that the visible blighted plume from the Mesaba coal plant will have on observers in the surrounding wilderness areas. The DEIS fails to consider whether the plume will adversely impact recreation in the area due to a loss of the current unspoiled characteristics in the area. The DEIS also fails to analyze whether industrialization near these wilderness areas will have an adverse impact on the local economy as a result of reduced wilderness uses of the area. These impacts must be analyzed. An individual and cumulative haze analysis should be performed of the Mesaba plant and all other existing and proposed power plants in the region.

6. Noise

The DEIS fails to present data on the cumulative impacts of noise on the wilderness and nearby recreation areas from operation of the Mesaba coal-fired power plant, operation of the railroad line, and operation of water pumping stations. The DEIS must recognize that recreational receptors value the area for its “solitude”. A cumulative noise impact analysis should be performed to specifically quantify the collective noise from all of this development and then determine its likely impact on solitude in the local wilderness areas and recreation areas.

7. Failure to consider impacts caused by coal combustion waste disposal

The DOE and MDOC failed to “succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration.” as required by 40 CFR 1502.15. Without a detailed description of baseline environmental conditions, there is no means for assessing and comparing the impacts of the alternatives on water quality.

First, the DEIS did not assess baseline groundwater monitoring or surface water data. Second, neither the DEIS or its Appendices contain a baseline description of the area(s) where waste will be disposed, including the large volumes of ash that will be disposed. Site-specific baseline geochemical data of the stratigraphy and layers of earth as well as water flow pathways at these specific disposal sites are necessary to understand and predict the consequences of placing large volumes of coal combustion waste into the ground. Baseline information is necessary to understand the amount of water that will interact with the coal waste, the quality of that water prior to the interaction, and the rates, directions and pathways that water will flow in from that interaction. This information is necessary to understand the potential for that water to reach any human and ecological receptors. Without this information, the information in the DEIS severely deficient for assessing and commenting on the environmental impacts of the preferred alternative.

The potential impact on aquatic life, terrestrial life and human health from exposure to coal ash contaminants from a large disposal of coal waste from the Mesaba power plant into the ground/landfill should have been discussed comprehensively in this DEIS. *See* Hopkins, W.A, C.L. Rowe, J.H. Roe, D.E. Scott, M. T Mendonta and J. Congdon. 1999. Ecotoxicological impact of coal combustion byproducts on amphibians and reptiles. Savannah River Ecology Laboratory, presented at the Society for environmental

Toxicology and Chemistry, 20th annual meeting, Philadelphia, PA, Abstract # PMP009; Skorupa, Joseph P., 1998. Selenium poisoning of fish and wildlife in nature: Lessons from twelve real world examples. From Environmental Chemistry of Selenium, Marcel Dekker, Inc. New York; and Cherry, D.S. et al. 2000. Review of the global adverse environmental impact to ground water and aquatic ecosystems from coal combustion wastes. Final Report. Prepared for the Hoosier Environmental Council and Citizens Coal Council, March 28, 2000 for coal ash impacts on aquatic ecosystems and Agency for Toxic Substances and Disease Registry. Health Consultation, Town of Pines Groundwater Plume, Town of Pines, Porter County, Indiana, June 14, 2002, http://www.atsdr.cdc.gov/HAC/PHA/townpines/top_p1.html for potential impacts to human health.

The DEIS also fails to provide leach data or other detailed waste characterization of the coal ash to be disposed. There is no field or laboratory data in the DEIS describing the leaching tendencies of the coal waste that will be generated by Mesaba. Along with the limited site-specific baseline information about the coal waste disposal areas, the failure to provide any in depth discussion of the chemistry of the coal waste involved further limits the ability to assess direct or indirect impacts from the preferred alternative. Site specific knowledge of the coal waste integrated with how it will behave in the disposal site in question are crucial to this understanding.

Coal combustion wastes are known to leach numerous harmful contaminants at levels harmful to health and the environment. EPA's 2006 report, entitled Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control confirmed that coal ash leaches arsenic and selenium at levels of potential concern.¹⁵ The report tested both laboratory leachate and field leachate of coal combustion waste and found significant exceedances of Maximum Contaminant Levels (MCLs, a.k.a. Primary Drinking Water Standards) for arsenic and selenium in groundwater in a substantial percentage of the samples. In fact, the concentrations of some samples approached 100 times the MCL. The report concludes that use of activated carbon injection to capture mercury at coal-fired power plants substantially increases the arsenic and selenium content of coal combustion waste. The report found, in addition, that coal ash commonly leached arsenic and selenium in excess of 10 times the MCL from both plants that employed sorbent technologies and those that did not.

Recent congressional concern about the adverse impacts of this practice lead to the National Research Council (NRC) 2006 report entitled, "Managing Coal Combustion Residues in Mines." The NRC Report concluded that "that the presence of high contaminant levels in many CCR ("coal combustion residue") leachates may create human health and ecological concerns at or near some mine sites over the long term."¹⁶ While the NRC committee found that monitoring systems at coal mines were generally

¹⁵ F. Sanchez, Keeny, R., Kosson, D., Delapp, R., Thorneloe, S. Characterization of Mercury-Enriched Coal Combustion Residues from Electric Utilities Using Enhanced Sorbents for Mercury Control, EPA/600/R-06/008, January 2006.

¹⁶ Committee on Mine Placement, National Research Council. Managing Coal Ash Residues in Mines. National Academies of Science, page 4, 2006.

inadequate to detect contamination from coal combustion waste, it dedicated Chapters 3 and 4 of its Report to the behavior of coal ash in the environment, threats to human health and damages that have occurred to groundwaters, surface waters, ecological systems and private property from coal combustion waste. As a result, the committee found that “enforceable federal standards are necessary to guarantee acceptable minimum levels of environmental protection wherever CCRs are disposed.”¹⁷

Substantial clouds of fugitive dust migrating across property lines and permit boundaries can regularly occur from ash piles and deposits. Fugitive dust is also generated regularly when ash is left exposed for indefinite periods in pits. This occurs despite the wetting of ash that is undertaken during its transport because, the permits often do not require daily or intermediate cover of the ash or scrubber sludge dumped in them and these materials dry out quickly when left exposed in the dry environment of the area.

These clouds of dust from ash and dried scrubber sludge pose a health threat to nearby residents or recreationalists that is entirely ignored by the DEIS. Numerous studies document severe cytotoxic effects in the lung cells of animals inhaling fly ash dust. The dust alters lung and liver tissue structure and kills or harms the alveolar macrophages, cells that protect against infection.¹⁸ Toxic metals concentrated in inhaled fly ash are readily transferred to other organs in animals.^{19, 20} Absent some evidence or research indicating otherwise, the authors of this DEIS cannot assume that humans are immune to these effects. Indeed, inflammatory interleukin-8 levels (proteins causing damage) increased in human lung epithelial cells exposed to fly ash by as much as 8 times.²¹ These studies (Aranyi et al, and Smith et al) have concluded that smaller particles prevalent in fly ash (below 1 micron) present the greatest inhalation hazard.

Aside from its concentrating effect, the combustion of coal leaves metals and other pollutants in a more soluble state in the waste left behind, another basic reality entirely ignored by the DEIS. Numerous researchers have long documented adverse environmental impacts caused by soluble constituents in coal combustion waste to groundwater and surface waters, plants, aquatic life, and other organisms. Carlson and Adriano (1980) maintain that the major environmental impacts of coal combustion waste include: leaching of potentially toxic metals and other substances into soils, groundwater and surface waters; hindering effects on plant communities; and the accumulation of toxic elements in the food chain. Elseewi et al. (1980), Phung et al. (1979), and Menon et al. (1990) analyzed the chemical and physical composition of fly ash under various

¹⁷ *Id.* at page 186, Chapter 8.

¹⁸ Aranyi, Catherine et al. *Cytotoxicity to Alveolar Macrophages of Trace Metals Adsorbed on Fly Ash.*, ENVIRONMENTAL RESEARCH 20, 14-23, 1979.

¹⁹ Chauhan et al. Induction of Pulmonary and Hepatic Cytochrome p-450 Species by Coal Fly Ash Inhalation in Rats, *Toxicology*, 56, 95-105, 1989.

²⁰ Srivastava et al. Distribution of Metals of Inhaled Fly Ash in Various Organs of Rats at Various Periods After Exposure, *Environmental Science Health*, A19(6), 663-677, 1984.

²¹ Smith et al. *Interleukin-8 Levels in Human Lung Epithelial Cells Are Increased in Response to Coal Fly Ash and Vary with the Bioavailability of Iron, as a Function of Particle Size and Source of Coal*, American Chemical Society, October 1999.

experimental conditions and documented the environmental impact of inorganic constituents at disposal sites, including the release of trace elements in water and soils treated with the ash. Sandhu et al. (1993) specifically studied the leaching of nickel, cadmium, chromium, and arsenic from coal ash impoundments of different ages and reached the general conclusion that leaching produces a measurable release of metals into the environment from both old and new ash deposits: “[A]sh deposits...weathered and leached for over 10 years, yet still may provide a source of metal contamination to infiltrating water. Thus, ash disposal basins may be potential sources of ground water contamination for many years after ash deposition has ceased.”

More recently, research has documented that oxyanionic trace metals such as arsenic that are not only in coal ashes, but in mined earth and soils that the ash is placed into contact with, become more vulnerable to leaching when the pH of waters moving through those materials is raised by the alkalinity of the ash. Yet the estimation of cumulative risk in the DEIS and its Appendices have left out any examination of the obvious potential for increased harm from exposure to the metals that are likely to be mobilized by this activity.

Failure to include a full range of alternatives renders an EIS inadequate under NEPA. *See Resources Ltd. v. Robertson*, 35 F.3d 1300, 1307 (9th Cir. 1993). NEPA requires that in preparing an EIS, each agency “[r]igorously explore and objectively evaluate all reasonable alternatives to the proposed action. 40 CFR 1502.14. The DEIS presents no alternatives to disposal of coal ash on site.

The DEIS fails to describe in detail the nature of the landfill that will receive the coal combustion waste. An engineered landfill with all the required safeguards, including a liner, leachate collection system, and groundwater monitoring system is a minimum requirement. However, the DEIS fails to commit to these safeguards. Most coal combustion waste in the U.S. is disposed in engineered landfills. *See United States Environmental Protection Agency and United States Department of Energy, Coal Combustion Waste Management at Landfills and Surface Impoundments, 1994-2004* (August 2006). An engineered landfill is thus a reasonable alternative which must be specified and considered in the DEIS.

The DEIS should also specify more detailed mitigation measures for coal combustion waste. The DEIS should examine the impact of fugitive emissions from Mesaba’s coal combustion waste and propose daily cover or wetting requirements and/or other mandatory, enforceable safeguards (e.g., restrictions on locations and timing of coal combustion waste placement) to prevent an increase in exposure to toxic airborne dust from the transport, storage and land filling of ash. Land filling mitigation measures should also be specified, including the adequate characterization of the coal combustion waste, the integration of those characterizations to enable effective monitoring systems to be installed, adequate monitoring of the ash after placement (from enough points, for enough parameters and for a long enough period), isolation of the ash from water, cleanup standards and meaningful participation of the public in permitting decisions.

8. The DEIS Should Have Considered the Environmental Impacts How the Coal is Mined

The DEIS did not analyze the environmental effects of mining the coal that would be used to fuel this power plant. It should have analyzed these impacts because these are indirect, secondary environmental effects that are clearly foreseeable. Building the proposed coal-fired power plants will, by definition, require that more coal be mined to feed the plants, and the proposed plants are slated to burn Powder River Basin coal. Thus, the DEIS should have analyzed the environmental impacts of the coal mining activity that will occur in the basin in order to provide coal for this proposed plants.

9. The EIS Must Consider Carbon Costs

The United States emits more greenhouse gases, including carbon dioxide, than any other nation.²² The United States is responsible for 24% of the global carbon dioxide emissions. *Id.* Within the United States, the electricity sector is responsible for 39% of carbon dioxide emissions, and within that sector, coal-fired power plants are responsible for 82% of carbon dioxide emissions.²³ *Id.* As a result, any regulatory program addressing domestic global warming emission will require significant reductions in emission from electric generating units, particularly coal-fired power plants.

In addition, controlling emissions from large, stationary point sources is easier, and often cheaper, than controlling emissions from smaller and/or mobile point sources. *Id.* Therefore, the electric sector is likely to play a key role in future carbon regulation scenarios. *Id.* In fact, it is predicted that 65% to 90% of energy-related carbon dioxide emission reductions will come from the electricity sector. *Id.* The Mesaba power plant is thus likely to be subject to intensive carbon regulation in the future.

In fact, there is a very high likelihood that mandatory CO₂ regulation will be adopted early in the lifespan of any coal-burning power plant constructed in the near future. Multiple bills have been proposed in Congress that would impose mandatory, market-based limits on carbon dioxide emissions. These proposals would employ a cap-and-trade regulatory approach that would require power plant operators to own an allowance for each ton of carbon dioxide emitted. Allowances would be tradable among emitters, and market forces would set the price of the allowances. Federal legislators are beginning to lay the groundwork for such a national regulatory program. In fact, Senator McCain, author of one of the climate bills under consideration in the Congress, said that the chances of approving meaningful legislation before 2008 were “pretty good” and he believed “we’ve reached the tipping point in this debate, and it’s long overdue.”

²² Synapse Energy, Inc., *Climate Change and Power: Carbon Dioxide Emissions Costs and Electricity Resource Planning* (June 2006) available at: <<http://www.synapse-energy.com/Downloads/SynapsePaper.2006-06.0.Climate-Change-and-Power.A0009.pdf>>.

²³ Gas-fired plants and oil fired plants are responsible for 13% and 5%, respectively, of carbon dioxide emissions from the electricity sector.

Similarly, there is general agreement that a very aggressive regulatory program will be necessary to address global warming. The consensus is that ambient carbon dioxide must be stabilized to 450-550 parts per million in ambient air, in order to avoid serious climate disruption. To stabilize greenhouse gases at this level; we will need to reduce annual carbon dioxide emission from current levels by some 60-80% by the year 2050.

Not only will the Mesaba power plant likely face federal regulation, it may also face state carbon regulation. To date, state governments have taken the lead on implementing climate change policy. For instance, Governor Schwarzenegger and the California legislature reached an agreement on AB32, the Global Warming Solutions Act. The Act creates an economy-wide cap on greenhouse gas emissions, which limits California's greenhouse gas emissions to 1990 levels by 2020. Similarly, the Governor of Arizona issued an Executive Order (EO 2006-13) establishing a statewide goal to reduce Arizona's greenhouse gas emissions to 2000 levels by 2020 and 50% below this level by 2040.

Carbon regulation at the federal level is inevitable and perhaps may occur at the state level. Based on the inevitability of carbon regulation, there will unquestionably be a significant cost differential between zero emitting sources, such as energy efficiency and operating moderately carbon dioxide emitting sources, such as a natural gas unit, and a high carbon dioxide emitting source such as a coal-burning power plant.

Under Minnesota law, "No large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the [Public Utilities] commission..." Minn. Stat. § 216B.243, subd. 2. In addition, the Public Utilities Commission must "quantify and establish a range of environmental costs associated with each method of electricity generation" Minn. Stat. § 216B.2422, subd. 3. The statute also requires that utilities legitimately apply not only those cost projections but also "other external factors, including socioeconomic costs" in evaluating any proposed resource. Minn. Stat. § 216B.2422, subd. 3.

The DEIS should have considered the prospect of future regulatory costs in order to determine the full costs of the proposed Mesaba facility and compare that with costs of different alternatives. Excelsior Energy has proposed to build an IGCC power plant that is not carbon capture and sequestration ready. In addition, Excelsior Energy has not projected how much it will cost once its carbon emissions are regulated and how those costs will be paid. The EIS must carefully consider this issue to ensure that residents of Minnesota don't get stuck paying off a bad decision.

10. The EIS Must Consider the Economic Impact of Emitting Greenhouse Gases.

The DEIS should have considered the economic impacts of emitting 5 million tons of CO₂ annually. Peer reviewed studies have been performed modeling the economic costs

of global warming and CO₂ emissions.²⁴ For example, it has been estimated that each ton of CO₂ emitted causes approximately \$85 in damage. *Id.* When this is extrapolated out that means that the Pee Dee facility 5 million tons of CO₂ will cause almost \$425 billion dollars in damage. The DOE and MDOC cannot turn a blind eye to these damages. The DEIS should have analyzed the economic impact of emitting over 5 million tons of CO₂ annually. *See, e.g.*, Minn. Stat. § 216B.2422, subd. 3 (requiring the PUC to consider other external factors and costs).

12. The EIS Must Consider the Local Economic Impact of the Different Alternatives.

Renewable energy sources, energy efficiency and conservation produce more local jobs than a highly automated plant burning dirty imported fuel. The DOE and MDOC should have considered these impacts to the local economy in its DEIS. This is especially true given that one of MDOC's stated purposes for the project is to create jobs.

13. The DOE must fully analyze the proposed project's impacts to species listed protected under the Endangered Species Act.

As part of its evaluation of the impacts of the proposed project to species listed as "endangered" or "threatened" under the Endangered Species Act, 16 U.S.C. § 1531, et seq. ("ESA" or "Act"), DOE must comply with additional procedural and substantive requirements of the Act, as explained below.

a. The requirements of the Endangered Species Act

The Endangered Species Act was enacted, in part, to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . . [and] a program for the conservation of such endangered species and threatened species..." 16 U.S.C. § 1531(b). The ESA "is the most comprehensive legislation for the preservation of endangered species ever enacted by any nation." *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180 (1978). The Supreme Court's review of the ESA's "language, history, and structure" convinced the Court "beyond a doubt" that "Congress intended endangered species to be afforded the highest of priorities." *Id.* at 174. As the Court found, "the plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost." *Id.* at 184.

The ESA vests primary responsibility for administering and enforcing the statute with the Secretaries of Commerce and Interior. The Secretaries of Commerce and Interior have

²⁴ Stern, N., *Stern Review on the Economics of Climate Change*. Cambridge University Press. Available at http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

delegated this responsibility to the National Marine Fisheries Service (“NMFS”) and the U.S. Fish and Wildlife Service (“FWS”) respectively. 50 C.F.R. § 402.01(b). NMFS has primary responsibility for administering the ESA with regards to most marine species, including corals, sea turtles and most marine mammals, while FWS has responsibility for terrestrial species, as well as some marine mammals, and all seabirds.

Section 2(c) of the ESA establishes that it is “the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.” 16 U.S.C. § 1531(c)(1). The ESA defines “conservation” to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.” 16 U.S.C. § 1532(3). Similarly, Section 7(a)(1) of the ESA “contains a clear statutory directive (it uses the word ‘shall’) requiring the federal agencies to consult and develop programs for the conservation of” listed species, and requires the Secretary to review “other programs administered by him and utilize such programs in furtherance of the purposes of the Act.” 16 U.S.C. § 1536(a)(1); *Sierra Club v. Glickman*, 156 F.3d 606, 617 (5th Cir. 1998). The ESA “was enacted not merely to forestall the extinction of species (i.e., promote a species survival), but to allow a species to recover to the point where it may be delisted.” *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Serv.*, 378 F.3d 1059, 1070 (9th Cir. 2004); *see also id.*

(“‘Conservation’ is a much broader concept than mere survival” – the “ESA’s definition of ‘conservation’ speaks to the recovery of a threatened or endangered species”). Species listed as endangered or threatened are entitled to the ESA’s substantive protections. The “take” of listed species is generally prohibited. *Id.* at § 1538(a); 50 C.F.R. § 17.31(a). “Take” means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” 16 U.S.C. § 1532(19). The Services may, however, permit “incidental” take on a case-by-case basis if they find, among other things, that such take will be minimized and mitigated and that such take will not “appreciably reduce the likelihood of survival and recovery of the species.” *Id.* at § 1539(a).

Section 7(a)(2) requires that for all discretionary activities carried out by federal agencies, such as the proposal to permit the proposed project, the acting agency must “insure” that its actions neither “jeopardize the continued existence” of any of the nation’s listed species nor “result in the destruction or adverse modification” of listed species’ “critical habitat.” *Id.* at § 1536(a)(2). In order to fulfill the substantive purposes of the ESA, Federal agencies, such as BLM, are required to consult with NMFS or FWS to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical . . .” 16 U.S.C. § 1536(a)(2). As the Supreme Court recently reiterated, Section 7(a)(2)’s prohibition against jeopardy is “imperative.” *Nat’l Ass’n of Home Builders v. Defenders of Wildlife*, 127 S. Ct. 2518, 2532 (U.S. 2007).

In completing this formal consultation, DOE must address both the jeopardy and critical habitat prongs of Section 7 by considering the current status of the species, the environmental baseline, the direct and indirect effects of the proposed action, as well as its cumulative effects. 50 C.F.R. § 402.14(g)(2)-(3); 50 C.F.R. § 402.02 (emphasis added) (the “‘effects of the action’ refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline”); *id.* (the “environmental baseline” includes the “past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process”).

This analysis must be critical, comprise more than a mere “recitation” of the activities, and consider the “total impact” to listed species. *Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 128 (D.D.C. 2001). The analysis may not be unduly constrained – the regulations broadly define “action area” as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” 50 C.F.R. § 402.02 (emphasis added).

b. Local and Regional Species Affected by the Project

There are numerous listed species located in or in the vicinity of the project area whose individuals and habitat will be impacted by construction and operation of the Mesaba power plant, including the threatened and endangered species that inhabit the Boundary Waters Canoe and Wilderness Area, such as the peregrine falcon. The Project will adversely affect these listed species directly, indirectly, and cumulatively, and these impacts must be analyzed by DOE pursuant to the statutory and regulatory requirements of Section 7 of the ESA.

c. Species impacted by the project as a result of greenhouse gas emissions and global warming

In addition to adversely impacting listed species located in the vicinity of the project area, there is a growing number of listed species that are not located in or in the immediate vicinity of the proposed project, but which are nevertheless adversely affected by concentrations of greenhouse gas emissions in the atmosphere, which the proposed project will increase.

There are numerous listed species that are affected by global warming, triggering the consultation requirement. Global warming impacts on United States species already listed as threatened and endangered have been well documented. Affected species include two listed coral species, elkhorn and staghorn corals, as the final listing rule for these species specifically discussed the impacts of global warming and greenhouse gas emissions on the species. *See* 71 Fed. Reg. 26,852. Sustained increased ocean temperatures cause these coral to expel symbiotic algae on which they depend for photosynthesis and energy, the

deadly phenomenon known as “coral bleaching.” 71 Fed. Reg. 26,858. In addition, increased levels of dissolved carbon dioxide in surface seawater acidifies the oceans and decreases the ability of these corals to calcify. 71 Fed. Reg. 26,858-9. Coral reefs are among the first ecosystems to show the significant adverse impacts of global warming. As the National Marine Fisheries Services stated in the listing rule, the “major threats to these species’ persistence (i.e., disease, elevated sea surface temperature, and hurricanes) are severe, unpredictable, have increased over the past 3 decades, and, at current levels of knowledge, the threats are unmanageable.” 71 Fed. Reg. at 26,858. Each of these threats is directly related to greenhouse gas emissions. Moreover, CO₂ emission themselves are resulting in acidification of the ocean, inhibiting coral growth. The impacts of greenhouse gas emission and global warming on the elkhorn and staghorn corals are well established. By ignoring these impacts, DOE will be in abrogation of their ESA responsibilities.

DOE must also consult on the impact of the proposed project’s greenhouse gas pollution on the polar bear. FWS has formally proposed listing the polar bear as a threatened species due to the melting of the Arctic sea ice, following a Petition and lawsuit by the Center for Biological Diversity, NRDC, and Greenpeace. 72 Fed. Reg. 1064-99 (Jan. 9, 2007). Polar bears are completely dependent upon Arctic sea-ice habitat for survival. Polar bears need sea ice as a platform from which to hunt their primary prey (ringed seals, *Phoca hispida*), to make seasonal migrations between the sea ice and their terrestrial denning areas, and for other essential behaviors such as mating. The polar bear’s sea-ice habitat is melting away due to global warming, and the Arctic may be ice-free in the summer well before the end of this century. Overpeck et al. 2005. Polar bears cannot be expected to survive the near complete loss of their sea-ice habitat.

VI. Consultation and Coordination (DEIS Chapter 7)

The DOE should consult with the agencies with specific expertise on global climate change with regard to the impacts and implications of the Mesaba power plant. More specifically, Section 102(c) of NEPA states that “prior to making any detailed statement, the responsible federal official shall consult with and obtain the comments of any Federal agencies which has jurisdiction by law or special expertise with respect to any environmental impact involved.” The term “special expertise” is defined in 40 C.F.R. 1508.26 as a “statutory responsibility, agency mission, or related program experience.”

There is no evidence in the record that the DOE consulted with the agencies with the greatest expertise on global warming impacts—namely, the National Oceanic and Atmospheric Administration or National Aeronautic and Space Administration. There is no evidence in the record that either of the agencies were consulted with regard to the global warming impacts of the TEP. *See*, DEIS Chapter 5 Tables 5-3 and 5-4. Moreover, there is no evidence in the record that BLM consulted with U.S. Fish and Wildlife Service (“FWS”) or National Marine Fisheries Administration regarding impacts to animals and habitat as a result of Mesaba’s release of global warming pollution. The DOE should not issue the Final EIS without undergoing the required consultation with these agencies regarding the global warming impacts of the proposed Mesaba power plant. The results of any such consultation should be made public. Given the

acknowledged significant adverse environmental impacts of the Mesaba power plant, this consultation must be conducted before undertaking this project.

CONCLUSION

Thank you for the opportunity to comment on the DEIS and please keep us informed of developments in this process. In addition, thank you for your attention to our concerns.

Respectfully submitted,

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