BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

IN THE MATTER OF:)	APPEAL NUMBER: PSD 12-01
CHRISTIAN COUNTY)	APPLICATION NUMBER: 05040027
GENERATION, LLC)	FACILITY ID NUMBER: 02106ACB

PETITION FOR REVIEW AND REQUEST FOR ORAL ARGUMENT (REVISED JUNE 19, 2012)

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STATEMENT REQUESTING ORAL ARGUMENT

Petitioners request oral argument in the above-captioned matter. Oral argument would assist the Board in its deliberations on the issues presented by the case because the issues raised herein are issues of first impression for the Board and the USEPA, are a source of significant public interest, and/or are of a nature such that oral argument would materially assist in their resolution. Petitioners believe that the broad and precedential significance of the issues raised – particularly concerning carbon capture and sequestration and the constitutional implications of IEPA's decision – overcome the presumption against oral argument set forth in the Board's April 19, 2011 Order Governing Petitions for Review of Clean Air Act New Source Review Permits.

June 19, 2012

Respectfully submitted,

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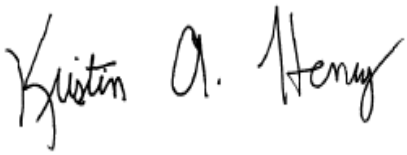

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INTRODUCTION

Pursuant to 42 U.S.C. § 7607(b)(1) and 40 C.F.R. § 124.19(a), Natural Resources Defense Council ("NRDC") and Sierra Club (collectively, "Petitioners") petition for review of Prevention of Significant Deterioration ("PSD") approval set forth in the permit based on Application No. 05040027 (Facility Identification No. 02106ACB), which the Illinois Environmental Protection Agency ("IEPA") issued to Christian County Generation, LLC ("CCG" or "Applicant") on April 30, 2012. A copy of the PSD permit ("Permit") is attached as Ex. 1. The State of Illinois is authorized to administer the PSD permit program pursuant to a delegation of authority by the United States Environmental Protection Agency ("USEPA"). The Permit authorizes CCG to construct the Taylorville Energy Center, a coal-derived synthetic natural gas ("SNG") facility and an associated power block ("TEC" or "Facility").

Petitioners contend that IEPA's permit determination for the facility was clearly erroneous as a matter of law in violation of the Clean Air Act ("CAA"), and additionally raises important policy considerations that the Board should review, in four major respects. First, IEPA dismissed out of hand the feasibility of carbon capture and sequestration ("CCS") technology in Step 2 of its best available control technology ("BACT") determination based on general and unsubstantiated assertions of uncertainty, without any genuine attempt at site-specific feasibility analysis, and without regard to extensive site-specific analysis previously performed by the applicant concluding that CCS is feasible. Second, IEPA dismissed cleaner low-sulfur coal as a basis for BACT based on an Illinois statute subsidizing facilities using Illinois coal, thereby unlawfully circumventing BACT requirements concerning consideration of clean fuels based on state law, in contravention of the Supremacy Clause. Third, IEPA rejected available and feasible controls for leaking components currently in widespread use – leakless

component technology and leak detection and repair ("LDAR") programs – based on arbitrary and deficient cost effectiveness analysis. Fourth, IEPA's modeling analysis was arbitrary and capricious because IEPA failed to conduct ozone modeling and, instead, relied on the Scheffe Tables to estimate ozone emissions even though USEPA has denounced that method.

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioners satisfy the threshold requirements for filing a petition for review under 40 C.F.R. Part 124. Petitioners have standing to petition for review of the permit decision because they participated in the public comment period on the draft permit. 40 C.F.R. § 124.19(a). *See* comments filed by Petitioners NRDC and Sierra Club ("PC"), attached as Ex. 2.[1] Petitioners raised the issues below with IEPA during the public comment period. This Petition complies with the word count limitation in the Boards April 19, 2011 Standing Order. Consequently, the Board has jurisdiction to hear Petitioners' timely request for review.

ISSUES PRESENTED FOR REVIEW

Petitioners respectfully request Board review of the following issues:

1. Whether IEPA's rejection of CCS at Step 2 of its top-down BACT analysis without site-specific inquiry constitutes a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse;

2. Whether IEPA's rejection of cleaner low-sulfur coal as the basis for BACT based on a state law subsidy offered to Illinois Basin coal constitutes a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse.

3. Whether IEPA's use of altered categorical emission factors from another source type to estimate the facility's potential to emit from component leaks, and its ensuing rejection of

[1] The exhibits to Petitioners' Comments exceed 1.6 gigabytes in size, and contain material not relevant to this appeal. Hence, only relevant exhibits are included in Ex. 2.

technology to control those leaks in Step 4 of its top-down BACT analysis, constitute a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse;

4. Whether IEPA's failure to require the applicant to model ozone air quality impacts constitutes a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse.

5. Whether IEPA's failure to inform CCG that under its current permit it cannot build TEC in phases, with the natural gas combined-cycle plant built initially and the gasifier block built years later, constitutes a clearly erroneous conclusion of law or an important consideration that the Board should review and reverse.

STATEMENT OF FACTS

CCG submitted the Application for a permit to construct the Facility in several parts, the last submitted October 27, 2010 (the "Application"). *See* Project Summary, Petitioners' Comments ("PC") Ex. 90, at 3 n. 1. The Application was for a facility with a nominal capacity to produce 64 million cubic feet of SNG per day, which could then be either sold as a product leaving the plant by pipeline, or be used at an on-site power block to generate electricity. *Id*. at 3.

CCG submitted the 2010 Application with the stated aim of qualifying for various subsidies and benefits proposed in the Illinois General Assembly for supposed "clean coal" facilities. In each case, the proposed legislation offered the subsidies and benefits to a facility that, *inter alia*, employs CCS to curb its CO_2 emissions. *Id.* at 6, 22. *citing* Illinois' Clean Coal Portfolio Standard Law (20 ILCS 3855/1-75, as amended by P.A. 95-1027, effective June 1, 2009) ("CCPSL"). CCS is a process that captures CO_2 before it is emitted to the atmosphere

and transfers it via pipeline to a site where it can be injected for permanent underground sequestration. During the pendency of the Application, additional legislation was introduced in the Illinois General Assembly creating further subsidies and incentives for "clean coal" facilities, similarly requiring use of Illinois Basin coal and CCS.

In connection with CCPSL, the Applicant submitted extensive information to the Illinois General Assembly purporting to demonstrate the feasibility of CCS. The information included, *inter alia*, a Facility Cost Report (PC Ex. 52), which incorporated in turn twin reports developed by Schlumberger Carbon Services ("Schlumberger") – a Feasibility Study (*Id.* Ex. 53) and a Cost Study (*Id.* Ex. 54) – evaluating in significant detail the possibility of sequestration of captured CO_2 at the nearby Mt. Simon sandstone formation. *See* PC at 60.

IEPA issued the draft Permit on October 17, 2011. On January 3, 2012, Petitioners submitted their comments to IEPA (Ex. 2). The final Permit was issued April 30, 2012, together with a Responsiveness Summary ("RS") (attached as Ex. 3). Petitioners were served with a copy of the Permit and RS via electronic mail on May 1, 2012. .

ARGUMENT

I. IEPA Erred in its BACT Determination for CO_2 Emissions from the AGR Vent[2]

The acid gas removal ("AGR") step of the Facility's gasification process is an enormous source of CO_2. This step, which is part of a set of processes to remove contaminants in the gasification process, generates the vast majority of the Facility's CO_2 and overall greenhouse gas emissions. The Permit allows CO_2 from the AGR process to be vented uncontrolled to the atmosphere. PC at 55-6.

IEPA failed to in its duty to evaluate CCS as part of its BACT analysis for the AGR vent. IEPA had before it the Applicant's overwhelmingly detailed technical explanation of why CCS

[2] Issue raised PC 55-72; IEPA response RS 108-149.

is technically feasible – as well as cost effective[3] – at the Facility, submitted in a legislative context where demonstrating feasibility was to CCG's financial advantage. Yet when the Applicant attempted to walk back and disregard its own analysis in support of a claim that CCS is not feasible for BACT purposes, IEPA accepted the Applicant's turnabout position with neither any detailed technical review of the Applicant's prior documentation, nor its own independent analysis of the site-specific characteristics that bear on the feasibility of CCS.

A. A BACT Determination Requires Case-By-Case Feasibility Analysis

A full explication of the legal requirements of the BACT process is set forth in PC at 41 *et seq.*, and incorporated by reference. As discussed therein, BACT is typically evaluated through a 5-step top-down process described in the NSR Manual.[4] Where an agency purports to use this process, as IEPA did here, it must be applied in a "reasoned and justified manner." *Alaska Dep't of Envtl. Conserv.*, 298 F.3d 814, 822 (9th Cir. 2002).

1. General BACT Principles Require Case-by-Case Feasibility Analysis to Determine Applicability of an Available Technology

At the heart of a BACT determination is the explicit Clean Air Act ("CAA") requirement that the determination be made on a case-by-case basis. 42 U.S.C. § 7479(3); *see also* 40 C.F.R. § 52.21(b)(12). The NSR Manual further describes how BACT Step 2 – the step at which IEPA eliminated CCS as infeasible – specifically calls for case-specific technical analysis. NSR Manual at B-6.

The specific objective of the case-by-case evaluation in Step 2 is to determine, in a two-part analysis, whether the technology at issue is commercially available on any source, and

[3] Petitioners presented extensive information, based predominantly on TEC's own analysis, demonstrating that CCS should be cost-effective at Mt. Simon, had IEPA reached Step 4 of BACT analysis where such considerations are appropriate. *See* PC at 68 *et seq.* Since IEPA expressly declined to reach Step 4, *see* RS at 138, we are not raising the Step 4 cost effectiveness issues in this appeal.

[4] U.S. Environmental Protection Agency, New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting, October 1990. *See* Petitioners' Comments at 15 n. 45.

whether, if so, it is applicable to the source type at issue. NSR Manual at B-17. The Manual specifies that a technology is presumed to be applicable where it is deployed or "soon to be deployed" at a similar source type. However, even if it is not deployed at a similar source and the presumption does not apply, the permitting authority must still make its own reasoned technical judgment as to applicability where the technology has been deployed at other source types. *Id*. at B-17.

2. A Detailed Case-by-Case BACT Feasibility Analysis is Required for CCS Except in Limited Circumstances Inapplicable Here

In its PSD and Permitting Guidance for Greenhouse Gases ("Guidance") (PC Ex. 51), USEPA describes the applicability of BACT determination principles in the context of controlling CO_2 and other GHGs.[5] The Guidance finds that although CCS is "not in widespread use at this time," it is nonetheless an "available" technology for purposes of BACT Step 1 for facilities such as TEC "emitting CO_2 in large amounts and industrial facilities with high-purity CO_2 streams." Guidance at 32, 35.

The Guidance reaffirms that the stringent case-by-case requirements of BACT Step 2 are applicable to determinations of whether CCS constitutes BACT, with certain limited circumstances allowing for a less detailed record that do not apply to the TEC permit. As an overall matter, the Guidance makes clear that a determination to reject CCS in Step 2 requires an affirmative detailed technical demonstration by the permitting agency of the reasons supporting the conclusion of infeasibility, along the lines more generally described in the NSR Manual. Specifically, the Guidance provides:

[5] Petitioners here cite the Guidance solely for its discussion of the detailed case-by-case analysis as applied to CCS, noting disagreement with EPA that the factors listed are all properly considered technical feasibility questions, *see* PC at 58. In addition, Petitioners submitted comments to EPA on the Guidance, available at regulations.gov, EPA-HQ-OAR-2010-0841-0090.

> CCS is composed of three main components: CO2 capture and/or compression, transport, and storage. CCS may be eliminated from a BACT analysis in Step 2 *if it can be shown* that there are significant differences pertinent to the successful operation for each of these three main components from what has already been applied to a differing source type. For example, the temperature, pressure, pollutant concentration, or volume of the gas stream to be controlled, may differ so significantly from previous applications that it is uncertain the control device will work in the situation currently undergoing review. Furthermore, CCS may be eliminated from a BACT analysis in Step 2 if the three components working together *are deemed technically infeasible for the proposed source*, taking into account the integration of the CCS components with the base facility and site-specific considerations (*e.g.*, space for CO2 capture equipment at an existing facility, right-of-ways to build a pipeline or access to an existing pipeline, access to suitable geologic reservoirs for sequestration, or other storage options).

Guidance at 35-36. Thus, where CCS has not been applied at the same source type, the Guidance, like the Manual, calls for Step 2 applicability to be determined based on a detailed technical comparison of the feasibility of the three core components of CCS (capture, transport, storage) at the disparate source types.

The Guidance further recognizes that there are some types of smaller facilities, with limited GHG emissions, for which a large-scale CCS project will plainly be infeasible, and hence that such facilities should not be required to present detailed technical information evaluating something that they clearly will not be able to do. It therefore makes specific allowance for a more limited Step 2 analysis for such facilities. However, it is clear that this limited relaxation of the Step 2 requirement does not apply to the TEC Facility – a large-scale industrial project located very near a geologic formation already identified as suitable for CCS, and for which voluminous documentation of technical feasibility already exists.

Specifically, the Guidance provides as follows:

> The level of detail supporting the justification for the removal of CCS in Step 2 will vary depending on the nature of the source under review and the opportunities for CO2 transport and storage. . . . In circumstances where CO2 transportation and sequestration opportunities already exist in the area where the source is, or will be, located, or in circumstances where other sources in the same

> source category have applied CCS in practice, the project would clearly warrant a comprehensive consideration of CCS. In these cases, a fairly detailed case-specific analysis would likely be needed to dismiss CCS. However, in cases where it is clear that there are significant and overwhelming technical (including logistical) issues associated with the application of CCS for the type of source under review (*e.g., sources that emit CO2 in amounts just over the relevant GHG thresholds and produce a low purity CO2 stream*) a much less detailed justification may be appropriate and acceptable for the source. In addition, a permitting authority may make a determination to dismiss CCS *for a small natural gas-fired package boiler, for example*, on grounds that no reasonable opportunity exists for the capture and long-term storage or reuse of captured CO2 given the nature of the project.
>
> ***
>
> Logistical hurdles for CCS may include obtaining contracts for offsite land acquisition (including the availability of land), the need for funding (including, for example, government subsidies), timing of available transportation infrastructure, and developing a site for secure long term storage. *Not every source has the resources* to overcome the offsite logistical barriers necessary to apply CCS technology to its operations, and *smaller sources* will likely be more constrained in this regard.

Guidance at 36 (emphasis added).

B. IEPA Failed to Conduct Site-Specific, Case-by-Case Step 2 Feasibility Analysis for CCS as BACT for the AGR Vent's CO_2 Emissions

IEPA failed in its permit determination to meet the basic analytical requirements of BACT Step 2 technical feasibility analysis, as further enumerated for CCS in the Guidance. IEPA cited in general terms numerous technical and logistical questions that CCG would need to answer before implementing CCS at the Facility. But rather than actually evaluating whether these questions can feasibly be answered, IEPA relied on the mere existence of these questions to sweepingly dismiss CCS as infeasible.

Instead of the generic dismissal of CCS proffered by IEPA, the Agency was required to conduct a BACT feasibility analysis in Step 2 consistent with the two-part consideration of "availability" and "applicability" described in the Manual. IEPA further erred in improperly

mixing non-technical concerns into its purported technical feasibility analysis (many of those concerns being, in any event, no longer extant). Finally, to the extent IEPA had legitimate concerns regarding unavoidable future uncertainties that attend CCS projects, it erred in not identifying options for addressing any such uncertainties rather than simply dismissing CCS out of hand – in particular the option of an adjustable BACT permit, as well as fulfilling its legal obligation to require a full information concerning available BACT alternatives.

1. IEPA Was Required to Presume Applicability of CCS, or Alternatively to Conduct Detailed Case-by-Case Applicability Analysis

IEPA identified in the record one other coal gasification plant, Dakota Gasification's Great Plains Synfuels Plant, that is deploying CCS (as well as four others at which it is proposed for use). RS at 115. The presumption of feasibility of CCS at TEC therefore applied.

Additionally, Petitioners identified the CCS project being deployed by ADM at a different source type (an ethanol plant) at Mt. Simon, such that even if the presumption of applicability based on Dakota Gasification could be overcome, IEPA was still required, for the reasons set forth in subsection I.A., *supra*, to make a reasoned and detailed technical judgment as to applicability of CCS.

The limited exception allowing less thoroughgoing site-specific technical review in Step 2 described in the Guidance did not apply. This exception is plainly envisioned only for sources for which there are facially obvious hurdles to feasibility: either where the sources are very small ("smaller sources," *e.g.*, a "small natural gas-fired package boiler," a source with limited "resources," or a source that "emits CO2 in amounts just over the relevant GHG threshold"), or otherwise face obvious inherent barriers to CCS (*e.g.*, because they "produce a low purity CO2 stream"). These exempted sources, however, are contrasted with the types of sources for which full site-specific Step 2 analysis for CCS is still required, which specifically include those for

which "sequestration opportunities already exist in the area where the source is." The Facility – a large industrial-scale emitter of CO_2 located a mere 30 miles from documented and excellent sequestration site (the Mt. Simon formation) already being put to use for CCS by another facility (ADM), producing a pure stream of CO_2 (*see* PC at 67 n. 212) – falls into the non-exempt category, requiring full technical analysis of Step 2 feasibility.

Board precedent emphasizes that the mere fact that CCG would be required to construct a short pipeline to the Mt. Simon sequestration site is insufficient grounds to conclude technical infeasibility in Step 2. In *In re Mississippi Lime*, 15 E.A.D. --, the Board rejected IEPA's Step 2 analysis as deficient, and noted in particular that reliance upon a natural gas pipeline cost estimate was not sufficient basis to eliminate the natural gas option under Step 2. In any event, the Cost Report here concludes, "the target area is under and adjacent to the plant resulting in minimal pipeline cost." PC at 70, citing Ex. 54 (Cost Report) at 1.

2. IEPA Improperly Dismissed Site-Specific Evidence of CCS Feasibility Based on Broad Generic Issues Common to CCS Projects

IEPA failed to conduct the required site-specific analysis of CCS in its BACT determination. Its analysis of the feasibility of CCS at the site consists almost entirely of efforts to use general questions regarding CCS to explain away abundant evidence in the record – much of it generated by the Applicant – that CCS is indeed feasible for the Facility.

Tenaska prepared and submitted to the Illinois General Assembly extensive documentation of the feasibility (as well as cost-effectiveness) of sequestering the CO_2 from the AGR vent at Illinois' Mt. Simon sandstone formation, approximately 30 miles away. These thoroughgoing analyses by the Applicant overwhelmingly support the feasibility of CCS at Mt. Simon. The Schlumberger Feasibility Study concluded, "The results of the study indicate that the Mt. Simon sandstone has sufficient porosity … and permeability … and therefore provides a

storage reservoir target capable of accommodating all of the CO_2 produced by the plant over a planned operational life of 30 years." PC at 60, citing Ex. 54. The Cost Study (which evaluated a mix of technical feasibility and cost issues) similarly concluded,

> The geologic setting is favorable. The target formation of the Mt. Simon is estimated to be very thick at 1100-1300 feet with a high estimated porosity and permeability in the area selected. The thickness combined with the porosity and permeability *allows for a high capacity injection field* to be developed using a minimal number of wells. The field is estimated to only require 3 to 4 wells with a well spacing of only 2 miles. The thickness also reduces the area required for the CO_2 resulting *in reduced right of way*. Also, the target area is under and adjacent to the *plant resulting in minimal pipeline cost*.

Id. at 61, citing Ex. 53 (emphases added).

Additionally, CCG submitted a Class VI underground injection permit application to USEPA which likewise documented the feasibility of CCS at Mt. Simon. The 2D geologic survey of Mt. Simon as reported in that application was likewise favorable:

> The Mount Simon Sandstone has been extensively developed for disposal and storage using Class I injection wells in Illinois and Indiana, and is the main deep saline candidate reservoir being targeted for CO2 storage at this site. Three identified characteristics of the Mount Simon Sandstone, as determined by ISGS and the MGSC, make it *very suitable for injection at Taylorville* and the area near the proposed TEC #1 well:
>
> 1) The Mount Simon Sandstone is deep in the subsurface of the Illinois Basin and site 2D reflection seismic interpretation indicates it is laterally continuous in this area;
> 2) It is of sufficient thickness to be used for CO_2 storage;
> 3) Preliminary results of the MGSC project in Decatur suggest *sufficient reservoir potential is present* with porosity and permeability.

Id. at 63, citing Ex. 58 (Class VI permit application) (emphasis added). The application also includes a long-term monitoring plan. *Id.*

Finally, CCG submitted an application to the U.S. Department of Energy ("USDOE") for a $3.2 billion loan guarantee available to projects that capture and sequester carbon. In the

application, it described an intention to sequester using EOR, but noted that Mt. Simon was a good alternative as well (in part because the ADM project is already in progress):

> The plant is located at a promising site for geologic sequestration that is 50 miles to the west of the Mattoon, Illinois site that was selected as the preferred FutureGen location in pmi based upon the favorable geology for sequestration. It also is less than 30 miles to the south and west of the site of the Decatur, Illinois DOE sequestration demonstration project at which l00,000 tons per year (for three years) and a cumulative one million tons of C02 produced by [ADM] is to be sequestered. This early sequestration work nearby is valuable to the Project effort because it establishes permitting procedures under existing law and regulations for the safe injection of C02 into geologic formations with the capacity to receive large volumes of C02.

DOE loan application, relevant portions attached as Ex. 4, at 13.

IEPA's Project Summary prepared in connection with the draft Permit (PC Ex. 90) devotes all of one paragraph to flagging and dismissing the Mt. Simon sequestration option. *See* PC Ex. 94 (PS) at 32. That paragraph reads in its entirety:

> A second approach to sequestration of CO2 from the CO2 vent on the AGR Unit would be geologic sequestration in sandstone in the Mt. Simon formation, which is present deep underground in the region in which the plant is located. A detailed feasibility study of this sequestration option for the plant was performed by Schlumberger Carbon Services in February 2010 to evaluate: 1) whether the proposed site has capacity to sequester the expected volume of CO2 from the plant, 2) containment of the sequestration reservoir, and 3) infrastructure requirements for sequestration (number and dimensions of injection wells, operational strategies, etc.) Although the results of this preliminary study were favorable, many other technical issues associated with geologic CO2 sequestration still need to resolved [sic]. In addition, there are unresolved issues involving the regulatory requirements for sequestration and liability associated with sequestration. Further development of sequestration is needed before a BACT emission limit could be set for the proposed plant that is predicated upon implementation of CCS.

Ex. 94 at 32.

Additionally, in connection with the more general question of the feasibility of CCS as a CO_2 control measure, IEPA references "[t]hree full-scale IGCC projects. . . recently proposed to commercially demonstrate the use of CCS under the [USDOE] Clean Coal Power Initiative

(CCPI)." *Id.* at 30. It dismisses these projects (and impliedly CCS generally) without further discussion for the following three listed reasons, based on a 2010 federal report:

- The existence of market failures, especially the lack of a climate policy that sets a price on carbon and encourages emission reductions.
- The need for a legal/regulatory framework for CCS projects that facilitates project development, protects human health and the environment, and provides public confidence that CO2 can be stored safely and securely.
- Clarity with respect to the long-term liability for CO2 sequestration, in particular regarding obligations for stewardship after closure and obligations to compensate parties for various types and forms of legally compensable losses or damages.
- Integration of public information, education, and outreach throughout the lifecycle of CCS projects in order to identify key issues, foster public understanding, and build trust between communities and project developers.

Id.

The Project Summary contains little discussion of CCS projects other than these, and no mention of the ADM sequestration project at nearby Mt. Simon. It further dismisses the Dakota Gasification project on the grounds that enhanced oil recovery ("EOR") is readily available at that site, but makes no attempt to evaluate or quantify the comparable suitability of the Mt. Simon site for sequestration.[6] PS at 31. The Summary also makes no reference to CCG's Class VI permit application and the extensive information it contains concerning CCG's verification of the feasibility of sequestration at Mt. Simon.

In response to Petitioners' extensive presentation regarding CCG's Cost and Feasibility Studies and Class VI permit as well as the ADM project (PC at 55 *et seq.*), IEPA reiterates its sweeping generalizations regarding the purported uncertainty surrounding CCS. The RS references a mix of the generic "hurdles" to CCS implementation that are mentioned in the Project Summary and expressly addressed in the Guidance:

[6] Petitioners also raised claims in their comments concerning specifically IEPA's failure to adequately evaluate the possible use of captured CO_2 from the TEC facility in EOR processes. *See* PC at 64 *et seq.* While Petitioners do not believe that IEPA's analysis of EOR met the required standard for BACT Step 2 feasibility analysis, they have chosen not to appeal IEPA's findings with regard to the feasibility of EOR at this time. This appeal concerns the feasibility of CCS at the Mt. Simon sandstone formation discussed herein.

> As the Project Summary discusses, considerable uncertainty exists with respect to a number of requisite conditions for CCS here, including access to an existing pipeline and a suitable geologic reservoir over the life of the plant, sequestration field land and subsurface rights acquisition, development of a site for secure long-term storage, proven geology favorable for long-term storage, and other uncertainties about the long-term ability of the Mt. Simon formation to sequester CO2. *See* Project Summary at 29-32.

RS at 114.

The RS places heavy emphasis on two particular aspects of these purported obstacles as demonstrating the overall infeasibility of CCS: that the feasibility concerns it cites are "largely outside of CCG's ownership and control," and that there can be no "certainty" at the permitting stage as to whether and how the cited obstacles can be overcome. *Id.* It states that, although the Schlumberger studies indicated "favorable geologic conditions for CO_2 sequestration using the Mt. Simon formation" for the plant's anticipated lifetime, this finding "does not constitute a guarantee that CO_2 injection will be available initially at startup or consistently over the life of the plant." *Id.* at 120. It further avers that "[a]lthough the formation looks promising in its CO_2 retention capacity, given the current status of CO_2 sequestration technology, the formation's ability to adequately hold the volume of CO_2 produced by the TEC and to accommodate injection at the rate needed for the TEC is theoretical until demonstrated in practice, following actual well installation and injection of CO_2 over an extended period of time." *Id.* IEPA also asserts that since the Schlumberger geological modeling is not based on core sampling for the specific site being considered, "it cannot be relied upon as a conclusive evaluation" of the particular site being considered. *Id.*

The RS dismisses the significance of the Class VI permit application addressed in Petitioners' comments on the grounds that IEPA cannot "guarantee the success" of CCG's efforts to obtain a permit, and that the permitting process laid out by USEPA for CCS is "a

lengthy, iterative process where several tests must be performed before operation of the well may be authorized." *Id.* at 122-23. It similarly dismisses the significance of the ongoing ADM project at Mt. Simon on the ground that "it is possible" that the CCG project could be impacted by interruptions and changes that would not be an issue for ADM's voluntary project. *Id.* at 121.

The deficiencies of this analysis are manifold, and detailed further in the sections below. But they all essentially boil down to one major error: IEPA rejects CCS not because of any finding that it is not available or applicable for CCG's proposed site, but because of issues that arise in evaluating proposed CCS projects in general. This approach is wholly contrary to BACT statutory requirements. USEPA's Guidance expressly recognizes the potential obstacles to CCS implementation, but concludes that they must be considered and addressed on a case-by-case basis as in any other BACT determination. Indeed, the grounds on which IEPA rejects CCS as infeasible based on uncertainty – pipeline construction issues, subsurface rights acquisition, and access to a suitable geologic reservoir for sequestration, RS at 113-14 – reiterate almost word-for-word the factors listed in the USEPA GHG BACT Guidance as being the *subjects* of required site-specific inquiry in most cases, not the answers in and of themselves, Guidance at 36. The Guidance specifically states, "CCS may be eliminated from a BACT analysis in Step 2 if the three components working together *are deemed technically infeasible for the proposed source*, taking into account the integration of the CCS components *with the base facility and site-specific considerations* (*e.g.*, space for CO2 capture equipment at an existing facility, right-of-ways to build a pipeline or access to an existing pipeline, access to suitable geologic reservoirs for sequestration, or other storage options)." *Id.* at 35-6 (emphases added). Moreover, the Guidance makes clear that such careful, case-by-case technical analysis is particularly important and

appropriate for large industrial scale projects such as TEC (as opposed to, *e.g.*, a "small natural gas-fired package boiler"). *See supra* Section I.A.2.

In addition to the Guidance, USEPA's proposed NSPS CO_2 rule issued in April 2012 further evidences USEPA's overall position that CCS is feasible as a general matter for new coal gasification sources, contrary to IEPA's implicit position that generic concerns render CCS *per se* infeasible. Although the GHG BACT rule contains a potential grandfathering carve-out for the TEC Facility (72 Fed.Reg. 22,392, 22,422 (April 30, 2007)), the draft rule is grounded in an overall determination that coal gasification units "should also be able to meet this [proposed NSPS] standard by employing carbon capture and storage (CCS) technology." *Id.* at 22,394. USEPA's pronouncements on the matter are not run-of-the-mill technical guidance, but rather a determination supporting the Agency's rulemaking, in turn a core part of its regulatory program for GHGs.

If, as IEPA suggests, 30+ years of absolute certainty is what is required at the permitting stage in order for CCS to be identified as feasible in BACT Step 2, then CCS will essentially *never* be feasible. Indeed, under IEPA's approach CCS will not be feasible even if an Applicant must merely "guarantee the success" of its Class VI permit application to USEPA at the construction permitting stage. IEPA presents no reason to believe that CCG's Class VI permit application will not eventually be granted (indeed, based on the Applicant's data, there is every reason to believe it will). PC at 63. IEPA's concern appears to be grounded solely in the lengthy and iterative – and therefore inherently uncertain at this stage – structure of the Class VI permit process itself. This standard is antithetical to BACT.

Similarly, the fact that some aspects of a CCS project are outside the immediate control of the permit applicant is common to CCS projects in general. In virtually every case requiring a

pipeline, rights-of-way will need to be acquired. One can conceive of situations in which the geographic position of a facility – *e.g.*, bordered on all sides by a nature preserve – might make it logistically impossible for the facility to obtain such rights of way. But no claim of that nature was ever made in the voluminous documentation that CCG submitted to the General Assembly touting the feasibility and practicability of CCS at Mt. Simon. Similarly, while acquisition of subsurface rights may at times be an issue for CCS implementation – for example, where possible sequestration sites are slated for other development uses – no claim of that sort has been made by CCG anywhere in the record. The fact that third-party actions may be required in order to render CCS feasible at a particular project site does not lead to the conclusion that such actions are necessarily unobtainable.

At bottom, confronted with overwhelming evidence generated by the Applicant itself that CCS is feasible for the TEC Facility, all IEPA can say is that the information is not perfect and absolute. Simply pointing out "you missed a spot" does not constitute the careful site-specific technical analysis required by the CAA or contemplated by the Guidance. The documentation provided by the Applicant to the Illinois General Assembly demonstrates that the Mt. Simon formation, and the proposed Facility's proximity to it, is a virtually ideal setup for implementation of CCS. If the feasibility of CCS can be dismissed here, based on vague and non-site specific concerns, then it can be dismissed anywhere for the same reasons. That is plainly not USEPA's interpretation of what BACT requires for CCS, consistent with the statute and decades of BACT determinations reviewed by this board.

3. IEPA Erroneously Relied on Non-Technical Considerations in Rejecting CCS as BACT

Step 2 is expressly a "technical" feasibility determination, based on "physical, chemical, and engineering principles." NSR Manual at B-6. However, a significant number of the purported hurdles to implementation of CCS cited by IEPA are non-technical in nature, and hence inappropriate for consideration in BACT analysis. *See generally Massachusetts v. EPA*, 549 U.S. 497, 532-534 (2007) (CAA statutory text requires the agency to conduct a scientific analysis of endangerment; it may not provide a "laundry list of reasons not to regulate" as a basis for "declining to form a scientific judgment"). Specifically, IEPA cites (i) "The existence of market failures"; (ii) "The need for a legal/regulatory framework for CCS projects"; (iii) "Clarity with respect to the long-term liability for CO2 sequestration," and (iv) "Integration of public information, education, and outreach throughout the lifecycle of CCS projects in order to identify key issues, foster public understanding, and build trust between communities and project developers." PS at 30. Clearly, the need to "foster public understanding" and "build trust" concerning CCS, while perhaps valid concerns in general, are not technical factors appropriate to Step 2 feasibility analysis.

In any event, the source that IEPA cites for these concerns, an August 2010 report by the federal Interagency Task Force for Carbon Capture and Storage, pre-dates the federal UIC program for Class VI CCS permits, which addressed a host of those issues. USEPA promulgated its Class VI rule for underground injection of CO_2 for geologic sequestration in December 2010. 40 CFR § 146. The Class VI rule provides a well-defined regulatory path for a facility developer wishing to obtain a permit for CO_2 sequestration, and addresses the specific concerns identified by IEPA in the Project Summary. The rule sets minimum technical criteria for geologic site characterization, area of review, well construction, operation, mechanical integrity

testing, monitoring, sealing of wells, post-injection site care, and site closure. The rule also sets clear financial responsibility requirements that owners and operators must carry, offering a wide variety of financial instruments that can be used, and also sets a modifiable default post-injection monitoring period of 50 years -- all in stark contrast to the PS's assertion (at 35) that "there are unresolved issues involving the regulatory requirements for sequestration and liability associated with sequestration."

IEPA fails to acknowledge in the RS the extent to which the UIC program has resolved its initial concerns. Its only response is that, while the UIC program is now in place, there are still some guidance documents regarding monitoring and the like that have not yet been issued. RS at 122.

4. IEPA Erroneously Failed to Consider Appropriate and Available Courses of Action for Addressing any Inherent Uncertainties in CCS Implementation

To the extent there may be validity to any of IEPA's stated concerns regarding uncertainty attending the performance CCS at TEC, simply rejecting CCS as infeasible based on those concerns did not meet IEPA's PSD obligations. IEPA erred in failing to consider adjustable BACT limits. It additionally erred in failing to require the applicant, pursuant to 40 C.F.R. § 52.21(n), to submit additional information concerning CCS as part of a complete permit application.

a. Adjustable BACT limits

IEPA failed to even evaluate the possibility of an adjustable BACT limit to address any uncertainties in the implementation of CCS at TEC, despite the availability of such a limit in circumstances similar to those under consideration here. *See* RS at 133. For example, in *Hadson Power*, this Board upheld a BACT limit for nitrogen oxides (NO_x) that set both a design limit and a worst-case limit in a case of the first application of a particular control technology to

particular unit in this country. *Hadson Power*, 4 E.A.D. 258, 288-90 (E.A.B. 1992). The permit allowed the permitting authority to revise the emission limit downward toward the design limit after operation commenced to reflect the emission rate that was demonstrated to be consistently achievable. *Id.* at 291. Similarly, the EAB has affirmed an adjustable limit, *see AES Puerto Rico*, 8 E.A.D. 324 (EAB 1999), for the control of a pollutant that would otherwise go uncontrolled, and where a new test method was to be employed, so that there was therefore little information on which to base an emission limit for that pollutant at the time the permit was finalized. *Id.* at 348-50. IEPA must evaluate similar adjustable CO_2 emission limits here, based on the demonstrated potential for sequestration, accompanied by a worst-case limit (likely based on the same principles as in the current draft permit) in the unlikely event that sequestration later is shown to be impossible or significantly limited.

IEPA rejected the possibility of adjustable BACT limits on the ground that in the cited authorities, a determination had been made that the control technology at issue constituted BACT, whereas here that determination has not been made. RS at 148. This reasoning is circular. IEPA declined to find the CCS is BACT precisely *because of* the types of implementation uncertainties that can readily be addressed via an adjustable BACT limit.

b. Requiring further information from the Applicant

Additionally, IEPA complains of lack of information that could confer a great degree of confidence in the suitability of the Mt. Simon site for sequestration, but failed to require the submission of such information as part of a complete permit application. For example, IEPA asserts that "[t]he predictive geological modeling relied upon by Schlumberger is not based on actual core sampling for the specific site being considered, so it cannot be relied upon as a conclusive evaluation of the suitability of the specific portion of the Mt. Simon formation that is

targeted for sequestration." RS at 120. But at no time does the record reflect any effort by IEPA to require submittal of such sampling data, and IEPA determined the Application to be complete without it.

IEPA erred in not requiring that the Applicant provide full information necessary to assess CCS as an available alternative. 40 C.F.R. § 52.21(n) provides that the applicant "s*hall* submit *all* information necessary to perform any analysis or make any determination required under this section," including "*any [ ] information necessary* to determine that best available control technology would be applied." (emphases added). Thus, where a control option has been identified as available in BACT Step 1, the record must include all necessary information for determining that it is technically infeasible in order to justify rejecting it under BACT Step 2.

II. IEPA'S FAILURE TO CONSIDER LOW SULFUR COAL IN ITS BACT ANALYSIS VIOLATES THE U.S. CONSTITUTION[7]

The CAA requires state agencies conducting BACT analyses to consider all available options for reducing a source's emissions, including the use of "clean fuels." 42 U.S.C. § 7479(3). IEPA unlawfully failed to do so for the TEC project. Specifically, IEPA failed to consider low sulfur coal as an alternative feedstock for gasification based on a claim that it was technically infeasible as the result of an Illinois state law favoring higher sulfur Illinois Basin coal. CCG asserted that using a dirty fuel source was required to qualify for subsidies under Illinois' CCPSL, so the use of low sulfur coal is technically infeasible as it would disqualify TEC from the subsidy. IEPA adopts CCG's flawed reliance on the CCPSL, but goes a step further and claims a cleaner fuel requirement would "redefine the source." *See* RS 91-95; *see also* Ap., v. 1, pp. 5-6 to 5-9.

[7] Issue raised PC 45-52; IEPA Response RS 87-105.

This argument is invalid for three reasons. First, the use of low sulfur coal would not redefine the source. Second, the CCPSL, a state law, is preempted by the requirements of the federal CAA. Third, CCPSL is a protectionist law that is unconstitutional under the Dormant Commerce Clause.

A. IEPA Must Consider Clean Fuels

IEPA and Tenaska's refusal to consider cleaner fuels as an option for reducing emissions from TEC runs contrary to the requirement that a BACT determination include consideration of "clean fuels." 42 U.S.C. § 7479(3). The U.S. Congress added "clean fuels" to the definition of BACT, 42 U.S.C. § 7479(3), in order to codify longstanding USEPA practice requiring the evaluation of the use of cleaner fuels as an available method for reducing emissions. *In re Inter-Power of New York, Inc.*, 5 E.A.D. 130, 134 (E.A.B1994). As a result of this amendment, the CAA "promotes clean fuels with particular vigor." *In re: Northern Michigan University*, PSD Appeal No. 08-02, slip op. at 27 (EAB 2009) (hereinafter "*In re NMU*").

To not evaluate cleaner fuels would "pointedly frustrate congressional will," *id*., by reading the phrase "clean fuels" out of the statutory definition of BACT. *Sierra Club v. EPA*, 499 F.3d 653, 656 (7th Cir. 2007). *See also In re NMU*, slip op. at 17-18; *In re E. Ky. Power Coop., Hugh L. Spurlock Generating Station*, Petition No. IV-2006-4, Order at 30-32 (EAB 2007); *In re Inter-Power*, 5 E.A.D. at 134*; In re Haw. Commercial & Sugar Co.*, 4 E.A.D. 95, 99 n.7 (EAB1992*); In re Old Dominion Elec. Coop.*, 3 E.A.D. 779, 794 n.39 (EAB 1992).

The cleaner fuel choice for the TEC is low sulfur coal. Emissions from the gasification process depend on the composition of the feedstock. PC at 51; RS at 105. If lower sulfur coals were used, the SO_2 emissions would decline significantly from 697 to 93 ton/yr. *Id*.

B. Use of Low Sulfur Coal would Not Redefine the Source

IEPA asserted that consideration of clean fuels for the Facility would "redefine the source"[8] in two ways. RS at 91-92. First, IEPA notes that "the design of the plant as a coal gasification plant, together with its attendant use of higher sulfur bituminous coal, is recognized as a fundamental aspect of the project." RS at 92. Second, IEPA states that the use of Illinois Basin coal was necessary for TEC to qualify under CCPSL, which provides financial incentives to facilities that burn coal with a minimum sulfur content of 1.7 lbs/mmBtu. RS at 92. IEPA asserts that "mandating the use of lower sulfur coal would effectively change TEC's basic design, as the project would … not fulfill the CCPSL's statutory requirements."

IEPA reliance on USEPA's "redefining the source" policy is in error. The "redefining the source" policy only prevents the permitting agency from requiring the applicant to build a fundamentally different type of facility serving a different need or producing a different product – such as substituting a power plant for a municipal waste combustor. *In re Hibbing Taconite Company*, 2 E.A.D. 838, 843 and n.12 (EAB 1989). Any other interpretation that avoids more stringent limits based on the applicant's desires would allow the "redefining the source" exception to swallow the rule that clean fuels must be considered as part of BACT.

Thus, the Seventh Circuit has opined that minor changes involved with using low sulfur coal do not constitute redefining the source. *Sierra Club*, 499 F.3d at 656; *see also Old Dominion*, 3 E.A.D. 779. Additionally, the Seventh Circuit has also strictly limited the "redefining the source" policy to situations where a plant is sited and designed to receive all of its coal from an adjacent mine. *Sierra Club*, 499 at 656. Here, TEC is not co-located with a mine. IEPA has acknowledged that the gasifiers are "feedstock flexible." PS at 24. Indeed, that

[8] *See In re: Desert Rock Energy Company*, PSD Appeal No. 08-03 et al., Slip. Op. at 64 (EAB 2009); *In re: Prairie State Generating Company*, 13 E.A.D. 1n.23 (EAB 2006).

is why the Summit Power Group has proposed another project consisting of an IGCC facility that would use similar Siemens gasifiers to gasify low sulfur Powder River Basin coal. PC at 47.

C. IEPA's Reliance on CCPSL to Avoid its CAA Mandates Violates the Supremacy Clause

Petitioners' Comments explained why relying on CCPSL to avoid the CAA's mandate to consider low sulfur coal under the BACT analysis is a violation of the Supremacy clause of the Constitution. PC at 48.[9] IEPA argues in response that its reliance on CCPSL "did not interfere with or supplant the requirements of the [CAA]." RS at 94-96.

The Supreme Court has long held that "state laws that conflict with federal law are "without effect." *Altria Group, Inc. v. Good*, 555 U.S. 70, 76 (2008). A state law is "nullified to the extent that it actually conflicts with federal law," which includes both situations in which complying with both state and federal law is a physical impossibility and when a state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." *Hillsborough County, Fla. v. Automated Med. Labs., Inc.*, 471 U.S. 707, 712 (1985). Thus, a state law is preempted "if it interferes with the methods by which the federal statute was designed to reach its goal." *Int'l Paper Co. v. Ouellette*, 479 U.S. 481, 494 (1987). CCPSL interferes with the method that Congress chose for permitting agencies to determine BACT by assessing clean fuels, and it is therefore preempted as being in actual conflict with the CAA.

Among Congress' express purposes for enacting the PSD program is "to assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision." 42 U.S.C. § 7470(5). In so

[9] While the EAB does not generally consider constitutional challenges, it will consider constitutionally-based challenges to the manner in which a statute or regulation has been applied. *In re Desert Rock*, PSD Appeal Nos. 08-03, 08-04, 08-05, 08-06 (EAB 2009) *In re Ocean State Asbestos Removal, Inc.*, 7 E.A.D. 522, 558 (EAB 1998); *In re Gen. Elec. Co.*, 4 E.A.D. 615, 627-36 (EAB 1993). Here, IEPA's application of CCPSL to avoid CAA requirements is a violation of the law since CCPSL interferes with the methods to meet the CAA's goals. The EAB need not rule on the constitutionality of CCPSL, but merely that its application in this instance supplants the CAA by interfering with its promulgated methods.

doing, agencies must assess available methods, *including* clean fuels. 42 U.S.C. § 7479(3). Any deviation from this requirement is in actual conflict with the CAA and is therefore preempted under *Hillsborough* and *Ouellette*.

The Second Circuit confirmed this principle by invalidating a New York law that functionally prohibited the transfer of SO_2 trading allowances to upwind states. *Clean Air Markets Group v. Pataki*, 338 F.3d 82, 84 (2d Cir. 2003). The court found the law invalid under the *Ouellette* test, holding that it "interferes with the method selected by Congress for regulating SO_2 emissions" under Title IV of the Clean Air Act. *Id.* at 87. Like CCPSL, the law did not outright limit the ability of New York utilities to transfer their allowances, but rather required them to sell a restrictive covenant preventing subsequent transfers of allowances to upwind states. *Id.* at 88. Nevertheless, the court reasoned that "such a restrictive covenant indisputably decreases the value of the allowances," which "clearly . . . interferes with allowance trading," and "impermissibly interferes with the *methods* by which Title IV was designed to reach the goal of decreasing SO_2 emissions." *Id.* at 89.

D. IEPA Cannot Rely on CCPSL to Avoid Considering Low Sulfur Coal Under BACT as this Law Violates the Dormant Commerce Clause

Petitioners' Comments also pointed out that relying on CCPSL to avoid the CAA's mandate to consider low sulfur coal under the BACT analysis violated the Dormant Commerce. PC at 48. IEPA argued that its reliance on CCPSL does not violate the Dormant Commerce Clause "because [it] does not require TEC to use exclusively coal from Illinois but, rather, merely specifies the use of bituminous coal from the Illinois Basin containing a sulfur content greater than 1.7 lbs/mmBtu. The design coal for the TEC project is Illinois Basin coal, which is commonly found in Illinois, Indiana, and Kentucky. Nothing in the state law mandates that the TEC project be restricted to Illinois coal and, for that reason, [CCPSL] does not prohibit or

impede the use of coals from outside Illinois in violation of the Commerce Clause." RS at 94. IEPA is wrong. IEPA's application of that statute is unlawful because that statute violates the Constitution.[10] Such favoritism of in-state coal and discrimination against out-of-state feedstocks, violates the Dormant Commerce Clause principle, which bars economic favoritism between states. *See, e.g., Alliance for Clean Coal v. Miller*, 44 F.3d 591 (7th Cir. 1995); *Alliance for Clean Coal v. Bayh*, 72 F.3d 556 (7th Cir. 1995); *New Energy Co. of Indiana v. Limbach*, 486 U.S. 269, 273-74 (1988).

III. IEPA Erred in its BACT Determination for Equipment Leaks[11]

Small pieces of equipment like valves, connectors and pumps leak the gases and liquids they handle through seals and screw fittings. These so-called "fugitive" emissions include carbon monoxide ("CO"), volatile organic material, hydrogen sulfide ("H_2S"), total reduced sulfur ("TRS"), methane ("CH_4"), CO_2, and numerous individual hazardous air pollutants ("HAPs"), such as methanol and carbonyl sulfide ("COS"). Because such components and leaks are numerous, the aggregate fugitive emissions are often significant.

TEC is reported to have at least 24,864 of these components. *See* PC at 25. IEPA improperly determined that these components would release very tiny emissions.[12] Based on this erroneous lowballing, IEPA found that controls for fugitive leaks, such as leakless technology and leak detection and repair programs, are not cost effective.

IEPA's main error in underestimating fugitive leak emissions lay in the use of an undocumented adaptation of emission factors borrowed from another source type. These emission factors, for measuring total organic compounds ("TOC"), are known as SOCMI

[10] *See supra* note 7. IEPA's application of CCPSL to avoid CAA requirements is a violation of the law since CCPSL discriminates against interstate commerce. The EAB need not rule on the constitutionality of CCPSL, but merely that its application in this instance discriminates against the use of Power River Basin and Central Appalachian coal.
[11] Issue raised PC 27-34, 39-51, 88-96; IEPA response RS 46-81, 187-209.
[12] *Id.*

(Synthetic Organic Chemical Manufacturing Industry) factors.[13] Moreover, the applicant and IEPA used a lower-bound variant of the SOCMI factors developed by the Texas Commission on Environmental Quality ("TCEQ"), in which the higher factors associated with ethylene are eliminated (the "SOCMI without ethylene" factors). This lower-bound variant is not endorsed in any USEPA guidance and is substantially inconsistent with it, and has never been documented in any public record. Had IEPA used proper assumptions, the proposed Facility's fugitive leak emissions would have been up to seven times greater than disclosed in the Application, triggering BACT for reduced sulfur compounds and rendering controls cost effective. PC at 32-34.

A. IEPA Erroneously Applied SOCMI Emission Factors, as TEC Is Not a SOCMI Facility

A coal gasification facility such as TEC is not a SOCMI facility, as a matter of either law or engineering. Thus, use of SOCMI emission factors is in error.

1. TEC is not a SOCMI facility under the Clean Air Act.

The Permit itself makes abundantly clear that TEC is not a SOCMI facility. *See* Condition 4.9.4.a ("the SNG and recovered sulfur produced at this plant are not products covered by the SOCMI NSPS.") and Condition 4.9.4.b ("none of the chemicals produced at the plant are synthetic organic chemicals or polymers listed in 35 IAC Part 215, Appendix D.") USEPA guidance has concluded similarly that "the IGCC system is in fact a petroleum refining process unit that is subject to Subpart CC."[14]

[13] Ap., v. 1, Sec. 3.9, p. 3-17.
[14] Letter from Cynthia J. Reynolds, Director Technical Enforcement Program, USEPA Region 8, to Preston Phillips, Vice President, Hyperion Energy Center, Ref: 8ENF-AT, November 20, 2008 (attached as Ex. 5) ("Reynolds Letter").

2. TEC's Processes Are Fundamentally Different From a SOCMI Facility's

IEPA failed to justify the use of adapted SOCMI emission factors for TEC and its particular physical and chemical processes. Process streams with different chemical (*e.g.*, polarity) and physical properties (*e.g.*, temperature, pressure) will produce different leak rates. *See* PC at 28. SOCMI emission factors were developed for processes used to generate synthetic organic chemicals such as acetaldehyde, acetone, and phenol,[15] not for processes used to generate syngas and its byproducts. The permit record contains no evidence that the physical and chemical composition of TEC's process streams is similar to that of process streams in the synthetic organic chemical industry. The RS failed to respond to comments raising these differences; indeed, despite its lengthy effort to justify the use of the adapted SOCMI factors, it did not actually provide essential comparative stream composition data for any facility. RS at 51-52.

Furthermore, according to USEPA, pressure is the primary factor determining leak rate, with high line pressures increasing fugitive emissions. PC Ex. 22 and USEPA Analysis of SOCMI Fugitive VOC Emissions Data, June 1981 (attached as Ex. 6) ("USEPA 1981").[16] Most processing units in IGCC facilities operate at higher temperature and pressures[17] than typical SOCMI processes, resulting in higher component failures and thus higher leaks. *See, e.g.*, PC at 29 and Ex. 22, p. 2-30. The IEPA did not respond to this comment, either.

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[15] *See* PC Ex. 22 at Table 2-12.
[16] Section entitled "The Effect of Line Temperature and Line Pressure" at .pdf 65-85.
[17] *See, e.g.*, Babcock & Wilcox, Steam: Its Generation and Use, 41st Ed., 2005, Chapter 18, Coal Gasification and Higman and Van Der Burgt, Table 2-1, *cited in* PC n. 113, *available at* http://books.google.com/books?id=ZUlRaUrX8IUC&pg=PA18&lpg=PA18&dq=gasifier+pressure&source=bl&ots=FluCtgO_SC&sig=HyAno4cWEFSK3WkNKHrnIVQ421Q&hl=en&sa=X&ei=TSS8T66IGYeHsgKPypEf&ved=0CFgQ6AEwAg#v=onepage&q=gasifier%20pressure&f=false. See also: http://www.netl.doe.gov/technologies/coalpower/turbines/refshelf/handbook/1.2.1.pdf.

3. SOCMI Facilities Have More Significant Incentives and Greater Ability To Reduce Fugitive Leak Emissions Than Does TEC

SOCMI emission factors likely underestimate TEC fugitive leak emissions for at least three additional reasons. First, SOCMI facilities handle highly hazardous materials compared to TEC, and so historically have reduced emissions to protect workers and communities in part driven by OSHA regulations, as recognized by the chemical industry in another USEPA rulemaking. PC at 29 and Ex 22, p 2-46. The RS provides no response to this comment.

Second, products that would leak at a SOCMI facility have a high value, increasing the financial incentive to reduce leaks. TEC, in contrast, would produce syngas or electricity, relatively lower value products. *Id.* Internal process streams at TEC are waste gases that are ultimately vented to atmosphere and have no value. The RS provides no response to this economic issue either, arguing it is contrary to our comments on BACT without explaining how and erring in its statement that Petitioners' submitted no supported for this comment. RS at 52-53; *see* PC Ex. 22, p. 2-46 (USEPA discussing relative product value at SOCMI facilities compared to refineries).

Third, SOCMI facilities consist of smaller pieces of equipment, making components more accessible for leak detection and repair. PC at 29. Large complex facilities like TEC have many more components that are inaccessible or dangerous to monitor and thus are exempt from LDAR programs. This issue too was raised by the chemical industry response to USEPA's proposal to use refinery emission factors for SOCMI facilities. PC Ex. 22, p. 2-46. IEPA missed the point, arguing that equipment leak component emission factors are expressed on a per component basis, not a size basis. RS at 53.

4. IEPA Relies On Unsupported General Assertions For Using SOCMI Emission Factors For TEC

In the face of these scientific and economic distinctions between TEC and SOCMI facilities, IEPA weakly responds that "USEPA itself has stated that equipment leak GHG emissions from coal gasification can be calculated according to the same methodologies used for petrochemical plants which include certain types of SOCMI facilities." RS at 50 citing a USEPA TSD for petrochemical facilities. The cited document provides no support for this claim, as it provides no guidance on how to calculate GHG emissions associated with equipment leaks.

Second, IEPA relies on a sentence from a USEPA fugitive estimation protocol taken out of context, citing to the statement that "for process units in source categories for which emission factors and/or correlations have not been developed, the factor and/or correlations already developed can be utilized." RS at 48, *citing* "Protocol for Equipment Leak Emission Estimates" (PC Ex. 21), p. 2-5. But the next sentence calls for appropriate evidence indicating that "the existing emission factors and correlations are applicable to the source category in question" and lists four criteria for determining the appropriateness of applying existing emission factors and correlations to another source category: "(1) process design, (2) process operation parameters (i.e., pressure and temperature), (3) types of equipment used, and (4) types of material handled." IEPA claims that TEC considered these four factors when assessing the SOCMI emission factors. *See* RS at 48. However, the RS fails to cite any page or section where this evidence is located, and indeed there is none.

B. The SOCMI "Without Ethylene" Emission Factors Developed by TCEQ Are Not Appropriate for TEC

Not only are SOCMI emission factors generally inapplicable in the context of coal gasification processes, but IEPA erred in applying an adaption of those factors developed by

TCEQ that are not endorsed in any USEPA guidance and whose calculation has never been documented in any public record. The SOCMI without ethylene factors reportedly were calculated by TCEQ for process lines in SOCMI plants that contain less than 11% ethylene, but the actual calculations have never been produced. There are numerous reasons why the "without ethylene" factors are arbitrary and inappropriate for TEC. PC at 29-30.

1. TCEQ's SOCMI "Without Ethylene" Emission Factors Are Without Basis and Their Application Here is Arbitrary

The permit record contains no support for using the ethylene-adjusted SOCMI emission factors, which are pulled from a draft TCEQ report. PC at 27, 29. The RS does not directly address this claim, but sidesteps it. RS at 48-49 and 57-58.

The RS points to the draft NSR Manual as its justification for relying on draft TCEQ emission factors. *See* RS at 57. This comparison is entirely inapt. The EAB has expressly accepted the NSR Manual in numerous cases as reflecting USEPA's interpretation of NSR regulations. Neither USEPA nor the EAB has opined on the appropriateness of substituting undocumented TCEQ emission factors for documented and adopted emission factors published in connection with USEPA's established AP-42 emission factors.

Nor are the analysis and supporting spreadsheets that led to TCEQ's elimination of ethylene data in the Permit record, and they have never been produced in any forum that we are aware of. PC at 29. The RS does not supply any data to fill this gap, but only excuses for its absence. RS at 57-58. The unaltered SOCMI average emission factors, on the other hand, are official USEPA emission factors published in AP-42 and accompanied by abundant underlying data, calculations, and justifications.

Additionally, the use of ethylene concentration rather than pressure to subdivide the SOCMI factors is arbitrary and unsupported since, as explained above, subsection III.A.2,

supra,, it is pressure – *not* ethylene concentration – that primarily determines leak rates. In fact, it is well known that coal gasification facilities operate at much higher pressure than SOCMI facilities. *See* supra III.A.2.

IEPA asserts erroneously that the "without ethylene" emission factors are "a more accurate adaptation of the SOCMI average factors...," RS at 48, and "a refinement of USEPA's larger categorization," *id.* at 57-58. However, USEPA analyzed the same data as TCEQ, but for good reason did not eliminate ethylene facilities from its average SOCMI emission factors. First, the ethylene facilities fell within the confidence limits for other types of SOCMI facilities. Second, while the IEPA tacitly assumes normal distribution of leak rates and thus implies that the higher leak rates for ethylene facilities somehow "skewed" the average SOCMI emission factors, *id* at 49, USEPA's detailed analysis in its Equipment Leak Protocol presents no evidence that ethylene facilities skewed the SOCMI emission factors when properly analyzed.[18] Finally, there are too many other factors that affected emissions – line pressure primarily, as well as temperature, type of component, type of process, ambient conditions, *etc*. – to justify eliminating facilities solely on the basis of ethylene.

Additionally, the RS makes much of the fact that TEC emissions are predominately inorganic, thus justifying the use of low VOC "without ethylene" emission factors. RS at 51-52. However, VOCs are not the only pollutant of concern. Fugitive components leak significant amounts of inorganic pollutants, which are regulated under NSR and air toxics rules. PC at 26. Thus, the IEPA's argument that TEC emissions are not mostly VOCs supports our argument that emissions are underestimated and should be rejected.

[18] PC Ex. 21, Appendix B. *See also* analytical methods described in USEPA June 1981. Section 4 of this report demonstrates the SOCMI leak rate data is log normally distributed and was appropriately analyzed without the need to toss out ethylene facilities. Section 7 presents "statistical consideration" used by EPA in analyzing fugitive component leak data. It is well known that environmental data, particularly emissions data, is not normally distributed, but rather is most typically log normally distributed.

Finally, the RS also cites to PC Ex. 22, Table 2-19 as evidence that ethylene plants have elevated leak rates, and thus IEPA should discard that associated data as well. RS at 49. This is misleading, as valves and pumps are not the major source of emissions from TEC equipment leaks. The most abundant fugitive component at TEC is flanges, which account for 76% of the total. PC at 25 and 34. The RS fails to note that flanges in ethylene plants have many fewer leaking components in gas (6.2% v. 12.5%) and light liquid (6.1% v. 12.5%) services than flanges at other SOCMI facilities. PC Ex. 22, Table 2-19, p. 2-32.

2. Refinery Emission Factors Are Appropriate for TEC

Gasification plants are more similar to refineries than chemical plants, warranting the use of refinery emission factors instead of SOCMI factors. Both refineries and gasification plants, for example, convert fossil fuels into end products used to generate fuels under similar conditions of pressure and temperature. They both also use many of the same unit processes. PC at 33-34. As noted above, USEPA's only guidance on estimating fugitive component equipment leaks from IGCC plants concludes that "the IGCC system *is in fact a petroleum refining process unit...*"[19] The RS, however, argues that USEPA refinery emission factors are not appropriate for TEC due to different stream compositions. RS at 51-52. These arguments are in error.

First, IEPA argues that syngas and SNG at TEC are "mixtures of light gases including primarily CO, H_2, CO_2, CH_4, and water vapor," compared to heavier refinery gases. RS at 51. However, it neglects to note that there are many process streams in refineries with similar compositions, including within hydrogen plants, acid gas removal, sulfur recovery plants,

[19] Reynolds Letter at 5.

flexicoking waste gas, and refinery fuel gas systems that feed every combustion source (hundreds) in a refinery.[20]

In any event, even if syngas and SNG are "mixtures of light gases including primarily CO, H_2, CO_2, CH_4, and water vapor," the USEPA's Protocol document, PC Ex. 21, indicates that SOCMI factors should not be applied to these compounds. It states that "the emission factors and correlations presented in section 2.3 [adjusted by TCEQ to eliminate ethylene] are not intended to be applied for the used of [sic] estimating emissions of inorganic compounds."[21] All of the listed compounds are inorganic compounds except CH_4.

C. IEPA's Erroneous Use of Inapplicable Emission Factors Resulted in the Elimination of Cost-Effective Leak Control Technology at BACT Step 4

IEPA's unjustified and incorrect application of distorted SOCMI emission factors led to its improperly eliminating, in BACT Step 4 based on cost, two widely used and effective fugitive emissions control technologies - leakless technology and LDAR. *See* PC at 27, 32-34.

As shown in Table 9 of Petitioners' Comments, *id.* at 33, using the inappropriate SOCMI without ethylene factors led to an underestimation of emissions of up to 1,000 tons/year. When the appropriate emissions are used to calculate cost-effectiveness, leakless technology and plant-wide LDAR are both cost-effective for TEC. *Id*. at 34. Accordingly, the EAB should remand the Permit to IEPA with instructions that it re-calculate the cost effectiveness of leakless technology and plant-wide LDAR using emission factors for equipment leaks at refineries, unless the agency can show through detailed data and engineering analysis that some other set of emission factors is more appropriate.

[20] Charles E. Baukal, Jr. (Ed.), The John Zink Combustion Handbook, CRC Press, 2001, Sec. 5.1.4.
[21] PC Ex. 21 at 2-53.

IV. CCG Failed to Demonstrate That Emissions From TEC Will Not Cause or Contribute to Air Pollution in Excess of the 8-Hour Ozone NAAQS[22]

The CAA requires the owner or operator of a major emitting facility to demonstrate that "emissions from construction or operation of [the] facility will not cause, or contribute to, air pollution in excess of any . . . national ambient air quality standard for any pollutant in any area to which this part applies …" 42 U.S.C. § 7475(a)(3). *See also* 40 C.F.R. §52.21(k) CCG failed to conduct the required individual source modeling of ozone impacts, relying instead on generic analysis, and hence failed to comply with modeling requirements for the 8-hour ozone NAAQS. 42 U.S.C. § 7475(a). *See* PC at 139-141.

A. CCG Failed to Conduct, and IEPA Failed to Require, Actual Ozone Modeling

In order to assess impacts to air quality, the CAA requires permit applicants and agencies to use modeling. 42 U.S.C. § 7475(e)(3)(D). Applicants must estimate ambient concentrations based on the applicable air quality models, data bases, and other requirements specified in 40 C.F.R. Part 51, Appendix W, "Guideline on Air Quality Models." 40 C.F.R. § 52.21(l)(1). States and applicants are not to undertake their own independent adjustments of modeling approaches, but must seek federal approval of deviations from federal regulatory guidelines. 42 U.S.C. § 7475(e)(3)(D); 40 C.F.R. § 52.21(l)(2). *See also* NSR Manual at C.24

Rather than using single-source air dispersion modeling for its ozone analysis, CCG assessed ozone impacts from the proposed project using a simple set of screening tables, the "Scheffe Tables." *See* Modeling Report, pp. 3-13 – 3-15. IEPA should have rejected reliance on the Scheffe Tables, as they are inadequate to assess ozone impacts; yet the agency did not. *See*

[22] Issue raised PC 139-141, IEPA response RS 280-84.

PS at 14. Without an adequate and technically sound ozone impact analysis, CCG failed to verify compliance with the 8-hour ozone NAAQS as required by the Act.

B. Reliance on the Scheffe Tables Is Inadequate to Demonstrate Protection of the Ozone NAAQS

Petitioners detailed why it was inadequate for CCG and IEPA to rely on the Scheffe Tables. PC at 139-141. Regarding the applicability of these tables, Dr. Richard Scheffe – the developer of the tables– issued a memo stating that the method is, and has always been, inadequate for assessing project ozone impacts:

> I developed the screening tables in 1988 as a screening test to estimate the contribution to ambient ozone associated with increased non-methane organic carbon (NMOC) emissions arising from new or modified point sources. The tables never achieved a level of EPA certification associated with EPA guideline models and consequently were not endorsed by the Agency. After publication (non peer reviewed literature) of the tables in 1989, the American Petroleum Institute enlisted renowned atmospheric modeling experts, Drs. John Seinfeld and Panos Georgopoulous of the California Institute of Technology, to review the technique. Based on their input and our own analysis, the EPA decided at that time that the tables did not adhere to an adequate level of scientific credibility to be recommended for their intended purpose.
>
> Ozone science has advanced markedly since 1988 with substantial improvements in the characterization of emissions, meteorological, and atmospheric chemistry processes, paralleling an equivalent improvement in computational processing capability, all of which constitute the principal features of a modeling framework. As a result, the Scheffe method, which was deemed "not adequate" in 1989, would be even less adequate today.[23]

Petitioners further noted that the USEPA agrees with Dr. Scheffe that, given the current state of the art, this technique is inappropriate for assessing ozone impacts:

> EPA agrees that States should not be using inappropriate analytical tools in this context…. The Commenter is correct that the use of "Scheffe Tables" and other particular screening techniques, which involve ratios of nitrogen oxides (NOX) to volatile organic compounds (VOC) that do not consider the impact of biogenic emissions, or that use of other outdated or irrelevant modeling is inappropriate to evaluate a single source's ozone impacts on an air quality

[23] PC at 140.

> control region. More scientifically appropriate screening and refined tools are available and should be considered for use.[24]

Given the complex nature of TEC's NO_x and VOC emissions and resulting ozone concentrations, there is no justification for IEPA to rely on the Scheffe Tables for verifying compliance with the new 8-hour ozone NAAQS.

Rather than respond to the fact that USEPA and Dr. Scheffe have renounced the ozone impact method that CCG used and the scientific underpinnings of those decisions, IEPA offers four insufficient reasons for its reliance on the Scheffe tables, none of which alter the conclusion that CCG failed to verify compliance with the 8-hour ozone air quality standard.

1. IEPA did not receive USEPA Approval to Use the Scheffe Table Approach to Ozone Modeling for the TEC project

IEPA argues: "USEPA Region 5 has given IEPA permission in the past to use the screening tables methodology and has not objected to its use in numerous PSD permit applications where VOCs exceed 40 tons per year." RS at 282.[25] Reliance on prior permitting of unrelated projects is inappropriate. First, as a general matter, the fact that USEP A has not objected to a certain permit agency practice does not mean that USEPA has approved of that practice. *See* Letter from Cheryl Newton to Robert Hobanbosi (April 28, 2009), attached as Ex. 7. Second, CAA regulations require CCG and IEPA to receive regional approval for a modeling approach on a case-by-case level. 40 C.F.R. § 52.21(l)(2). In its Guidelines on Air Quality Modeling, USEPA discusses why a case-by-case approach is needed to estimate ozone impacts from individual sources. Appendix W to 40 CFR Part 51, Section 5.2.1.c. Further, Section 3.2.2 of the Guideline on Air Quality Models (Recommendations) states: "Determination of

[24] PC at 141.
[25] IEPA does not cite to which prior decisions it is relying on so Petitioner cannot critique further critique why it is inappropriate to rely on those prior decisions, such as how old their decisions are.

acceptability of a model is a Regional Office responsibility." *Id.* at Section 3.2.2. Third, reliance on any older permit proceedings is inappropriate given USEPA and Dr. Scheffe's renouncement of the tables.

2. USEPA Has Endorsed Other Modeling Methods

IEPA further argues that the "USEPA has not developed an appropriate tool for routine single source ozone modeling other than the Scheffe Tables." RS at 282. This is misleading since USEPA never endorsed the Scheffe Tables. *See* PC at 139. In addition, USEPA has supported other methods: "Photochemical grid models provide an opportunity for credible single source modeling with source apportionment methodology."[26] In fact, USEPA has endorsed photochemical grid models for three projects in Region VI: (1) NRG Limestone 3, (2) Nucor Steel Louisiana, and (3) White Stallion. PC at 141.[27] There is no reason why IEPA should allow TEC to use an inadequate ozone assessment, when Texas and Louisiana are requiring state-of-the-art photochemical grid models. Additionally, "Back trajectory analysis is a commonly-used tool for understanding how short-term variability in surface ozone depends on transport into a given location."[28] This is but a short list of methods that USEPA has endorsed.

3. IEPA Failed to Address The Ozone Transport Impacts from TEC's Emissions on Ozone Non-Attainment Areas

IEPA attempted to justify CCG's use of the Scheffe Tables based on the fact that TEC is in an attainment area for ozone and over 100 km away from areas with ozone problems. RS at 283. However, IEPA's response did not address the concerns raised in Petitioners' Comments

[26] Baker, Kirk, USEPA, Single Source Modeling with Photochemical Models, attached as Ex. 8.
[27] *See* Letter from Jeff Robinson, USEPA Region VI Air Permits Section Chief, to Texas Comm. On Envtl. Quality (April 14, 2009) (Robinson Letter) (Ex. 9).
[28] Davis et al, 2010, A comparison of trajectory and air mass approaches to examine ozone variability. 44, 64-74, attached as Ex. 10. *See also* Fast, et al Evaluation of trajectories associated with ozone transport during the 1993 North Atlantic Regional Experiment825-837, attached as Ex. 11.

about the well-known problem of long-range ozone and ozone-precursor (NO_x and VOC) transport. PC at 139-140.

Given the well-documented ozone transport issue that impacts regional compliance,[29] IEPA underestimated the scope of the problem. The scientific literature is replete with studies on long range ozone and ozone-precursor transport. *See* Karl, Ozone transport in the St. Louis area. 1421-1431, attached as Ex. 13; Schichtel, 2001, Eastern North American Transport Climatology During High- and Low-Ozone Days. 1029-1038, attached as Ex. 14; Galvez, 2007, Synoptic-Scale Transport of Ozone into Southern Ontario. 8579-8595, attached as Ex. 15; Tong, et al. 2009, Using air quality modeling to study source–receptor relationships 1109-1117, attached as Ex. 16. These citations, while providing only a glimpse of the ozone and ozone-precursor transport problem, demonstrate that IEPA erred in assuming that TEC's ozone impacts would not impact ozone nonattainment areas near Chicago and St. Louis.

4. IEPA's Response that the Scheffe Tables are Conservative is Unfounded

Finally, IEPA argues that "because of their simplicity, [the Scheffe Tables] yield a more conservative estimate than would be anticipated through photochemical modeling." RS at 282. IEPA has not provided any evidence to support this statement. *Id*. Just because a method is simple does not prove that it will provide a more conservative estimate.

In sum, the failure to ensure that CCG's proposed facility will not cause or contribute to a violation of the applicable NAAQS is a clear error of law. This is also a significant policy issue that the Board should review because it is at issue that will likely surface in other proposals in the United States.

[29] *See*, *e.g.*, 63 Fed. Reg. 57,356 (Oct. 29, 1998); USEPA, Ozone Fact Sheet at p. 3, attached as Ex. 12.

V. The EAB Should Clarify that the Permit Does Not Allow Phased Construction of the Facility

After IEPA issued the final permit for TEC, Tenaska, the parent company of CCG, publicly announced that it was revising how it intended to proceed with construction of the project. The revised proposal, called the "Power Block First Plan," would initially construct a 611-megawatt (MW) combined-cycle plant that would burn natural gas but could accept substitute natural gas (SNG) from a potential future coal gasification unit. *See* Tenaska Press Release (May 16, 2012).[30] At some unspecified time in the future when market conditions improve, CCG would add a second phase of the project incorporating coal gasification equipment to convert coal to SNG, capture CO2 and provide for geologic storage. *Id*. CCG would either sell the SNG on the open market or burn the SNG in the combined cycle plant. *See* PS at 3. CCG has amended Senate Bill 678 to reflect its revised, phased construction schedule. *See* Amendment to Senate Bill 678, attached as Ex. 17.

CCG has indicated that it is authorized to build phase I now and phase II later under the April 30, 2012 PSD permit, without seeking any additional permit or revision of the existing permit. IEPA has yet to opine about the legality of this new phased project. The EAB should direct IEPA to modify Permit Condition 3.2(a) to state that "[t]his permit shall become invalid if

[30] Petitioners have an obligation to "raise all reasonably ascertainable issues and submit all reasonably available arguments supporting … [the petitioners'] position by the close of the public comment period." 40 C.F.R. § 124.13; *see also* 40 C.F.R. § 124.19(a) (describing procedural requirements for permit review). The Power Block First Project raises significant new issues and arguments about the lawfulness of the PSD permit, which were not reasonably ascertainable or reasonably available during the public comment period as it was announced after IEPA issued the final PSD permit. Since Petitioners' issues concerning the phased permit were not reasonably ascertainable before the comment period ended, the EAB has jurisdiction to hear these arguments. *See, e.g.*, *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 249-50 & n.8 (EAB 1999); *In re Keystone Cogeneration Sys*., 3 E.A.D. 766 (EAB 1992).

construction of all phases is not commenced within 18 months after this permit becomes effective." [31]

While the EAB does not typically offer advisory opinions, *In re: Desert Rock*, PSD Appeal No. 08-03 et al., it can issue such opinions when a compelling justification warrants such an opinion. *In re: Martex Farms*, 13 E.A.D. 464 (EAB 2008); *In the Matter of: Simpson Paper Company and Louisiana-Pacific Corporation*, Appeal 92-26 (EAB 1993). In this case, there is a compelling justification for the EAB to issue declaratory relief on this issue: CCG intends to construct this project under the final permit and such an approach would circumvent core CAA requirements, see discussion *infra*. Therefore, Petitioners request that the EAB direct IEPA to amend the commencement clause of Permit Condition 3.2(a) or to confirm in writing to EAB within thirty days from the date of its order that it has informed CCG that it may not construct TEC except as contemplated in its permit application and that it must obtain a new permit for a phased construction approach.

USEPA has determined that a phased construction permit must contain both a detailed and well-defined construction schedule. *See, e.g.*, 43 Fed. Reg. 26,388, 26,396 (June 19, 1978); Letter from Linda Murphy to Carl Pavetto (May 19, 1992) ("Letter from Murphy"), available at http://www.epa.gov/region7/air/nsr/nsrmemos/coating.pdf; Memorandum from Edward Reich to Diana Dutton (Aug. 20, 1979), available at http://www.epa.gov/region7/air/nsr/nsrmemos/multifas.pdf; 40 C.F.R. § 52.21(r)(2). The impetus for requiring a detailed and well-defined construction schedule at the outset is to avoid applicants illegally using phased PSD permits as a way to grandfather themselves into existing laws and circumvent future CAA requirements. *See, e.g.*, Letter from Murphy. This concern is

[31] Alternatively, the EAB could direct IEPA to confirm in writing to EAB within thirty days from the date of its order that it has informed CCG that it may not construct TEC except as contemplated in its permit application.

also why, pursuant to USEPA guidance, mutual dependence among all of the distinct phases is a requirement so that later phases do not get grandfathered in to compliance with older regulations. 43 Fed. Reg. at 26,388, 26,396 (June 19, 1978). If the project phases are mutually dependent and one of the phases has begun construction by the applicable grandfather date, then all of the approved phases are subject to contemporary regulations. *Id*. For independent phases, *each* phase must commence construction by the grandfather date in order to avoid compliance with new regulatory requirements. *Id*.

The dependence of various phases within a project is determined on a case-by-case basis. *Id*. at 26,396 n. 6. The difference between dependent and independent phases turns on whether each phase could stand alone or whether all phases are necessary for the project to work. Memorandum from John Seitz, Director to Regional Directors (Sept. 3, 1992), available at http://www.epa.gov/ttn/nsr/gen/scan.pdf (last visited May 24, 2012).

The Power Block First Plan involves two mutually independent phases. The first phase involves the construction and operation of a natural gas-fired combined cycle plant. *See* Tenaska Press Release (May 16, 2012). This power plant would operate independently of a "potential future coal gasification unit." *Id*. The second phase of the project would consist of constructing a coal gasification unit. *Id*. CCG would either sell the SNG produced on the open market or use it on-site to generate electricity. *See* PS at 3. The gasification unit is an independent unit from the combined cycle plant, as the latter can fully operate without construction of the gasification unit and CCG intends to sell a portion of the produced SNG on the market (and indeed could sell all of the SNG instead of combusting any of it in the combined cycle plant). Since the two phases are mutually independent, CCG cannot proceed with its Power Block First Project under the April 30, 2012 PSD permit.

Moreover, the newly proposed phased approach would circumvent compliance with existing regulations. On April 13, 2012, USEPA proposed new source performance standards for emissions of CO_2 for new affected fossil fuel-fired electric utility generating units. 77 Fed. Reg. 22,392 (April 13, 2012). USEPA designated TEC as a "transitional source," meaning that if CCG begins construction by April 12, 2013, it does not have to comply with the emission limitations of the proposed NSPS. 77 Fed. Reg. at 22,422. Under CCG's "Power Block First" proposal, it could commence construction of the natural gas combined cycle plant within 12 months of the proposed rule and build the second phase gasification unit when "market conditions improve," *see* Tenaska Press Release (May 16, 2012), thus circumventing the regulatory requirements of the electric generating unit NSPS for greenhouse gas emissions that would otherwise apply to the gasification unit. The Board should prohibit this circumvention.

CONCLUSION

For the foregoing reasons, we respectfully request that the EAB review and remand IEPA's permit issued to CCG for the TEC Facility.

May 30, 2012 (revised June 19, 2012)

Respectfully submitted,

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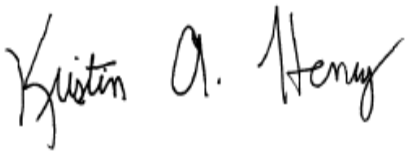

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STATEMENT OF COMPLIANCE WITH WORD LIMITATION

Pursuant to the Board's April 19, 2011 Order Governing Petitions for Review of Clean Air Act New Source Review Permits, I hereby certify that this Petition for Review, including all relevant portions but excluding the cover page, tables, and statement requesting oral argument, contains 13,981 words.

Dated: June 19, 2012

Ann Alexander

CERTIFICATE OF SERVICE

I hereby certify that on the 19th day of June, 2012, copies of the foregoing Petition for Review (revised June 19, 2012) were served by first class mail, postage prepaid to:

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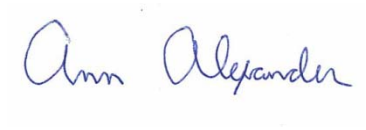

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