

April Rose Sommer
Attorney for Rob Simpson
P.O. Box 6937
Moraga, CA 94570
AprilSommerLaw@yahoo.com
phone (510) 423-0676
fax (510) 590-3999

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

In the Matter of:)
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Palmdale Hybrid Power Plant PSD Permit)

PETITION FOR REVIEW

INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), Rob Simpson (“Petitioner”) petitions for review of the conditions of Clean Air Act Prevention of Significant Deterioration Permit No. SJ 08-01 (“the Permit”), which was issued to Palmdale Hybrid Power Plant (“PHPP”) on October 18, 2011 by Deborah Jordan, Director, Air Division, Region IX, Environmental Protection Agency. The permit at issue in this proceeding authorizes the City of Palmdale to construct and operate the PHPP in Palmdale, California.

Petitioner contends that certain permit conditions are based on clearly erroneous findings of fact and conclusions of law. Specifically, petitioner challenges the following permit conditions:

- (1) Permit in its entirety
- (2) Permit conditions or lack of permit conditions relating to greenhouse gases emissions

FACTUAL AND STATUTORY BACKGROUND

The EPA received an application for a PSD permit for the Palmdale Hybrid Power Plant (“PHPP”) April 1, 2009. On August 11, 2011 the EPA issued a proposed permit and opened the comment period ending September 14, 2011.

On September 12, 2011, Petitioner requested an extension of the comment period, writing “We will be commenting on the above referenced project. There is a massive amount of information to review. Please extend the comment period by 30 days so that

we can submit more complete comments.” Attachment A. That same day, Director Jordon declined to extend the comment period. Attachment A.

The permit was issued October 18, 2011. On November 15, 2011 Petitioner requested that the Regional Administrator reopen the comment period pursuant to 40 C.F.R. § 124.14. Attachment B. Petitioner has not received an answer to this request.

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioner satisfies the threshold requirements for filing a petition for review under Part 124, to wit:

1. Petitioner has standing to petition for review of the permit decision because he participated in the public comment period on the permit. See 40 C.F.R. § 124.19(a). Petitioner’s comments are attached as Attachment D and can be found in the administrative record.
2. The following issues were raised by Petitioner during the public comment period and therefore were preserved for review.

Sufficiency of the BACT analysis
Failure to extend public comment period

3. The following issues were not reasonably ascertainable at time of comment as they arose out of the Response to Comments or became issues after the comment period had ended:

Changes in the BACT analysis
Failure to reopen public comment

ARGUMENT

I. THIS PERMIT WAS GRANTED IN VIOLATIONS OF NOTICE AND PUBLIC PARTICIPATION REGULATIONS

a. The public comment period was not adequate

The EPA has not articulated any reason why Petitioner's request for an extension of the comment period was denied. Petitioner requested extension on September 12, 2001 stating, "We will be commenting on the above referenced project. There is a massive amount of information to review. Please extend the comment period by 30 days so that we can submit more complete comments." Petitioner again requested an extension in his comment.

In the Response to Comments, EPA writes "We found no particular issue associated with the Project that warranted public review time beyond that established in the public notice and required by 40 CFR Part 124, nor did the commenter demonstrate a need for additional time per 40 CFR 124.13, and therefore the extension request was denied." This is addressed in the response to comments as follows:

Comment: In response to EPA's denial of his request for extension of the public comment period, the commenter stated that the application has been under review for several years, but EPA only posted the documents related to the Proposed Permit on August 12, 2011. The commenter stated that all of the posted documents equate to tens of thousands of pages of information and the EPA only intends to have an informational meeting on the last day of the public comment period. The commenter stated that previously, information was posted to the docket and accessible as it became available. The commenter stated that the present practice of withholding all information until the start of the public comment period, with the shortest public comment period that the law might allow, serves to preclude public participation.

Response: Please see Response 25. We are unaware of how the commenter determined that the documents associated with the Project equate to tens of thousands of pages of information. EPA reviewed the documents made available and estimated

the number of pages of all documents at around 1,000 pages.¹⁰ EPA does not believe that the relevant information was particularly voluminous in this case, nor were the key documents especially lengthy.

40 CFR 124.13 call upon “All persons, including applicants, who believe any condition of a draft permit is inappropriate” to “raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period.” When members of the public call upon the EPA to allow them sufficient time to do just this, such request should be granted so that meaningful public participation is not frustrated.

According to EPA staff, the air quality modeling files make up more than 1000 pages of the administrative record. “I estimate that printing those viewable as text files would easily be greater than 2,000 sheets (front and back), possibly close to 5,000 sheets. It's over 700 MB of data.” Email from Lisa Beckham to Rob Simpson, November 07, 2011 Appendix E. The EPA materials reference the CEC proceedings regarding a number of critical issues; the docket for this proceedings indicates over 13,000 pages of records.

30 days was not an adequate time period to comment on the proposed action in compliance with 124.13.

b. Petitioner’s request to reopen public comment period should have been granted

Petitioner requested November 15, 2011 that the Regional Administrator reopen the comment period pursuant to 40 C.F.R. § 124.14. Appendix XXX. Petitioner has not, as of the submission of this Petitioner, received any communication regarding this request.

Had the Regional Administrator reopened the comment period, it would have the likely effect, as called for in 40 C.F.R. § 124.14, to expedite the decisionmaking process.

Unfortunately, no response was received and so Petitioner brings the argument for a reopening of the comment period to the Board.

40 C.F.R. § 124.14(b) allows for the following:

If any data information or arguments submitted during the public comment period, including information or arguments required under § 124.13, appear to raise substantial new questions concerning a permit, the Regional Administrator may take one or more of the following actions:

- (1) Prepare a new draft permit, appropriately modified, under § 124.6 ;
- (2) Prepare a revised statement of basis under § 124.7, a fact sheet or revised fact sheet under § 124.8 and reopen the comment period under § 124.14; or
- (3) Reopen or extend the comment period under § 124.10 to give interested persons an opportunity to comment on the information or arguments submitted.

Both the 9th and District of Columbia Circuit Courts of Appeals call for the reopening of a comment period where an Agency's conclusion is not a "logical outgrowth" of the preceding notice and comment period.

Our conclusion does not imply any dissatisfaction with the rule that the Agency need not subject every incremental change in its conclusions after each round of notice and comment to further public scrutiny before final action. E. g., *International Harvester Co. v. Ruckelshaus*, 155 U.S.App.D.C. 411, 424, 478 F.2d 615, 632 n.51 (1973); *South Terminal Corp. v. EPA*, 504 F.2d 646, 659 (1st Cir. 1974). But in this case, the Agency's final conclusions are far from the "logical outgrowth" of the preceding notice and comment process, *Id.*, and instead are the result of a complex mix of controversial and uncommented upon data and calculations. Given the lengths that the Agency must travel to justify its revisions between the interim and final stages, we cannot be sure that further and ultimately convincing public criticism of those changes would not have been forthcoming had it been invited by the Agency. n27 See *Marathon Oil Co. v. EPA*, 564 F.2d 1253, 1271-72 n.54 (9th Cir. 1977)."
Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1031 (D.C. Cir. 1978).

In this case, data, information, and arguments submitted during the public comment period raised substantial new questions concerning the permit. This includes data submitted for the first time by the applicant as public comment and a complete reversal by the EPA on a number of critical issues. A complete reversal of opinion is not a logical outgrowth of the preceding notice and comment, particularly when this reversal was based on information not previously available to commenters. The public should have the opportunity to comment on the new information and on changes made in the response to comments. There are substantial new questions regarding the following:

1. BACT analysis – CO2 sequestration

Page 37 of the Response to Comments explains, “The commenter stated that the CO2 sequestration analysis that determined CCS to be technically infeasible for this project was actually an issue of cost and not technical feasibility.” In response, the EPA writes, “we are revising our BACT analysis to assume, for purposes of the analysis, that potential technical or logistical barriers would not make CCS technically infeasible for the PHPP. As a result, CCS would be the top-ranked control option, and we proceed to Step 4 of the top-down BACT analysis to consider CCS.”

Based upon the comments, the EPA has entirely reversed its position regarding the status of CO2 sequestration as a control technology and should reopen the comment period to allow for comment on this. Additionally, this ‘revision’ to the BACT analysis has not been conducted in accordance with the Clean Air Act and the public should have the opportunity to comment on an appropriately revised BACT analysis.

2. BACT analysis - solar

The EPA likewise reversed its position on the status of solar as a control technology. Again, this reversal of position is by no means a logical outgrowth of the

notice and comment period and is deficient. The public should be given the opportunity to comment on a full analysis of solar as BACT prepared in compliance with the CAA. The argument relating to solar as BACT is addressed in full below.

3. BACT analysis – Particulate Matter

On page 50 of the Response to Comments, the EPA announces, “After reviewing the information provided by the commenter we are revising the proposed BACT limits for PM, PM10, and PM2.5 (collectively referred to hereafter in this particular response as “PM”).”

This substantial change is based entirely upon information put on record for the first time by the applicant as comments on the draft permit. The public has not had an opportunity to review and comment on this new information or the EPA’s revision.

The public should be given the opportunity to comment on the permit in full including the above described issues and all other data, information, and arguments made in the comments and responses to comments that raised substantial new questions.

c. The public was denied the opportunity to comment on the actual permit conditions

The final permit conditions were drastically different from that presented to the public. The changes are so substantial that it cannot be said that the public was afforded the opportunity to comment on the permit. The permit must be remanded and public

comment reopened so that the process can benefit from the meaningful public participation afforded in the CAA.

1. PM-10 emissions

EPA's August 12, 2011 fact sheet estimated that the project's PM-10 emissions would be 62.5 tons per year. PHPP Fact Sheet, page 10. In the final permit issued after the close of the comment period EPA disclosed that PM-10 emissions would be 111.1 tons per year (PSD Permit October 18, 2011 Page 7) or a 77 % increase in PM-10 emissions for the project. Similarly the August 12, 2011 Fact Sheet claimed that PM 2.5 emissions would be 56 tons per year. PHPP Fact Sheet, page 10. After the close of the comment period and with the issuance of the final permit EPA now estimates that PM 2.5 emission will total 88 tons per year (PSD Permit October 18, 2011 Page 7) a 57% increase in annual emissions. The public was clearly misled as to the impacts of this project and the Board must remand the permit back to EPA to reissue the draft with the correct emissions so the public can effectively understand the projects impacts and comment on the permit.

The public was also led to believe by the Fact sheet that EPA is setting mass emission limits of 4.7 lb/hr without duct firing and 8.0 lb/hr with duct firing based on a 3-hr average for PM-10 which would be BACT for PM-10. (FACT SHEET AN AMBIENT AIR QUALITY IMPACT REPORT August 2011 Page 27)

The final permit allows a 8.6 lb/hr of PM-10 without duct firing and a 11.3 lb/hr of PM-10 with duct firing averaged over 9 hours. The final permit allows an 82% increase in PM-10 emission rate without duct firing and an averaging prior three times longer than

the original permit. The public has plainly been misled by the fact sheet which offers a brand new Cadillac but the final delivers a run down clunker.

The Fact Sheet issued for public comment states that the EPA was setting mass emission limits of 4.7 lb/hr without duct firing and 8.0 lb/hr with duct firing based on a 3-hr average for PM-10 which would be BACT for PM-10. PHPP Fact Sheet, page 27.

The final permit allows a 8.6 lb/hr of PM-10 without duct firing and a 11.3 lb/hr of PM-10 with duct firing averaged over 9 hours. BACT for large combined cycle turbines similar to the Palmdale Project is 7.5 pounds per hour or 0.0036 lb PM10/ PM2.5 per MM BTU of natural gas. See Russell City PSD Permit, page 10 available at

http://www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2010/15487/PSD%20Permit/B3161_nsr_15487_psd-permit_020410.ashx?la=en. This limit was

recently permitted for the Russell City Energy Center's PSD permit. The public was

mislead that the project would be employing BACT for particulate matter but the final

permit issued without an opportunity for public comment raised the PM-10 emission rate

by 82%. The Board must remand the permit back to Region 9 and allow the public an

opportunity to address this enormous increase in PM-10 emission rates and yearly limits.

The public was led to believe that the project was employing BACT for PM-10 but in fact

it was not as revealed in the final permit after the close of the comment period.

The Fact Sheet issued for public comment stated that EPA was setting mass emission limits of 4.7 lb/hr without duct firing and 8.0 lb/hr with duct firing based on a 3-hr

average for PM-10. The final permit allows a 8.6 lb/hr of PM-10 without duct firing and

a 11.3 lb/hr of PM-10 with duct firing averaged over 9 hours. This is a significant change

in the averaging time after the close of the comment period. Normally PM-10 emission rates are averaged over 1 hour such as the Russell City energy Center Permit which has a PM-10 emission rate limitation of 7.5 lb/hr averaged over one hour. The nine hour averaging period is a significant relaxation of the emission rate and is not protective of the health based standards for particulate matter.

2. BACT for Start-Up and Shut down emissions

In the original draft permit EPA provided hourly permit limits on NOx emissions for Cold Starts of 52.4 pounds per hour and CO emissions of 224 lbs per hour. For shut down events the draft permit restricted NOx emissions to 114 pounds per hour and 674 pounds of CO per hour. In the Final Permit issued after the close of the public comment period EPA removed the hourly limitation and increased cold start emissions to 96 pounds per event for NOx and 410 pounds per event for CO and eliminated the pound per hour limitation. The shut down emission limits were changed to 57 pounds per event for NOx and 337 pounds per event for CO. Warm Start Emissions in the draft permit were 30 lbs per lb hour for NOx and 247 pounds per hour for CO. The final permit changed the emission limits for warm start to 40 lb per event for NOx and 329 pounds per event for CO.

GE has provided vendor guarantees for its fast start technology for the Oakley Generating Station which utilizes the GE Frame 7FA with fast start technology the same class of turbine as the Palmdale Project. Attachment XXX

EPA's BACT determination for the Palmdale Project does not meet the current BACT for Start Up and Shutdown emission for this class of turbine. CO BACT for Cold Start Up is 360 pounds per event which is significantly less than the 410 pound per event BACT limit in the Palmdale permit. NO_x BACT for warm starts as guaranteed by GE is 22 pounds per event compared to the 40 pounds per event listed as BACT for the Palmdale Project. CO BACT for warm starts is 85 pounds per event which is 25% of the 320 pounds per event CO emissions limit declared as BACT for the Palmdale project . BACT for NO_x for shutdown events is 39 pounds per event 30% less than the BACT determination for the Palmdale Project of 57 pounds . The BAAQMD has utilized these vendor guarantees and determined these values as BACT for the GE Frame 7FA with rapid start technology for Start UP and Shut Downs.

<http://www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2011/20798/Oakley%20FDOC%20January%202011.ashx?la=en>) Accordingly the permit must be remanded so the EPA can require current BACT for the Palmdale Project.

3. GHG BACT heat rate

Petitioner informed EPA that the project must set its GHG BACT limit through permit limits on the heat rate for the Palmdale project as the proposed permit contained no heat rate limitation. EPA agreed and in response to petitioners comments EPA set a maximum heat rate of 7,319 Btu/kWh. The EAB should remand the permit to provide the public an opportunity to comment on the proposed heat rate limitation. EPA's

proposed heat rate limitation is higher than the maximum heat rate identified by the applicant of 6,970 Btu/kWh.

“The heat rate of 6,970 Btu/kWh is based on the higher heating value (HHV) of natural gas with two CTGs operating at 100% with no solar input and with no duct firing. A lower heat rate (and hence fewer emissions) would be realized for the scenario of full solar and no duct firing, and would depend on operating conditions (temperature, pressure, etc” Response to EPA Comments on PHPP GHG BACT Analysis July 15, 2011 Page 2)

The proposed heat rate of 7,319 Btu/kWh is higher than the achieved heat rates of comparable facilities identified by the applicant and the California Energy Commission. (CEC Final Staff Assessment Page 4.1-95 La Paloma Generating 7,172 Btu/kWh, Pastoria Energy Facility L.L.C. 7,025 Btu/kWh, Elk Hills Power, LLC 7,048 Btu/kWh, Sunrise Power 7,266 Btu/kWh)

Clearly a lower heat rate has been achieved in practice by comparable facilities without the advanced turbines and solar generating capabilities of the Palmdale Project. The permit must be remanded to allow the public to comment on the proposed heat rate limitation.

II. THE BACT ANALYSIS DOES NOT REFLECT CONSIDERATION OF ALL RELEVANT STATUTORY AND REGULATORY CRITERIA IN THE PSD PERMITTING PROGRAM.

The Best Available Control Technology (“BACT”) analysis does not reflect consideration of the requirements of the Clean Air Act. The Prevention of Significant Deterioration permit granted based upon the flawed BACT analysis should, therefore, be remanded so that the BACT analysis can be undertaken.

The Clean Air Act's (CAA or Act) Prevention of Significant Deterioration (PSD) program, 42 U.S.C. § 7477, bars construction of any major air pollutant emitting facility not equipped with "the best available control technology" (BACT). § 7475(a)(4). The Act defines BACT as:

An emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

CAA § 169(3), 42 U.S.C. § 7479(3); accord 40 C.F.R. § 52.21(b)(12) (similar regulatory definition).

No PSD permit may be issued unless the proposed facility is subject to the best available control technology for each pollutant emitted from the facility subject to the CAA. 42 U.S.C. § 7475(a)(4); see *Alaska Dep't of Env'tl. Conservation v. EPA*, 540 U.S. 461 (U.S. 2004)

EPA claims to have employed the EPA “recommended top-down methodology” to determine BACT for the PHPP. *Alaska Dep't of Env'tl. Conservation v. EPA*, 540 U.S. 461, 485 (U.S. 2004) citing EPA, New Source Review Workshop Manual B2 (Draft Oct. 1990). The Palmdale Hybrid Power Project Greenhouse Gas BACT Analysis (“Palmdale GHG BACT Analysis”) explains:

EPA guidance for a “top-down” BACT analysis requires reviewing the possible control options starting with the best control efficiency. In the course of the BACT analysis, one or more options may be eliminated from consideration because they are demonstrated to be technically infeasible or have unacceptable energy, economic, or environmental impacts on a case-by-case (site-specific) basis.

The steps required for a “top-down” BACT review are given below:

1. Identify available control technologies;
 2. Eliminate technically infeasible options;
 3. Rank remaining technologies;
 4. Evaluate remaining technologies (in terms of economic, energy, and environmental impacts);
- and
5. Select BACT (the most efficient technology that cannot be rejected for economic, energy, or environmental impact reasons).

Palmdale Hybrid Power Project Greenhouse Gas BACT Analysis, page 4

The Palmdale GHG BACT Analysis properly describes the top-down methodology laid out in the EPA, New Source Review Workshop Manual B2 (Draft Oct. 1990) (“NRS Manual”). “Although the top-down approach is not mandated by the Act, if [an agency] purports to follow this method, it should do so in a reasoned and justified manner.” *Alaska v. United States EPA*, 298 F.3d 814, 822 (9th Cir. Wash. 2002). This Board has expressed this requirement slightly differently:

As a general matter, the Board will not fault a BACT analysis simply for deviating from the NSR Manual’s five-step structure. We will, however, carefully examine each analysis to ensure a defensible BACT determination that reflects

consideration of all relevant statutory and regulatory criteria in the PSD permitting program. See, e.g., *In re ConocoPhillips Co.*, PSD Appeal No. 07-02, slip op. at 28-36 (EAB June 2, 2008), 13 E.A.D. ___ (remanding BACT determination for petroleum refinery flare CO emissions due to lack of adequate analysis establishing that permit issuer considered all relevant statutory and regulatory criteria); *Knauf*, 8 E.A.D. at 134-44 (remanding BACT analysis conducted for fiberglass plant's emissions of PM10 because explanations of competing control options and other technical matters were insufficiently detailed to demonstrate compliance with PSD program requirements." *In re Northern Mich. Univ.*, PSD Appeal No. 08-02, slip op. at n9 (EAB Feb. 18, 2009).

Having thus opted to use the top-down methodology in analyzing BACT, the EPA's analysis must comport with its own guidelines in employing this methodology. This has not happened resulting in an "internally inconsistent and unreasonable BACT determination" undermining the permit conditions based upon these conclusions. See *Alaska v. United States EPA*, 298 F.3d at 823. The permit should therefore be remanded so that a BACT analysis can be conducted in compliance with the CAA.

The PHPP BACT analysis falls down every step of the way. The analysis failed to identify available control technologies, identified control technologies but then did not analyze the technology based on a faulty change of business purpose and technically infeasible arguments, did not thoroughly evaluate the identified control technologies, did not properly rank technologies, and wrongly rejected more efficient technologies. In the response to comment, the EPA acknowledges some of its errors in dismissing control technologies, but does not remedy the faulty analysis.

a. The GHG BACT Analysis Failed to Identify All Available Control Technologies;

The foundation for any BACT analysis is the initial identification of appropriate technologies – if all technologies have not been identified, the analysis is flawed from the ‘get-go.’ “If reviewing authorities let slip their rigorous look at “all” appropriate technologies, if the target ever eases from the “maximum degree of reduction” available to something less or more convenient, the result may be somewhat protective, may be superior to some pollution control elsewhere, but it will not be BACT.” *In re Northern Mich. Univ.*, PSD Appeal No. 08-02, slip op. at 19 (EAB Feb. 18, 2009).

The EPA did not identify all appropriate technologies. Upon being alerted to this fact, the EPA simply outright denied this to be true. The Response to Comments reads: “[Mr. Simpson] stated that EPA did not appear to identify all GHG control technologies. The commenter concluded that EPA, DOE, and CEC and others appear to indicate that there are other GHG control technologies . . . The commenter has not specifically identified which technologies EPA did not consider.” Response to Comments, page 40.

Petitioner’s comments clearly identified control technologies not identified: “Carbon sequestration in algae ponds is a feasible technology to capture GHG emission form the proposed Palmdale Project and should be included in the BACT evaluation for GHG emissions.”

At the same time, the EPA acknowledges that “The commenter questioned whether algae ponds . . . could be used as GHG control technologies” but dismissed this control technology as somehow not qualifying as a control technology: “EPA regulations do not require pollutant mitigation or offset practices to be control technologies that must be considered in the PSD permitting process. Applicants are only required to evaluate

inherently lower-emitting technologies (that result in reductions from equipment at the facility) and add-on control technologies. While the identified practices can be a part of the overall climate change plan, they are not applicable to this PSD permitting process.”
Response to Comments, page 39.

b. The GHG BACT Analysis Failed to Analyze Solar as a Control Technology

EPA first dismissed solar as a control technology, then admitted in the Response to Comments that it was in fact a control technology, but then conducted no BACT analysis of the technology, effectively failing to identify it as a control technology necessitating analysis. As the cleanest of fuels, the use of sun is certainly a control technology that needs to be analyzed and this permit should be remanded for a full analysis of the use of solar as BACT for the PHPP. This Board has been resounding clear on the upmost importance of clean fuels in BACT analyses:

Congressional direction to permitting applicants and public officials is emphatic. In making BACT determinations, they are to give prominent consideration to fuels. Board cases frequently underscore this charge. See, e.g., *In re Prairie State Generating Co.*, PSD Appeal No. 05-05, slip op. at 19-37 (EAB Aug. 24, 2006), 13 E.A.D. ____, aff'd sub nom. *Sierra Club v. EPA*, 499 F.3d 653 (7th Cir. 2007); *In re Hillman Power Co.*, 10 E.A.D. 673, 677-79, 688-92 (EAB 2002); *In re Maui Elec. Co.*, 8 E.A.D. 1, 7-16 (EAB 1998); *In re Inter-Power of N.Y., Inc.*, 5 E.A.D. 130, 134 (EAB 1994); *In re Old Dominion Elec. Coop.*, 3 E.A.D. 779, 793-94 (Adm'r 1992) . . .
In re Northern Mich. Univ., PSD Appeal No. 08-02, slip op. at 17-18 (EAB Feb. 18, 2009).

[T]he CAA promotes “clean fuels” with particular vigor. See CAA § 169(3), 42 U.S.C. § 7479(3). Merely equating use of lower polluting fuels to impermissible redesign in the hope of paving an automatic BACT off-ramp pointedly frustrates congressional will. The United States Court of Appeals for the Seventh Circuit is notably dismissive of such strategies. Clean fuels may not be “read out” of the Act

merely because their use requires “some adjustment” to the proposed technology. *Sierra Club v. EPA*, 499 F.3d 653, 656 (7th Cir. 2007).

Id. at 27.

In this case, the EPA called upon the excuse of impermissible redesign to pave an automatic BACT off-ramp for solar. The Palmdale GHG BACT Analysis states that solar “was not considered as part of the BACT analysis” because it would change the business purpose of the Project:

The modification of the project to include alternative lower GHG-emitting technology, or an increase in the amount of solar thermal generation beyond 50 MW would fundamentally alter the business purpose of the Project. However, as stated by EPA (EPA 2010b, pg. 27), a BACT analysis is not generally used to redefine the applicant’s project.

While Step 1 [of a BACT Analysis] is intended to capture a broad array of potential options for pollution control, this step of the process is not without limits. EPA has recognized that a Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant. BACT should generally not be applied to regulate the applicant’s purpose or objective for the proposed facility. Consequently, no additional lower emitting alternative technologies are feasible to incorporate into the project without fundamentally changing the business purpose of the Project.

Palmdale GHG BACT Analysis, page 14.

As discussed previously, any of the commercially available low GHG-emitting technologies that could be implemented, including additional solar thermal generating capacity, were determined to be infeasible for this site (CEC 2010a) and would fundamentally alter the business purpose of the emission source. As such, lower emitting alternative technology was not considered as part of the BACT analysis (EPA 2010b, pg. 27).

Id. at 19.

In the Response to Comment, the EPA backtracks on the earlier attempt to manufacture redesign:

Upon review of this comment, we find it appropriate to clearly state that the solar component is a lower-emitting GHG technology at this facility . . . As an integrated part of the Project with the ability to reduce GHG emissions, we

consider the solar component to be part of the GHG BACT determination for the combustion turbines and associated heat recovery system. . .

Therefore, requiring the applicant to utilize, and thus construct, the solar component as a requirement of BACT did not fundamentally redefine the source. Response to Comments, page 40.

While acknowledgment of solar as a control technology is a step in the right direction, the following inquiry falls far short of meeting the CAA standards for BACT analysis. The sum total of the BACT analysis for solar is: “The applicant is proposing to use 251 acres of a 331-acre lot for solar generation. An-all solar facility would not be feasible because of the space constraints of the 331-acre lot and because solar energy is not available at all times to meet baseload demands. Given the scope of the Project, it is not necessary for the applicant to determine an optimal ratio of solar to natural gas.”

Response to Comments, page 40.

This ‘analysis’ is factually incorrect and entirely deficient . There is no analysis of the nature of the control technology including the type of solar to be utilized and associated benefits and drawbacks (e.g. thermal vs. photovoltaic), the manner in which the solar will be used (e.g. only in conjunction with a power plant or stand-alone), the potential environmental effects (e.g. GHG emissions from vehicles used to service the solar field, nitrogen emissions from thermal solar, etc.), control efficiency, cost, etc. In other words, the EPA has skipped all BACT analysis steps for solar as a control technology.

The “space constraints” identified by the EPA as a basis for rejection of consideration of different project configurations is without basis. The EPA assumes that the only options are the planned 251 acres solar field or “an-all solar facility” on a “331-acre lot.” This implies that only 331 acres is available for solar where there may actually be almost twice as much land available for the project. The CEC project description states:

The Palmdale Hybrid Power Project (PHPP) would be located on a 333-acre site that is currently vacant and undeveloped, and is part of a 613.4-acre property owned by the city of Palmdale. In February 2009, the city approved a general plan amendment, zone change, and tentative parcel map for the entire 613.4-acre city-owned property, including the 333-acre PHPP site. As a result, according to Resolution PC-2009-008, the entire city-owned site is intended for the PHPP and for other future industrial uses. Part of the resolution and ordinance state that the proposed discretionary actions are in the public’s best interests as they would result in the development of the PHPP and the generation of electricity through the use of both natural gas and solar power.

The record does not show that there is any approved plan for the remaining acres on the 613.4 acre lot or that solar energy collection would interfere with any other proposed use. Even if the artificially created space constraint exists, the EPA did not consider the difference between the 251 acre solar facility and one that matched the purported 331 acre lot. For example, facility rooftops, drainage areas and roadways could be shaded by solar panels. The project proponent should not be allowed narrow a project description to creates space constraints, where none exist, to effect evasion of consideration of control technologies.

The description of the solar component is vague and overbroad and highlights the need for a full BACT analysis of solar. The Permit describes the solar components as “Integrated (through the HRSG and STG) with a 251-acre solar-thermal plant (STP)

consisting of parabolic solar-thermal collectors and associated heat-transfer equipment designed to contribute up to 50 MW of generation from the STG.”

First, it is difficult, if not impossible, to analyze a project where the description is so vague. It is unclear what “contribute up to 50 MW of generation” means. Up to 50 includes any amount less than or equal to 50. This leaves open the possibility that the project could be built, at the peril of 251 acres of endangered species habitat, to generate only nominal MW and still comply with the PSD permit. Even if the PHPP generates the maximum 50 MW on 251 acres, there is not evidence that this is the best achievable control technology. 50MW over 251 acres requires 5.02 acre to produce 1 MW. The CEC Final Staff Assessment indicates that it is possible to generate 1 MW per 4 acres of land. This represents a staggering difference in efficiency that has not been considered in any way by the EPA.

The EPA’s contention that “solar energy is not available at all times to meet baseload demands” is strange and not based in fact. Storage of energy produced by solar is commonly known to be commercially available and EPA offers no evidence to the contrary. For example, the CEC Integrated Energy Policy Report discusses energy storage for renewable sources of energy, including solar, at length:

Examples of energy storage technologies commercially available and under development include advanced technology batteries, flywheels, compressed air energy storage, pumped hydroelectric energy storage, capacitors, and others. These technologies can provide value at each level in California’s electric grid – generation, transmission and distribution, and end use – with storage technologies varying in type and size depending on the level of service needed. . . The use of energy storage technologies can also reduce the number and amount of natural gasfired power plants that would otherwise be needed to provide the firming

characteristics the system needs to operate reliably. Energy storage systems can respond rapidly to the needs of the electric grid, and Energy Commission research indicates that smaller amounts of energy storage can smoothly and effectively integrate renewable energy when compared to the amount of natural gas-fired power plants required to meet the same response times. California should seize this opportunity and encourage developers to install energy storage to support commercial scale solar and wind farms and reduce the need for new natural gas-fired plants as an energy-firming source.

California Energy Commission, Integrated Energy Policy Report 2009, pages 193-194.

c. The GHG BACT Analysis Failed to Properly Rank the Control Technologies

The NSR Manual is clear in the how step 3, ranking the remaining technologies, should be conducted:

In step 3, all remaining control alternatives not eliminated in step 2 are ranked and then listed in order of overall control effectiveness for the pollutant under review, with the most effective control alternative at the top. A list should be prepared for each pollutant and for each emissions unit (or grouping of similar units) subject to a BACT analysis. The list should present the array of control technology alternatives and should include the following types of information:

- ! control efficiencies (percent pollutant removed);
- ! expected emission rate (tons per year, pounds per hour);
- ! expected emissions reduction (tons per year);
- ! economic impacts (cost effectiveness);
- ! environmental impacts (includes any significant or unusual other media impacts (e.g., water or solid waste), and, at a minimum, the impact of each control alternative on emissions of toxic or hazardous air contaminants);
- ! energy impacts.

NSR Manual, pages B7-8.

This information cannot be found in the Palmdale GHG BACT or in Response to Comments. There can be no valid comparisons of control technologies without data on which to base comparison. The paltry effort at comparison is, therefore, not in keeping with the requirements of the CAA and this permit should be remanded so that BACT analysis can be properly undertaken.

d. The GHG BACT Analysis Improperly Dismissed Control Technologies as Economically Infeasible

As explained above, in its Response to Comments the EPA reversed its position on the technical feasibility of Carbon Capture and Sequestration (“CCS” or “carbon sequestration”). Having determined that CCS is feasible, the EPA purports to have provided a BACT analysis for CCS in the Response to Comments:

However, given that there is limited data in EPA’s record concerning potential logistical barriers relating to the building of CO₂ pipelines for the PHPP or other technical or logistical barriers to implementing CCS for the Project, we are revising our BACT analysis to assume, for purposes of the analysis, that potential technical or logistical barriers would not make CCS technically infeasible for the PHPP. As a result, CCS would be the topranked control option, and we proceed to Step 4 of the top-down BACT analysis to consider CCS. Our analysis assumes that 90% of CO₂ emissions would be captured.

GHG BACT Analysis – Step 4 - CCS Cost Analysis

As provided in the CEC’s PMPD, the estimated capital costs for the PHPP are \$615-\$715 million dollars. For comparison purposes, if these capital costs were annualized (over 20 years) they are about \$35 million. In comparison, the estimated annual cost for CCS is about \$78 million, or more than twice the value of the facility’s annual capital costs.

Estimated Annual Cost for CCS¹⁴	
	\$/year
CO ₂ Capture and Compression	\$75,944,187.00
CO ₂ Transport	\$1,566,747.00
CO ₂ Capture Storage	\$878,067.00
Total Annual Cost	\$78,389,001.00

Accordingly, based on these costs, CCS is being eliminated as a control option because it is economically infeasible. BACT for this project remains the thermal efficiency associated with a natural gas-fired combined cycle power plant.

[Footnote] 14 The cost were estimated by using EPA's GHG Mitigation Strategies Database and The Report of the Interagency Task Force on Carbon Capture and Storage (August 2010). This information is available at <http://ghg.ie.unc.edu:8080/GHGMDB/> and <http://www.epa.gov/climatechange/downloads/CCS-Task-Force-Report-2010.pdf>, respectively. In each case, the lowest cost between the two sets of information was used for this analysis."

Response to Comments, page 38.

In the absence of the Step 3 data demonstrating the value of control measures, the EPA impermissibly compared the overall price for CCS to the price for the facility. A comparison of the purported cost of control to the purported cost of the facility does not fulfill BACT analysis requirements – the proper measure is dollars per tons of pollutant emissions removed/reduced.

"The permit issuer evaluates the economic impacts by estimating the average and incremental cost-effectiveness of the control technologies, measured in dollars per tons of pollutant emissions removed. *Steel Dynamics*, 9 E.A.D. at 202. The purpose of step 4 is to either validate the suitability of the top control option identified or provide a clear justification as to why that option should not be selected as BACT. NSR Manual at B.26; see also *Prairie State*, 13 E.A.D. at 38-51 (considering the application of step 4); *Three Mountain Power*, 10 E.A.D. at 42 n.3 (evaluating environmental impacts); *Steel Dynamics*, 9 E.A.D. at 202-07, 212-13 (remanding permit because of incomplete cost-effectiveness analysis under step 4)." *In re Mississippi Lime Co.*, PSD Appeal No. 11-01, slip op. at 12 (EAB August 9, 2011); see also EPA, The PSD and Title V Permitting

Guidance for Greenhouse Gases (“The economic impacts component of the analysis should focus on direct economic impacts calculated in terms of cost effectiveness (dollars per ton of pollutant emission reduced).”)

Even had the dollar per ton of pollutant emissions costs been provided, the EPA’s analysis is fatally flawed as the estimated cost of CCS appear to have been grossly inflated. The Response to Comments indicates that the cost was estimated as the lowest cost found in the EPA’s GHG Mitigation Strategies Database and The Report of the Interagency Task Force on Carbon Capture and Storage (August 2010).

The Report states: “DOE analyses indicate that for a new 550 MWe net output power plant, addition of currently available pre-combustion CO₂ capture and compression technology increases the capital cost of an IGCC power plant by approximately \$400 million (~25 percent) compared with the non-capture counterpart.” The Report of the Interagency Task Force on Carbon Capture and Storage, page 33. The report continues to explain that this cost may actually be even less due to offsets from additional revenues from oil production. “CO₂-EOR provides two potential economic incentives for encouraging the deployment of CCS, 1) CO₂ sales revenues at the individual project level, and 2) an increase in the total amount of domestic crude oil production. At the present time, an important limiting factor in new CO₂-EOR projects is a shortage of CO₂.” *Id.*

PHPP is planned as a 570 MW plant with 50 MW supplied by the solar. As a 520MW plant, 5% smaller than that analyzed by the DOE, the cost for CCS would be an estimated \$380 million.

Not accounting for cost offsets, \$380 million annualized over 20 years is \$19 million a year. This is far afield from the EPA's estimate of \$75,944,187.00 a year! The 'analysis' further ignored the potentials to pay for the technology through ancillary sources as described in the California Energy Commission, Integrated Energy Policy Report 2009, page 109.

The U.S. Department of Energy (DOE) recently solicited proposals for large-scale industrial CC S projects at facilities fueled chiefly by noncoal energy; it is poised to award more than \$1.3 billion in project cofunding authorized by the ARA of 2009. Further, DOE has added funds to its cooperative agreement with the Energy commission for the West Coast Regional Carbon Sequestration Partnership (WESTCAR B; a public-private research collaborative involving more than 80 organizations) to work with PG&E to conduct an engineering-economic evaluation of CC S at natural gas combined cycle plants in California. WESTCAR B also continues to work with the California Geological Survey and industry partners to characterize California deep saline formations suitable for commercial-scale CO₂ storage; two CO₂ storage field tests in the Central Valley are planned. Although the cost of applying CCS to natural gas power plants or oil refinery furnaces is relatively high using proven technologies (about \$75 per metric ton of CO₂ avoided), the prospect of energy-saving technology improvements and the sale of captured CO₂ to oilfield operators for oil recovery has increased likelihood that CCS can be economically competitive and, as a consequence, the interest of state agencies working on AB 32 compliance.”

The EPA has failed to prove CCS economically infeasible and the permit should be remanded so that the BACT analysis can be properly undertaken. "Because [the PSD permit granting agency's] report shows that (1) [applicant] failed to meet its burden of demonstrating that [the control technology] was economically infeasible; and (2) [the agency] failed to provide a reasoned justification for its elimination of [the control

technology] as a control option, the EPA did not act arbitrarily and capriciously in concluding that [the agency] abused its discretion by making an internally inconsistent and unreasonable BACT determination." *Alaska v. United States EPA*, 298 F.3d at 823.

III. THE EPA FAILED TO CONSIDER THE NEED FOR THE FACILITY

The EPA has not considered a no-build alternative in the context of need for this facility. "The statutory text's plain meaning does not lend itself to excluding public comments that request consideration of the "no build" alternative to address air quality concerns. Moreover, the Board's and Administrator's prior decisions would appear to recognize that consideration of "need" is an appropriate topic under section 165(a)(2). See *In re EcoEléctrica, LP*, 7 E.A.D. 56, 74 (EAB 1997) (recognizing that question of need for the proposed facility may be raised in a PSD permitting appeal, but declining to grant review on the grounds that it was not clear error for the permit issuer to defer to the state agency tasked with the responsibility to consider need for the facility); *In re Kentucky Utils. Co.*, PSD Appeal No. 82-5, at 2 (Adm'r 1982) (same)." *In re Prairie State Generating Company*, 13 E.A.D. 1, 32 (EAB 2006).

In this case, it was clear error for the EPA to defer to the state agencies, the CEC and PUC, as these agencies have no jurisdiction to make this determination for this facility. The Response to Comments states:

However, we have also observed that it is appropriate to refrain from analyzing whether a proposed facility is needed where the State has tasked another State agency with the authority to consider that issue. . .

Various mechanisms are in place within the State of California that provide a structure for considering the need for new natural gas-fired power plants in the context of the State's renewable energy requirements and policies. These mechanisms include, among other things, a regular integrated assessment by the CEC of major energy trends and issues facing the State's electricity and natural gas sectors, and the California Public Utilities Commission's oversight of the very detailed planning processes and the procurement activities of investor-owned utilities within the State.

We also note generally that the CEC has indicated relatively recently that there continues to be a need for natural gas-fired power plants in California in the context of increasing reliance on renewable generation.

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The PUC has not reviewed the project and, because the developer is not an "investor owned utility," California law does not requires PUC review. There is no evidence that the PUC will ever conduct any review of PHPP.

The CEC never makes determinations of need as it is statutorily prohibited from doing so. The CEC Decision on the PHPP states" "Staff's expert testified that they do not analyze need . . . Senate Bill No. 110, which became Chapter 581, Statutes of 1999 repealed Public Resources Code sections 25523(f) and 25524(a) and amended other provisions relating to the assessment of need for new resources. SB 110 removed the requirement that, to certify a proposed facility, the Commission must make a specific finding that the proposed facility is in conformance with the adopted integrated assessment of need." CEC PHPP Decision.

The EPA recognized the "integrated assessment of need," the California Energy Commission, Integrated Energy Policy Report 2009 in its response but then relied on another document to demonstrate a "need" for the facility. The EPA quotes the CEC

Committee Guidance on Fulfilling CEQA Responsibilities at 224 (March 2009), in support of the contention that “the CEC has indicated relatively recently that there continues to be a need for natural gas-fired power plants in California.” In fact, this document states “The views and recommendations contained in this document are not official policy of the Energy Commission but express the recommendations of the Siting Committee.”

The Integrated Energy Policy Report, the official policy document of the CEC on the issue, states “Once CHP targets and OTC replacements were made, only a few new natural gas plants had to be added to meet local capacity and energy needs. Those were in the Sacramento Municipal Utility District, Turlock Irrigation District, and Imperial Valley control areas, which have no OTC and limited numbers of large host industrial.” California Energy Commission, Integrated Energy Policy Report 2009, page 191.

The Report further states; “the possibility of overgeneration, a condition when more generation is provided than there is available load, will require additional analysis. In the June 29, 2009, IEPR Committee workshop on renewable integrating issues, [Southern California Edison, Palmdale area utility] reported that a Nexant study suggests a possible overgeneration problem in April and May as the state moves to 2020.” *Id.* at 193.

The Response states; “a rigorous and robust analysis would be time-consuming and burdensome for the permit issuer....In California, in order to conduct a reasoned analysis to determine the need for new natural gas-fired power plants in general, or a specific natural gas-fired power plant in particular, either within the State as a whole, or

in a particular geographic location within the State, EPA would need to consider a myriad of extremely complex factors and detailed information that EPA has neither the resources nor the expertise to analyze. Therefore, EPA does not believe that it is appropriate to conduct the type of rigorous and robust analysis that would be required to definitively determine the need for the Project. We note that even if EPA did have the expertise and resources to conduct such an analysis, the level of analysis and information submitted by the commenter does not consider all of the relevant factors or provide the type of detailed information necessary for such an analysis.” Response to Comment, page 36.

EPA’s concern’s that such an analysis would be too “time-consuming,” are easily dismissed. The EPA need only review the The Integrated Energy Policy Report and review California geography. Since the project is not near Sacramento, Turlock, or Imperial Valley, it is not needed. It was clear error for the permit issuer to issue the permit and shirk its responsibility to consider the no build alternative by deferring analysis to state agencies that are statutorily prohibited from considering the need for the project, have expressed a lack of need in the area, or have not opined on the project at all.

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By: 
April Rose Sommer

Attorney for Rob Simpson