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

In re:	)	
Pio Pico Energy Center	)	Appeal Nos. PSD 12-04, 12-05 and 12-06
PSD Permit No. SD 11-01	)	

PETITIONER SIERRA CLUB'S [PROPOSED] REPLY

David C. Bender
MCGILLIVRAY WESTERBERG & BENDER LLC
211 S. Paterson Street, Ste 320
Madison, WI 53703
608.310.3560
608.310.3561 (fax)

SIERRA CLUB
Joanne Spalding
Travis Ritchie
85 Second Street
San Francisco, CA 94105
Phone: (415) 977-5725
Fax: (415) 977-5793
joanne.spalding@sierraclub.org
travis.ritchie@sierraclub.org

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Statutes

Federal Regulations

Federal Register

Petitioner, Sierra Club, submits this reply to the response filed by Region 9. In the interests of brevity, Sierra Club addresses only some of the Region's arguments in this reply, and continues to stand on its original petition on all issues.

I. CONTRACT TERMS SPECIFIC TO A PARTICULAR TURBINE DESIGN CANNOT NEGATE THE BACT DEFINITION'S REQUIREMENT TO CONSIDER CLEANER PROCESSES THAT CAN FULFILL THE UTILITY'S PURPOSE.

The Region wrongly insists that its BACT analysis cannot look beyond the narrow contract parameters in the Power Purchase Agreement (PPA) between SDG&E and the Applicant. (Region Resp. at 14.) This troubling interpretation raises an important policy question: can an applicant avoid BACT requirements by carefully crafting a contract to define a project's purpose that effectively predetermines the infeasibility of all other alternatives? If the Board accepts the Region's position, applicants could and almost certainly would use that precedent to contract around BACT limits that are achievable with other feasible alternatives. (*See* SC Pet.at 16-17.)

The fundamental flaw in the Region's analysis is that it conflates the terms of the PPA between the applicant and the utility with the utility's Request for Offers (RFO). The PPA was based on the specific technology the applicant identified in its bid, whereas the underlying requirements of the RFO were broader and could have accommodated various technologies. (Region Resp. at 13-14, fn.8.) The applicant's bid specified three GE LMS 100 combustion turbine machines, and the resulting PPA contains terms reflecting that technology choice. However, those terms effectively preclude cleaner production processes that were available and that would satisfy the terms of the RFO.

The Region erroneously claims that it excluded combined cycle gas turbines ("CCGT") from the BACT analysis because the project purpose and simple cycle design parameters "are necessary in order to meet the specific objectives of the 2009 Request for Offers (RFO)…" (Region Resp. at 13.) The RFO, however, does <u>not</u> require the simple cycle design parameters on which the Region relied. Rather, the operating details that the Region cited are part of the PPA, and the PPA is based on the applicant's bid that specified three GE LMS 100 turbines. By conflating the RFO and the PPA, the Region repeatedly misrepresents the specific objectives of the RFO as requiring the Project to meet all of the following:

- come online quickly, even under cold-start conditions;
- be highly flexible;

- provide regulation during the morning and evening ramps; and,
- be repeatedly started and shut down as needed.

(Region Resp. at 15, 17, 19 and 21.) In fact, the RFO does not require all of these narrow parameters. Rather, the pertinent requirements of the RFO are as follows:

> SDG&E seeks a minimum of 100 MW of peaking **or** intermediate-class resources as new construction or expansion projects within SDG&E's territory…The generation must be located physically within SDG&E's service territory…Products offered in this category shall be capable of operating under all permits at annual capacity factors of a minimum of 30% with an availability of -98%. It is anticipated that heat rates will be no higher than 10,500 btu/kWh. For this product, SDG&E requires flexible resources that are capable of providing regulation during the morning and evening ramps **and/or** units that can be started and shut down as needed. In addition, SDG&E will include the additional value provided from projects that can provide quick start operations in the ranking of Offers. SDG&E also requires that each Offer contain pricing for, and an option to provide, black start capability.

(A.R. I.56, Letter from Sierra Research (S. Hill) to EPA (G. Rios) on GHG BACT with attachments, Attachment 1 at 2 (emphasis added).)[1] Extracting the mandatory requirements from the RFO yields the following:

- Physically located in SDG&E service territory;
- Capable of operating at a minimum of 30% capacity factor with an availability of -98%;
- Capable of providing regulation during the morning and evening ramps **and/or** units that can be started and shut down as needed; and
- Black start capability.

The RFO's list of requirements is quite different from the narrow requirements cited by the Region. Indeed, all of the purported requirements related to fast ramp rates – which were also the basis for the Region rejecting CCGTs – appear to be derived from the single RFO requirement that the resource "provid[e] regulation during the morning and evening ramps" **and/or** be "started and shut down as needed." The Region therefore should have reviewed the project purpose based on the need to meet one or the other or both of these two requirements. Instead, the Region determined that the project purpose would be met only if very specific simple cycle ramping capabilities were achievable. It was the Applicant, however, who defined

[1] Sierra Club notes that the RFO was not part of the electronic docket in this proceeding and was only included in the record under the description "Letter from Sierra Research (S. Hill) to EPA (G. Rios) on GHG BACT with attachments."

the project more narrowly than the RFO as requiring a 30 minute ramp rate and 500 cold startups per year. This definition presumed that the project must achieve both (1) regulation during morning and evening ramps and (2) be capable of a high number of short-duration cold startups. As Sierra Club's Petition states, an applicant's desire to operate a source in a certain way does not shield the applicant's specific design preferences from the effects of a BACT determination. (SC Pet. at 17.) In this case, the applicant effectively trumped Congress' requirement in 42 U.S.C. § 7479(3) to base BACT on cleaner production processes. Instead, the Region should have analyzed other available control technologies that could fulfill the electricity generation needs as defined by the utility's RFO.

The Region thus assumed that the project would have the characteristics of a peaking unit operating few hours with many startups in order to reject combined cycle designs that are cleaner when operated as intermediate and load shaping plants. At the same time, it assumed that the project would run as an intermediate unit, operating as much as 4,335 hours per year at full load, when setting other requirements. (SC Pet. at 6.)[2, 3] These conflicting bases resulted is a doubly-weak permit that presumes the high emission rates (in pounds of GHG per unit of energy) of a typical peaking unit while at the same time allowing the high number of operating hours and energy output commensurate with an intermediate unit.

The Region's interpretations of "project purpose" and technical feasibility in this case have significant ramifications for future BACT determinations.[4] Allowing the specific terms from an applicant's contract with a third party to define its "project purpose" and the "source under consideration" invites applicants to contract around Congress' definition of BACT. This is

[2] The Region justifies its rejection of combined cycle plants based on the cold start and 30 minute ramp capabilities of simple cycle units that have low capacity factors and a high number of startups. Simple cycle turbines are generally used infrequently (peaking units typically run less than 2,500 hours annually). *Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units*, 77 Fed. Reg. 22432, (April 13, 2012) ("peaking season is generally considered to be less than 2,500 hours annually."). While the higher emission rate of a simple cycle unit might be justified for plants that operate infrequently, the permit in this case would allow the plant to run over 73% more than the maximum hours that a typical peaking unit operates.

[3] The Intervenor, PPEC, argues that the Region determined that a combined cycle plant is not more efficient than its proposed simple cycle turbine. (PPEC Br. at 8-9, 13.) The comparison PPEC alludes to assumed repeated startups and shutdowns and short operation periods. (*Id.*) So, here too, the Region's conflicting assumptions about the way that the plant will operate—whether true peaking with low capacity factor or a load following plant that may operate more than 4000 hours per year at full rated capacity—affects the outcome of the comparison.

[4] In fact, the Region argues that its interpretation can apply to every step of the BACT process. (Region Resp. at 18.)

especially true when the specific terms were not necessary to meet the third party customer's demands. Contract terms can include price, efficiency, operating parameters, reagent usage rates, and waste characteristics. Such terms could easily preclude the use of one or more pollution controls, fuels, or cleaner production processes. For example, a maximum contract price can preclude many pollution controls. A specified back pressure for a combustion turbine in a contract could easily preclude use of a selective catalytic reduction (SCR) pollution control. Pollution controls costs money and affect operating parameters. The lowest bidder, and therefore the contract recipient, would likely be the one who proposes a contract with the lowest level of pollution control. The Region's interpretation would invite this circumvention of BACT.

II. THE REGION'S RESPONSE CONFIRMS THAT THERE IS NO RECORD EVIDENCE TO SUPPORT THE "MARGIN" IT USED TO CALCULATE THE GHG BACT LIMIT.

Sierra Club's petition noted that the Region's final Greenhouse Gas (GHG) BACT limit was calculated to include three margins that weakened the limit: 1.4% to account for the effect of ambient conditions on emission rates; 3% based on purported efficiency difference between a plant as-designed and the plant as-built; and then another 3% for the purported decrease in efficiency over time. (S.C. Pet. at 21.)[5] The Region's response points to Exhibit D at PSD-3.18, Table 3.5-2 as the basis for the first assumed margin of 1.4% difference between heat rate at ISO conditions and heat rate at ambient conditions. (Region Resp. at 25.) The table the Region relies on includes four different heat rates for Winter, Spring/Fall, Summer, and Peak ranging from 7,856 Btu/kWh to 7,964 Btu/kWh. (Exhibit D at PSD-3.18, Table 3.5-2.) However, that document provides no support for the conclusion inherent in the final BACT limit that even at

[5] The Region argues that Sierra Club should not question the permit limits because, while the final permit includes different limits based on different calculations than the draft, some margins used in the calculations were based on "the same premise." (EPA Br. at 25.) The Region does not argue, however, that Sierra Club failed to preserve this issue. Nor could it, since 40 C.F.R. § 124.13 preserves for review issues that arose because of the Region's decision to completely overhaul its BACT determination for GHGs in the final permit. The Region increased the BACT limit 12.5% from the draft to the final, based on an assumption that the heat rate during all hours would be 11,358 Btu/kWh instead of the 9,196 Btu/kWh in the draft permit (and it did so even though the RFO "anticipated that heat rates will be no higher than 10,500 btu/kWh" (A.R. I.56, Letter from Sierra Research (S. Hill) to EPA (G. Rios) on GHG BACT with attachments, Attachment 1 at 2)). Even if the draft permit's assumed heat rate and limit included some margins based on "the same premise" as margins in the final permit, they are different margins that represent different assumptions. In the draft permit, they represented divergence from the best-case, vendor information about heat rate at maximum capacity, while in the final permit, the margins assume that there is a 3% difference in the worst-case heat rate (when operating at 50% capacity) between the plant as-designed and as-built, and another 3% difference in the worst case heat-rate from plant degradation.

the heat rate representative of low-efficiency low capacity factor operations (10,576 Btu/kWh representing 50% of capacity), ambient conditions would result in an increase of 1.4% (to 10,999 Btu/kWh).[6] At most, the document indicates a difference when operating at the highest efficiency, high capacity factor.

The Region also contends, as to the remaining 6% margin in the GHG BACT limit, that "there is limited information available regarding the difference in heat rate" for the variation between design and construction and the "unrecoverable losses in efficiency" over a unit's lifetime. (Region Resp. at 25.) But this overstates the Region's case. In truth, the record contains no information to support findings that there is variation from construction or from unrecoverable losses in efficiency. (*Id.*) The Region attempts to sidestep the lack of evidence in the record for this component of its GHG BACT analysis by trying to put the burden on petitioners to prove a negative: to show that the Region's made-up margins "were inappropriate." (*Id.*) The Region cannot shift its burden to the public; it can only make findings that have a factual predicate in the record. *In re Deseret Power Elec. Coop.*, 14 E.A.D. ___, Case No. PSD 07-03, Slip Op. at 54 (EAB Nov. 13, 2008); *see also In re Miss. Lime Co.*, 15 E.A.D. _, PSD 11-01, Slip Op. at 33 (EAB, Aug. 9, 2011) (Region must "provide the necessary record support"). When a permitting authority fails to support assumptions and decisions it made with evidence in the record, it is not a petitioner's obligation to prove that those made-up numbers are incorrect. *In re ConocoPhillips Co.*, 13 E.A.D. 768, 799 (EAB 2008) (the permitting authority "may not state simply that technical requirements that it has selected are 'appropriate' or that requirements not included are 'inappropriate' without providing a basis for that determination.").

The Region fails to support its 7.4% margins in the GHG BACT limit with record evidence. The single document it cites shows only a variation in heat rate at the maximum efficiency range of the turbines. The record contains no evidence that there is any such variation at the other end of the scale—the worst-case heat rate used by the Region to set the final BACT limits. Nor does that single document (or anything else in the record) support the additional 6% margin built into the BACT limit.[7] Remand is appropriate.

---

[6] There is no evidence that efficiency variation due to ambient conditions is linear across the range of turbine operating rates. At the upper end of the turbine efficiency, 7,856 Btu/kWh, a 1.4% range is 108 Btus. At the bottom end of the rage—which the Region used as the basis here—a 108 Btu difference is less than 1%.

[7] Notably, while the Region looked at the emission test data from other combustion turbines for particulate matter, it apparently never did so for greenhouse gases or heat rate efficiency to determine whether there are actual

III. THE REGION FAILS TO SHOW THAT IT EXPLAINED THE BASIS FOR THE PM BACT LIMITS IN THE RECORD.

Sierra Club's Petition seeks remand of the final particulate matter BACT limits for two reasons. First, the limits diverge significantly from the particulate matter emission data that the Region purports to have relied on without a basis in the record for that divergence. Second, the final permit created a two-tiered BACT limit, requiring that the plant comply with a much less stringent 5.5 pounds per hour limit when operating lower than 80% of maximum capacity, without any analysis or evidence showing that 5.5 lb/hour represents BACT for that entire range of operation. (SC Pet. at 23-29.) Indeed, the 5.5 lb/hour BACT limit is not based on a BACT analysis at all, but represents the maximum emission rate that complies with air quality standards. In response, the Region contends that BACT limits must take into account "varying normal operating conditions over the life of the equipment" and is not necessarily the lowest demonstrated emission rate. (Region Resp. at 27-28.) This response misses the point. Sierra Club does not dispute that a BACT limit can account for unavoidable variation in emissions. Rather, the problem with the Region's decision is that there is no record showing and no findings that the final BACT limits actually represent the unavoidable variation from the emission units here. (SC Pet. At 23-28.) The Region's Response does not point to any record evidence showing unavoidable variation exists, nor even if it did, that 6% represents the amount of such variation. *Miss. Lime*, Slip Op. at 27-28, 32-33 (a BACT limit higher than demonstrated emission rates must be based on a factual record showing: (1) that normal variability does occur, and (2) that the BACT limit adopted accounts for the actual amount of variability). The Region only offers a conclusory assertion that "all of the evidence in the record" shows that it "has more than adequately justified the 0.0065 lb/MMBtu PM BACT limit." (*Id*. at 29.) This unsupported assertion does not satisfy the Region's obligation.[8] SC Pet. at 7-8; *ConocoPhillips Co*., 13

---

differences related to construction or operating degradation. Those data are available to the Region at www.epa.gov/airmarkets.

[8] In a footnote, the Region also states that it has since found some emission data in the record that support its conclusions based on "performance data variability." (Region Br. at 28 n.15.) However, those data did not form the basis for any decisions the Region made. Moreover, the Region's description of them is misleading. The Region represents the Panoche Energy Center emission tests in Exhibit E to its Response as showing emissions "performance test data… in the range of 0.001 to 0.012 lb/MMBtu." (Region Resp. at 28 n.15.) However, those data consist of 12 stack tests, consisting of 3 test runs each. A test run consisted of the average from three sample runs. None of the stack test results shows emissions above 0.005 lb/MMBtu. (Ex. E.) So when the Region refers to test data ranging to 0.012 it is not referring to stack test result; it is referring to an individual test run within a stack

E.A.D. at 799 (the permitting authority "may not state simply that technical requirements that it has selected are 'appropriate' or that requirements not included are 'inappropriate' without providing a basis for that determination."); *Deseret Power*, Slip Op. at 54; *Miss. Lime*, Slip Op. at 33.

Similarly, for the decision to bifurcate the BACT limit and establish a 5.5 lb/hour limit, nothing in the record supports the conclusion that that rate represents BACT for all levels of operation (or any levels of operation) lower than 80% of rated capacity. The Region responds only that there is variation in emissions based on operating rate, and that in response to a comment by the applicant and "based on its best professional judgment," the Region set the 80% threshold and applied the PM limit of 5.5 lb/hour because "BACT must apply at all times." (Region Resp. at 30). Missing from this response is any basis for the conclusion that 5.5 lb/hour represents a BACT-level emission rate. No top-down analysis, or any other BACT analysis, was conducted. The Region merely asserts that 5.5 lb/hour is BACT for all operating rates lower than 80% of rated capacity. It asserts that this conclusion is based on its "best professional judgment," but points to nothing in the record showing what analysis was done, what data were considered, or what methodology was used to conclude that the 5.5 lb/hour second-tier limit is BACT. This Board's precedents require more. *In re Desert Rock Energy Co., LLC*, 14 E.A.D. ___, Case Nos. PSD 08-03, *et seq*., Slip Op. at 50 (EAB, Sept. 24, 2009) (BACT determination must demonstrate considered judgment and must be well documented in the record); *ConocoPhillips*, slip op. at 28-36 (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); *In re Knauf Fiber Glass GmbH*, 8 E.A.D. 121, 134 (EAB 1999) (BACT determinations must be based on a "clearly ascertainable basis" in the record and cannot be cursory and or fail to "explain how the decision satisfies the regulatory criteria"); *In re Masonite Corp.*, 5 E.A.D. 551, 568–69, 572 (EAB 1994) (remanding PSD permit in light of incomplete analyses in BACT determination)

The Region's response, which relies on conclusory assertions and fails to identify where in the record it explained how the 5.5 lb/hour limit satisfies the regulatory BACT criteria, is a red flag that the evidence does not support its conclusion. (Region Resp. at 29.) There is no

---

test (and that stack test shows an emission rate of 0.005). (*Id*.) Indeed the actual test results confirm that emission rates significantly lower than 0.0065 lb/MMBtu are achieved in practice.

evidence to support the PM BACT limits here, and the Region points to none in its response. Remand is appropriate.

Conclusion

For the reasons set forth in Sierra Club's petition and in this reply, the Board should grant review and remand the permit.

Respectfully submitted, this 19th day of February, 2013.

McGILLIVRAY WESTERBERG & BENDER LLC

David C. Bender
211 S. Paterson Street, Ste 320
Madison, WI 53703
Phone: (608) 310-3560
Fax: (608) 310-3561
bender@mwbattorneys.com

SIERRA CLUB
Joanne Spalding
Travis Ritchie
85 Second Street
San Francisco, CA 94105
Phone: (415) 977-5725
Fax: (415) 977-5793
joanne.spalding@sierraclub.org
travis.ritchie@sierraclub.org

STATEMENT OF COMPLIANCE

This reply contains 3,493 words, based on the word count function in Microsoft Word.

David C. Bender