

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

| | | |
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| In re: |) | |
| |) | |
| Russell City Energy Center |) | PSD Appeal No. 10-03 |
| PSD Permit No. 15487 |) | |
| |) | |

**RUSSELL CITY ENERGY COMPANY, LLC'S
RESPONSE TO PETITION FOR REVIEW
FILED BY CITIZENS AGAINST POLLUTION**

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I. INTRODUCTION

Permittee Russell City Energy Company, LLC (“RCEC”) hereby submits its Response to the Petition for Review Filed by Citizens Against Pollution (PSD Appeal No. 10-03) (“Petition” or “CAP Petition”). The petition for review challenges the decision by the Bay Area Air Quality Management District (the “Air District”) to issue a Prevention of Significant Deterioration (“PSD”) permit to RCEC to construct a new natural gas fired combined-cycle power plant in Hayward, California.

Petitioner raises three issues related to RCEC’s PSD permit, none of which has merit. First, Petitioner argues that the Air District failed to ascertain a credible operating scenario for startup and shutdown events and failed to respond to public comments on this issue. These claims are patently false and belied by the Air District’s extensive responses to public comments. Despite Petitioner’s attempts to cloud the record on this issue, the Air District’s explanations are clear and well-supported. Second, Petitioner contends that the Air District’s cost-effectiveness analysis for auxiliary boiler technology was improper. This argument also fails: Petitioner’s claim that the Air District impermissibly considered cost-effectiveness is incorrect as a matter of law, and Petitioner’s attempts to find fault with the Air District’s cost-effectiveness analysis ignore the basis for the Air District’s calculations. Third, Petitioner claims that the Air District made three errors in determining Best Available Control Technology (“BACT”) startup and shutdown limits. All three claims fall far short of establishing clear error in the Air District’s analyses. Thus, all of Petitioner’s contentions lack merit. Moreover, Petitioner attempts to present several issues on appeal that were not raised during the public comment period and, thus, were not preserved for appeal.

Because Petitioner fails to meet threshold pleading requirements and fails to demonstrate that any decision by the Air District was clearly erroneous or otherwise warrants Environmental Appeals Board (“Board”) review, RCEC respectfully requests that the Board deny review of all issues raised in the Petition.

II. BACKGROUND

The Russell City Energy Center will be a 600-MW natural gas-fired, combined cycle power plant in Hayward, California (the “Project”). The Project cannot commence construction without obtaining a federal PSD permit from the Air District, which issues PSD permits in its jurisdiction pursuant to a delegation agreement with the U.S. Environmental Protection Agency (“EPA”), Region 9. *See* U.S. EPA - Bay Area Air Quality Management District Agreement for Delegation of Authority to Issue and Modify Prevention of Significant Deterioration Permits Subject to 40 CFR 52.21 (Feb. 4, 2008). The factual and procedural history of the Project up through mid-2008 is well-known to the Board because the PSD proceedings were subject to two prior petitions for review (PSD Appeal Nos. 08-01 and 08-07). *See In re Russell City Energy Center*, PSD Appeal No. 08-01 (EAB, July 29, 2008); *In re Russell City Energy Center*, PSD Appeal No. 08-07 (EAB, Nov. 25, 2008) (Order Denying Review).

In the approximately 18 months since the Board remanded the Project’s PSD permit to the Air District, the Air District completed PSD permit proceedings pursuant to 40 C.F.R. part 124 and the Board’s July 29, 2008 Order. On December 8, 2008, the Air District issued a Draft PSD Permit for the Project. Exhibit 1, Statement of Basis for Draft Amended Federal “Prevention of Significant Deterioration” Permit (Dec. 8, 2008) (“Statement of Basis”). The Air District solicited public comments on the Draft PSD Permit and accompanying Statement of Basis and accepted written comments for nine weeks, until February 6, 2009. Exhibit 2, Letter from Brian Bateman, Director of Engineering, Bay Area Air Quality Management District, to Rick Thomas, Vice President of Development (Feb. 4, 2010) at 1 (“February 4, 2010 Letter”). The Air District also held a public hearing at the Hayward City Hall on January 21, 2009. *Id.* Based on the comments received during this first comment period and the Air District’s additional review and analysis, the Air District issued a revised Draft PSD Permit and Additional Statement of Basis on August 3, 2009. Exhibit 3, Additional Statement of Basis, Draft Federal “Prevention of Significant Deterioration” Permit (Aug. 3, 2009) (“Additional Statement of Basis”). The Air District solicited public comments on the revised Draft PSD Permit and

accompanying Additional Statement of Basis and accepted written comments for more than six weeks, until September 16, 2009. Exhibit 2, February 4, 2010 Letter, at 2. The Air District held a second public hearing at the Hayward City Hall on September 2, 2009. *Id.* Altogether, since the Board remanded the permit to the Air District, the Air District accepted additional public comments on the Draft PSD Permit for more than 15 weeks during two public comment periods, each with a public hearing conducted pursuant to EPA requirements.

On February 3, 2010, the Air District issued the Final PSD Permit for the Project. Exhibit 4, Prevention of Significant Deterioration Permit Issued Pursuant to the Requirements of 40 CFR § 52.21 (Feb. 3, 2010) (“Final PSD Permit”). It also issued a 235-page Responses to Public Comments that responds to comments received during both public comment periods. Exhibit 5, Responses to Public Comments, Federal “Prevention of Significant Deterioration” Permit (Feb. 2010) (“Responses to Public Comments”).

Petitions for review of the Final PSD Permit were filed by the following ten parties: (1) CalPilots (PSD Appeal No. 10-01); (2) Chabot-Las Positas Community College District (PSD Appeal No. 10-02); (3) Citizens Against Pollution (PSD Appeal No. 10-03); (4) Robert Sarvey (PSD Appeal No. 10-04); (5) CARE/Simpson (PSD Appeal No. 10-05); Juanita Gutierrez (PSD Appeal No. 10-06); (7) Karen D. Kramer (PSD Appeal No. 10-07); (8) Hayward Area Recreation and Park District (PSD Appeal No. 10-08); (9) Minane Jameson (PSD Appeal No. 10-09); and (10) Idojine J. Miller (PSD Appeal No. 10-10). For the reasons discussed below, the Petition should be denied in its entirety at this time.

III. STANDARD OF REVIEW

The Board will grant review of a PSD permitting decision only if it involves a “finding of fact or conclusion of law which is clearly erroneous,” or “an exercise of discretion or an important policy consideration which the [Board] should, in its discretion, review.” 40 C.F.R. § 124.19(a)(1)-(2). The Board has noted repeatedly that its “power of review should be only sparingly exercised” and that “most permit conditions should be finally determined at the [permitting authority] level.” *In re Knauf Fiber Glass, GmbH*, 9 E.A.D. 1, 6-7 (EAB 2000)

(“*Knauf II*”) (quoting 45 Fed. Reg. 33,290, 33,412 (May 19, 1980)).

In determining whether to grant review of a petition, the Board “first looks to whether the petition meets the threshold procedural requirements of the permit appeal regulations.” *Knauf II*, 9 E.A.D. at 5 (citing 40 C.F.R. § 124.19; *In re Sutter Power Plant*, 8 E.A.D. 680, 685 (EAB 1999)). The threshold procedural requirements include timeliness, standing, and preservation of an issue for review. *Knauf II*, 9 E.A.D. at 5. The Board “strictly construes threshold procedural requirements, like the filing of a thorough, adequate, and timely petition.” *In re Town of Marshfield, Massachusetts*, NPDES Appeal No. 07-03, slip op. at 4 (EAB, Mar. 27, 2007) (Order Denying Review). Petitions for review “must meet a minimum standard of specificity.” U.S. Environmental Protection Agency, *The Environmental Appeals Board Practice Manual* 33 (June 2004) (“EAB Practice Manual”). Petitioners “must not only state their objections to a permit but must also explain why the permitting authority’s response to those objections (for example in a response to comments document) is clearly erroneous or otherwise warrants review.” *In re Indeck-Elwood, LLC*, PSD Appeal No. 03-04, slip op. at 87-88 (EAB, Sept. 27, 2006). To do so, “the petitioner must address the permit issuer’s responses to relevant comments made during the process of permit development; the petitioner may not simply reiterate comments made during the public comment period, but must substantively confront the permit issuer’s subsequent explanations.” *Id.* at 88. Failure by a petitioner to do so will result in a denial of review. *In re Zion Energy, L.L.C.*, 9 E.A.D. 701, 705 (EAB 2001).

For every issue raised, the petitioner bears the burden of demonstrating that review is warranted. *See* 40 C.F.R. § 124.19(a); *accord*, *In re Steel Dynamics, Inc.*, 9 E.A.D. 740, 744 (EAB 2001). A petitioner seeking review of a technical issue bears an especially “heavy burden.” *In re Three Mountain Power*, 10 E.A.D. 39, 50 (EAB 2001) (“[w]e generally accord deference to permitting agencies when technical issues are in play. As such, we assign a heavy burden to persons seeking review of issues that are quintessentially technical.”) (citations omitted).

IV. RESPONSE TO PETITIONER'S SPECIFIC ISSUES

A. The Air District Provided a Credible Operating Scenario and Fully Responded to All Comments on the Issue

Petitioner's first contention is that, "[d]espite the volumes of paper the District generated in response to public comments opposing the project, the District failed in its most fundamental job of ascertaining the impact of RCEC's operating scenario on [startup/shutdown] emissions." CAP Petition at 8. According to Petitioner, "[t]he District's response to comments violates the [Clean Air Act] because it does not respond to the public's significant comments asking for a credible scenario of likely [startup/shutdown] events as required by [40 C.F.R.] § 124.17." *Id.* at 14.

These claims are patently false and without any merit. Accordingly, the Board should dismiss them without further review.

1. The Air District Provided a Complete, Thorough, and Meaningful Response to Commenters' Requests for the Air District to Present a Credible Description of the Facility's Anticipated Operating Scenario

The Air District provided a complete summary of and response to comments questioning the operating profile of the facility, as set forth below:

Comment VIII.D.1. – Number and Frequency of Startups/Shutdowns:

The Air District also received comments expressing a concern that the facility may have frequent startups and shutdowns. These comments noted that the Air District is permitting this facility as an intermediate-to-baseload facility, but stated that the facility could be used in a "peaking" mode, meaning it would remain idle most of the time but could be started up and shut down frequently to respond to short-term changes in demand. Some comments inferred from the proposed daily emissions limits and from CEC documentation that normal operation could include one or two hot startups per day. The comments stated that the District needs to establish a credible scenario of likely startup and shutdown events, and base its permitting analysis on that scenario. Some comments stated that the District should base its analysis of the facility's operating profile on what is provided in the facility's power purchase agreement. In particular, some comments objected to the Air District's elimination of Flex-Plant 10 technology in the BACT technology analysis based on concerns about the facility's operating profile. As noted above in Response to Comment VIII.C.2. these comments stated that the Air District should not rule out requiring Flex-Plant 10 technology, which offers reduced startup emissions but at the

expense of energy efficiency and overall emissions performance, unless the Air District can establish with more certainty that the facility will in fact be used in an intermediate-to-baseload capacity. Other comments expressed similar concerns about the operating profile the Air District used in determining that an auxiliary boiler would not be sufficiently cost-effective in reducing startup emissions. As noted above in Response to Comment VIII.C.4., these comments stated that if the facility was operated in a peaking mode and had more frequent startups than the Air District assumed in its analysis, an auxiliary boiler might be sufficiently cost-effective to warrant requiring it here as BACT.

Based on these concerns, some of the comments stated that the Air District should impose limits on the number of startups and shutdowns for the facility to ensure that it is not used as a peaking facility. Some comments also objected to having startup and shutdown emissions subject to the annual emissions limit in the permit, on the grounds that an annual cap will allow the facility to over-control steady-state emissions to allow higher startup and shutdown emissions. These comments stated that startup and shutdown emissions will contribute to short-term air quality impacts, which are not addressed by an annual limit.

Response: The Air District has reviewed the facility as proposed and has not found any indication that it is not in fact being built for intermediate-to-baseload operation. To the contrary, all available information suggests that it will be used for intermediate-to-baseload operation.

One clear indication is that the facility has been designed and proposed to maximize energy efficiency, which is being prioritized over fast start times. This tradeoff between a low heat rate (an indication of energy efficiency) and quicker startup times is what determines how power plants are dispatched – that is, whether they are kept on-line or whether they are turned off when demand is not at its peak. Whether and when plants are turned on to provide power to the grid is determined by the California Independent System Operator (“ISO”), which ensures that the state’s electricity grid operates reliably at all times. A particular plant’s position in the “dispatch order” is determined primarily by how efficiently it can generate electricity, along with how long it will take for the plant to start up to meet the grid’s needs in the short term. The ISO keeps the plants with the lowest heat rate (highest energy efficiency) online the longest, as when demand falls it obviously makes the most sense to shut down the higher heat rate (lower efficiency) facilities first. Those that the ISO dispatches only to respond to short-term spikes of the highest demand, by contrast, are those with short startup times that can come on-line quickly in times of immediate need; in those situations, higher heat-rate (lower efficiency) facilities can be used because they do not need to operate as long and so the higher costs and emissions from having to burn more fuel per megawatt of power generated are not as much of a concern. For these reasons, it is a fundamental truth about way [sic] in which power plants are dispatched that highly efficient plants with low heat rates such as this one will be used primarily for baseload and intermediate service, and not for peaking service where the less efficient, higher-heat-rate facilities are dispatched to meet short-

term peak periods of high demand. The Air District therefore disagrees based on the design of the facility that this facility will be used as a peaker plant, as the comments suggested.

The Air District also disagrees that this facility will be used as a peaker plant based on its review of available information from the record of proceedings before other California regulatory agencies. The information the Air District discovered strongly supports the conclusion that this facility will be an intermediate-to-baseload facility. For example, the California Public Utilities Commission (“CPUC”) has expressly made a finding that the facility is subject to California’s CO₂ Emissions Performance Standard (“EPS”), which applies only to “baseload generation facilities designed and intended to provide electricity at an annualized plant capacity factor of at least 60 percent.” Similarly, in related regulatory proceedings concerning the approval of a natural gas pipeline project, PG&E described the Russell City facility and two other highly efficient facilities as having “the lowest heat rates of all the units in PG&E’s portfolio” and therefore requiring “the most steady demand” for natural gas supply to meet the needs of PG&E’s customers, further suggesting that these facilities – including Russell City – will be dispatched in an intermediate-to-baseload capacity. PG&E’s testimony further supports the CPUC’s classification of the proposed facility as a “baseload generating” facility with an assumed 60% or greater capacity factor, and thus the Air District’s conclusion that this facility will not be used as a peaker plant.

Finally, the Air District also reviewed the Power Purchase Agreement for this facility for indications of how the facility will be dispatched, as some of the comments suggested. The Power Purchase Agreement requires that the facility be available for dispatch on a “6 x 16” basis, meaning that it has to be available to operate at least 16 hours a day, 6 days a week. This dispatch requirement is typical for an intermediate-to-baseload facility, and is not the type of dispatch requirement that would be seen in a Power Purchase Agreement for a peaker plant. This is also the operating scenario on which Calpine has agreed to provide NO_x offsets for the facility. It is unlikely that Calpine would provide NO_x offsets to accommodate this level of operation if the facility were actually intended to be operated as a peaker with far fewer total hours of operation per year.

For all of these reasons, the Air District concludes that there is no indication that this facility will be used as a peaker plant with low overall usage but a high number of startups and shutdowns. The Air District therefore disagrees with the comments suggesting that the facility will be operated in this manner.

With respect to requiring the facility to be designed using a single-pressure steam turbine system in order to accommodate Flex-Plant 10 technology, the Air District disagrees that this would be appropriate here or required under a BACT analysis. As noted above in response to Comment VIII.C.2., given the energy penalty associated with switching to the single-pressure design used in the Flex-Plant 10 technology, a Flex-Plant 10 would actually result in greater emissions overall

from this facility, even though startup emissions could be reduced. Moreover, a permitting agency cannot require an applicant to redesign its proposed source in this way under the BACT requirement. The triple-pressure system this facility incorporates – with its low heat rate (high efficiency) that will allow it to be used effectively as an intermediate-to-baseload facility – is an inherent design element of the facility and is integral to the facility’s fundamental purpose. BACT cannot require an applicant to redesign a source to change this fundamental design element.

With respect to requiring the facility to use an auxiliary boiler, the Air District disagrees that it would be appropriate here given the high cost and relatively low emissions reduction benefit that could be achieved, as noted above in response to Comment No. VIII.C.4. As discussed there, an auxiliary boiler would not be sufficiently cost-effective to be required as a BACT technology. There is no indication from the Air District’s review of how this facility will be operated that would alter the Air District’s analysis on this issue.

Finally, with regard to whether the Air District should impose a specific numerical limit on the number of startups and shutdowns the facility may have, the Air District disagrees that this would be an appropriate application of the BACT requirement. Power plants need flexibility to be dispatched as determined by the ISO in order to ensure a reliable and efficient electrical grid, and a specific limit on the number of times a facility can start up and shut down over a given period of time would hinder that goal. Moreover, the number of startups and shutdowns are already subject to indirect limits because startup and shutdown emissions are included in the daily and annual limits the facility will be subject to. The Environmental Appeals Board has approved of such an approach as sufficient to satisfy BACT for startup emissions, even in the absence of stringent numerical limits on emissions per startup as the Air District is imposing here. [Footnote: *In re Sumas Energy 2 Generation Facility*, PSD Appeal Nos. 02-10 & 02-11 (Order Remanding in Part and Denying Review in Part), Slip Op. at pp. 19-20 (March 25, 2003); *In re Sumas Energy 2 Generation Facility*, PSD Appeal No. 05-03 (Order Denying Review), Slip Op. at pp. 21-22 (May 27, 2005).] For both of these reasons, the Air District disagrees that a specific numerical limit on the number of startups and shutdowns would be appropriate.

Similarly, the Air District disagrees with the comments that it is inappropriate to include startups in the annual emissions cap. As noted above, the Environmental Appeals Board has supported such an approach as an appropriate means to address startup emissions for purposes of the BACT requirement. The Air District also points out that startups will not only be subject to the annual emissions limits, but will also be included in the facility’s daily emissions limits, as well as the specific limitations on the emissions per startup outlined above. Even if the facility were to over-control its steady-state emissions such that it has extra room under its annual cap, startup emissions will still be subject to these additional limits. These limits will ensure that short-term emissions impacts are minimized to the greatest extent achievable, consistent with BACT and the

protection of ambient air quality. This is not a case of either annual limits or short-term limits, as these comments seem to suggest. Rather, it is a case of multiple emissions limits addressing this issue, which will impose restrictions both on short-term and long-term emissions.

Exhibit 5, Responses to Public Comments at 121-25 (footnotes omitted, except where specifically noted).

The foregoing response demonstrates that the Air District examined a variety of different sources of information to answer Petitioner's and other commenters' questions concerning whether the facility was really intended as a peaking plant, such that the Air District's startup technology evaluation should have considered available technologies for peaking plants, like Siemens' "Flex-Plant 10" or "Fast-Start" technology. The Air District responded in a complete and meaningful fashion, explaining how and why all of the additional sources of information it examined confirmed RCEC's anticipated dispatch and operating scenario as an intermediate-to-baseload generating facility.

In subsequent sections (*see infra* section IV.D), RCEC will address Petitioner's contentions that the Air District's technology evaluation and selection of emissions limits to meet BACT during startup and shutdown events was "backward looking." Here, RCEC addresses specifically Petitioner's contention that the Air District failed to ascertain a credible operating scenario.

2. The Air District Clearly Satisfied the Requirement of 40 C.F.R. § 124.17 to Briefly Describe and Respond to All Significant Comments

Petitioner demonstrates no error in the Air District's Responses to Public Comments that could possibly warrant the Board's review. Contrary to Petitioner's assertion that the Air District violated the requirements of the Clean Air Act, which requires the permitting agency to provide a brief summary of all significant comments and responses to same upon issuing a final PSD permit, the Air District's efforts in this respect are laudable.

The Air District issued a comprehensive Responses to Public Comments document, consisting of 235 single-spaced pages of text organized by topic and subtopic. Further, an entire

chapter of these responses, totaling more than 30 pages, dealt specifically with startup and shutdown issues. *See* Exhibit 5, Responses to Public Comments at 92-125 (Chapter VIII, Startup and Shutdown Issues). Moreover, as set forth above, the Air District's response on the particular issue raised by Petitioner is complete and thorough and reflects the agency's efforts to take a "hard-look" beyond the applicant's proffered description of the source to ascertain and convey to the public a realistic assessment of how the facility will be operated.

Against this record, it is simply incredible that Petitioner would claim that the Air District failed to satisfy the requirements of 40 C.F.R. § 124.17 (to summarize and respond to significant public comments) and, for that reason, allege that "[t]he Board should remand the permit for an adequate response to comments (and a brief description of all the comments on the issue) and order the District to clarify unclear and inconsistent information in the record about the number and kind of [startup/shutdown] events" CAP Petition at 9. Given the number and breadth of comments received by the Air District concerning these issues, the Air District's attempt to summarize and respond to those comments in a clear, concise fashion is commendable. It is hard to imagine how the Air District could have been more responsive to Petitioner's and others' comments in this regard and equally hard to imagine what response would have satisfied Petitioner. In short, Petitioner offers no evidence that would suggest any error in the Air District's response to comments on this point.

Commenters suggested that the Air District should evaluate the power purchase agreement for the facility to ascertain whether it was, in fact, intended for intermediate-to-baseload operation. The Air District did just that and presented its assessment and conclusions in the Responses to Public Comments, confirming that all available information, including the requirements of the power purchase agreement, supported that the facility would be operated as an intermediate to baseload generating facility subject to a "6 x 16" operating scenario, *i.e.*, operating six days a week for sixteen hours each day. Exhibit 5, Responses to Public Comments at 123. Further, the Air District also examined statements in other regulatory proceedings concerning anticipated natural gas consumption and the California Public Utilities Commission's

(“CPUC’s”) classification of RCEC, all of which confirmed the anticipated dispatch of the facility as an intermediate-to-baseload generating facility. *Id.* at 122-23. While Petitioner is dissatisfied with the response because it fails to meet Petitioner’s ultimate goal of delaying the project indefinitely, Petitioner has identified no error in the Air District’s response or otherwise raised any issue that would warrant the Board’s review. *See, e.g., Indeck-Elwood*, slip op. at 87-88 (petitioners “must not only state their objections to a permit but must also explain why the permitting authority’s response to those objections (for example in a response to comments document) is clearly erroneous or otherwise warrants review.”).

3. Petitioner’s Efforts To Suggest Inconsistencies Among Statements Made in a Variety of Contexts Fail to Demonstrate Any Clear Error on the Part of the Air District

Petitioner seeks to suggest inconsistencies and create confusion in the record where none exists. Petitioner suggests the Air District’s description of the facility as “intermediate-to-baseload” is somehow inconsistent with the CPUC’s determination that the facility is subject to California’s Greenhouse Gas Emissions Performance Standard. CAP Petition at 13-14. Petitioner also claims that the Air District had no basis for concluding that the facility would be operated in a “6 x 16” operating scenario, suggesting that the document cited by the Air District as support for this scenario refers instead to RCEC as a baseload facility: “But the document to which the District cited as support for the 6 x 16 scenario refers to RCEC as a base load facility.” *Id.* at 14.

Petitioner’s allegation that the document cited by the Air District fails to support the 6 x 16 operating scenario is simply untrue. The referenced document (and not the document which Petitioner cites in its petition) is Appendix II to the Second Amended and Restated Power Purchase and Sale Agreement between Pacific Gas & Electric Co., and Russell City Energy Co., LLC (“Second Amended Power Purchase Agreement”). *See* Exhibit 5, Responses to Public Comments at 123 n.252. Appendix II to the Power Purchase Agreement clearly supports the requirement that the facility must be able to operate in a 6 x 16 operating scenario. *See* Exhibit 17, Appendix II to the Second Amended Power Purchase Agreement at II-4 (“[t]he ATC shall

allow for up to 50 weeks of operation on Buyer's behalf in '6x16' mode per year, where the Units are started and operated for up to 16 hours, and subsequently shut down each day for 6 days per week.'). Petitioner fails to acknowledge this document and, as a consequence, its assertion that the Air District failed to provide an adequate basis for the assumed 6 x 16 operating scenario is without merit.

Furthermore, Petitioner wrongly suggests that another document in the record that describes RCEC as a "base load facility" contradicts the basis for the 6 x 16 operating scenario. *See* CAP Petition at 14. However, the Air District cited this other document, not as support for the 6 x 16 operating scenario, but as evidence that the CPUC has classified RCEC as a "baseload generating" facility with an assumed 60% or greater capacity factor.¹ Moreover, there is nothing inconsistent with the CPUC's classification of the facility as a "baseload generating" facility and the anticipated 6 x 16 operating scenario. Petitioner's apparent belief that a facility properly characterized as "baseload" would not operate in a "6 x 16" mode, *i.e.*, shutting down over night and for an entire day over the weekend, is false and without any support in law, regulation or fact.

In alleging that the Air District "failed to explain the impact of the 6 x 16 operating scenario on the number of [startup/shutdown] events," Petitioner disputes the operating scenario described by RCEC, which consists of "500 hot starts, 100 warm starts, 6 cold starts and 606 shutdowns per year for both turbines, according to RCEC." CAP Petition at 14. Petitioner attempts to cast doubt on the basis for this scenario by alleging that the document describing it "is not contained in the District's record," but was separately obtained from the Air District. *Id.*

¹ The document cited at note no. 249 of the Responses to Public Comments consists of the CPUC's decision approving the Second Amended Power Purchase Agreement. This document clearly explained that RCEC was a "covered procurement" subject to the CPUC's Emissions Performance Standard, "which requires that baseload generation facilities designed and intended to provide electricity at an annualized capacity factor of at least 60 percent demonstrate that the net emissions rate of each baseload facility underlying a covered procurement is no higher than 1,100 lbs. of carbon dioxide (CO₂) per megawatt hour." Exhibit 5, Responses to Public Comments at 123 n.249.

at 14 n.10. RCEC has no evidence to dispute whether a copy of this particular document was actually in the physical copy of the record examined by Petitioner’s legal counsel at the Air District’s offices. However, the referenced document – a spreadsheet entitled “Russell City Energy Centre [*sic*] Anticipated Yearly Operating Regime, 6x16 Operation” – clearly was before the Air District at the time of its decision and therefore constitutes part of the administrative record. Petitioner’s attempt to suggest otherwise is belied by the fact that it did, in fact, obtain a copy of this document from the Air District. Regardless, Petitioner fails to provide any evidence that would question the Air District’s conclusions that the operating scenario reflected by this document – an annual dispatch consisting of 250 hot starts, 50 warm starts, 3 cold starts and 303 shutdowns per turbine – (*see* Petition Exhibit 6, “Russell City Energy Centre [*sic*] Anticipated Yearly Operating Regime, 6x16 Operation”) represents a credible operating scenario for RCEC.

Instead, Petitioner attempts to portray the record as inconsistent on this point, alleging that the Air District “made no effort at clarity, certainty, or consistency as to the number and kind of [startup/shutdown] events.” CAP Petition at 15. Petitioner does this by juxtaposing statements from a variety of documents and regulatory proceedings – some related to RCEC, some not – to suggest that the Air District’s or RCEC’s characterization of the facility’s operating profile is false and without any basis. *See* Petition at 15-16. Petitioner’s apparent tactic is to suggest that all of these various statements – in some cases, issued years apart and in unrelated proceedings – demonstrate error on the part of the Air District. They do not.

As an example, Petitioner tries to portray statements suggesting that RCEC will be a fast-ramping, load-following facility as somehow contradicting the intermediate-to-baseload characterization of the facility’s operating profile. Petition at 14-17. However, the Air District provided a clear, cogent response to comments on this very point, as follows:

Some comments noted that the Russell City facility is expected to be a fast-ramping flexible combined cycle project, and that according to PG&E, Russell City will have operational flexibility that will help PG&E integrate intermittent renewable resources into PG&E’s portfolio. These comments implied that the facility may not remain in use all the time, but may shut down to allow renewable resources to be used when they are available and then start up again to fill in gaps

when the sun is not shining or the wind is not blowing, for example. Although renewable portfolio goals are not directly related to any PSD permitting requirements, to the extent that this facility can help transition California to a renewable power generation portfolio, the Air District agrees that this is a worthy goal. To the extent that these characterizations are correct, however, the Air District does not consider this attribute of the facility to be inconsistent with the facility's design as an intermediate-to-baseload facility, and the comment has not provided any explanation why it should be considered inconsistent.

Exhibit 5, Responses to Public Comments at 121 n.248. Thus, the Air District concluded that there is nothing inconsistent with characterizing the facility as both an intermediate-to-baseload generating facility and one that, due to its fast-ramping flexibility (*i.e.*, its ability to change load quickly in response to changes in market demand), can operate in a load-following mode and thereby enable the integration of intermittent renewables to the grid. Further, Petitioner's assertion that "load following" was described differently than RCEC's planned operating scenario in a request for offers published by Pacific Gas and Electric Company ("PG&E") in proceedings *wholly unrelated* to RCEC (Petition at 16 n.12) provides absolutely no evidence that would call into question the Air District's conclusions in this respect. In short, Petitioner introduces nothing to demonstrate error in the Air District's analysis or conclusions with respect to the facility's anticipated operating scenario, but instead tries to suggest material inconsistencies where none exist. As the Board has explained, it typically declines to review errors that are immaterial. *See, e.g., In re Dominion Energy Brayton Point, L.L.C.*, NPDES Appeal No. 07-01, slip op. at 49-50 (EAB, Sep. 27, 2007).

As the Air District emphasized on several occasions, ultimately, dispatch of RCEC will be determined by the California Independent System Operator ("ISO"), as well as PG&E, the counter-party to the Second Amended Power Purchase Agreement. *See, e.g.,* Exhibit 5, Responses to Public Comments at 122-23. As shown above, the Air District provided a complete, coherent and meaningful response to comments and a clear description of the facility's anticipated operating scenario, to the greatest extent that the facility's dispatch can be predicted in advance of actual operation. Furthermore, the Air District provided a clear and understandable description of how power plants are dispatched to explain why the type of

certainty Petitioner apparently seeks concerning when exactly the facility will be operated is not possible. Petitioner's refusal to accept the Air District's response and explanation in this respect demonstrates no error on the part of the Air District.

Petitioner's final contention on this point is that the Air District's response, which explained that the 6 x 16 operating profile was used to establish the daily and annual emissions limits, misses the point of Petitioner's earlier comments: according to Petitioner, its comments "were not that RCEC might not meet the daily or annual emission limits", but "that, even if the number of [startup/shutdown] events meet the daily and annual emissions limitations, the number and kind of [startup/shutdown] events are still significant" because "if RCEC is going to start up and shut down frequently as its planned operation shows, then the facility will need different technologies to meet BACT." CAP Petition at 17. However, Petitioner raises nothing that calls into question the Air District's conclusions that the 6 x 16 operating profile represents a credible operating scenario or that RCEC will not be operated as a peaking plant, which might utilize Siemens' Flex-Plant 10 "once-through" boiler technology instead (what Petitioner describes as "Fast-Start" in its Petition at 10, 12).

In fact, the Air District provided a complete and thorough response to Petitioner's earlier comments on the alleged appropriateness of Flex-Plant 10 technology for RCEC. *See* Exhibit 5, Responses to Public Comments at 108-10 ("[t]he Air District disagrees that the facility should be designed to use this less efficient system, unless there is some demonstrated need for it such as achieving very short startup times as is required for peaking facilities. The Air District declines to interpret BACT to require this source to be redesigned in this manner, based on all of the information it has reviewed about how the facility will be used."). Petitioner makes no contention that the Air District erred in this analysis or the resulting conclusion that, because Flex-Plant 10 technology would result in significantly lower energy efficiency, it did not constitute BACT for RCEC. Failing to identify any such error, Petitioner seeks instead to cloud the record and suggest incoherence in the Air District's response. But in these efforts, Petitioner fails as well.

In sum, the Air District's summary and response to comments on this subject clearly satisfy the requirements of 40 C.F.R § 124.17, and Petitioner cannot credibly make any claim that the permit should be remanded for additional response to comments. For these reasons, the Board should dismiss Petitioner's allegations concerning the Air District's failure to respond to comments seeking further explanation concerning the facility's operating profile as lacking any merit.

B. The Air District's Auxiliary Boiler Analysis Is Correct

Petitioner makes two contentions with respect to the Air District's cost-effectiveness analysis concerning use of an auxiliary boiler to reduce emissions during startup events. First, Petitioner contends that any cost-effectiveness analysis was improper because auxiliary boiler technology is achieved in practice. CAP Petition at 19-20. Second, Petitioner argues that even if cost-effectiveness were relevant, the Air District's cost-effectiveness analysis was faulty. *Id.* at 21-22. Neither of these contentions has any merit and should therefore be dismissed. Further, Petitioner raises issues on appeal which were never previously raised during any public comment period and, accordingly, cannot be raised at this time. While Petitioner misleadingly suggests that comments on a wholly unrelated subject actually addressed the Air District's auxiliary boiler analysis, they did not.

1. Petitioner's Claim that the Air District Was Precluded by Its Own New Source Review Rules from Considering Cost in Its Analysis of Whether an Auxiliary Boiler Should Be Required to Meet BACT Fails Both Procedurally and Substantively

Petitioner's first contention is that the Air District's New Source Review ("NSR") rules have a different definition of BACT than the federal PSD program and, because the delegation agreement between the Air District and EPA Region IX references the Air District's own NSR rules, the Air District's definition of BACT effectively trumps the federal definition. According to Petitioner, the Air District's rule does not allow for consideration of cost-effectiveness for any technology that is "achieved in practice." CAP Petition at 20. Because of that, Petitioner claims that an auxiliary boiler cannot be eliminated from consideration due to cost concerns and that the

Air District's elimination of it represents error.

a. Petitioner Misleadingly Suggests That It Previously Raised This Issue During Public Comments, When, in Fact, the Issue Was Never Raised by Anyone

This issue was not previously raised during any public comment period and, accordingly, cannot be raised at this time on appeal. Petitioner misleadingly cites to its earlier comments concerning a wholly different subject matter:

Because Regulation 2-2-206 leaves no room for interpretation that technology that is achieved in practice is BACT, without the need for a cost effectiveness analysis, the District's cost effectiveness analysis was improper, as CAP pointed out during public comments. CAP 2/09 Comments at 5-8.

CAP Petition at 20.

However, the referenced pages of Petitioner's comments dealt only with the Air District's BACT analysis concerning "once-through" steam boiler technology. Indeed, the heading of this section of Petitioner's comments reads as follows:

The District incorrectly rejected once-through steam boiler technology based on assumptions about existing equipment, and the District therefore violated the PSD and NSR requirements.

CAP Petition, Exhibit 3, Letter from Helen Kang, Deborah Behles, Ashling McAnaney, James Barringer and Ethan Wimert to Weyman Lee, P.E. (Feb. 5, 2009), at 5 ("CAP Comments 2/5/2009").

Petitioner cannot now attempt to import its comments on an unrelated topic – once-through "Benson" boiler technology – to contend that the Air District erred in considering cost as part of its BACT analysis concerning the reductions that could be achieved through use of an auxiliary boiler. While Petitioner might seek to suggest otherwise in claiming that its prior comments raised this argument, an auxiliary boiler is not a once-through Benson boiler; it is a wholly different technology with a wholly different function and Petitioner is well-aware of this. It is simply false and misleading for Petitioner to suggest that it or anyone else raised this issue during public comment in any way related to the Air District's analysis of whether the reductions

that could be achieved through use of an auxiliary boiler during startup should be required as BACT.

The Air District considered whether it should require use of an auxiliary boiler to reduce startup emissions. *See* Exhibit 5, Responses to Comments at 114-16. To do so, the Air District considered startup data from a similar Calpine power plant located in Mankato, Minnesota, a facility which is equipped with an auxiliary boiler due to the cold climate and the need to protect the steam cycle equipment from freezing while not in operation. *Id.* at 114. According to the Air District's analysis, by using a similar auxiliary boiler at the proposed Project to keep the heat recovery steam generator ("HSRG") and steam turbine warm when not in operation, RCEC could accomplish some, albeit small, reduction in the duration of both cold and warm startup times and, as a consequence, emissions of nitrogen oxides ("NO_x") and carbon monoxide ("CO"). *Id.* According to the analysis using the Project's operating scenario, this would only amount to a reduction of approximately 0.9 tons per year of NO_x and 12.4 tons per year of CO. *Id.* In light of the annualized cost for installation and operation of an auxiliary boiler, this would amount to a cost-effectiveness of \$1,143,192 per ton of NO_x and \$82,800 per ton of CO reduced. *Id.*

This analysis was published in the Air District's August 2009 Additional Statement of Basis. *See* Exhibit 3, Additional Statement of Basis at 69-70. While the Air District received a number of comments assailing its analysis of cost-effectiveness for an auxiliary boiler, neither Petitioner, nor any other commenter, ever called into question the appropriateness of considering cost in the first instance as part of that analysis. According to EPA's regulations concerning permit appeals, "[a]ll persons, including applicants, who believe any condition of a draft permit is inappropriate . . . must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period (including any public hearing) under § 124.10." 40 C.F.R. § 124.13. Further, to meet the minimum pleading requirements of the Board, "[t]he petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were

raised during the public comment period (including any public hearing) to the extent required by these regulations.” 40 C.F.R. § 124.19(a).

Petitioner cannot demonstrate that anyone had ever previously contended that the Air District’s own NSR rules barred it from considering cost as part of its analysis of whether an auxiliary boiler should be required as BACT; nor can it contend that this issue was not ascertainable during the public comment period. As a consequence, the issue cannot be raised for the first time on appeal. *See In re Knauf Insulation, GmbH*, PSD Appeal Nos. 06-01 through 06-06, slip op. at 4 (EAB, Nov. 14, 2006) (“The Board has also frequently emphasized that petitioners must raise issues with a reasonable degree of specificity and clarity during the comment period in order for the issue to be preserved for review. On this basis, the Board has often denied review of issues raised on appeal that were not raised with the requisite specificity during the public comment period.”) (citations omitted). Because Petitioner has failed to demonstrate that anyone ever alleged that the Air District was precluded from considering cost as part of its analysis of whether an auxiliary boiler should be required as BACT, the Board should deny review of Petitioner’s allegations in this respect.

b. Petitioner’s Argument That the Air District Must Ignore Cost Based on Its Own New Source Review Rules Has No Basis in Law or Regulation

Petitioner’s argument that the Air District’s rules preclude the Air District from consideration of cost as part of its BACT analysis is without any merit. There is no basis in EPA regulations or guidance for suggesting that cost-effectiveness is not an appropriate consideration at Step 4 of the Top-Down method for identification of BACT. While the delegation agreement between EPA Region IX and the Air District allows the Air District to issue PSD permits in accordance with the same rules it applies in issuing permits pursuant to state law, that does not mean that the Air District’s rules supersede the federal PSD rules, such that the federal rules and guidance pertaining to BACT are no longer applicable to the Air District’s issuance of a PSD permit.

(1) Both the Clean Air Act and PSD Rules Expressly Require Consideration of Cost

The PSD rules expressly require consideration of “economic impacts and other costs” in a permitting agency’s BACT determination. 40 C.F.R. § 52.21(b)(12) (providing that BACT is equivalent to an emissions limitation based on the maximum degree of reduction determined to be achievable, “on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs...”); *see also* 42 U.S.C. § 7475(a)(4) (requiring use of best available control technology); 42 U.S.C. 7479(3) (defining “best available control technology” as an emissions limitation based on the maximum degree of reduction achievable, which the permitting authority determines is achievable “on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs”). Thus, by suggesting that the Air District must ignore cost, Petitioner would seek to rewrite the clear mandate of both EPA’s PSD rules and Congress.

(2) Petitioner Seeks to Conflate Issuance of a PSD Permit Pursuant to Delegated Authority with Issuance of a PSD Permit Under a SIP-Approved Permitting Program

Although the Air District is subject to an independent obligation to issue permits in accordance with its own NSR rules, which have been approved by EPA as part of California’s State Implementation Plan (“SIP”), in this instance, the Air District issued the PSD permit separately from the State-law permit issued in accordance with its SIP-approved NSR rules. In light of this, Petitioner’s argument essentially seeks to conflate issuance of a PSD permit pursuant to delegated authority from EPA, with issuance of a PSD permit pursuant to a SIP-approved permitting program. In so doing, Petitioner seeks to eliminate any distinction between the requirement to achieve BACT under the PSD rules, and the obligation to achieve the “lowest achievable emissions rate” (“LAER”) under the Clean Air Act’s Non-Attainment NSR provisions and the Air District’s rules implementing same. As the Air District explained in response to unrelated comments submitted outside of any public comment period, which suggested the Air District should be requiring “LAER” for emissions of PM2.5 from the cooling

tower, “LAER is not a PSD requirement.” Exhibit 5, Responses to Public Comments at 87 n.176.

Petitioner’s argument is analogous to the position presented by Illinois Environmental Protection Agency (“IEPA”) in the case of *In re West Suburban Recycling and Energy Center, L.P.*, 6 E.A.D. 692 (EAB 1996). In that case, the Board rejected IEPA’s argument that, because its delegation agreement provided that it was to implement its delegated authority in an integrated fashion with its issuance of permits pursuant to state law, IEPA could ignore the requirements of the federal PSD program and deny a permit for failing to abide by the provisions of its state law permitting program, including the requirement to meet LAER. *Id.* at 696, 702-07. The Board responded to IEPA’s argument as follows:

In light of the foregoing, IEPA’s contention that “[a]s set forth in the [Delegation Agreement], IEPA’s role in reviewing PSD preconstruction permit applications is controlled by the substantive and procedural review requirements of [Illinois law]” (IEPA Response at 35) is both inexplicable and plainly erroneous. We find nothing in the Delegation Agreement that would so expand IEPA’s federal PSD permit review authority; indeed, as explained above, the Delegation Agreement plainly limits IEPA to exercising only the federal PSD authority contained in 40 C.F.R. § 52.21. To read the Delegation Agreement as IEPA suggests would be to equate IEPA’s delegated PSD authority with a state PSD program that has been duly authorized by EPA as part of a state SIP. This we cannot do.

Id. at 704.

The Board rejected IEPA’s contention that the Delegation Agreement “essentially instructed IEPA to perform its delegated PSD authority in a manner consistent with the Illinois statutes and rules that implement the SIP.” *Id.* at 707. Further, the Board disagreed with IEPA’s interpretation of the terms of the Delegation Agreement:

[w]hile the Delegation Agreement does allow IEPA to conduct its delegated PSD review authority as ‘an integral part of the Illinois preconstruction permit program,’ nothing in that phrase can be reasonably read as abrogating the delegatee’s responsibility to conduct its review and make its decisions *on the basis of the federal PSD program contained in 40 C.F.R. § 52.21.*

Id. (emphasis in original).

It is beyond dispute that, in this instance, the Air District was acting solely pursuant to its

delegated authority from EPA Region IX. (Indeed, if the opposite were true and the Air District were issuing the PSD permit pursuant to a SIP-approved program, the permit could not be appealed to the EAB for review.) As a consequence, the federal PSD rules remain applicable and the federal definition of BACT is relevant to the Air District's permitting decision. Accordingly, the Board should dismiss Petitioner's claim in this respect.

2. Petitioner's Claim That There Is No Support for the Estimate of Reductions Achievable Through Use of an Auxiliary Boiler Is Meritless

Petitioner's second claim with respect to the Air District's BACT analysis of whether the reductions achieved through use of an auxiliary boiler should be required as BACT is that, "by failing to determine a credible, consistent operating scenario," the cost-effectiveness calculation is without any basis. CAP Petition at 22. Petitioner argues that "cost effectiveness depends on a credible number and type of startups that yield the maximum potential emissions" *Id.* at 21-22. According to Petitioner, "[w]ithout such a determination [of a credible, consistent operating scenario], the District cannot credibly calculate a per ton reduction cost to determine cost effectiveness." *Id.* at 22.

a. The Cost-Effectiveness Analysis Was Clearly Rooted in the Facility's Anticipated Operating Scenario

As previously described in section III.B.1 of this response, Petitioner's contentions regarding the alleged failure of the Air District "to determine a credible, consistent operating scenario" are without any merit. The Air District examined information from a variety of sources to confirm both that the "6 x 16" operating profile represents a reasonable characterization of the facility's likely dispatch and that the facility will be operated as an intermediate-to-baseload plant. Further, the Air District specifically responded to comments concerning the relevance of the facility's operating profile to its analysis of whether an auxiliary boiler would be cost-effective, as follows:

Second, the comments questioned the annual startup profile that the District used, suggesting that there may in fact be more startups per year than the 6 cold and 100 warm startups that the District assumed in its analysis because there are no permit

limits on the number of startups per year. With more startups, these comments stated, the cost-effectiveness of using an auxiliary boiler would improve. The Air District disagrees with these comments. The operating profile the Air District used in its analysis is typical of normal operations of a “6x16” intermediate-to-baseload facility such as this one, and there is no indication that its operation will be significantly different. And even so, this number of startups is well below the number of warm and cold startups at which an auxiliary boiler would be required for purposes of a BACT emissions control technology. Even if the Air District’s assumptions about the facility’s operating profile were off by a factor of two or more – a highly unrealistic scenario – the Air District’s analysis would still show that an auxiliary boiler is not sufficiently cost-effective here. For all these reasons, the Air District is not requiring the facility to use an auxiliary boiler here as a BACT technology for startups.

Exhibit 5, Responses to Public Comments at 115-16 (footnotes omitted).

As demonstrated above, in response to comments requesting that the Air District establish a credible operating scenario for the facility, the Air District specifically examined the facility’s power purchase agreement, confirming that “[t]he Power Purchase Agreement requires that the facility be available for dispatch on a “6 x 16” basis, meaning that it has to be available to operate at least 16 hours a day, 6 days a week.” *Id.* at 123. Thus, contrary to Petitioner’s contention that the Air District failed to establish a credible operating scenario for the facility, the Air District examined information from a variety of sources and concluded that “all available information suggests that it will be used for intermediate-to-baseload operation.” *Id.* at 122.

(1) The Assumption of 50 Warm Startup Events Per Year Is Consistent with the Anticipated “6 x 16” Operating Scenario

Operation of the facility six days a week is consistent with 50 warm startup events per year per turbine, as assumed by the Air District’s cost-effectiveness analysis; *i.e.*, the facility could be shutdown for one full day a week and, as a consequence, the next startup event would constitute a “warm start-up”, as defined by the PSD permit.² Thus, contrary to Petitioner’s assertion, the assumption used by the Air District in its cost-effectiveness analysis of 50 warm

² A “gas turbine warm start-up” is defined by the Final PSD Permit as “[a] gas turbine start-up that occurs between 8 hours and 48 hours of a gas turbine shutdown.” Exhibit 4, Final PSD Permit at 5.

starts per year per turbine was, in fact, clearly rooted in its assessment of the anticipated operating scenario for the facility.

(2) The Number of Cold Startup Events Per Year Was Conservatively Assumed at Twice as Many Events as Anticipated in Establishing the Annual Emissions Limits

For cold startup events, the analysis was based on an actual comparison of the first two hours of a cold startup event at Mankato Energy Center. As demonstrated by the data from Mankato Energy Center, the effect of an auxiliary boiler would be to eliminate the need to operate the combustion gas turbines during the first two hours of a cold startup event. Thus, by taking the minute-by-minute data recorded by the continuous emissions monitoring system (“CEMS”) during those first two hours (120 minutes) of a startup without an auxiliary boiler, the emissions savings gained through use of an auxiliary boiler were then calculated; in the case of NO_x, this was estimated at 79.3 lbs per cold startup event; and in the case of CO, 869.8 lbs per cold startup event. *See* Exhibit 12, Spreadsheet entitled “Mankato Energy Center Start profile for winter months.” Then, after subtracting the emissions from the auxiliary boiler itself during the four hours when it would be operated during cold startup events (3.1 lbs NO_x and 10.3 lbs CO), total estimated reductions of 76 lbs NO_x and 859 lbs CO were calculated for purposes of the cost-effectiveness analysis. *Id.*

These results were then multiplied by the number of assumed cold startup events per year (six) to calculate an annual reduction for comparison to the annualized cost of such reductions. However, unlike the number of warm startup events, which is clearly rooted in the 6 x 16 operating profile at 50 per year, the number of cold startup events is not predicted by the 6 x 16 operating profile, since cold starts only occur after an extended outage, *i.e.*, more than 48 hours long.³ Alert to commenters’ complaints that the Air District was not imposing any “hard” limit

³ The Final PSD Permit defines a “gas turbine cold start-up” as “[a] gas turbine start-up that occurs more than 48 hours after a gas turbine shutdown.” Exhibit 4, Final PSD Permit at 5.

on the number of startup events per year, the Air District therefore assumed that the number of cold startup events was double the actual number assumed in establishing RCEC's annual emissions limits. *Cf.* CAP Petition at Exhibit 6, "Russell City Energy Centre [*sic*] Anticipated Yearly Operating Regime, 6x16 Operation" (estimating the number of cold startup events for purposes of establishing the annual emissions limits at three per turbine per year). As indicated by the Responses to Public Comments, assuming six cold startup events per turbine per year represented "a conservative estimate because actual startups will likely be lower." Exhibit 5, Responses to Public Comments at 114.

b. Petitioner's Allegation That the Air District Did Not Adequately Explain the Relevance or Reliability of the Data from Mankato Energy Center Fails Both Procedurally and Substantively

Petitioner alleges that the spreadsheet relied upon by the Air District as the basis for the estimated reductions "contains no apparent explanation of how the numbers from this facility can reasonably be used for setting BACT for RCEC, how reliable the numbers are, and what the numbers represent." CAP Petition at 22. Petitioner also complains that "[t]here is also no explanation of some of the mysterious notes contained in the spreadsheet". *Id.* While the Air District may not have spelled-out each and every assumption within the summary of its analysis that appeared in the Additional Statement of Basis and Responses to Public Comments, Petitioner identifies no error in the Air District's analysis or conclusions.

(1) Questions Concerning the Relevance and Reliability of the Data from Mankato Energy Center Were Never Previously Raised and Cannot Be Raised for the First Time on Appeal

Neither Petitioner, nor anyone else, previously called into question the Air District's reliance upon the analysis of startup events at Mankato Energy Center as the basis for its cost-effectiveness analysis. Had Petitioner presented any specific questions about the analysis or the allegedly "mysterious notes" appearing in the spreadsheet to the Air District during a public comment period, the Air District would have had an opportunity to respond with further explanation, as provided below. But no such questions were presented, neither by Petitioner, nor

anyone else, and Petitioner cannot now raise any lack of clarity regarding the allegedly “mysterious notes” or related technical determinations as a basis for demonstrating error on the part of the Air District.

Furthermore, regarding the relevance of “the numbers from this [other] facility” to the analysis of BACT for RCEC, Petitioner cannot demonstrate that this issue was ever raised by anyone during the public comment period. Petitioner argued that, in the absence of hard limitations on the number of startup events, the cost-effectiveness analysis was meaningless “because it is based on a faulty and baseless assumption about the number of cold and warm startups.” CAP Petition, Exhibit 7, Letter from Helen Kang, Eric Kaplan, John Harrington and Shufan Sung to Weyman Lee, P.E. (Sept. 16, 2009) at 6 (“CAP Comments 9/16/2009”). Another commenter submitted vendor data it believed demonstrated greater reductions than estimated by the Air District. However, no one ever called into question the representativeness or reliability of the startup data from Calpine’s Mankato Energy Center. Because Petitioner cannot seriously contend that any comments had previously raised the representativeness or reliability of these data during the public comment period, Petitioner cannot raise such questions at this time. *See Knauf Insulation*, slip op. at 4 (“[t]he Board has also frequently emphasized that petitioners must raise issues with a reasonable degree of specificity and clarity during the comment period in order for the issue to be preserved for review.”).

(2) The Data on Startup Events at Mankato Energy Center Are Clearly Relevant to the Reductions That Could Be Achieved by Using an Auxiliary Boiler at RCEC

The Air District considered data from Calpine’s Mankato Energy Center because these data provided clear evidence on how an auxiliary boiler might impact startup emissions at RCEC. As explained, “[f]or some startups the plant uses the auxiliary boiler and for others it does not, and so the plant allows a direct comparison of the actual emissions reduction impact from using this technology.” Exhibit 3, Additional Statement of Basis at 69; Exhibit 5, Responses to Public Comments at 114. According to the Air District’s analysis, “[t]he data show

that using the auxiliary boiler will reduce fuel usage (and consequently emissions) by approximately 18% for warm startups and approximately 31% for cold startups (with no impact on hot startups, as the HRSG and steam turbine are already at a high temperature).” *Id.*

Thus, rather than estimates provided by an equipment vendor, these data represented actual evidence of the reduction that a very similar facility to RCEC can reportedly achieve through use of an auxiliary boiler. Had any question been raised pertaining to the representativeness or reliability of the data concerning reductions achieved through use of an auxiliary boiler at Mankato Energy Center, the Air District would have had the opportunity to provide additional information and explain why these data provide an appropriate basis for comparison.

According to the permit application materials submitted to the Minnesota Environmental Quality Board by Mankato Energy Center, the facility consists of two similar combustion turbines to those permitted for RCEC:

The combined cycle combustion turbines will be Siemens-Westinghouse 501FD model turbines and will have an output of approximately 290 MW each (combined cycle mode at winter ambient conditions). Each combustion turbine generator will be 3,600 rpm, 18kV or 15 kV, three phase, 60 Hz design. The maximum firing capacity of each combustion turbine will be 2,040 million British thermal units per hour (“MMBtu/hr”) based on higher heating value (“HHV”) of the fuel while firing natural gas and 2,052 MMBtu /hr (HHV) when firing on fuel oil (both ratings at winter ambient conditions).

Exhibit 11, Site Permit Application, Mankato Energy Center, Mankato, Minnesota, Docket No. 04-76-PPS CALPINE, submitted to Minnesota Environmental Quality Board, March 2004 at 2-9.

Had anyone raised any doubts about whether the startup data from Calpine’s Mankato Energy Center provided an appropriate basis for estimating the emissions reductions that could be achieved by use of an auxiliary boiler at RCEC, the Air District could have explained that Mankato Energy Center consists of two Siemens-Westinghouse 501FD turbines, each with a maximum firing capacity of 2,040 MMBtu/hr for natural gas. In comparison, the two

Siemens/Westinghouse 501F gas turbines specified by the PSD permit for RCEC are permitted for natural gas alone, with a “maximum rated capacity” of 2,038.6 MMBtu/hr. Exhibit 4, Final PSD Permit at 3 (“Equipment Description” for S-1 and S-3).

In sum, the combustion turbines at the two facilities are very similar. Thus, it was not unreasonable for the Air District to rely upon data comparing startup events at Mankato Energy Center with and without an auxiliary boiler as the basis for estimating the reductions that could be achieved through use of an auxiliary boiler at RCEC. Petitioner provides no evidence that would suggest any error on the part of the Air District in considering the startup data from Mankato Energy Center as an appropriate basis for estimating reductions that could be achieved through use of an auxiliary boiler at RCEC.

In sum, Petitioner’s contentions that “there is no support for the District’s calculation” of the reductions and that “the cost effectiveness calculation lacks an ascertainable basis” (CAP Petition at 22) are without any merit. Accordingly, the Board should dismiss these claims.

C. The Air District Properly Established Startup and Shutdown Limits

Petitioner contends that the Air District made three errors in determining BACT startup and shutdown limits for the Russell City facility. First, Petitioner claims that “the District erred first by improperly relying on emissions limits achieved at existing facilities that have turbines like the one RCEC purchased (before obtaining a PSD permit). CAP Petition at 23. Second, Petitioner argues that “the District relied on maximum achieved limits to set BACT.” *Id.* Third, Petitioner contends that “the District added a large ‘compliance margin’ of unexplained origin on top of those maximum achieved emissions limits.” *Id.* The second and third arguments are expressly limited to the NO_x limits for hot and cold startups.⁴ *See id.* at 24-28. As shown below,

⁴ As suggested previously (*supra* notes 2-3), cold startups are startups when the turbine has been off-line for more than 48 hours; warm startups are when the turbine has been off-line for between 8 and 48 hours; and hot startups are when the turbine has been offline for less than 8 hours. *See* Exhibit 4, Final PSD Permit at 5.

Petitioner falls far short of establishing clear error in the Air District's permitting decision with respect to any of these issues.

1. The Air District Based Its BACT Determinations on State-of-the-Art Equipment

Petitioner includes a brief (half-page) argument asserting that “[b]y limiting its review to upgrades to RCEC’s already purchased Westinghouse 501FD2 turbines, the District failed to set the most stringent limit required under the Act.” *Id.* at 23. According to Petitioner, “[t]his fundamental error is the backdrop to the District’s unlawful reliance on maximum achieved limits and addition of a cushion: because the 501FD2 upgrades cannot achieve the most stringent limit that should be set as BACT, the District committed other errors [with respect to the startup/shutdown issues discussed below].” *Id.* at 23-24. Petitioner’s argument has no merit. As an initial matter, Petitioner wholly fails to explain why the Air District’s extensive response to comments on this issue is clearly erroneous or otherwise warrants review. Moreover, Petitioner’s argument fails on the merits because the Air District based its BACT determination on state-of-the-art technology and, in fact, lowered the NO_x limit for hot startups based on observed emissions rates at the Palomar Energy Center, which uses OpFlex technology and early ammonia injection to control startup emissions.

a. The Air District Responded Extensively to Comments on Current Technology and Its BACT Determinations

The Air District responded extensively to comments contending that it “incorrectly based its BACT analysis for the combustion turbines/heat recovery boilers on the equipment that the applicant has already purchased and intends to use at the facility.” Exhibit 5, Responses to Public Comments at 4. As the Air District explained, it based its BACT determinations on emissions performance of the best equipment currently available:

At the outset, the Air District notes generally that it agrees with the premise underlying these comments that the BACT permit requirements established for a facility need to be based on the emissions performance of the best equipment currently available, and may not be based on a lower level of performance of older equipment simply because an applicant may have already purchased existing equipment. The commenters are incorrect, however, in implying that the Air District bases its BACT determinations on the performance of older

equipment in situations where an applicant may have already purchased equipment that it would like to use at a facility. *To the contrary, the Air District bases its BACT limits on the emissions performance of the most current technology.* Where appropriate, the Air District has not hesitated to impose more stringent limits for this project than were considered achievable in 2002 when the project was first permitted. For example, when the Air District initially proposed to issue this PSD permit, it proposed a NO₂/NO_x limit of 2.0 ppm, even though the current BACT limit when the project was initially licensed was considered to be 2.5 ppm. *The Air District therefore requires project applicants to comply with the most stringent emissions limits currently achievable for a facility, as defined in the BACT requirements, regardless of whether the applicant has already purchased equipment or not.*

Id. (footnote omitted) (emphases added). In particular, the Air District identified FD3 turbine technology as the current state-of-the-art equipment and based its BACT determinations on this technology, not on the FD2 technology used in the turbines that RCEC originally proposed:

For these reasons, in response to these comments [as quoted above] the Air District explored whether there was more efficient generating equipment that the facility could use. *The Air District has identified “FD3” turbine technology as the current state-of-the-art electrical generating equipment for a facility of this type* FD3 turbine technology would allow the facility to achieve an overall thermal efficiency of 56.4% (lower heating value), which is the highest efficiency of any similar plant that the Air District reviewed. This FD3 technology is slightly more efficient than the “FD2” technology that the applicant originally proposed. After further discussions with the project applicant, *the applicant has agreed to upgrade its equipment to incorporate the more modern FD3 technology.* These FD3 upgrades will result in an improvement in the thermal performance of the gas turbines, resulting in a higher efficiency for the plant as a whole. That is, they will result in a reduction in the plant’s “heat rate”, which is the amount of fuel required to produce a megawatt (MW) of electricity, *making the gas turbine’s efficiency comparable to the best F-Class turbines available on the market today.* *The Air District is basing its BACT determinations on this state-of-the-art technology, not on the FD2 technology used in the turbines that the applicant originally proposed.*

The FD3 upgrades will consist of decreasing the clearances in the compressor section of the turbine, adjusting the inlet guide vanes and optimizing the control system components. More specifically, the upgrades will include the following: [10 features].

The Applicant will also implement operational and maintenance changes recommended by the original equipment manufacturer to improve performance, reliability and maintainability of the equipment. In addition, the Applicant will replace the control system with Siemens’ latest control technology, known as the “T-3000” system.

With these upgrades, the turbines the applicant has already purchased will, for all emissions performance purposes, be the equivalent of FD3 turbines commercially available today. These upgrades will increase the plant’s overall efficiency such that the rate of emissions per unit of energy produced will be reduced, which will allow the facility to meet a BACT standard set by the emissions rate achievable

by FD3 turbines. *Based on this FD3 technology, the facility will be able to achieve a thermal efficiency of 56.4%, which is the highest efficiency of any similar plant the Air District reviewed. This highly efficient technology will generate fewer emissions for a given amount of power generation than any other similar facility. The Air District is basing its proposed BACT permit conditions on this current technology.*

The Air District is therefore basing its BACT permit conditions on the emissions performance of this current state-of-the-art FD3-level technology, and not on some lesser performance level based on older equipment. The Air District notes, however, that it is not proposing permit requirements specifying exactly what equipment must be used to satisfy the applicable BACT permit limits. BACT requires emission limits to be imposed based on the best emissions performance achievable by current state-of-the-art technology, but once the BACT limits are established based on this technology as the Air District is proposing, the specific equipment the facility uses to achieve that limitation is irrelevant. As long as the facility keeps emissions within the BACT emission standards, it does not matter what particular choice of equipment the facility uses to do so. Certainly, from an environmental standpoint the choice is irrelevant because it is the emissions that impact air quality not the make or model of the equipment that generates them. *If the applicant can meet current emission standards by upgrading existing equipment, there may be significant benefits to be gained, such as avoiding the costs of purchasing new equipment that would ultimately be borne by ratepayers and avoiding the waste inherent in junking serviceable equipment. But how the applicant meets current emission standards is up to the applicant. What matters from an air quality perspective – and what matters for purposes of the Federal PSD Permit requirements – is whether the limits established in the permit reflect the maximum emission reductions achievable for the source using current technology. As demonstrated in the Air District’s BACT analyses (as set forth in more detail in the rest of this [Responses to Public Comments] document), the limits the District is imposing on this facility are all based on current technology. Since the limits that the facility will be subject to are based on current technology, issues such as the date of manufacture or purchase of the specific equipment the applicant may choose to install are not relevant for purposes of the Federal PSD Permit.*

Id. at 5-7 (footnotes omitted) (emphases added).

The Air District published the above analysis in response to comments received during the first comment period. *Id.* at 7; *see* Exhibit 3, Additional Statement of Basis at 7-9. During the second comment period, the Air District “did not receive any further substantive comments on the District’s conclusions that it is basing its BACT permit conditions on current state-of-the-art technology, and not on outdated technology simply because the applicant already owns existing equipment as these comments implied.” Exhibit 5, Responses to Public Comments at 7. The only additional comments it received were “general assertions that the equipment proposed for the facility is old and does not reflect current technology.” *Id.* These comments “did not

identify any specific reasons why the Air District's assessment . . . that its BACT analysis is based on current best technology is incorrect." *Id.* Thus, the Air District found "no reason in these further general comments to conclude that its assessment is not correct" and, for all these reasons, disagreed "that the BACT requirements it is imposing in the Federal PSD Permit are based on old, outdated equipment." *Id.*

b. Petitioner's Argument Fails Both Procedurally and Substantively

Petitioner does not articulate any reason that it believes the Air District's response to comments on these issues was faulty. Indeed, Petitioner does not even cite the Air District's Responses to Public Comments. *Cf. Zion Energy*, 9 E.A.D. at 707 (denying petition that "merely reiterates comments previously submitted to [the permitting agency] during the comment period without indicating why [the permitting agency's] responses to these comments were erroneous" and that "does not even mention [the permitting agency's] Responsiveness Summary."). Instead, Petitioner relies only on a comment letter from the first comment period and ignores all subsequent history. *See* CAP Petition at 23 (citing Chabot 2/6/09 Comments at 3-4, 17). Thus, Petitioner fails to meet a threshold procedural requirement for Board review. *See, e.g., Indeck-Elwood*, slip op. at 87-88 (petitioners "must not only state their objections to a permit but must also explain why the permitting authority's response to those objections (for example in a response to comments document) is clearly erroneous or otherwise warrants review."). The Board should deny review of this issue on this basis alone. *See Zion Energy*, 9 E.A.D. at 705 (failure by petitioners to state their objections to a permit and to explain why the permitting authority's response to those objections is clearly erroneous or otherwise warrants review will result in a denial of review).

Even if Petitioner had met this threshold requirement, its arguments would fail. As discussed above, the Air District "bas[ed] its BACT determinations on this state-of-the-art [FD3 turbine] technology, not on the FD2 technology used in the turbines that the applicant originally proposed." Exhibit 5, Responses to Public Comments at 5. Moreover, as part of its BACT

determinations for startups and shutdowns, the Air District “concluded that the BACT limit for hot startups should be lowered from 125 lbs. to 95 lbs. based on further review of the emissions performance achieved by other facilities, including the Palomar Energy Center.” *Id.* at 93-94. The Palomar facility was required to implement drastic startup emissions reductions under a variance proceeding, including installing an OpFlex system and adjusting its ammonia injection procedures to inject ammonia earlier. Exhibit 1, Statement of Basis at 41. As discussed below, in response to comments received during the first comment period, the Air District reviewed additional information from the Palomar facility and considered Palomar’s startup emissions rates as part of its BACT determination for both hot and cold startups. *See infra* section IV.C.1. Not only did the Air District not “limit[] its review to upgrades to RCEC’s already purchased Westinghouse 501FD2 turbines,” as CAP contends (CAP Petition at 23), the Air District considered emissions rates from a facility that uses equipment (OpFlex technology) that it *eliminated as infeasible in its BACT technology review*. *See* Exhibit 1, Statement of Basis at 41-42; Exhibit 3, Additional Statement of Basis at 71-72; Exhibit 5, Responses to Public Comments at 116-19.

In sum, Petitioner’s unsupported and incorrect contentions about the Air District’s BACT determinations for startups do not support a conclusion that the Air District committed clear error in its permitting decision.

2. The Air District Properly Established NO_x Limits for Cold and Hot Startups

Petitioner contends that the Air District ignored “average emissions from even the 2000-vintage plants” in setting the NO_x⁵ limits for cold and hot startups. CAP Petition at 28. Because

⁵ While PSD requirements apply to nitrogen dioxide (“NO₂”), the Air District has treated NO₂ and NO_x interchangeably. *See* Exhibit 1, Statement of Basis at 21 (“[i]n the context of ozone precursor regulation, NO₂ and NO [nitric oxide] emissions are generally referred to collectively as ‘NO_x’. As the NO portion of NO_x eventually converts to NO₂, and as permit limits for NO_x are normally expressed in terms of NO₂, the Air District refers to NO_x and NO₂ interchangeably in this analysis.”). Hereinafter, NO₂ and NO_x are used interchangeably.

the permit limits are allegedly “higher than the already achieved limits” (*id.* at 24), Petitioner claims that they fail to comply with BACT requirements. As shown below, the Air District had a rational basis for the NO_x limits for both cold and hot startups, and Petitioner fails to show clear error in the Air District’s decisions.

a. The Air District Had a Rational Basis in Setting the NO_x Limit for Cold Startups

The basis for the NO₂ limits that the Air District proposed in the Draft PSD Permit were “the permit limits that were established for the Metcalf Energy Center, the most recent similar facility that the Air District has permitted.” Exhibit 1, Statement of Basis at 44. The Air District “began with those limits as a starting point, and then examined data and permit conditions from other facilities to determine if lower limits could reasonably be achieved by this facility.” *Id.* The Metcalf permit limit for cold startups was 480 pounds of NO₂ emissions. *Id.*

The Air District then considered startup data from the Sutter Energy Center, the Delta Energy Center, the Metcalf Energy Center, and the Los Medanos Energy Center. *Id.* at 44-46. At two facilities, startup NO_x emissions were below the proposed 480-pound limit (Delta Energy Center and Metcalf Energy Center). *Id.* at 45. At the other two facilities, a number of startups had NO_x emissions at or even above the proposed 480 pound limit (Sutter Energy Center and Los Medanos Energy Center). *Id.* at 45-46. The Air District declined to lower the 480-pound limit, based on the following reasoning:

The data the Air District has evaluated suggest that it would not be appropriate to reduce the emissions limits for the proposed Russell City Energy Center below the limits adopted for the Metcalf facility as a mandatory BACT limit. Although some turbines on some occasions have achieved lower emissions rates, *the BACT limit must be achievable at all times throughout the facility’s operational life. A reasonable safety margin must be included so that the facility will be able to comply with its limits during every startup, even if emissions for specific startups or as an average for startups as a whole may be less.* The data from other similar facilities shows that if the Air District were to impose limits substantially below the Metcalf limits, the proposed facility could face difficulty in complying with them.

Id. at 46 (emphasis added).

In response to comments received during the first comment period, the Air District

reviewed additional information, including from the Palomar, Lake Side, and Caithness facilities,⁶ and concluded that it “continues to believe that the NO₂ emissions limits it initially proposed are appropriate because the additional information it has reviewed supports [this] limit[] as the lowest that can reasonably be achieved over time.” Exhibit 3, Additional Statement of Basis at 59. For the Palomar facility, the Air District reviewed additional emissions data covering all NO_x emissions data for the facility from October 2006 through the end of 2007 -- during which the facility implemented “the full complement of efforts it has made to reduce startup emissions under a variance from the [San Diego Air Pollution Control District] Hearing Board.”⁷ *Id.* at 60-61. The Air District took the raw, minute-by-minute continuous emissions monitoring data and estimated when startups began and ended based on changes in O₂ concentrations. *Id.* at 60. The emissions rates it arrived at were lower than the emissions rates calculated by the San Diego Air Pollution Control District (“SDAPCD”) for the four startups for which SDAPCD calculations were available, suggesting that the Air District’s method was a conservative assessment of actual emissions performance. *Id.* The Air District then broke out the data into cold, warm, and hot startups. *Id.* at 61.

For the Palomar facility, the Air District found that the average NO₂ emissions for cold

⁶ With respect to the Lake Side Power Plant and Caithness Long Island Energy Center, the Air District found that “[t]he only way to compare the Lake Side and Caithness facilities is based on their startup permit limits, as there is no published data from either facility because they are only just coming online.” Exhibit 3, Additional Statement of Basis at 63. For Lake Side, the Air District found that the facility’s permit has no limits whatsoever on startup emissions and concluded that it “does not believe that it would be appropriate to issue a permit for the Russell City Energy Center without limits on startup emissions.” *Id.* at 63-64. For Caithness, the Air District evaluated the permit limits without use of an auxiliary boiler and found that “the Caithness startup limits are all higher than the limits the Air District initially proposed for the Russell City permit here.” *Id.* at 64. The Air District concluded that “Caithness further supports the reasonableness of these NO₂ startup limits as the lowest achievable BACT limits.” *Id.*

⁷ As the Air District explained, it excluded data from October 13, 2006 and before for turbine 1 and October 12, 2006 for turbine 2 because “the commenters who urged the Air District to consider the Palomar data asserted that it is the period after implementation of these efforts that evidences the best achievable startup emissions performance.” *Id.* at 61. “Since the excluded data consist of, for the most part, data showing high emissions . . . , the District’s approach is, again, conservative.” *Id.*

startups was 182.8 pounds, and that the maximum NO₂ emissions for cold startups was 375 pounds according to its calculations, or 437 pounds according to the SDAPCD's calculations. *Id.* at 61. Based on this assessment, the Air District concluded that the Palomar facility is performing "at or near the level of the other similar facilities that the Air District considered in the Statement of Basis [*i.e.*, Delta Energy Center average and maximum NO₂ emissions of 193 and 281 pounds, respectively; Metcalf Energy Center average and maximum NO₂ emissions of 185 and 335 pounds, respectively], but certainly not any better than that." *Id.* Thus, "the Palomar data serve to confirm [the Air District's] earlier assessment of the appropriate cold startup limits for Russell City, and certainly do not suggest that the initial analysis was inaccurate." *Id.*

The Air District offered additional discussion with respect to the maximum NO_x emissions at Palomar:

The Air District did observe that the Palomar data showed a maximum startup emissions event of 375 or 437 pounds (depending on which calculation is used), which is somewhat below the proposed Russell City cold startup limit of 480 pounds, *but the Air District does not consider this level of compliance margin – which is 9%-22% of the permit limit, depending on whose calculation is used – to be unreasonable for several reasons.* First, the data from Palomar includes only five available data points for cold starts, which does not generate a great deal of statistical confidence that the maximum seen in this data set is representative of the maximum that can be expected *over the entire life of the facility.* Moreover, the wide variability in the data that is available highlights the *variability in individual startups*, underscoring the need to provide a sufficient compliance margin to allow the facility to be able to comply during all reasonably foreseeable startup scenarios. For both of these reasons, the Air District has concluded that a cold startup limit of 480 pounds of NO₂ is a reasonable BACT limit that is consistent with the startup emissions performance seen at the Palomar facility.

Id. at 61 (emphases added).

During the second comment period, the Air District received comments criticizing the proposed NO_x limits for cold startups. *See* Exhibit 5, Responses to Public Comments at 100. These comments "criticized the proposed limit of 480 lbs/startup and stated that the other similar facilities that the District evaluated show average startup emissions in the range of 183 to 193 pounds." *Id.* The comments "further stated that the Air District has not adequately explained the basis for the compliance margin provided in these limits." *Id.* The Air District addressed these

comments as follows:

In response to these comments, the Air District disagrees that the BACT limits should be based on the average startup emissions performance observed at other similar facilities. *The BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with at all times and under all foreseeable operating conditions, not just during average startups. The limits therefore need to allow for a sufficient compliance margin to accommodate all reasonably foreseeable startups, not just the average case.* The Air District took this requirement into account in deriving the startup limits, as explained in the Statement of Basis, Additional Statement of Basis, and the further analysis described above. . . . *[T]he 480-pound cold-startup limit was based on early data from the Palomar facility showing emissions could be as much as 375-437 pounds for a cold startup, with a reasonable additional compliance margin to allow for the fact that startups are highly variable in nature and that the 375-437 pound startup emissions seen in the Palomar data may not necessarily be the highest startups the facility will experience over its lifetime. . . .* The Air District believes that this is a reasonable and appropriate approach to implementing *not-to-exceed BACT limits that are the lowest achievable under all operating situations.* The Air District disagrees with the comments that this approach is unreasonable for the reasons stated above. The Air District also disagrees with the comments that it has not adequately explained how it came up with these limits, as the District's analysis was clearly set forth in the Statement of Basis (pp. 38-47) and Additional Statement of Basis (pp. 58-74), and has been further clarified in this [Responses to Public Comments].

Id. at 100-01 (emphases added). Thus, in the Final PSD Permit, the Air District imposed a 480.0 pound NO₂ emissions limit on cold startups. *See* Exhibit 4, Final PSD Permit at 10 (Permit Condition 20).

b. Petitioner Fails To Establish Clear Error in the Air District's NO_x Limit for Cold Startups

Petitioner contends that “[t]he District failed in its burden because cold startup limits are higher than the already achieved limits.” CAP Petition at 24. In particular, Petitioner argues that “the District dismissed limits that have been achieved in fact and are lower than the proposed limit of 480 lbs per startup event,” that “[e]ven facilities whose construction commenced as long ago as 2000 have demonstrated that they can emit as low as 86 pounds,” that “the average emissions per startup event are in the range of 183 to 193 lbs,” and that “the permitted limit of 480 lbs is, in fact, the third highest emissions demonstrated at Calpine’s Sutter facility.” *Id.* These arguments fail both procedurally and substantively. Petitioner does not articulate a single reason that it believes the Air District’s response to comments on these issues is clearly

erroneous or otherwise warrants review. Moreover, Petitioner ignores prior Board decisions involving BACT determinations and does not come close to meeting the heavy burden assigned to petitioners seeking review of technical issues. Petitioner also makes several specific claims about alleged deficiencies in the Air District's responses to comments, which are addressed individually below.

The Air District specifically responded to comments that "criticized the proposed limit of 480 lbs/startup and stated that the other similar facilities that the District evaluated show average startup emissions in the range of 183 to 193 pounds" and comments that "stated that the proposed limit of 480 pounds is in fact the second-highest emissions data point from the Sutter facility." Exhibit 5, Responses to Public Comments at 100. In response to these comments, the Air District "disagree[d] that the BACT limits should be based on the average startup emissions performance observed at other similar facilities." *Id.* As the Air District explained, "[t]he BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with at all times and under all foreseeable operating conditions, not just during average startups. The limits therefore need to allow for a sufficient compliance margin to accommodate all reasonably foreseeable startups, not just the average case." *Id.* Petitioner does not articulate a single reason that it believes this response to comments is clearly erroneous or otherwise warrants review. As a consequence, Petitioner fails to meet a threshold procedural requirement. *See, e.g., Indeck-Elwood*, slip op. at 87-88 (petitioners "must not only state their objections to a permit but must also explain why the permitting authority's response to those objections (for example in a response to comments document) is clearly erroneous or otherwise warrants review."). The Board should deny review of this issue on this basis alone. *See Zion Energy*, 9 E.A.D.. at 705 (failure by petitioners to state their objections to a permit and to explain why the permitting authority's response to those objections is clearly erroneous or otherwise warrants review will result in a denial of review).

Even if Petitioner had met this threshold pleading requirement, its arguments would fail. The Board has long recognized a "distinction between, on the one hand, measured 'emissions

rates,' which are necessarily data obtained from a particular facility at a specific time, and on the other hand, the 'emissions limitation' determined to be BACT and set forth in the permit, which the facility is required to continuously meet throughout the facility's life." *In re Newmont Nevada Energy Investment, LLC, TS Power Plant*, 12 E.A.D. 429, 442 (EAB 2005). "[B]ecause the 'emissions limitation' is applicable for the facility's life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over a long term." *Id.* Moreover, the permit issuer can use a "safety factor to take into account variability and fluctuation in the expected performance of the pollution control methods." *In re Prairie State Generating Co.*, PSD Appeal No. 05-05, slip op. at 72 (EAB, Aug. 24, 2006). Indeed, when emissions are highly variable, "setting the emissions limitation to reflect the highest control efficiency would make violations of the permit unavoidable." *Id.* (citing *In re Masonite Corp.*, 5 E.A.D. 551, 560 (EAB 1994)). Thus, permitting agencies "retain discretion to set BACT levels that 'do not necessarily reflect the highest possible control efficiencies but, rather, will allow permittees to achieve compliance on a consistent basis.'" *Id.* (citing *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 188 (EAB 2000); accord *In re Three Mountain Power, L.L.C.*, 10 E.A.D. 39, 53 (EAB 2001)).

The Air District relied on these well-established BACT principles in setting the 480-pound NO_x cold startup limit. First, the Air District found that "data from other similar facilities shows that if the Air District were to impose limits substantially below the Metcalf limits, the proposed facility could face difficulty in complying with them." Exhibit 1, Statement of Basis at 46. *See Prairie State*, slip op. at 72 (permitting agencies "retain discretion to set BACT levels that 'do not necessarily reflect the highest possible control efficiencies but, rather, will allow permittees to achieve compliance on a consistent basis.'" (citing *Steel Dynamics*, 9 E.A.D. at 188; accord *Three Mountain Power*, 10 E.A.D. at 53). Second, the Air District took into account the fact that "startups are highly variable in nature." Exhibit 5, Responses to Public Comments at 100. *Cf. Prairie State*, slip op. at 72 ("where the technology's efficiency at controlling

pollutant emissions is known to fluctuate, ‘setting the emissions limitation to reflect the highest control efficiency would make violations of the permit unavoidable’”) (citing *Masonite*, 5 E.A.D. at 560). Third, the Air District recognized that “early data” from the Palomar facility “may not necessarily be the highest startups the facility will experience over its lifetime.” Exhibit 5, Responses to Public Comments at 100. See *Newmont*, 12 E.A.D. at 442. (“because the ‘emissions limitation’ is applicable for the facility’s life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over the long term.”). Overall, “[t]he Air District believes that this is a reasonable and appropriate approach to implementing not-to-exceed BACT limits that are the lowest achievable under all operating situations.” Exhibit 5, Responses to Public Comments at 100-01. Not only is this approach reasonable and appropriate, it is consistent with Board precedent.

Petitioner falls far short of meeting the “heavy burden” that the Board assigns to petitioners seeking review of technical issues. See *Three Mountain Power*, 10 E.A.D. at 50 (“[w]e generally accord deference to permitting agencies when technical issues are in play. As such, we assign a heavy burden to persons seeking review of issues that are quintessentially technical.”) (citations omitted). Petitioner argues that the Air District dismissed limits that have been “achieved in fact” and are “lower” than 480 pounds (CAP Petition at 24), but never states what it believes the BACT limit is or what the technical justification for that limit would be. In contrast, as discussed above, the Air District clearly articulated a rational basis for the 480-pound limit.

In sum, Petitioner fails to explain why the Air District’s response to comments is clearly erroneous or otherwise warrants review and fails to establish that the Air District committed clear error in establishing the 480-pound cold start NO_x limit.

c. Petitioner’s Allegations About the Air District’s Responses to Comments Have No Merit

As part of its argument about the Air District’s determination of the cold start NO_x limit,

Petitioner identifies three alleged deficiencies in the Air District's responses to comments. As shown below, these allegations have no merit. To the contrary, the responses to comments provided by the Air District in the Additional Statement of Basis and Responses to Public Comments were thorough and extensive and often surpassed federal requirements. *See* 40 C.F.R. § 124.17(a)(2) (the response to comments shall "[b]riefly describe and respond to all significant comments on the draft permit . . . raised during the public comment period, or during any hearing.").

(1) The Air District Duly Considered Data from Other Facilities

Petitioner alleges that "[t]he District's response [explaining its decision not to lower the 480-pound NO_x limit for cold startups], however, wholly ignores data from other facilities covering two to four years, SOB at 45-46, which show average emissions far below the permitted limit." CAP Petition at 25. According to Petitioner, "[m]oreover, the District did not even respond to public comments pointing to cold startup emissions at other facilities, such as Lake Side, which showed that it had achieved 102 lbs of NO_x (compared to the 480 lbs permitted here)." *Id.* at 25 (citing Chabot 6/15/09 Comments). Neither of these arguments has merit.

As discussed above (*see supra* section IV.C.2.b), the Air District explained why it disagreed that BACT limits should be based on average observed emissions: "[i]n response to these comments, the Air District disagrees that the BACT limits should be based on the average startup emissions performance observed at other similar facilities. The BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with at all times and under all foreseeable operating conditions, not just during average startups." Exhibit 5, Responses to Public Comments at 100. Petitioner does not articulate a single reason that it believes this response to comments is clearly erroneous or otherwise warrants review. Thus, the Air District did not "wholly ignore" data from other facilities. It just disagreed with Petitioner.

There are several problems with Petitioner's other argument -- that the Air District "did not even respond to public comments pointing to cold startup emissions at other facilities such as

Lake Side, which showed that it had achieved 102 lbs of NO_x (compared to the 480 lbs permitted here).” CAP Petition at 25. As an initial matter, Petitioner cites “Chabot 6/15/09 Comments”. However, the letter submitted by Chabot-Las Positas Community College dated June 15, 2009 was submitted outside of any public comment period; hence, the Air District was under no obligation to respond to it. In any event, the Air District responded in detail to comments concerning the Lake Side Power Plant:

The Air District also reviewed the Lake Side Power Plant and Caithness Long Island Energy Center, the other two facilities that the commenters cited. . . . [T]he Air District investigated these facilities further and found that they do not use Fast-Start technology, although they do utilize an auxiliary boiler that has a startup emissions benefit. *Nevertheless, they are similar combined-cycle facilities and the Air District evaluated whether they are achieving better performance.*

The only way to compare the Lake Side and Caithness facilities is based on their startup permit limits, as there is no published data from either facility because they are only just coming online. The Caithness facility has not yet been built, while the Lake Side facility has been operating only since December of 2008, as some commenters pointed out, and the Air District is not aware of any actual operating data this is available for it. Without actual operating data available for review, the Air District compared the permit limits for those facilities to see whether they suggest that lower permit limits might be appropriate for Russell City.

First, for Lake Side, the facility’s permit has no limits whatsoever on emissions during startups. The Air District does not believe that it would be appropriate to issue a permit for the Russell City Energy Center without limits on startup emissions, as discussed above. But to the extent that commenters contend that the Air District should look to Lake Side as a comparable facility, there are no startup limits to compare.

Exhibit 3, Additional Statement of Basis at 63-64 (footnote omitted) (emphases added).

Moreover, Petitioner’s claim that Lake Side “had achieved 102 lbs of NO_x” is factually incorrect. As the Air District stated, it “is not aware of any actual operating data that is available for [Lake Side].” *Id.* at 63. The Air District also addressed vendor data provided in the Lake Side permit application, which include the 102-pound figure mentioned by Petitioner:

In addition, the permit application provided startup information based on vendor data, which were referenced in the Utah DEQ analysis for the permit, but these numbers were for one specific operating temperature and were not presented as vendor guarantees of what the equipment could reliably achieve under all foreseeable operating circumstances. Moreover, the numbers do not identify whether they were for startups using the auxiliary boiler or not. See Notice of Intent and Prevention of Significant Deterioration Air Quality Application, Lake

Side Power Plant (May 2004), Table 3-6.

Id. at 63-64 n.115. In sum, just as the Air District conveyed in this response, the vendor data did not represent a guaranteed not-to-exceed emissions value, but these were merely estimates provided by the vendor. Neither the commenter, nor Petitioner, has submitted any evidence to demonstrate that these represent levels that can be achieved under all foreseeable operating circumstances over the long-term, such that they could be used to establish an enforceable limit, or that they have ever been demonstrated at all.

Petitioner does not articulate any reason that it believes the Air District's response to comments on these issues was clearly erroneous or otherwise warrants review. Indeed, Petitioner does not even acknowledge the Air District's responses in the Additional Statement of Basis and Responses to Public Comments. *Cf. Zion Energy*, 9 E.A.D. at 707 (denying petition that "merely reiterates comments previously submitted to [the permitting agency] during the comment period without indicating why [the permitting agency's] responses to these comments were erroneous" and that "does not even mention [the permitting agency's] Responsiveness Summary"). Thus, Petitioner has not met its burden, and its argument fails.

(2) The Staggered Limit Issue Was Not Preserved for Appeal

Petitioner alleges that "[t]he District also ignored public comments asking for a staggered limit as opposed to setting a high limit if indeed there was a basis for assuming that the equipment could not be reasonably maintained over time." CAP Petition at 25 (citing CAP 2/09 Comments at 16; CAP 09/09 Comments at 5). This allegation has no merit because no public comments ever addressed this issue. Thus, the issue was not preserved for appeal.

As a prerequisite to obtaining review, a petitioner must have "raise[d] all reasonably ascertainable issues and submit[ted] all reasonably ascertainable arguments supporting [its] position by the close of the public comment period (including any public hearing) under § 124.10." *In re Rockgen Energy Center*, 8 E.A.D. 536, 540 (EAB 1999) (citing 40 C.F.R. § 124.13). The petition must contain "a demonstration that any issues being raised were raised during the public comment period." *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 249

(EAB 1999) (citing 40 C.F.R. §§ 124.13, 124.19(a)). The reason is clear: “[t]he effective, efficient and predictable administration of the permitting process demands that the permit issuer be given the opportunity to address potential problems with draft permits before they become final.” *Id.* at 250.

The two citations provided by Petitioner are misleading, and neither preserves the issue for appeal. The first citation refers to a discussion of the most stringent emission limitation *for carbon dioxide* (CO₂). See Exhibit 18, CAP Comments 2/5/2009 at 16. With respect to CO₂ emissions, it raises the possibility of a “limit for a select period.” *Id.* (“[i]f, after all the appropriate review, the District genuinely cannot determine the proper emissions limit for the total lifetime of the facility, the District can set a limit for a select period”). An approach for setting a BACT limit for CO₂ if the Air District “genuinely cannot determine the proper emissions limit” could not possibly have alerted the Air District to an issue with its *NO_x limit for cold startups*. Further, the Air District specifically responded to Petitioner’s comments concerning the broad compliance margin that had originally been proposed for emissions of CO₂, establishing greenhouse gas emission limits that were significantly lower than initially proposed and would account for anticipated degradation in operating efficiency that might occur over time.⁸ Although the second citation at least addresses startup limits, it says *nothing* about a staggered limit. See CAP Petition, Exhibit 7, CAP Comments 9/16/2009 at 5. To the extent this letter addresses average and maximum emissions limits, Petitioner discusses that issue separately (*see infra* section IV.C.2.c(3)).

Thus, Petitioner does not demonstrate that it or anyone else raised the issue of a staggered limit, nor does it allege that the issue was not reasonably ascertainable during the public

⁸ See Exhibit 3, Additional Statement of Basis at 25 (“The Air District has reevaluated its proposed BACT emissions level in light of these comments, and upon further consideration agrees that 1100 lb/MW-hr would not be appropriate BACT limit for greenhouse gas emission. Instead, the Air District is proposing a lower BACT emissions limit, as well as an “output-based” requirement for periodic compliance testing to ensure that the plant maintains the BACT efficiency standard over time.”).

comment period. Instead, Petitioner attempts to mislead the Board with two irrelevant citations: one which suggested a staggered limit on the facility's CO₂ emissions; and one which dealt with startup emissions, but suggesting nothing like a "staggered" limit. Petitioner cannot at this time string these two separate comments made during separate comment periods together to form a new legal argument presented for the first time on appeal. Indeed, after proposing the lower limit on the facility's emissions of greenhouse gases, the Air District should have reasonably thought that any suggestion offered by Petition with respect to a "staggered limit" was moot. Regardless, neither Petitioner, nor anyone else, ever suggested establishing "staggered" limits for startup emissions. Thus, this issue was not preserved for appeal and should not be considered by the Board.

(3) The Air District Responded to Comments on Average and Maximum Emissions

Petitioner alleges that "[t]he District also failed to justify why a limit could not be set for both an average and maximum emissions, rather than a limit that is effectively a maximum limit that is generally higher than all of the maximum emissions from existing facilities with similar equipment." CAP Petition at 25 (citing CAP 9/09 Comments at 5). Petitioner fails to recognize, however, that the Air District responded specifically to this comment.

Petitioner repeats nearly verbatim the comment it submitted during the second comment period: "BAAQMD fails even to explain . . . why BAAQMD could not have set both an average and maximum emissions limit, rather than a limit that is effectively a maximum limit that is generally higher than all of the maximum emissions." CAP Petition at Exhibit 7, CAP 9/09 Comments at 5. The Air District provided the following response to this comment:

The Air District considered these comments and has concluded that limits on the maximum emissions allowed during cold startups are sufficient to ensure compliance with the PSD BACT requirement. Startup performance is inherently variable, and it is difficult to ascertain with certainty what an achievable average emissions rate would be over a particular averaging period. Moreover, a maximum limit will force the facility to implement best work practices to minimize emissions during all startups, which will have the indirect effect of limiting emissions over a group of startups in a given period. And average startups [sic] limits are also indirectly limited by the annual limit on NO₂ emissions, which will encompass the emissions from all of the startups throughout

a given year. For all of these reasons, the Air District declines to impose average limits on cold startup NO₂ emissions based on these comments. BACT will be adequately implemented by short-term emissions limits, which is the preferable type of BACT limit for Federal PSD permits.

Exhibit 5, Responses to Public Comments at 104-05. Thus, the Air District provided *at least four reasons* not to impose both average and maximum emissions limits. The Petitioner fails to articulate *a single reason* that it believes this response was clearly erroneous. Indeed, Petitioner fails to cite the Air District's Responses to Public Comments at all. *Cf. Zion Energy*, 9 E.A.D. at 707 (denying petition that “merely reiterates comments previously submitted to [the permitting agency] during the comment period without indicating why [the permitting agency's] responses to these comments were erroneous” and that “does not even mention [the permitting agency's] Responsiveness Summary.”). Such verbatim restatements of earlier comments fall short of establishing any legitimate basis for Board review. *See* EAB Practice Manual at 33 (“Petitioners for review may not simply repeat objections made during the comment period; instead they must demonstrated why the permitting authority's response to those objections warrants review.”) (citing *Knauf II*, 9 E.A.D. at 5).

d. The Air District Had a Rational Basis in Setting the NO_x Limit for Hot Startups

Petitioner alleges that “[f]or all the reasons that the District failed to comply with BACT requirements as to cold startup limits, the District has failed to comply with BACT requirements as to hot startup limits.” CAP Petition at 28. Petitioner also alleges specifically that “the District ignored average emissions from even the 2000-vintage plants like Delta (25 to 29.8 lbs) to set the proposed limit at 95 lbs,” that “[t]he District instead relied on maximum emissions and then provided an unexplained margin to set BACT,” and that “[t]he proposed limit is thus three times the average NO_x emissions at those facilities.” *Id.* As shown below, the Air District had a rational basis for the NO_x limits for hot startups, and Petitioner fails to show clear error in the Air District's decision.

The basis for the NO_x limits that the Air District proposed in the Draft PSD Permit were “the permit limits that were established for the Metcalf Energy Center, the most recent similar

facility that the Air District has permitted.” Exhibit 1, Statement of Basis at 44. The Air District “began with those limits as a starting point, and then examined data and permit conditions from other facilities to determine if lower limits could reasonably be achieved by this facility.” *Id.* For hot startups, the Air District “concluded that the proposed Russell City facility would be able to achieve emissions limitations substantially below those imposed at Metcalf.” *Id.* at 46.

The NO_x limit of 125 pounds in the Draft PSD Permit “represents a reduction of nearly half from the corresponding Metcalf startup limit, which is 240 pounds.” *Id.* Calpine “committed to this substantial reduction based upon its assessment of its record controlling NO_x emissions during startup events, as demonstrated by data from its other facilities.” *Id.* Moreover, “although there is normally a trade-off between decreased NO_x emissions and increased CO emissions . . . Calpine . . . committed to achieving the proposed NO_x reductions while maintaining CO emissions at the same level adopted for the Metcalf facility (2,514 pound per event).” *Id.*

In response to comments received during the first comment period, the Air District reviewed additional information and concluded “that the BACT limit for hot startups should be lowered from 125 lbs. to 95 lbs. based on further review of the emissions performance achieved by other facilities, including the Palomar Energy Center.”⁹ Exhibit 3, Additional Statement of Basis at 59. As discussed above (*see supra* section IV.C.2.a), the Air District reviewed additional emissions data from the Palomar facility covering all NO_x emissions data for the facility from October 2006 through the end of 2007. *Id.* at 60. After removing a high apparent outlier of 145 pounds, the Air District found that the Palomar startup data show an average of 30.3 pounds and a maximum of 75 pounds of NO_x emissions per startup. *Id.* at 62. Compared to the Delta Energy Center, which the Air District considered in setting the initial limit, “Palomar is

⁹ For a discussion of the Air District’s review of information from the Lake Side and Caithness facilities, see *supra* note 6.

actually experiencing *higher* average hot startup emissions,” and “the data from Palomar show a high similar to the highest high at Delta [82.2 lbs.], although a little lower.” *Id.* The Air District concluded that for hot startups “the Palomar facility is not achieving an overall startup emissions performance any better than the other comparable facilities the Air District evaluated in establishing the proposed BACT limits.” *Id.*

The Air District also concluded, however, that “a somewhat more stringent compliance margin would probably be achievable here for hot startups” because “[a]t the 125 pounds hot-start limit initially proposed, the compliance margin would be 43 pounds more than the highest data point found at Delta and 50 pounds more than the highest data point from Palomar.” *Id.* Thus, the Air District proposed to lower the NO_x limit for hot startups from 125 pounds to 95 pounds per startup. The Air District provided the following rationale:

[t]his lower limit would bring the permit limit more in line with the high-emissions startups that have been seen at other similar facilities, *while still providing an appropriate margin of compliance to take into account the fact that startups are by their nature highly variable and the highest startup emissions seen in the data collected to date may not necessarily reflect the highest emissions that would reasonably be expected under all circumstances over the life of the facility.*

Id. (emphasis added).

During the second comment period, the Air District received comments criticizing the proposed NO_x limits for hot startups. The comments stated “that the Air District should base the permit limit on the average emissions performance of other similar facilities, which they claimed was 25 to 29.8 pounds, and that it was improper to look to the maximum emissions associated with startups instead of the average.” Exhibit 5, Responses to Public Comments at 100. The comments “further stated that the Air District has not adequately explained the basis for the compliance margin provided in these limits.” *Id.* The Air District addressed these comments as follows:

In response to these comments, the Air District disagrees that the BACT limits should be based on the average startup emissions performance observed at other similar facilities. *The BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with at all times and under all foreseeable operating conditions, not just during average startups. The limits therefore need to allow for a sufficient compliance margin to accommodate all*

reasonably foreseeable startups, not just the average case. The Air District took this requirement into account in deriving the startup limits, as explained in the Statement of Basis, Additional Statement of Basis, and the further analysis described above. . . . [T]he 95-pound hot-startup limit was based on the Palomar data showing hot startup emissions of up to 75 pounds (excluding the 145-pound data point as an apparent outlier) with a reasonable compliance margin. The Air District believes that this is a reasonable and appropriate approach to implementing *not-to-exceed BACT limits that are the lowest achievable under all operating situations.* The Air District disagrees with the comments that this approach is unreasonable for the reasons stated above. The Air District also disagrees with the comments that it has not adequately explained how it came up with these limits, as the District’s analysis was clearly set forth in the Statement of Basis (pp. 38-47) and Additional Statement of Basis (pp. 58-74), and has been further clarified in this [Responses to Public Comments].

Id. at 100-01 (emphases added). Thus, in the Final PSD Permit, the Air District imposed a 95 pound NO_x emissions limit on hot startups. *See* Exhibit 4, Final PSD Permit at 10 (Permit Condition 20).

e. Petitioner Fails To Establish Clear Error in the Air District’s NO_x Limit for Hot Startups

Petitioner’s allegations about the NO_x limit for hot startups focus on the Air District’s decision not to base the limit on average emissions observed at other facilities. Petitioner alleges specifically that “the District ignored average emissions from even the 2000-vintage plants like Delta (25 to 29.8 lbs) to set the proposed limit at 95 lbs,” that “[t]he District instead relied on maximum emissions and then provided an unexplained margin to set BACT,” and that “[t]he proposed limit is thus three times the average NO_x emissions at those facilities.” *Id.* These arguments fail both procedurally and substantively. Petitioner does not articulate a single reason that it believes the Air District’s response to comments on these issues is clearly erroneous or otherwise warrants review. In addition, as with its arguments about the NO_x limit for cold startups, Petitioner ignores prior Board decisions involving BACT determinations and does not come close to meeting the heavy burden assigned to petitioners seeking review of technical issues.

The Air District specifically responded to comments stating that “the Air District should base the permit limit on the average emissions performance of other similar facilities, which they claimed was 25 to 29.8 pounds, and that it was improper to look to the maximum emissions

associated with startups instead of the average” and that “the Air District has not adequately explained the basis for the compliance margin provided in these limits.” Exhibit 5, Responses to Public Comments at 100. In response to these comments, the Air District “disagree[d] that the BACT limits should be based on the average startup emissions performance observed at other similar facilities.” *Id.* As the Air District explained, “[t]he BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with at all times and under all foreseeable operating conditions, not just during average startups. The limits therefore need to allow for a sufficient compliance margin to accommodate all reasonably foreseeable startups, not just the average case.” *Id.* In particular, “the 95-pound hot-startup limit was based on the Palomar data showing hot startup emissions of up to 75 pounds (excluding the 145-pound data point as an apparent outlier) with a reasonable compliance margin.” *Id.* Petitioner does not articulate a single reason that it believes this response to comments is clearly erroneous or otherwise warrants review. As a consequence, Petitioner fails to meet a threshold procedural requirement for Board review. *See, e.g., Indeck-Elwood*, slip op. at 87-88 (petitioners “must not only state their objections to a permit but must also explain why the permitting authority’s response to those objections (for example in a response to comments document) is clearly erroneous or otherwise warrants review.”). The Board should deny review of this issue on this basis alone. *See Zion Energy*, 9 E.A.D. at 705 (failure by petitioners to state their objections to a permit and to explain why the permitting authority’s response to those objections is clearly erroneous or otherwise warrants review will result in a denial of review).

Even if Petitioner had met this threshold procedural requirement, its arguments would fail. The Air District clearly articulated a rational basis in setting the NO_x limit for hot startups. The Air District initially set a limit of 125 pounds -- just over half the limit at the Metcalf Energy Center -- based on the startup emissions rates Calpine had been able to achieve at its other facilities. Exhibit 1, Statement of Basis at 46. In response to comments received during the first comment period, the Air District carefully reviewed additional data from the Palomar facility, which uses OpFlex technology and early ammonia injection to control startup emissions. Exhibit

3, Additional Statement of Basis at 59-63. After finding that Palomar had a maximum of 75 pounds of NO_x emissions per startup (given the exclusion of an apparent outlier of 145 pounds), and considering the Delta Energy Center's maximum of 82.2 pounds, the Air District lowered the limit to 95 pounds to "bring the permit limit more in line with the high-emissions startups that have been seen at other similar facilities." *Id.* at 62. As the Air District explained, this lower limit "still provid[es] an appropriate margin of compliance to take into account the fact that startups are by their nature highly variable and the highest startup emissions seen in the data collected to date may not necessarily reflect the highest emissions that would reasonably be expected under all circumstances over the life of the facility." *Id.* This is consistent with well-established BACT principles. *See, e.g., Prairie State*, slip op. at 72 (permitting agencies "retain discretion to set BACT levels that 'do not necessarily reflect the highest possible control efficiencies but, rather, will allow permittees to achieve compliance on a consistent basis'") (citing *Steel Dynamics*, 9 E.A.D. at 188; *accord Three Mountain Power*, 10 E.A.D. at 53); *Newmont*, 12 E.A.D. at 442 ("because the 'emissions limitation' is applicable for the facility's life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over the long term.").

Moreover, Petitioner falls far short of meeting the "heavy burden" that the Board assigns to petitioners seeking review of technical issues. *See Three Mountain Power*, 10 E.A.D. at 50 ("[w]e generally accord deference to permitting agencies when technical issues are in play. As such, we assign a heavy burden to persons seeking review of issues that are quintessentially technical.") (citations omitted). Petitioner never explains what permit limit it believes is BACT, which average emissions data this alleged BACT limit would be based on, and what the technical justification would be. *See CAP Petition* at 28. Especially in light of the rational basis articulated by the Air District, and the Air District's extensive responses to comments (which Petitioner ignores), it is not sufficient to allege that "[f]or all the reasons that the District failed to comply with BACT requirements as to cold startup limits, the District has failed to comply with

BACT requirements as to hot startup limits.” *Id.*

In sum, Petitioner fails to explain why the Air District’s response to comments is clearly erroneous or otherwise warrants review and fails to establish that the Air District committed clear error in establishing the 95-pound hot start NO_x limit.

3. It Is Within the Air District’s Discretion To Apply a Compliance Margin

Petitioner’s final contention with respect to the NO_x limits for cold and hot startups is that “the District added a large ‘compliance margin’ of unexplained origin on top of those maximum achieved emissions limits.” CAP Petition at 23. As discussed below, Petitioner also makes a number of specific allegations, all of which lack merit. Contrary to Petitioner’s contentions, it is well within the Air District’s discretion to apply a reasonable compliance margin, as the Air District did here, and Petitioner again fails to show clear error in the Air District’s decision.

a. The Air District Used a Reasonable Compliance Margin

As the Board has recognized, “[a] challenge to a permitting authority’s use of safety factors . . . is not easily entertained separate and apart from the permitting authority’s analysis of the record evidence pertaining to achievable emissions limits.” *Prairie State*, slip op. at 72. As the Board explained, “[t]his is the case because the concept of a ‘safety factor’ is intended to allow the permitting authority flexibility in setting the permit limits where there is some degree of uncertainty regarding the maximum degree of emissions reduction that is achievable.” *Id.* For example, the Board has approved use of a safety factor “to take into account variability and fluctuation in expected performance of the pollution control methods.” *Id.* Indeed, “where the technology’s efficiency at controlling pollutant emissions is known to fluctuate, ‘setting the emissions limitation to reflect the highest control efficiency would make violations of the permit unavoidable.’” *Id.* (citing *Masonite*, 5 E.A.D. at 560). Thus, “a permit writer is not required to set the emissions limit at the most stringent emissions rate that has been demonstrated by a facility using similar emissions control technology.” *Id.* (citing *In re Kendall New Century Dev.*, 11 E.A.D. 40, 52 (EAB 2003)). “Instead, permit writers retain discretion to set BACT levels that

‘do not necessarily reflect the highest possible control efficiencies but, rather, will allow permittees to achieve compliance on a consistent basis.’” *Id.* at 72 (citing *Steel Dynamics*, 9 E.A.D. at 188; *accord Three Mountain Power*, 10 E.A.D. at 53).

The Air District followed this guidance when it used a 9-22% safety factor in setting the 480-pound cold-start NO_x limit:

The Air District did observe that the Palomar data showed a maximum startup emissions event of 375 or 437 pounds (depending on which calculation is used), which is somewhat below the proposed Russell City cold startup limit of 480 pounds, *but the Air District does not consider this level of compliance margin – which is 9%-22% of the permit limit, depending on whose calculation is used – to be unreasonable for several reasons.* First, the data from Palomar includes only five available data points for cold starts, which does not generate a great deal of statistical confidence that the maximum seen in this data set is representative of the maximum that can be expected *over the entire life of the facility.* Moreover, the wide variability in the data that is available highlights the *variability in individual startups*, underscoring the need to provide a sufficient compliance margin to allow the facility to be able to comply during all reasonably foreseeable startup scenarios. For both of these reasons, the Air District has concluded that a cold startup limit of 480 pounds of NO₂ is a reasonable BACT limit that is consistent with the startup emissions performance seen at the Palomar facility.

Exhibit 3, Additional Statement of Basis at 61. Similarly, “the 95-pound hot-startup limit was based on the Palomar data showing hot startup emissions of up to 75 pounds (excluding the 145-pound data point as an apparent outlier) with a reasonable compliance margin. Exhibit 5, Responses to Public Comments at 100. Overall, “[t]he Air District believes that this is a reasonable and appropriate approach to implementing not-to-exceed BACT limits that are the lowest achievable under all operating situations.” *Id.* at 100-01. It was within the Air District’s discretion to set startup limits at levels that “do not necessarily reflect the highest possible control efficiencies but, rather, will allow [RCEC] to achieve compliance on a consistent basis.” *Prairie State*, slip op. at 72 (citing *Steel Dynamics*, 9 E.A.D. at 188; *accord Three Mountain Power*, 10 E.A.D. at 53).

b. Petitioner’s Specific Contentions Lack Merit

Although Petitioner makes a number of specific contentions alleging failures in the Air District’s analysis, all of these are false, unsupported, or otherwise lack merit. First, Petitioner contends that “there is no analysis of why there is variability, such as practices that might have contributed to the range, other than to say that ‘startups are by their nature highly variable.’”

CAP Petition at 26. The Air District, however, examined startup data from a number of facilities and specifically explained why the results were variable:

The data showed a very large amount of variability, which is caused by a number of reasons. The factors that can make individual startups take longer or shorter [times] and generate more or less emissions include ambient temperatures of the equipment, limitations on the loading sequence prescribed by the gas turbine manufacturer to assure safe loading of the equipment, and limitations on the steam-cycle side of the facility necessary to ensure that the steam turbine and associated piping are safely warmed.

Exhibit 1, Statement of Basis at 44. Thus, Petitioner's contention is simply false.

Second, Petitioner claims that “[t]he District’s analysis failed to meet BACT requirements because the approach provides no incentive to the facility to maintain peak efficiency over time.” CAP Petition at 26. Elsewhere in its petition, Petitioner claims that “[t]he District also ignored public comments asking for a staggered limit as opposed to setting a high limit if indeed there was a basis for assuming that the equipment could not be reasonably maintained over time.”¹⁰ CAP Petition at 25 (citing CAP 2/09 Comments at 16; CAP 09/09 Comments at 5). Here, again, we note that Petitioner’s claim that the Air District ignored public comments asking for a staggered limit on startup emissions is plainly false, as no such comments were ever made. Regardless, a staggered limit would have the exact effect that Petitioner appears to fear: it would “provide[] no incentive to the facility to maintain peak efficiency over time.” *Id.* at 26. A single limit, however, *requires* the facility to maintain peak efficiency over time. As the Air District explained, “[t]he BACT limits will be enforceable, not-to-exceed permit limits that the facility will be required to comply with *at all times* and under all foreseeable operating conditions.” Exhibit 5, Responses to Public Comments at 100 (emphasis added). Petitioner establishes no error in the Air District’s conclusions in this respect, particularly given the heavy burden Petitioner bears in questioning the Air District’s consideration of technical issues.

¹⁰ As discussed above (*see supra* section IV.C.2.c(2)), this issue was not preserved for appeal.

Third, Petitioner alleges that “[t]he District’s analysis failed to demonstrate that there are ‘source-specific factors or other relevant information that provide a technical, economic, energy or environmental justification’ to increase the limit from the emissions levels in the lower range of those that are achieved in fact by other power plants.” CAP Petition at 26 (citing New Source Review Workshop Manual (Draft Oct. 1990) (“NSR Manual”) at B.24 (“Control Techniques with a Wide Range of Emissions Performance Levels”). Petitioner’s argument fails, however, because, in order to be subject to consideration at Step 3 of EPA’s guidance for a top-down BACT analysis, an emissions rate must be demonstrated to be achievable – not at a single moment in time or even on average, but during all events over the long-term. *Newmont*, 12 E.A.D. at 442 (“because the ‘emissions limitation’ is applicable for the facility’s life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over the long term”). Petitioner fails to recognize the distinction between observed emissions rates and the level that is achievable on a consistent basis over time. *See Prairie State*, slip op. at 71 (“we have recognized a distinction between, on the one hand, measured ‘emission rates,’ which are necessarily data obtained from a particular facility at a specific time, and on the other hand, the ‘emissions limitation’ determined to be BACT and set forth in the permit, which the facility is required to continuously meet throughout the facility’s life”) (internal quotations omitted). In that respect, Petitioner offers no evidence to demonstrate that an emissions rate “in the lower range” of observed levels is, in fact, achievable. Nor does it introduce anything that would call into question the Air District’s inherently technical determination on what level is, in fact, achievable over the long-term.

Fourth, Petitioner contends that “[t]he District failed to examine RCEC’s startup emissions in the context of any of the factors mentioned in [*Prairie State*].” CAP Petition at 27. This contention is false. The Air District specifically considered “the particular circumstances of the selected technology, the context in which it will be applied, and available data regarding achievable emissions.” *Id.* (citing *Prairie State*, slip op. at 73). As the Air District explained,

startups are highly variable in nature due to a number of factors, including ambient temperatures of the equipment and limitations on the loading sequence and steam-cycle side of the facility. *See* Exhibit 1, Statement of Basis at 44. This is the context in which the technology – best work practices – will be applied, and it is these “practical difficulties” that preclude the source from achieving optimal startup emissions on a consistent basis. The Air District also examined “the available data regarding achievable emissions” from multiple facilities, including the Sutter, Delta, Metcalf, and Los Medanos, Palomar, Lake Side, and Caithness facilities. *See supra* sections IV.C.2.a & d.

Ignoring all of this analysis by the Air District, Petitioner next alleges that the Air District did not “review whether the other facilities’ failure to achieve a shorter startup emissions was due to those factors. The District, for example, provides no discussion of whether the highest emissions that exceed 484 [sic] lbs set here are from periods when the facilities were employing BACT.” CAP Petition at 27. Petitioner concludes, “[t]hat is not the kind of analysis that *Prairie* contemplates because BACT could then easily turn into Reasonably Available Control Technology.” *Id.* Nowhere does *Prairie State* imply, let alone state, that the Air District should have examined emissions data from all of the facilities it considered and figured out, for each data point that is above 480 pounds, why the emissions *at that other facility* exceeded the proposed limit *for Russell City*. In any event, given the many variables impacting cold startup events, it is unlikely that such an examination would even be possible. Further, Petitioner’s suggested slippery slope between determining BACT based upon achievable emissions limits and Reasonably Available Control Technology (“RACT”) fails to acknowledge that setting an achievable emissions limit necessarily requires the permitting agency’s review of available information and application of technical judgment. Finally, each of the other facilities examined by the Air District has its own startup emissions limits (except Lake Side). There is no reason to conclude if a given startup exceeded 480 pounds, a facility was not “employing BACT.” This argument makes no sense.

In sum, none of Petitioner’s specific arguments establish clear error in RCEC’s NO_x

limits for hot and cold startups.

c. Petitioner's Argument that the Compliance Margin Is Unprecedented Is Incorrect

Petitioner contends that “there is no precedent for allowing such a large margin.” CAP Petition at 27. According to Petitioner, “[i]t is one thing to employ a small safety factors [sic] justified evidence [sic], such as the one in [*Prairie State*], but it is entirely another when that safety factor is so large as to make the most stringent limit unrecognizable.” *Id.* Petitioner cites to 0.4-1.4% or 2-4% discrepancies in *Prairie State* and *Masonite*. *Id.*

As an initial matter, Petitioner is making an incorrect comparison. The safety factors at issue in *Prairie State* and *Masonite* both involved control efficiency limits. *See Prairie State*, slip op. 73-76 (SO₂ control efficiency); *Masonite*, 5 E.A.D. at 559-63 (VOC removal efficiency). This case does not involve control efficiency limits. In this case, Petitioner is using the percentage difference between observed emissions rates at the Palomar facility (as calculated by the San Diego Air Pollution Control District and the Air District) and the emissions limitation in Russell City's PSD permit to calculate a 9-22% compliance margin. There is no legitimate basis for this “apples-to-oranges” comparison. The “apples-to-apples” comparison would have been the percentage differences between observed emissions rates at the Palomar facility and NO_x cold startup limits found in other PSD permits, but Petitioner does not make this comparison. Nor does Petitioner acknowledge that the permit limits at Palomar are significantly higher than the observed emissions. As the Air District noted, “the startup limits in the permit for the Palomar facility are far higher than anything the Air District has considered for Russell City: 400 lbs/hr NO_x and 2,000 lbs/hr CO (and note that these limits are *hourly* limits, meaning that total emissions for an entire startup can be several times these hourly rates). Exhibit 5, Responses to Public Comments at 94-95 n.191.

Moreover, even if Petitioner had made a legitimate comparison, it would not mean that the Air District's BACT analysis was incorrect. BACT is determined by the permitting authority “on a case-by-case basis, taking into account energy, environmental, and economic impacts and

other costs.” 42 U.S.C. § 7479(3); *see also* 40 C.F.R. § 52.21(b)(12). “[A]ppropriate application of a safety factor in setting an emission limit is inherently fact-specific and unique to the particular circumstances of the selected technology.” *Prairie State*, slip op. at 73. As discussed above, the Air District clearly articulated its rationale for including a sufficient compliance margin in RCEC’s PSD permit, based on the variability in data from other facilities and the highly variable nature of startups.

In sum, it was well within the Air District’s discretion to apply a reasonable compliance margin in determining the NO_x limits for hot and cold startups, as the Air District did here, and Petitioner fails to show clear error in the Air District’s decision.

V. CONCLUSION

Petitioner fails to meet threshold pleading requirements and fails to demonstrate that any decision by the Air District related to operating scenarios, auxiliary boiler technology, or startup and shutdown limits was clearly erroneous or otherwise warrants Board review. Thus, RCEC respectfully requests that the Board deny review of all issues raised in the CAP Petition.

Respectfully submitted,

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Attorney for Permittee Russell City Energy
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Dated: April 23, 2010

CERTIFICATE OF SERVICE

I hereby certify that on the 23rd day of April, 2010, an identical paper copy of the foregoing Russell City Energy Company, LLC's Response to Petition for Review Filed by Citizens Against Pollution, which was filed electronically on the same date via the Central Document Exchange portal, was also sent via Federal Express to:

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I hereby certify that on the 23rd day of April, 2010, copies of the foregoing Russell City Energy Company, LLC's Response to Petition for Review Filed by Citizens Against Pollution were served via first-class U.S. mail, postage prepaid, to:

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