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

In re: Russell City Energy Center PSD Permit No. 15487	)	PSD Appeal No. 10-03 (Citizens Against Pollution, Petitioner) [Related to PSD Appeals No. 10-01, 10-02, 10-04, 10-05, 10-06, 10-07, 10-08, 10-09, & 10-10.]

RESPONSE TO PETITION FOR REVIEW

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April 23, 2010

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INTRODUCTION AND SUMMARY OF ARGUMENT

Pursuant to the Clerk's March 25, 2010, letter, Respondent the Bay Area Air Quality Management District ("District") submits this Response to Petition for Review 10-03 filed by Petitioner Citizens Against Pollution ("Petitioner" or "CAP") in this proceeding.

In this Petition, CAP challenges the "Best Available Control Technology" ("BACT") determination that the District made concerning emissions from startups of the combustion turbines that will be used at the Russell City Energy Center. Petitioner challenges the District's startup BACT determination based on three specific arguments. For the reasons detailed in this Response, the District submits that all three of these arguments lack merit and respectfully requests that the Petition be denied in its entirety.

First, Petitioner claims that the District did not properly evaluate additional control technologies that could reduce startup emissions. This claim is based on a contention that the District did not properly evaluate the facility's expected operating scenario, and therefore did not establish a technically-justified for the number and type of startups the facility will experience. The Petition claims that without evaluating the number and type of startups the facility will experience, the District could not have properly evaluated the extent of the emissions reductions that could be achieved with additional startup controls. But as the District carefully explained and documented in the record, under the Power Purchase Agreement for this facility, the facility will be operated a "6 x 16" intermediate-to-baseload facility, meaning that it will be operated 16 hours a day, 6 days a week. Using this operating scenario, the District calculated that the facility will experience 6 cold startups, 100 warm startups, and 500 hot startups per year, and it used this startup profile in its BACT analysis. All of the information the District evaluated supported the use of this startup profile as a realistic assessment of the facility's likely operation, and the District clearly explained on the record how it came to this conclusion. Petitioner's claim that the District erred in this assessment, or that it failed to properly explain and justify the basis for this assessment, is simply not supported by the record.

Second, Petitioner claims that in evaluating whether the facility should be required to use an auxiliary boiler to reduce startup emissions, the District erred in eliminating this technology based on cost-effectiveness considerations. Petitioner claims (i) that the District was not allowed to consider costs as part of its BACT analysis for this PSD permit; and (ii) that even so, the District did not have an adequate factual basis for the estimated emissions reductions that could be achieved with an auxiliary boiler in making this calculation. But the Clean Air Act (as well as EPA's implementing regulations) are clear that in issuing a PSD permit, a permitting agency must evaluate BACT taking into account "economic impacts and other costs", which clearly requires the District to consider cost-effectiveness is its BACT determination. And in comparing the cost of an auxiliary boiler with the emissions reductions it could achieve, the District relied on actual data documenting the emission reductions achieved from another similar facility that uses this equipment, which it fully explained and documented in the record. Petitioner's challenge to the District's auxiliary boiler analysis must therefore fail as well.

Third, Petitioner also challenges the specific NO_2 BACT limits that the District established in the permit for emissions during cold startups and for emissions during hot startups. Petitioner claims that the District erred in setting these limits based on a review of emissions data from other similar facilities using similar technology. Petitioner also claims that the District should have based its BACT limits on the *average* emissions limits seen in the data from these facilities. On this basis, Petitioner claims that the District erred in establishing the limits that would accommodate the range of emissions performance seen in test results from similar facilities using similar equipment, with a reasonable margin of safety margin to ensure that the limits would be consistently achievable over the life of the facility. But the District properly set the BACT limit at a level that takes into account the high degree of variability in the data it had before it, and it fully explained and documented its analysis in the record. Petitioner provides no reason why the District's determination on this issue was clearly erroneous or an abuse of discretion.

The District addresses each of these three points in detail in its Argument set forth below, which outlines the points and authorities on which the Board should dismiss this Petition for Review.

FACTUAL AND PROCEDURAL BACKGROUND

This Petition for Review seeks to appeal a Prevention of Significant Deterioration ("PSD") Permit issued by the District for the Russell City Energy Center. This PSD Permit was issued in response to a Remand Order issued by the Environmental Appeals Board in PSD Appeal No. 08-01, which remanded an earlier version of the permit to the District to provide additional public notice and comment opportunities. (*See* Remand Order, *In re Russell City Energy Center*, 14 E.A.D. __, PSD Appeal No. 08-01 (EAB July 29, 2008) (hereinafter, "Remand Order").)

In response to the Remand Order, the District re-issued a draft PSD permit and conducted a great deal of public outreach notifying the public of the draft PSD permit and inviting public comment. The District initially published its draft PSD permit, along with a Statement of Basis explaining the District's basis for the draft permit, on December 8, 2008. The District accepted written comments on the draft permit until February 6, 2009. The District also held a public hearing during this time period to receive verbal comment, on January 21, 2009. The District then reviewed and considered the public comments it received, and based on the public comments (and other new information) it revised and re-issued the draft permit for a further round of public review and comment. The District issued the revised draft, along with an Additional Statement of Basis, on August 3, 2009, and accepted written comments until September 16, 2009. The District also held a second public hearing, on September 2, 2009. The District then issued the Final PSD Permit that is the subject of this Petition for Review on February 3, 2010, along with comprehensive responses to all public comments it received. The District is providing copies of the relevant record documents that it published in this process as Exhibits to the Declaration of Alexander G. Crockett, Esq., ("Crockett Decl."), accompanying

this Response. The Exhibits include the Final PSD Permit (Exh. 1), the Notice the District issued with the Final PSD Permit (Exh. 2), the Responses to Public Comments that the District published to accompany the Final PSD Permit (Exh. 3), and the Additional Statement of Basis (Exh. 4) and Statement of Basis (Exh. 5) that the District provided for the two public notice periods (which contained the daft permit conditions the District was proposing).

Of particular importance to this Petition to Review, the District conducted a BACT analysis for emissions from startups of the combustion turbines that the facility will use. The District considered three specific control technologies that could potentially be used to reduce emission from startups, in addition to best work practices to ensure that startups are accomplished at quickly as possible and with as little emissions as possible. One alternative is an emerging technology that uses an integrated once-through steam boiler process, known as "Fast-Start" technology. The District considered this technology, and found that one manufacturer – Siemens – offers an application called "Flex-Plant 10", which is a "Fast-Start" system that uses a single-pressure steam boiler. The District rejected this technology because a single-pressure steam boiler is less efficient than the triple-pressure design that the Russell City facility will use. The District therefore concluded that "Flex-Plant 10" should not be required as BACT because the additional emissions and energy penalty from using the less-efficient system would not offset the additional startup emissions reductions it could achieve. The District's analysis on this issue is summarized in Section VIII.C.1. of the Reponses to Public Comments.

The District also considered whether the facility could use an auxiliary boiler to keep the equipment warm during shutdowns, which allows for a quicker startup with fewer emissions. The District evaluated the costs that would be involved in installing and operating an auxiliary boiler, and concluded that the additional emission reductions that could be achieved would not justify the additional expense. The District therefore rejected the use of an auxiliary boiler on cost-effectiveness grounds. The District's analysis with respect to the auxiliary boiler is summarized in Section VIII.C.2. of the Reponses to Public Comments.

Finally, the District also considered an emerging technology known as low-load "turn-down" technology. The District found that this technology has been used at only one facility, and that the data from this facility have not demonstrated that it will be able to achieve emissions rates that are any lower than the District had proposed. The District therefore concluded that this technology would not have to be required as BACT, because it had not been demonstrated to achieve any additional emission reductions over what this facility will be required to achieve in any event. The District's analysis of low-load "turn-down" technology is summarized in Section VIII.C.3. of the Reponses to Public Comments.

The District therefore eliminated these additional control technologies from its BACT review, and determined that BACT would be implemented through best work practices. The District then went on to develop specific emissions limits for different startup scenarios, based on permit limits from a recently-permitted similar facility, and also based on actual operating data from other similar facilities that showed that emissions rates could be achieved at levels somewhat lower than were specified in the most recent permit. The District's evaluation and determination of the appropriate BACT limits is set forth in Section VIII.B. of the Responses to Public Comments.

Petitioner now appeals the District's BACT limits for startups, claiming that the District's BACT determination was erroneous. Based on the permitting record summarized above, and on the more specific factual information provided at relevant points in the following argument, the District disagrees that it has erred in any way.

STANDARD OF REVIEW

Petitions for Review of PSD permits are under 40 C.F.R. Section 124.19(a). Pursuant to Section 124.19(a), the Board may grant review only if the permitting authority's decision to issue the permit was based on a clearly erroneous finding of fact or conclusion of law, or if it involves an important matter of policy or exercise of discretion that warrants review. *See In re Zion Energy, LLC,* 9 E.A.D. 701, 705 (EAB 2001); *In re Knauf Fiber Glass, GmbH,* 8 E.A.D. 121,

126-27 (EAB 1999). The Board's power of review should be only sparingly exercised, and most permit conditions should be finally determined at the permit issuer's level, absent exceptional circumstances. *See In re Kawaihae Cogeneration Project,* 7 E.A.D. 107, 114 (EAB 1997).

The burden of demonstrating that review is warranted rests with the petitioner challenging the permit decision. *Kawaihae Cogeneration,* 7 E.A.D. at 114; *In re EcoElectrica L.P.,* 7 E.A.D. 56, 61 (EAB 1997). In order to establish that review of a permit is warranted, section 124.19(a) requires a petitioner both to state the objections to the permit that are being raised and explain why the agency's previous response to those objections – that is, the agency's basis for the decision – is clearly erroneous or otherwise warrants review. *See Kawaihae Cogeneration,* 7 E.A.D. at 114; *see also In re P.R. Elec. Power Auth.,* 6 E.A.D. 253, 255 (EAB 1995); *In re Genesee Power Station L.P.,* 4 E.A.D. 832, 866-67 (EAB 1993). Petitioners must explain how the agency's PSD analysis constituted clear error or an abuse of discretion, and it is not enough simply to repeat objections made during the comment period.

ARGUMENT

Petitioner's three grounds for challenging the District's BACT determination for startups are all without merit. The District addresses each of the three in turn below. As this argument will show, the District provided a clear, well-reasoned, and well-documented basis for establishing BACT for startups for this facility, and the Petition fails to show that the District committed clear error in doing so, abused its discretion in any way, or otherwise acted in a manner that could warrant review.

I. The District Based Its BACT Determination On Specific, Detailed Documentation Showing That The Facility Will Be A "6x16" Intermediate-to-Baseload Facility

The Petition's first claim is that the District did not adequately investigate what the facility's operating scenario will be, and as result did not have an accurate understanding of how many startups the facility will likely experience when it conducted its BACT analysis. But a review of the record shows that the District undertook a substantial amount of investigation and analysis of this issue and found that, based on all available information including the Power

Purchase Agreement under which the facility will operate, the facility will operate as a "6 x 16" intermediate-to-baseload facility. Based on this evidence, the District found that the facility will experience approximately 3 cold startups, 50 warm startup, and 250 hot startups per year at each of its two turbines. The District clearly explained and documented this situation in responding to comments, and there is no confusion in the record how the District evaluated this issue. For these reasons, Petitioner's first claim must be rejected.

A. The District Clearly Documented And Explained That The Russell City Energy Center Will Operate As A "6x16" Intermediate-to-Baseload Power Plant

Throughout the entire permitting process, the District has been clear and consistent in its assessment of the cost-effectiveness of startup control technologies that the Russell City Energy Center will be operated as an intermediate-to-baseload facility with a "6 x 6" operating profile. "6 x 16" operation means that the facility will be required to be available for commercial operation at least 16 hours per day, 6 days per week. *See* Responses to Public Comments at 123 (citing Power Purchase Agreement). 16 hours per day of operation with an overnight shutdown would result in a "hot startup" the next morning, as hot startups are defined as startups that occur within 8 hours of a shutdown. *See* Final PSD Permit at 5 (definition of "Gas Turbine Hot Start-up"). 6 days per week of operation would mean that the facility is not operated one day per week, which would result in a "warm startup" when the facility starts up again after the idle day, as warm startups are defined as startups that occur between 8 hours and 48 hours of a shutdown. *See* Final PSD Permit at 5 (definition of "Gas Turbine Warm Start-up"). "6 x 16" operation therefore results in 6 hot startups and 1 warm startup per week. The District also presumed that the facility may need to be shut down for a few more extended periods during the year, which would result in cold startups when it is eventually restarted. *See* Final PSD Permit at 5 (definition of "Gas Turbine Cold Start-up", which is a startup more than 48 hours after a shutdown). The District therefore used a startup profile for each turbine of 250 hot startups per year (6 per week x 50 weeks); 50 warm startups per year (1 per week x 50 weeks) and 3 cold

startups per year (for occasional extended downtime). For the two turbines at the facility, the total number of startups would be 500 hot startups, 100 warm startups, and 6 cold startups per year. This is the operating scenario on which the District based its BACT analysis.

The District's analysis on this issue developed and became more specific over the course of the proceeding, as is to be expected in a public process where the permitting agency solicits public comments and then refines its analysis as comments received and additional information is developed in response. Regarding the facility's "6 x 16" operational profile, the District developed its analysis in response to comments it received requesting that the District examine in detail exactly what the facility's likely startup profile would be, given that the cost-effectiveness of additional startup controls depends in part on the number and type of startups. In response to these comments (among others), the District's analysis developed from a general observation that the facility would operate as a heavily-used base-loaded facility as opposed to a low-usage "peaker" plant, to a more precise analysis of the number and type of startups the facility will typically experience under its "6 x 16" operating profile. The District summarizes the permitting history of this issue in detail here in order to clarify the reality of the situation in response to Petitioner's attempts to create the impression that the record has been inconsistent or confusing in some way.

- *Statement of Basis:*

The District's BACT analysis process began with the December 2008 Statement of Basis. In Section V.A.4 of the Statement of Basis (pp. 38-47), the District considered in detail the Best Available Control Technology for reducing startup emissions. One technology the District evaluated was once-through boiler technology, also known as "Fast-Start" technology. Siemens has developed one application of this technology, which it calls its "Flex-Plant" technology. *See* Statement of Basis at 40. The District considered using Siemens's "Flex-Plant" technology at the Russell City facility, but concluded that the only "Flex-Plant" system currently available was the less-efficient "Flex-Plant 10" system, which uses a single-pressure steam turbine that is appropriate for "peaker" plants but not for combined-cycle baseload plants such as Russell City.

See id. The District conducted a detailed analysis of the efficiency difference between a single-pressure steam turbine that might be used in a peaker plant and the more-efficient triple-pressure steam turbine used at facilities like Russell City, and found that there would be a substantial energy penalty – with concomitant additional emissions – from using the single-pressure "Flex-Plant 10" system, which would outweigh any startup benefits. *See* Statement of Basis at 43-44. For this and other reasons, the District therefore eliminated the "Flex-Plant 10" technology from its BACT analysis, based on its conclusion that a single-pressure system is appropriate for peaker plants that have more frequent startups and spend less time in normal steady-state operation, whereas by contrast Russell City will be a baseload facility and spend the majority of the time in normal stead-state operation with relatively fewer startups. *See id.*

Notably, this distinction between "peaker" plants and "baseload" plants was made only for purposes of comparing in general what types of plant would be appropriate for a single-pressure "Flex Plant" system and what types of plant would be appropriate for the higher-efficiency triple-pressure system. The District therefore did not attempt to quantify with any specificity exactly what the facility's operational profile would be, other than to note that it would not be a "peaker" plant. For example, the District did not attempt at this stage to assess whether the facility would operate "24/7", on "6 x 16" basis, or in some other base-loaded manner, as it was clear that the single-pressure "Flex-Plant 10" system would be appropriate only for a "peaker" plant and that Russell City would not be a "peaker" plant.

In addition to this analysis of the "Flex-Plant 10" startup technology, the Statement of Basis also provided a general description of four different levels of operation that the facility would experience in the "Project Description" section of the Statement of Basis. The District generally described these varying levels of operation as:

(i) "[m]aximum continuous output with duct firing", which the Statement of Basis called "Base Load";

(ii) "a total output of less than the base load scenario", which the Statement of Basis called "Load Following";

(iii) "shutdown [of] one or more turbine/HRSG power trains [which] would occur during periods of low overall demand such as late evening and early morning hours", which the Statement of Basis called "Partial Shutdown"; and

(iv) "Full Shutdown", with no operation at all.

Statement of Basis at 11. This description is fully consistent with the facility's "6 x 16" operating profile, as "6 x 16" operation envisions periods of 100% maximum output, periods of less-than-maximum output, shutdown of one or both turbines overnight, and occasional periods of longer-term full shutdown. But given that the District had not fully refined its analysis on startup-related issues at the Statement of Basis stage – and in particular its analysis of the facility's specific startup profile – the description is less detailed and specific than the full analysis of the expected number and type of startups that the facility will experience. The District's detailed and specific analysis was developed in response to the comments it received on the issue.

- *Additional Statement of Basis:*

After publishing this information in the Statement of Basis, the District received several comments questioning the District's rejection of "Flex-Plant" technology. These comments claimed that in addition to the single-pressure "Flex-Plant 10" system, Siemens had also developed a triple-pressure "Flex-Plant 30" system that would not have additional pollution and energy penalty drawbacks that led the District to reject the "Flex-Plant 10" alternative. *See* Additional Statement of Basis at 68 (describing comments received). These comments cited two specific facilities – the Lake Side Power Plant in Utah and the Caithness Long Island Energy Center in New York – as facilities that had utilized the "Flex-Plant 30" design. *Id.* The District investigated these facilities further and found that they had not used the "Flex-Plant 30" once-through steam boiler technology (a determination which the Petition has not challenged). *Id.*[1] The District found, however, that they used an auxiliary boiler to keep the equipment warm

[1] The District also received comments on the "Flex-Plant 10" technology. *See* Additional Statement of Basis at 70-71. Some of these comments supported the District's initial conclusion that the less-efficient "Flex-Plant 10" technology is appropriate for peaking-to-intermediate duty facilities, and not for intermediate-to-baseload facilities such as Russell City. *See id.*

during shutdowns, which allows for quicker cold and warm startups because the equipment does not have to be brought back up to temperature. The District concluded that using an auxiliary boiler in this manner would be an achievable method for reducing startup emissions, and so it considered it as part of the startup BACT analysis.

As part of its BACT analysis for the auxiliary boiler, the District took into account "economic impacts and other costs" of using this technology as required under the PSD BACT requirement. 40 C.F.R. § 52.21(b)(12). To do so, the District evaluated the annualized additional cost that would be required to install and operate an auxiliary boiler and compared it to the additional emissions reductions that could be achieved by the auxiliary boiler from startup emissions. *See* Additional Statement of Basis at 69-70. Conducting a detailed cost-effectiveness analysis of this type required a more accurate assessment of the number and type of startups that would occur each year, so that the emissions reductions from additional startup technology could be calculated. This additional level of detail in assessing the number and type of startups was also requested by Petitioners in their comments, which stated that the District needs to provide more information on the number of startups in order to quantify emissions as accurately as possible and in order to support the comparisons the District made in its BACT analysis. *See* CAP 2/5/09 Comments (Exhibit 3 to Petition No. 10-03) at 1-3. In particular, Petitioners noted that the project applicant had asserted that a "typical, normal operating day of the facility could include a hot startup, about 16 hours of normal operation followed by a shutdown," and asked the District to evaluate how the facility's specific operation profile would impact the BACT analysis. *See* Petition 10-03 at 12.

The District therefore evaluated the specific operating profile for the Russell City Energy Center in greater detail, and based its further analysis on the "6 x 16" operating scenario described above. The documentation on which the District's assessment was based is contained in an e-mail memorandum dated April 2, 2009, which was supported by a number of pieces of

back-up documentation.[2] As the April 2, 2009, e-mail memorandum explained, "[t]he attached table, 'SU-SD analysis final 4-1-09.pdf', is intended to illustrate a typical operating profile, wherein the facility is operated six days a week, sixteen hours a day (*i.e.*, '6x16')." *Id.* The referenced table, SU-SD analysis final 4-1-09.pdf, further supported this assertion. That table states at the very top:

> **Russell City Energy Centre**
> **Anticipated Yearly Operating Regime**
> 6x16 Operation

SU-SD analysis final 4-1-09.pdf, Attachment 1 to 4/2/09 Startup/Shutdown Analysis Email, Crockett Decl. Exh. 11.a.[3] The table further identifies the number of startups associated with this "6 x 16" operation as 250 hot starts, 50 warm starts, and 3 cold starts per turbine. *Id.* Based on this operating profile, the cost-effectiveness analysis evaluated the additional costs associated with adding an auxiliary boiler to the project compared with the additional reductions that would be achieved from 100 warm startups and 6 cold startups per year.

The District clearly explained that it used this operating profile in discussing the cost-effectiveness of the auxiliary boiler in the Additional Statement of Basis, explaining that it used "an annual operating profile containing 6 cold startups and 100 warm startups", and on that basis it concluded that emission reductions from the auxiliary boiler would be 0.9 tons pear year of NO_2 and 12.4 tons per year of CO. *See* Additional Statement of Basis at 69-70.[4] The District

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[2] *See* E-mail Memorandum from K. Poloncarz, counsel for Calpine, to A. Crockett, counsel for BAAQMD, re "RCEC: Startup/Shutdown Analysis of Annual Limits, Auxiliary Boiler and CO BACT" (Apr. 2, 2009), Crockett Dec. Exh. 11, and attachments.

[3] CAP now claims that this PDF attachment was not part of the record based on a claim that inadvertently it was initially excluded from the physical compilation of documents the District made available for public review. *See* discussion *infra* at pp. 36-39. But as explained *infra*, this document was clearly before the District for consideration when the District undertook this analysis, it was clearly a document on which the District based its analysis, and the District clearly intended to make it publicly available, as documented by the fact that the District included a hard-copy printout of the covering email in the physical compilation even though it inadvertently failed to print out this attachment. The document is therefore indisputably part of the record on which this permitting decision was made.

[4] In presenting this analysis, the District referenced two of the supporting documents in the 4/2/09 Startup/Shutdown Analysis Email. *See* Additional Statement of Basis at 69-70, nn.127-

concluded that based on this "6 x 16" operating profile, the annualized cost of installing and operating the auxiliary boiler would be $1,143,912 per ton of NO_2 reduced and $83,025 per ton of CO reduced. The District concluded that these cost-effectiveness ratios were far above what could be justified under the PSD BACT requirement, and so it concluded that the auxiliary boiler should not be required as a BACT control technology. *See* Additional Statement of Basis at 70. This more refined analysis of the facility's startup emissions profile in the Additional Statement of Basis was fully consistent with the District's initial, general assessment in the Statement of Basis, as it showed that the facility would operate on a much more consistent basis than a "peaker" plant.

In addition to evaluating the potential for using an auxiliary boiler, the Additional Statement of Basis also addressed concerns similar to Petitioner's here that the facility may not operate on a full-time, base-loaded basis. These comments noted indications that the facility would be operated to meet contractual load and spot sale demand, and questioned whether it would be operated full-time. The comments suggested that if the facility were intended for "load-following" or other similar duty, then it may have frequent shutdowns which potentially could justify a fast-start system such as the Siemens "Flex-Plant 10". The District addressed these comments in Section II.C. of the Additional Statement of Basis, "Design of the Facility for Intermediate-to-Baseload Service". *See* Additional Statement of Basis at 12-13. There, the

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29. The document did not specifically reference the 4/2/09 Startup/Shutdown Analysis Email itself, or the other attachments supporting the 6 x 16 operating scenario and the resulting conclusion of 3 cold startups, 50 warm startups, and 250 hot startups per turbine. But they were clearly part of the record before the District upon which the District based its analysis, and the email itself was identified in the index of permitting record documents that the District made available for public review during the second comment period. In addition, the District notes that one of the attachments to the 4/2/09 Startup/Shutdown Analysis Email contemplates a scenario with 6 cold startups per turbine year instead of 3 cold startups per turbine per year. *See* email message from B. McBride, Calpine, to K. Poloncarz *et al.* (March 31, 2009), Crockett Decl. Exh. 11.b. This assessment is not inconsistent with a "6 x 16" operation; it simply uses a more conservative assumption that there will be twice as many periods of extended downtime of more than 48 hours. Importantly, this difference is not significant enough to alter the District's BACT determination, as all of the analyses would have come out the same assuming either 3 cold startups or 6 cold startups per turbine per year.

District noted that the facility will be a "combined-cycle intermediate-to-baseload" plant, and not a peaker plant for which such technologies would be appropriate. The District explained that BACT would not allow the District to require the facility to be redesigned as a peaker plant. In this regard, the District clarified its earlier more general distinction between "peaker" and "baseload" facilities, and began to use the more specific term "intermediate-to-baseload" in recognition of the fact that the facility will operate on a "6 x 16" basis and not 24/7. This change in terminology reflected the comments observing that the facility may operate in more of a "load following" mode to meet contractual load, as reflected in the anticipated "6 x 16" operating scenario. To avoid confusion, the District used this more-specific term "intermediate-to-baseload" going forward with respect to this issue.

- *Responses to Public Comments:*

The District then received further public comments in response to the Additional Statement of Basis on the issue of the facility's operational profile and number of startups, including from the Petitioner here. Petitioner noted that the District had used the operating profile discussed above with 6 cold startups and 100 warm startups (citing the District's analysis in the Additional Statement of Basis), but claimed that "it is unclear how the District derived these numbers" and that the District needs to provide a "creditable determination of the likely scenario of startup and shutdown events" in order to support the startup BACT analysis. *See* CAP 9/16/09 Comments, Exhibit 7 to Petition 10-03, at 6. The District received similar comments from other sources as well, including a comment suggesting that the District examine the facility's Power Purchase Agreement to see what kind of operation Calpine will be contractually required to provide. *See* Responses to Public Comments at 121. The main concern presented in these comments was that the District may have been improperly rejecting startup technologies in the BACT analysis by underestimating the number of startups the facility will experience and therefore the emissions-reductions benefit that additional startup technologies could provide. That is, the more startups a facility will have, the more total emissions reductions a given startup technology will be able to achieve; and if there will be a much larger number of

startups, at some point additional control technologies may become cost-effective. *See generally id.* at 121-22 (describing comments received).

In response to these comments, the District conducted additional investigation and analysis into the operational profile – and number and type of startups – the facility will be expected to have. The District found no indication that the facility would operate as a "peaker plant" with frequent startups and shutdowns and only limited periods of steady-state operation. To the contrary, the District found substantial additional evidence to support its earlier analysis that the facility will operate on a "6 x 16" basis as an intermediate-to-baseload facility.

Specifically, the District obtained and reviewed a copy of the Power Purchase Agreement for the facility, as suggested by the comments. The Agreement expressly provides for "up to 50 weeks per year of operation on Buyer's behalf in '6 x 16' mode per year," which specifically confirmed the District's basis for its startup BACT analysis. Second Amended and Restated Power Purchase And Sale Agreement between Pacific Gas and Electric Company and Russell City Energy Company, Appendix II, p. II-4, Crockett Decl. Exh. 13.[5] This agreement, which sets forth the contractual obligations under which the facility will be operate to sell power to PG&E, made clear beyond any doubt that the facility will indeed be expected to operate at this level.

Beyond the Power Purchase Agreement, the District also looked to other indications of how the facility will be operated, and found that all available evidence supports the conclusion that the facility will be operated as an intermediate-to-baseload facility with a high utilization, and not as a "peaker" plant that will start up and shut down frequently and operate only for short periods of time. For one, the District noted that the facility has been designed with a low "heat rate" to maximize energy efficiency, which has been prioritized over fast startup times. This

[5] Note that Calpine submitted the Power Purchase Agreement under a claim of trade secret, as Calpine asserts that it contains confidential business information. Calpine has agreed that the District may disclose publicly the cover page of the Agreement and the page on which the "6x16" operational profile is specified (p. II-4), which are included in Exh. 13 to the Crockett Declaration.

means that it will be dispatched for intermediate-to-baseload service, as the more-efficient plants with low heat rates are used more consistently than less-efficient plants because they burn less fuel and are thus less expensive to operate. *See* Additional Statement of Basis at 122. Furthermore, the District noted that in testimony in other regulatory proceedings, PG&E has designated the Russell City facility as one of three with the most steady demand for natural gas, suggesting that it will use that natural gas for a steady level of operation. *See id.* at 123. And finally, the District also noted that the California Public Utilities Commission has determined that the facility will be subject to California's CO_2 Emissions Performance Standard ("EPS"), which applies only to baseload facilities with a high degree of annual utilization, and not to peaker plants. *See id.* at 122-23. All of this evidence pointed to the fact that the Russell City facility will be used as an intermediate-to-baseload facility with a "6 x 16" operating profile, with no evidence suggesting anything to the contrary.

The District explained these further findings and analysis in the Response to Public Comments document. The District discussed the issue first with respect to comments on the use of an auxiliary boiler, in response to Comment VIII.C.4., "Potential for Using Auxiliary Boiler To Reduce Startup Emissions" (Responses to Public Comments at 114-16). The District explained there that "[t]he operating profile the Air District used in its analysis is typical of normal operations of a "6 x 16" intermediate-to-baseload facility such as this one, and there is no indication that its operation will be significantly different," referencing a further discussion of the issue in connection with its investigation into whether the facility would be used as a "peaker" plant. Responses to Public Comments at 115-16 and n.235. The District also discussed the issue in addressing whether the facility will operate as a "peaker" plant with a high number of startups that could make additional startup controls cost-effective, in response to Comment VIII.D.1., "Number and Frequency of Startups/Shutdowns" (Responses to Public Comments at 121-25). The District explained there that "[t]he Power Purchase Agreement requires that the facility 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." *Id.* at 123 (footnote omitted). The District also described its additional findings supporting its conclusion that the facility will be an intermediate-to-baseload plant, including the facility's low heat rate, PG&E's observation that it will have a steady demand for natural gas, and the fact that the Public Utilities Commission found that the facility will be subject to the EPS applicable to facilities with a high utilization factor. *See id.* at 122-24. Based on this analysis in response to the comments received on this issue, the District determined that "all available evidence suggests that [the Russell City Energy Center] will be used for intermediate-to-baseload operation." *Id*. at 122.[6]

- *Summary:*

Looking back over the history of how the District evaluated this issue, the record shows a clear, consistent, well-reasoned and well-documented basis for the District's analysis of the facility's operational profile as a "6 x 16" intermediate-to-baseload facility. The District's initial analysis was based on a distinction between low-usage "peaker" and high-usage "baseload" operations generally. The District found that the facility would not operate as a "peaker" but would be used to provide power on a consistent basis with a high utilization factor, and on that basis made an initial assessment in its Statement of Basis that additional startup control technologies that might be appropriate for a "peaker" plant would not be warranted here. Then, in response to comments on this issue, the District undertook a more detailed analysis of the facility's operating profile and found that it has been designed for "6 x 16" operation – 16 hours

[6] Note that the District also repeated the points it had made in the Additional Statement of Basis regarding the design of the facility for intermediate-to-baseload service. *See* Responses to Comments at 13. These comments noted indications that the facility would be operated to meet contractual load and spot sale demand, and questioned whether it would be operated full-time or would be for "load-following" or other similar duty with more frequent shutdowns. These comments claimed that more frequent startups could potentially justify a fast-start system such as the Siemens "Flex-Plant 10". As the District had explained in the Additional Statement of Basis (at 12-13), the District noted that the facility will be a "combined-cycle intermediate-to-baseload" plant, and not a peaker plant for which such technologies would be appropriate. The response also referenced the District's further analyses described above regarding the "6 x 16" operation and the fact that additional startup technologies would not be appropriate as BACT for such operation.

per day, 6 days per week – which the District described more specifically as "intermediate-to-baseload" operation. The District based this analysis on documentation such as the Power Purchase Agreement for the facility showing that Calpine has committed to make the facility available to provide power on a "6 x 16" basis. Based on operation of 16 hours per day with a shutdown overnight, and 6 days per week with one idle day of no operation, the District calculated a startup profile of 250 hot startups per year (6 per week x 50 weeks), 50 warm startups per year (1 per week x 50 weeks), and 3 cold startups (after occasional extended periods of downtime), for each turbine, or 500 hot startups, 100 warm startups, and 6 cold startups for the two turbines combined. The District then used this operational profile in its BACT analysis to determine whether additional startup control technologies would be cost-effective based on this level of startup activity. It is this record that Petitioner now challenges as insufficient to support the District's BACT analysis.

B. CAP Is Incorrect That The District Failed To Base Its BACT Analysis for Startup Emissions on a "Credible Operating Scenario"

Petitioner now asserts that the District committed clear error in its BACT analysis, alleging that did not sufficiently establish the basis for how many startups the facility will have. As the Petition explains, Petitioner's claim is that the District failed to establish "whether the facility is a base load facility or some other kind of facility, and whether there will be few or frequent SU/SDs." Petition 10-03 at 13. But a review of the District's detailed analysis of the facility's operating scenario, and its documented basis for its conclusion that the facility will operate as a "6x16" facility, shows just how far off base Petitioner's allegations are with respect to this issue.

For example, Petitioner states that the District "made no effort at clarity, certainty, or consistency as to the number and kind of SU/SD events." Petition 10-03 at 15. This assertion completely ignores the reality of the efforts that the District made to establish the facility's expected operating scenario and the typical number of hot, warm, and cold startups that it will experience under that operating scenario, as well as the extensive description and documentation

the District provided in the Additional Statement of Basis and Responses to Public Comments. To claim that the District's work in responding to comments on this issue and to clarifying the facility's operating scenario amounts to "no effort" at all is simply flat wrong.

Petitioner similarly states that "[t]he Responses to Comments did nothing more than provide a conclusion that RCEC would have six cold startups and 100 warm startups or fewer per year, with no supporting reasoning behind the assertion." Petition No. 10-03 at 16. But again, this statement does not reflect reality. It completely ignores the explicit reasoning the District provide for its six cold startup/100 warm startup scenario, which is that under a "6 x 16" operating scenario the facility will operate 16 hours a day with a nightly shutdown 6 days per week with one day per week idle, along with a small number of more extended shutdowns. This will result in 6 hot startups per week after the nightly shutdowns and one warm startup per week after the idle day, along with an estimated 3 cold startups after the more extended shutdowns, for each of two turbines. For the facility as a whole, total startups will therefore come to 500 hot startups (6 hot starts per week x 50 weeks x 2 turbines), 100 warm startups (1 warm start per week x 50 weeks x 2 turbines), and 6 cold startups (3 cold startups per year x 2 turbines). The District clearly explained this rationale in its Responses to Public Comments, stating that "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 per day, 6 days per week. This dispatch requirement is typical for an intermediate-to-baseload facility." Responses to Public Comments at 123 (citing Power Purchase Agreement in connection with the "6 x 16" operating scenario). There is no way that this analysis can be described as "nothing more than provid[ing] a conclusion . . . with no supporting reasoning behind the assertion." To the contrary, it was a conclusion based on a substantial amount of careful reasoning based on documented evidence in the record.

Petitioner also states that the District "failed in its most fundamental job of ascertaining the impact of RCEC's operating scenario on SU/SD emissions . . . [and] even failed to analyze its own assertion that the facility will operate 6 days a week for 16 hours a day, and what that

operating scenario entails for SU/SD." Petition 10-03 at 8. But again, this assertion completely ignores the record on this issue. The District did specifically evaluate what a "6 x 16" operating scenario would entail for startups and shutdowns. The District determined that 16 hours of operation per day 6 days per week, with a few more extended shutdown periods, would result in 250 hot startups, 50 warm startups, and 3 cold startups per year per turbine, or 500 hot startups, 100 warm startups, and 6 cold startups in total for the two turbines at the facility. The District then analyzed the potential impact of using an auxiliary boiler in reducing startup emissions given this level of startup activity, and compared the emission reduction benefits that could be achieved with the annualized cost of installing and operating the equipment. Based on this analysis, the District concluded that the auxiliary boiler would not be sufficiently cost-effective to require as BACT under 40 C.F.R. Section 52.21. *See* Additional Statement of Basis at 69-70; Responses to Public Comments at 114-16. Again, a simple review of the record belies Petitioner's contention that the District "even failed to analyze its own assertion" regarding the facility's "6 x 16" operating profile and what that would entail for startup emissions.

Similarly, Petitioner implies that the District's analysis is "[a] document containing conclusions without supportive reasoning [which] cannot be considered an adequate response." Petition No. 10-03 at p. 17 (citing *In re John W. McGowen*, 2 E.A.D. 604, 606-07 (Adm'r 1988) (claiming that the Responses to Public Comments "cannot be considered an adequate response to legitimate public comments raising questions about the mix of SU/SD events".) But the conclusions that the District reached in its startup BACT analysis – specifically, that the use of an auxiliary boiler to reduce startup emissions would not be sufficiently cost-effective to require as BACT – were clearly supported by a substantial body of reasoning based on documented data and analysis in the permitting record about the "mix" of startup events. The *McGowen* case is completely inapposite in this respect, as that was a situation where the permitting agency "did not respond at all to [petitioner's] comments" and "merely provide[d] a conclusion without supportive reasoning." *McGowan*, 2 E.A.D. at 606-07. Here, the District provided very detailed reasoning to support its conclusions, and fully addressed and responded to Petitioner's concerns

that the facility may in fact have frequent startups that could potentially justify additional startup-related controls.

For all of these reasons, Petitioner's contention that the District somehow failed to provide a reasoned basis for its analysis of the facility's operating scenario or its startup profile cannot withstand even the most minimal scrutiny. A quick review of the District's extensive analysis on this issue in the record of this proceeding shows that the District did in fact provide a sound, well-reasoned and fully documented basis for its BACT determinations.

C. CAP Is Incorrect That The District Failed To Respond To Comments On The Issue of The Facility's Operating Profile

Petitioner also challenges the District's Responses to Public Comments on this issue of operating profile and number of startups and shutdowns. Petitioner claims that the District's Responses to Public Comments document was deficient because, according to Petitioner, "it does not respond to the public's significant comments asking for a credible scenario of likely SU/SD events as required by [40 C.F.R.] § 124.17." Petition 10-03 at 14. But again, this argument is completely contradicted by the record. A review of the District's Responses to Public Comments document shows that the District did respond to the public's comments on this issue, and provided detailed information, discussion and analysis on the facility's operating scenario and on the number and type of startup events.[7]

The District addressed this issue in two separate areas of the Responses to Comments document. First, in connection with the District's analysis that using an auxiliary boiler at the facility for additional reductions in startup emissions would not be sufficiently cost-effective to justify as BACT under 40 C.F.R. Section 52.21, the District clearly explained the startup scenario on which the analysis was based and specifically responded to comments questioning

[7] Note that Petitioner discusses "SU/SD" events, meaning startups and shutdowns. It is only startups that are implicated by the Petition, however, as the only available control technologies at issue in the BACT analysis Petitioners are challenging were for controlling startup emission, not shutdown emissions. But in any event, the number of shutdowns must necessarily be equal to the number of startups, and vice versa, because it is impossible to have successive startups without an intervening shutdown.

the basis for that startup scenario. The District explained that its analysis was based on "an annual operating profile containing 6 cold startups and 100 warm startups . . . ." Responses to Public Comments at 114. The District explained that it had received comments that "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 . . . ," and that with more startups, "the cost-effectiveness of using an auxiliary boiler would improve." *Id.* at 115. And the District responded that it disagreed with the comments because "[t]he operating profile the Air District used in its analysis is typical of normal operations of a '6 x 16' intermediate-to-baseload facility such as this one, and there is no indication that its operation will be significantly different." *Id.* at 115-16. In this Response, the District also incorporated by reference its responses on the issue of whether the facility will be operated as a "6 x 16" intermediate-to-baseload facility or will operate with more frequent startups, which is set forth in Section VIII.D. of the Responses to Public Comments. *See id.* at 115-16, n. 239.

In Section VIII.D., entitled "Frequency of Startups and Implications for BACT Analysis," the District provided a detailed 5-page discussion on the issues surrounding the number and type of startups and how startup frequency affects the BACT analyses, including the determination that the auxiliary boiler was not sufficiently cost-effective to require as BACT. The District first noted that it had received a number of comments regarding the number of startups the facility may have, and how that would affect the BACT analyses. In particular, the District noted that it has received comments suggesting that there were some indications that the facility could have more frequent startups than the District had assumed in the Additional Statement of Basis, and that it had received comments asserting that it needs to establish a credible operating scenario of likely startup and shutdown events as a basis for its BACT analyses. The District described the comments (in part) as follows:

> 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.

Responses to Public Comments at 121-22 (emphasis added).

The District then provided a detailed response to these comments. In particular, the District explained (again) the "6 x 16" operational profile on which it based its BACT analysis, and provided additional discussion and documentation to support "6 x 16" operation. The District explained that it had reviewed the Power Purchase Agreement for the facility (as commenters had suggested) to evaluate what type of operation Calpine was contractually obligated to provide, and found that it called for "6 x 16" operation. As the District stated, "[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 per day, 6 days per week. This dispatch requirement is typical for an intermediate-to-baseload facility . . . ." Responses to Public Comments at 123. The District also looked to other indications of whether the facility would in fact be operated as a "peaker" plant with more frequent startups and shutdowns and less steady-state baseload operation, and found that all indications were that it would not be operated in that manner. The District looked to the facility's low heat rate, which means it will be used

more consistently than less-efficient plants with a higher heat rate; the District considered PG&E's observation that the facility will have a steady demand for natural gas, suggesting that it will have steady operation; and the District looked to the fact that the Public Utilities Commission found that the facility will be subject to the CO_2 "Emissions Performance Standard" applicable to facilities with a high utilization factor. *See id.* at 122-24. Based on all of this additional information and analysis, the District explained in response to these comments that "all available evidence suggests that [the Russell City Energy Center] will be used for intermediate-to-baseload operation." *Id*. at 122.

Petitioner now attempts to characterize this record as a failure by the District to consider and respond to its comments. Petitioner claims that the District "does not respond to the public's significant comments asking for a credible scenario of likely SU/SD events", Petition 10-03 at 14; that "the Responses to Comments cannot be considered an adequate response to legitimate public comments raising questions about the mix of SU/SD events", *id.* at 17; and that the District did not "respond to comments in a clear, meaningful and thorough fashion", *id.* at 18 (citation and internal quotation marks omitted). But the District's extensive and detailed responses on this issue show just how far off base Petitioner is with this claim. The District went far beyond the minimum legal requirement to "briefly describe and respond to all significant comments", 40 C.F.R. Section § 124.17(a)(2), and there is no ground for review based on any deficiency in doing so.

Finally, in attempting to challenge these detailed responses as somehow deficient, CAP compares the District's detailed analysis with the meager analysis that the EAB recently rejected in *In re Northern Michigan University Ripley Heating Plant*, 14 E.A.D. __, PSD Appeal No. 08-02 (EAB Feb. 18, 209). *See* Petition 10-03 at 18. But that case involved extremely scant, non-substantive responses, and it is thus completely irrelevant to the situation presented here by the District's extensive and detailed analyses set forth in its Statement of Basis, Additional Statement of Basis, and Responses to Public Comments. Specifically, in *Northern Michigan University*, the EAB was faced with an agency that responded to significant comments on a

particular issue with a mere two sentences that did "not directly engage [the commenter's] contention . . . ." Slip. op. at 51. The EAB therefore understandably remanded the permit given "the spareness of [the permitting agency's] response to [the petitioner's] detailed comments on this issue, along with the thinness of the permitting record and the shifting explanations" by the permitting agency, which did not "provide a straightforward answer to [the petitioner's] concerns". *Id.* The Board is faced with completely the opposite situation here. In this case, the District did directly engage the Petitioner's contention that the District should document and evaluate a credible operating scenario for the facility's startups and its concern that the facility could have a higher rate of startups that might make additional startup controls justified under the BACT analysis. The District did exactly that, and responded by providing its further analysis and documentation of the most credible operating scenario that could be obtained based on all available information.[8] Petitioner's reliance on the *Northern Michigan University* case is therefore completely inapposite, and it provides no basis on which to grant review.

D. CAP Is Incorrect That There Is Any Unresolved "Conflicting" Evidence In The Record That Undermines The District's BACT Determination

To challenge the District's clear and well-supported BACT determination on this issue, Petitioner attempts to create confusion by alleging that there is "inconsistency" in the permitting record. But that is simply not the case. The District has been consistent in its assessment of how the facility will operate. As outlined above, the District has consistently maintained that additional startup-related control technologies would not be appropriate for this facility, which is a combined-cycle plant designed to operate with a high capacity factors (*i.e.*, a large number of hours per year) and not as a short-term "peaker" plant. The District initially rejected these type of control technologies in the Statement of Basis based on a general distinction between "peaker"

[8] Petitioner also cites another portion of the opinion where the EAB noted that "many of the facts and analyses underlying [the permitting agency's] various conclusions . . . are missing from the permit record, including the response-to-comments document." *Northern Michigan University*, slip. op. at 48. Again, this is completely the opposite from the situation presented here, where the bases for the District's conclusions were carefully described and documented in the Responses to Public Comments and in the underlying record.

plants and "baseload" plants. *See* Statement of Basis at 40. When commenters noted that the facility may operate more as a load-following facility than as a full-time 24/7 type of plant, and hence may have more frequent startups, the District further refined its analysis based on evidence about the facility's specific operating scenario. Based on that further investigation, the District found that the facility should more precisely be referred to as an "intermediate-to-baseload" facility with a "6 x 16" operating profile. The District revised its analysis based on this more specific information and found that the number of startups the facility will experience will not come close to justifying additional startup-related control technologies. All of the documentation that the District reviewed on this issue – and all of the documentation that Petitioner cites in its arguments – is consistent with this conclusion.

1) It Is Not Inconsistent To Use The General Catchall Phrase "Baseload" To Describe a "6x16" Facility Like Russell City

Petitioner first tries to create semantic confusion by citing relatively amorphous terms like "baseload" and "frequent" startups, and then asserting that they have been used inconsistently in this case. For example, Petitioner claims that "[t]here is no consistent information as to whether the facility is a base load facility or some other kind of facility, and whether there will be few or frequent SU/SDs." Petition 10-03 at 13. Petitioner thus cherry-picks references in the record to the facility using terms like "baseload", as well as others that refer to "frequent" startups, and asserts that such statements must necessarily be inconsistent.

But there is no hard-and-fast definition of "baseload" that means only full-time 100% output, and Petitioner does not cite any. There is nothing uncommon or unclear about using the term "baseload" to refer in general to a facility with a high capacity factor as opposed to a low-capacity-factor "peaker" peaker plant, as the District here in its initial Statement of Basis. Similarly, there is no hard-and-fast definition of "frequent" startups as meaning any particular number per day or per year, and certainly nothing that would prevent someone from describing 6 cold startups, 100 warm startups, and 500 hot startups per year – the numbers the District used in its analysis of "6 x 16" operation – as "frequent" startups. Petitioner's claims in this regard are

therefore based on a false dichotomy. In fact, there has never been any inconstancy in how the District has portrayed this facility's operation. The District has from the very beginning taken a consistent position that the facility will be one with a high degree of utilization that will operate most of the time, but not all of the time at full operating capacity; and that it will have a certain number of startups associated with that operation that will generate a significant amount of emissions that need to be evaluated under BACT, but not enough to justify using additional control technologies such as Fast-Start or an auxiliary boiler. Petitioner can make semantic arguments at this point about whether the District should have called this operating "baseload" "load-following", or some other term; or whether the District should have claimed that startups will be relatively "frequent" or relatively "infrequent". But the bottom line is that the substance of the District's portrayal of how the facility will operate has been clear and consistent throughout.

Furthermore, the District responded to Petitioner's concerns about potential conflicts between whether the facility would operate with a high capacity factor and relatively few startups vs. whether it would operate at a low capacity factor with relatively frequent startups. The District evaluated the facility's anticipated operating profile and provided a detailed analysis based on the specific number and type of startups the facility is expected to experience. The District made clear that, based on all indications about what the facility's actual operational scenario will be, the facility will start up and shut down at a rate that would not justify the using additional control technologies such as Fast-Start or an auxiliary boiler. The District also started using the more precise terminology of a "6 x 16" "intermediate-to-baseload" facility to address these semantic concerns. Thus to the extent that there was any ambiguity in the record in earlier descriptions of the facility's operation, the District clarified those in its Additional Statement of Basis and Response to Comments. *See* Additional Statement of Basis at 12-13, 69-70; Responses to Public Comments at 13, 115, 121-25. And to the extent that any semantic ambiguity may remain, it would be immaterial in any event because there is no reading of the

record that would show a sufficient number of startups from this facility to justify these additional control technologies as BACT.

2) "6x16" Operation Is Fully Consistent With 3 Cold Starts, 50 Warm Startups, and 250 Hot Startups Per Turbine Per Year

In addition to reading too much meaning into the amorphous terms like "baseload" and "frequent" startups, Petitioner also seems to have misunderstood how a "6 x 16" operating scenario implicates the number of startups and shutdowns. Petitioner thus attempts to manufacture inconsistency here by asserting that if the facility operated 16 hours per day, 6 days per week, that would mean 6 warm startups per week or 300 warm startups over 50 weeks per year. *See* Petition 10-03 at 16-17. But this assertion is mathematically incorrect. If the facility is operating to sell power to the grid 16 hours per day, with additional time needed for startup and shutdown the available downtime in the balance of a 24-hour day is less than 8 hours. If the facility starts up again after less than 8 hours of downtime, that is a hot startup not a warm startup.[9]

Petitioner also appears to misinterpret the typical nightly shutdown associated with a 6x16 operating mode as involving two separate shutdowns. Petitioner cites the District's observation in the initial Statement of Basis that the facility may shut down its turbines "during periods of low overall demand such as late evening and early morning hours" and states that this scenario "could mean two shutdowns and starts per turbine per day, which could mean 600 warm or hot starts per year." Petition 10-03 at 15. It appears that Petitioner interprets the reference to the turbines shutting down in "late evening and early morning hours" to mean two separate periods of shutdown, one in the late evening hours and a second one in the early morning hours. But this is not a realistic assessment of how power plants operate. The period of low demand starts in the late evening, continues past midnight and into the early morning hours, and then ends as people wake up in the morning and demand rises again. It is not realistic to assume that

[9] *See* Final PSD Permit at p. 5, Definitions. Hot startups are defined as startups occurring within 8 hours of a gas turbine shutdown.

the facility will shut down in the late evening hours, then start up again around midnight, then shut down again in the early morning hours until the start of the work day, and Petitioner has not provided any reason to presume that the demand for electricity behaves in such a manner.[10]

3) The Fact That Actual Operation Will Depend on Market Demand Is Not Inconsistent With the Assumption of a "6x16" Operating Scenario

Petitioner also tries to create confusion around the fact that it is impossible to state with absolute precision exactly how many startups and shutdowns a facility will experience in practice, since startups and shutdowns are ultimately determined by the demand for electrical power and the mix of available generating resources to meet that demand. Petitioner notes that since in unusual circumstances a particular turbine could potentially have more than one startup on a particular day, theoretically the facility could have two startups per turbine per day and as many as 600 startups per turbine per year. *See* Petition 10-03 at 15-16. But simply because it is possible for a turbine to have multiple startups on a single day does not mean that such a situation is likely to occur, and it does not mean that the turbine's expected *annual* number of startups should be based on the theoretical maximum number of *daily* startups. Moreover, the District investigated the potential for the facility to operate in this manner on a consistent basis over time – that is, to operate more in the manner of a "peaker" plant – and found no indication that it would, based on the Power Purchase Agreement, the facility's low heat-rate, the fact that it will be subject to the CEC's EPS standard applicable to "baseload" facilities (defined as having a capacity factor of 60% or more). *See* Responses to Public Comments at 121-25 (Comment VIII.D.1. – Number and Frequency of Startups/Shutdowns). For all of these reasons, Petitioner is correct that the facility will have the flexibility to have more than one startup per day, but

[10] Of course, it is possible that on a particular day the facility could experience two separate shutdowns and startups, but the District analyzed this scenario – operation in the manner of a "peaker" plant – and found that it was not a likely operating scenario, at least not as a typical operating profile that would be expected over the course of a year's time, which is the time-frame on which analysis such as cost-effectiveness of control technologies is conducted. But Petitioner has not objected to that analysis; it simply bases its appeal on its artificial distinction between a "baseload" facility and a "6x16" operation such as this one.

Petitioner is flat wrong that this observation is inconsistent with the "6 x 16" operating scenario or the 6 cold/100 warm/500 hot startup profile.

4) All of the Documentation Petitioner Cites Consistently Supports The Conclusion That This Will Be A "6 x 16" Intermediate-to-Baseload Facility

Petitioner also attempts to sow confusion by citing various documents that it claims are "inconsistent" with the District's analysis that the facility will operate as a "6 x 16" intermediate-to-baseload facility. But as with Petitioner's other arguments, these contentions do not withstand close scrutiny. When the documents are read in context for what they are, it becomes clear that they are all consistent with the "6 x 16" operating scenario for this facility. To uncover the reality behind these arguments, the District addresses each document in turn.

- *December 2008 Statement of Basis:*

Petitioner alleges that the Statement of Basis contradicts statements that this will be a "base load" facility. Petitioner asserts that the District stated that the facility's operation will be "dictated by market circumstances and demand", with the following modes expected to occur: base load, load following, partial shutdown, and full shutdown. Petitioner also cites the statement that the facility may shut down one or more turbines during periods of low demand such as late evening and early morning hours. *See* Petition 10-03 at 10-11.

But there is nothing in these statements in the initial Statement of Basis that can be read as inconsistent with "6 x 16" intermediate-to-baseload operation. At some times, the facility will operate at "[m]aximum continuous output with duct firing", which the Statement of Basis describes as "Base Load". Statement of Basis at 40. At other times, the "[f]acility would be operated to meet contractual load and spot sale demand, with a total output less than the base load scenario", which the Statement of Basis calls "Load Following". *Id.* At other times (which the Statement of Basis notes would likely be during periods of low overall demand such as late evening and early morning hours), "it may be economically favorable to shutdown one or more turbine/HRSG power trains", which the SOB calls "Partial Shutdown". *Id.* Finally, the

Statement of Basis also notes that at some times the facility could be shut down completely. This description of possible operating scenarios is fully consistent with "6x16" operation. *Id.* The Statement of Basis also explicitly noted that this was a "general" description of possible operating modes and that exact operation would depend on market circumstances and demand, *id.*, which would caution against reading too much into these general observations even if they did contain something that was inconsistent with "6 x 16" operation.

- *June 2002 CEC Final Staff Assessment:*

Petitioner also alleges that "CEC staff analyzed the project assuming 52 cold startups and 260 hot startups per each turbine (and thus 104 hot cold starts and 520 hot starts) per year . . . ." Petition 10-03 at 12 & n.6 (citing CEC Final Staff Assessment at 4.1-12).[11] At the outset, it is notable that Petitioner fails to explain why this scenario of 52 cold startups, 0 warm startups, and 260 hot startups would be materially different from the scenario the District used of 3 cold startups, 50 warm startups, and 250 hot startups. Petitioner has not provided any basis on which to conclude that the outcome of the BACT analysis would be any different – that is, that additional controls would somehow become justified for this facility – assuming this slightly different startup profile.

But the materiality of this slight difference in startup profile is moot in any event, as Petitioner's contention does not accurately describe the CEC staff's discussion of this issue here. The CEC staff agreed to analyze the project assuming 52 cold starts and 260 hot stars "[a]s a conservative estimation" based on a request from the project applicant. CEC Final Staff Assessment at 4.1-12. But the CEC staff went on to explain they did not believe that this was in fact the correct operating scenario for this facility. As the Final Staff Assessment explains, "Staff believes that the more likely scenario is that, barring major mechanical malfunction of the equipment itself, cold startups may occur once or twice per year, most likely during the annual

[11] Petitioner did not include a copy of the Final Staff Assessment with its Petition, although it did provide an internet reference in a footnote. The District relies on Petitioner's reference as the source of this document.

maintenance and inspection. Staff expects that the vast majority of startups would be hot or warm starts, thus minimizing startup periods of time and emissions." *Id.* at 4.1-12. If 50 of the 52 presumed cold startups would in fact be warm startups as the CEC believed, this evaluation leads to 2 cold starts, 50 warm starts, and 260 hot starts per turbine per year, which is essentially identical to the District's assessment of "6x16" operation.

- *June 2007 CEC Staff Comments of Tuan Ngo, P.E.:*

Petitioner also cites testimony from CEC staff that "[t]he project owner has asserted that the more typical, normal operating day of the facility could include a hot startup, about 16 hours of normal operation followed by a shutdown." Petition 10-03 at 12. This testimony supports the District's analysis 100%. This is exactly consistent with the operating scenario on which the District based its assessment – a hot startup in the morning, 16 hours of normal operation, and then an overnight shutdown followed by another hot startup the next morning. The only detail that this statement leaves out is that the facility may operate in this manner only 6 days per week with one idle day, which would lead to a warm startup when the facility is restarted again after a day of downtime; and that there may be occasional more extended periods of downtime with a cold startup when the facility is restarted again. Mr. Ngo's testimony is simply silent on these issues; it is certainly not in any way inconsistent with the startup profile the District used in its analysis.

- *Power Purchase Agreement & CPUC Approval Decision 09-04-010:*

Petitioner also alleges confusion in connection with the Power Purchase Agreement the District relied on that specifies contractually that the facility will be expected to operate on a "6 x 16" basis. Petitioner claims that the Power Purchase Agreement's specification of the "6 x 16" operating scenario is somehow inconsistent with decision of the California Public Utilities Commission ("CPUC") approving the Agreement (CPUC Decision 09-04-010). *See* Petition 10-03 at 14 (claiming that the Decision "refers to RCEC as a base load facility."). But again, Petitioner is incorrect in its assertion about what the documents actually say. Nowhere does the CPUC decision ever say that the facility will operate in a manner inconsistent with the facility's

"6 x 16" operating scenario. Nor does the document ever discuss in any detail what "baseload" operation means or whether this facility will be a "baseload" facility as a description of a specific operating scenario. To the contrary, the CPUC decision mentions the term "baseload" only in connection with the CEC's Emissions Performance Standard ("EPS"), which requires that "baseload" facilities – that is, facilities with a high capacity factor of 60% or more – must emit no more than 1,100 lb/MW-hr of greenhouse gases. *See* CPUC Decision 09-04-010, Crockett Decl. Exh. 14, at 24-25 (noting that the facility will in fact comply with the EPS). There is nothing inconsistent with "6 x 16" operation in the CPUC's discussion in this regard.

It is also worth noting in this respect that the CPUC document used the term "baseload" in the more general sense of a facility with a high capacity factor as opposed to a low-usage "peaker" plant. This is exactly the general usage that the District made in its initial Statement of Basis to distinguish the facility from a "peaker" plant. This usage by the CPUC shows that it is not uncommon to use the general term "baseload" more loosely when making this type of general distinction, as compared to using the term in the context of delineating a facility's specific operating scenario. This is what happened here with the District's general reference to "baseload" in the initial Statement of Basis, which the District then refined to "intermediate-to-baseload" in the Additional Statement of Basis and Responses to Public Comments in connection with its analysis of the facility's specific operating scenario and startup profile.

- *Calpine "SU/SD Analysis":*

Petitioner also cites the spreadsheet discussed above entitled "SU/SD analysis final 4-1-09.pdf". *See* Petition 10-03 at 14 & n.5. This spreadsheet was one of the attachments to the 4/2/09 Startup/Shutdown Analysis Email that provided several of the sources of documentation that the District relied on in its BACT cost-effectiveness analysis for the auxiliary boiler. As noted above, the spreadsheet provided information on "Russell City Energy Centre [*sic*], Anticipated Yearly Operating Regime, 6x16 Operation", and it identified the number of startups associated with this "6 x 16" operation as 250 hot starts, 50 warm starts, and 3 cold starts per turbine. *See* SU-SD analysis final 4-1-09.pdf, Attachment to 4/2/09 Startup/Shutdown Analysis

Email, Crockett Decl. Exh. 11.a. Far from creating confusion and inconsistency, this document clearly supports the District's analysis of the facility's operating scenario and startup profile. Indeed, it was one of the principal sources that the 4/2/09 Startup/Shutdown Analysis Email relied upon.

Petitioner claims in the margin that this document – which Petitioner attaches as Exhibit 6 – was somehow not in the record on which the District made its permitting decision. *See* Petition 10-03 at 14 n.10. Petitioner's contention is apparently based on the fact that the District inadvertently failed to include a hard-copy printout of this attachment to the 4/2/09 Startup/Shutdown Analysis Email in the collection of record documents it made available for public review during the second comment period and thereafter. In making its record documents available for review, the District provided copies of all the documents in file folders so that members of the public could review and copy them, and in the case of email documents it provided hard-copy printouts. For the 4/2/09 Startup/Shutdown Analysis Email, the District printed a hard copy of the email and included it with the record documents (AR Index #5.57), but apparently it inadvertently failed to include a copy of this attachment to the email. When Petitioner's attorneys reviewed the District's record documents in March of 2010 in the course of preparing their Petition, this fact came to light and the District immediately provided copies to Petitioner's attorneys and placed a hard-copy printout in the District's public document collection in folder 5.57. *See* Email from A. Crockett, counsel for Respondent, to H. Kang, counsel for Petitioner (March 15, 2010), Crockett Decl. Exh. 15; *see also* Petition 10-03 at 14 n.10 (noting that Petitioner obtained the document from the District in March, 2010). But Petitioner now claims that, as a result of this oversight, this document was "not contained in the District's record" on which the BACT determination was made. Petition 10-03 at 14 n.10.

But this document was clearly one of the sources of information that the District relied upon in responding to the comments requesting further information about the facility's anticipated operating profile, and it was clearly one of the bases for the District's conclusion that the facility would operate as a "6 x 16" intermediate-to-baseload facility (among the other

sources noted in the District's documentation on this issue). As such it was part of the administrative record upon which the District made its permitting decision. 40 C.F.R. Section 124.9 defines the administrative record as including "any supporting data furnished by the applicant", which indisputably includes this document. Furthermore, the District clearly intended to make this document part of the document collection that it made available for public review and comment, as it was listed as an attachment to the 4/2/09 Startup/Shutdown Analysis Email (*see* 4/2/09 Startup/Shutdown Analysis Email, Crockett Decl. Exh. 11, listing as an attachment "SU-SD analysis final 4-1-09.ZIP"), and it was explicitly referenced in the text of that email, which stated that "the attached table, 'SU-SD analysis final 4-1-09.pdf', is intended to illustrate a typical operating profile, wherein the facility is operated six days a week, sixteen hours a day (i.e., '6x16')" (*see id.*). The fact that the District inadvertently did not print out a hard copy of this particular document to include with its collection of record documents made available for public review – one document in a collection that now comprises six file boxes and with an index 80 pages long – does not mean that the document was somehow not part of the record of decision on this permit. As the Board has explained:

> [T]he fact that the Region may have inadvertently left copies of a few documents out of the record that was physically compiled at the Region until Petitioner pointed out that such documents were missing . . . does not mean that the administrative record was incomplete. *See In re J&L Specialty Prods. Corp.,* 5 E.A.D. 31, 80 (EAB 1994) ("The Region's oversight or error in responding to [Petitioner's] request for a copy of the administrative record alone, does not necessarily mean that the administrative record was incomplete, or that the Region failed to review everything in the administrative record prior to drafting the permit."). According to the regulations, not all documents need not be physically placed in the record. *See* 40 C.F.R. §§ 124.9(c), .18(e). Moreover, besides those documents that the Region did not include in the record because it believed them to be privileged or irrelevant, there is no evidence that the Region purposely left out any other documents or refused to place them in the record once it learned of their omission.

In re Dominion Energy Brayton Point, L.L.C., 12 E.A.D. 490, 531 (EAB 2006), *aff'd sub. nom*, *Dominion Energy Brayton Point, LLC v. Johnson*, 443 F.3d 12 (1st Cir. 2006). This is exactly the situation that occurred here. The District inadvertently left a copy of the attachment to this

email out of the physical compilation of documents until counsel for Petitioner pointed out that it was missing, at which point the District took steps to ensure that it was added to the physical compilation. There is no evidence that the District purposely left out the document, as evidenced by the fact that the District included the covering email that explicitly referenced this attachment. If the District were trying to conceal this information (which would not have made any sense, as the document fully supports the District's position), the District would not have included such references. And there was no prejudice to Petitioner as a result of this oversight, as Petitioner was immediately able to obtain copies from the District when it reviewed the physical compilation, saw that the attachment was missing, and asked that the District provide a copy of the attachment. *See* Email from A. Crockett, counsel for Respondent, to H. Kang, counsel for Petitioner (March 15, 2010), Crockett Decl. Exh. 16. For all of these reasons, Petitioner's claim that this document was not part of the record on which the District made its determination must fail. The District clearly considered this document in its analysis, and it clearly supports the District's determination that the facility will operate under a "6 x 16" operating scenario.

- *Richins Comment Letter (May 29, 2007):*

Finally, Petitioner also states that a comment letter from CEC staff stated that the "planned operating profile of the project [is] frequent start-up and shutdown cycles"; noting "potentially high daily NOx emissions from multiple start-up and shutdown cycles." Petition p. 15-16, citing Exh. 1. But this comment was made in the context of evaluating maximum potential *daily* emissions – not the likely number of startups the facility will have over the course of a year, which was what the District considered in its BACT analysis. The letter is correct that it is possible that the facility will have multiple startups within the course of a single day, but that is unlikely and is not the typical operating scenario. As the CEC found elsewhere, the typical operating scenario would be a hot startup in the morning, steady-state operation during the day, and then a shutdown at night. *See* Testimony of Tuan Ngo, P.E., *supra* (cited Petition 10-03 at 12). Both of these observations are consistent with the "6 x 16" operating scenario, which contemplates only one startup per day, six days per week, but does not rule out multiple startups

on any particular day. When making cost-effectiveness evaluations (which is the context in which this comes up), which are based on balancing annualized costs and emissions benefits, it is most appropriate to look at the facility's typical expected operation, not the absolute maximum that could occur on any single day.

Thus, a close review of all of this documentation cited in the Petition shows that far from creating inconsistencies and confusion with respect to the facility's operating scenario, in fact they all support the District's conclusion that the facility will have a "6 x 16" operational profile with approximately 3 cold startups, 50 warm startups, and 250 hot startups per year.

E. CAP Is Incorrect That The District Based Its BACT Determination On Outdated Technology

Petitioner also implies, falsely, that the District based its BACT determination on older, outdated technology that Calpine had already purchased, instead of on the maximum degree of emissions reduction achievable by current state-of-the-art technology as required by BACT. *See* Petition 10-03 at 11-12. In this regard, Petitioner cites several observations made at various points in the permitting history of this facility regarding the fact that technologies such as "Fast-Start" and "Op-Flex" would entail significant additional costs. But Petitioner is again incorrect in its characterization of the record. Although the District was aware of this information on additional costs that would be involved to implement these technologies, the District did not base its BACT analysis for these technologies in any way on cost considerations.

The District addressed this issue in the Responses to Public Comments, both with respect to "Fast-Start" once-through boiler technology and with respect to "Op-Flex" technology, and explained that although there may be costs associated with these technologies, any such costs were not the basis for the District's BACT determinations. With respect to "Fast-Start" technology, the District explained that it "is basing all of its BACT determinations on current technology. Moreover, the Air District has not taken the costs of Flex-Plant technology into account in its analysis of that technology, because it has concluded that it is not an available technology for this type of facility." Responses to Public Comments at 106 n.206. With respect

to "Op-Flex" technology, the District explained that "[t]he District disagrees that cost was a part of the District's analysis of Op-Flex technology. The commenter has not identified any element of the Air District's BACT analysis regarding Op-Flex that is based on cost, and the District has not found any either. The Air District published this further explanation in the Additional Statement of Basis (p. 72, fn 131) for further comment during the second comment period, but did not receive any further comment pointing to any area in the District's analysis where Op-Flex technology was rejected based on costs." Responses to Public Comments at 117 n.243. Although the Petition seems to assert that the District improperly took cost into account in rejecting these technologies, it does not identify any area in which the District's responses on these points was incorrect and inadequate. The Petition must be denied on this issue for failure to identify with specificity how the District's response could be inadequate. *See In re Prairie State Generating Co.*, 13 E.A.D. __, PSD Appeal No. 05-05 (EAB Aug. 24, 2006), *aff'd sub nom.*, *Sierra Club v. EPA*, 499 F.3d 653 (7th Cir. 2007), slip. op. at 145 (collecting cases) ("It is not sufficient simply to repeat objections made during the comment period; instead, a petitioner must demonstrate why the permit issuer's response to those objections (the permit issuer's basis for its decision) is clearly erroneous or otherwise warrants review.") (citations and internal quotation marks omitted).

Moreover, the Petition must also be denied on this issue for substantive reasons, because the District did not in fact take cost into account in its determination not to require these technologies as BACT. For "Fast-Start" integrated once-through steam boiler technology, the District did not require this technology as BACT because the only available application uses a single-pressure steam boiler system, which is less efficient than the triple-pressure steam boiler system the applicant proposed for the facility. The lower efficiency would result in an energy penalty and would lead to greater emissions per unit of output, and the District rejected it on this ground, not based on cost. *See generally* Responses to Comments at 105-110, Comment VIII.C.1 (Potential For Using Fast-Start Technology With Highly Efficient Triple-Pressure Steam Turbine Generating Equipment) and Comment VIII.C.2. (Use of Single-Pressure "Flex-

Plant 10" Technology). For "Op-Flex" technology, the District did not require this technology because the manufacturer has not provided any guarantee of emissions reduction performance sufficient to consider the technology "available" for purposes of the BACT review, and in any event the documented emissions performance from the one facility where the technology has been implemented do not show any additional emissions reductions beyond what the District is already requiring as BACT for this facility in any event. *See* Responses to Public Comments at 116-17, Comment VIII.C.5. (Use of Op-Flex Low-Load "Turn-Down" Technology). None of this reasoning for declining to require these two technologies was based in any way on cost considerations. There is simply no truth to Petitioner's assertions on this point, and thus no basis on which to grant review even if Petitioner had properly raised an issue here with specificity.[12]

II. The District Properly Eliminated The Use Of An Auxiliary Boiler Based On Cost-Effectiveness Concerns

In addition to Petitioner's unfounded claims that the District did not adequately evaluate and document the likely number and type of startups the facility will experience, Petitioner also challenges the determination the District made not to require the facility to use an auxiliary boiler to further reduce emissions during cold and warm startups. *See* Petition 10-03, Section III, pp. 18-22. The District considered in detail whether an auxiliary boiler should be required as BACT for startup emissions, but concluded that it would not be sufficiently cost-effective to require as BACT. Petitioner now claims that the District clearly erred in this determination, but none of its arguments has any merit.

As a threshold argument, the Petition claims that the District was not allowed to consider costs as part of its BACT analysis. But that claim is clearly contradicted by the Clean Air Act's definition of BACT for PSD permitting, which requires that the District consider "economic impacts and other costs." CAA § 169(3), 42 U.S.C. § 7479(3). The Petition then claims that the

[12] The District did consider costs in a few specific BACT analyses, and where it did it fully justified its determinations in accordance with the requirements of 40 C.F.R. Section 52.21. The Petition's assertions regarding improper cost considerations do not implicate any of these analyses.

District erred in conducting the cost-effectiveness analysis, alleging that the District may have underestimated the emissions reductions that could be gained from using an auxiliary boiler based on two arguments. First, the Petition alleges that the District has not justified the "6 x 16" operating scenario on which it based its analysis as discussed above, and that as a result the number of startups – and therefore the annual emission reductions than can be achieved by further reducing startup emissions – may be underestimated. But as explained above, the District did fully explain and document the "6 x 16" operating scenario and the number of startups that such operation would entail in its BACT analysis, and the Petition offers no creditable argument to the contrary. Second, Petitioner claims – for the first time in this permit proceeding – that the data from a similar facility the District used in calculating the emission reductions that could be achieved with an auxiliary boiler may not accurately represent the situation at the Russell City facility. But Petitioner cannot raise concerns like this for the first time on appeal without bringing them to the District's attention during either of the comment periods and giving the District a chance to respond. And even if Petitioner were allowed to raise these issues here, its argument has no merit because the data the District used does present an accurate picture of what can be achieved at Russell City, and Petitioner has nothing beyond mere speculation on which to question this fact. These holes in Petitioner's claims are explained in full below.

A. The Clean Air Act Requires a PSD BACT Analysis to Consider "Economic Impacts and Other Costs"

Section 165(a)(4) of the he Clean Air Act requires that no PSD facility can be built unless it uses Best Available Control Technology, and section 169(3) requires that BACT be based on the maximum degree of emission reduction "which the permitting authority, on a case-by-case basis, taking into account energy environmental and economic impacts and other costs, determines is achievable . . . ." With these enactments, Congress clearly and unambiguously established that when a permitting agency issues a PSD permit, it must establish a BACT that takes into account concerns such as cost-effectiveness. The Environmental Appeals Board has consistently applied this clear statutory directive in reviewing PSD BACT determinations. *See,*

e.g., In re Desert Rock Energy Co., LLC, 14 E.A.D. __, PSD Appeal Nos. 08-03 through 08-06 (EAB Sept. 24, 2009), slip. op. at 55 (cost-effectiveness considered at fourth step of BACT analysis, citing cases).

Petitioner nevertheless objects to the District's consideration of the cost-effectiveness of using an auxiliary boiler here based on District Regulation 2, Rule 2, the District's Non-Attainment NSR regulation. The District's Non-Attainment NSR regulation requires that the most effective control device or technique that has been successfully utilized at another similar source be implemented, regardless of cost. *See* District Regulation 2-2-206, Crockett Decl. Exh. 17. Petitioner asserts that the District should have required an auxiliary boiler under District Regulation 2-2-206, notwithstanding the federal requirement to consider economic impacts and other costs in establishing BACT in a PSD permit. As Petitioner notes, it would like the EAB to require the District to implement the "Lowest Achievable Emissions Rate" ("LAER") level of control used in Non-Attainment NSR permitting for PSD permits. *See* Petition 10-03 at 20.

As a threshold matter, Petitioner did not present this argument – that the District cannot consider the cost-effectiveness of an auxiliary boiler here under the PSD BACT rules but must instead impose a LAER level of control – in its comments, and so it should not be allowed to object on this basis on appeal. *See In re Kendall New Century* Development, 11 E.A.D. 40, 54-55 (EAB 2003); *In re Avon Custom Mixing*, 10 E.A.D. 700, 706 (EAB 2002). Petitioner claims in its Petition that it commented that "Regulation 2-2-206 leaves no room for interpretation" on this issue. Petition at 20 (citing CAP 2/9/09 comments at 5-8). But a review of the comments Petitioner submitted on the auxiliary boiler issue shows just the opposite. Petitioner specifically engaged the District on the cost-effectiveness issue, and far from objecting to the use of a cost-effectiveness analysis, Petitioner claimed that the District *should* perform such an analysis, only with more justification for the operating profile on which it was based. Petitioner claimed that unless the District performed (what Petitioner considered) a proper cost-effectiveness analysis, the District's BACT determination "does not meet the BACT requirements of the Act." CAP 9/16/09 comments, Petition 10-03 Exh. 7, at 6. Petitioner should not be allowed to comment that

the Clean Air Act requires the District to modify its cost-effectiveness analysis, and then appeal on the grounds that conducting such an analysis in the first place constitutes a violation of the Clean Air Act. The Petition does cite earlier comments in which Petitioner stated that the District should not have rejected retrofits to the combustion turbines that the applicant had already purchased based on cost considerations, *see* Petition at 20 (citing CAP 2/09 comments at 5-8), and in that context Petitioner made a similar claim that the District should be using a LAER approach under District Regulation 2, Rule 2, and not a PSD BACT approach. But Petitioner never raised any such concern later when the District published its cost-effectiveness analysis for the auxiliary boiler, and in fact seemed to encourage the use of a cost-effectiveness analysis as long as it had a proper foundation. Allowing Petitioner to assert this claim now based on an earlier comment on a completely different context would frustrate the policy of ensuring that arguments are squarely presented to the permitting agency so that they can consider them before taking final action, and the Board should do so.

Furthermore, if the EAB moves on to consider the merits of Petitioner's claim here, it should not allow CAP to rewrite federal law to change the PSD BACT requirement into a LAER requirement. Where Congress has clearly manifested its intent in a statute, it is not up to an implementing agency – and even the supreme administrative tribunal of the agency – to depart from the plain words of the statute. *See Chevron U.S.A. Inc. v. NRDC*, 467 U.S. 837, 842-43 (1984) ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."). PSD permitting was clearly and unambiguously created to require BACT determinations to take into account "economic impacts and other costs", CAA § 169(3), and nothing short of a further act of Congress can change this reality.

Petitioner does allude to the fact that the PSD Delegation Agreement between the District and EPA Region 9 requires that "[t]he District shall issue PSD permits under this partial delegation Agreement in accordance with the PSD requirements of the District's Regulation 2 – Rule 2 and 40 CFR 52.21 . . . ." Delegation Agreement, Crockett Decl. Exh. 16, ¶ IV.1. But this

language can not and does not require the District to jettison the PSD BACT requirement as Petitioner claims. The Delegation Agreement is based on the fact that the District's Regulation 2, Rule 2 contains certain provisions to help guide District staff in conducting PSD analyses, which track the requirements of the federal PSD program. *See, e.g.*, District Regulation 2, Rules 304, 305, 306, 414, 415, 416, 417, 418, *etc*., Crockett Decl. Exh. 17. As the Delegation Agreement notes, based on these provisions "District regulations . . . *generally* meet the requirements of 40 CFR 52.21 for issuing PSD permits . . . ." Delegation Agreement, Crockett Decl. Exh. 16, ¶ II.2. (emphasis added). The Delegation Agreement therefore references these provisions of District regulations and requires that the District issue PSD permits in accordance with the PSD requirements of Regulation 2, Rule 2, but only to the extent that they are actually consistent with the federal PSD requirements in 40 C.F.R. Section 52.21. Indeed, as the Delegation Agreement further provides, EPA may review PSD permits issued by the District under its delegated authority "to ensure that the District's implementation of this delegation Agreement is consistent with federal PSD regulations for major sources and modifications (40 CFR 52.21)." *Id.* ¶ IV.3. The Delegation Agreement therefore requires the District to follow its procedures in Regulation 2, Rule 2, which is "generally" consistent with 40 C.F.R. Section 52.21, where there is any inconsistency between District and federal PSD requirements, the District must follow the federal requirements.[13] This is how the Delegation Agreement is set up, and it is how any PSD

[13] In this respect, the Delegation Agreement could be more clearly written and has caused some confusion in the past. Notably, it was the language regarding using District Regulation 2, Rule 2, that led to the Remand Order when the District first issued the PSD permit for this facility. At that time, the District followed the public notice procedures in its Regulation 2, Rule 2, under a belief that doing so was authorized by the Delegation Agreement. When the permit was appealed on notice grounds, the District realized that this assumption was not tenable under the Clean Air Act, and has since changed its procedures to comply with all federal requirements. The EAB took the same position, and remanded the permit because the notice procedures the District used under Regulation 2, Rule 2 (and Regulation 2, Rule 3, which incorporates these procedures specifically for power plant projects) did not satisfy the requirements for PSD permits in 40 C.F.R. 52.21 and 40 C.F.R. Part 124. The District and EPA Region 9 are currently working on a revised version of the Delegation Agreement in an attempt to eliminate any such ambiguity going forward.

delegation must work because no EPA regional office has the power to rewrite the Clean Air Act PSD requirements in delegating its authority to a local permitting agency.[14]

The District clearly explained this situation in its Response to Comments. The District received comments in a number of areas stating that it should apply provisions of its Non-Attainment NSR rules in District Regulation 2, Rule 2, and in response it explained that none of these provisions applies to federal PSD permits, which are subject to the federal permitting procedures. The District noted that "[s]ome comments stated that the District's BACT analysis was inconsistent with the District's BACT approach under its Non-Attainment NSR rules (District Regulation 2-2) . . . ." In response, it stated that "Non-Attainment NSR is a state-law permitting program conducted in accordance with the District's SIP-approved Non-Attainment NSR regulations. It is a separate permitting program and is not part of the Federal PSD permitting program." Responses to Public Comments at 218, Comment XVIII.3. (Non-Attainment NSR Permitting).[15] Petitioner has provided nothing to question this position beyond pointing to the language in the Delegation Agreement, which as explained above cannot be effective to rewrite the federal rules for PSD permitting. Petitioner has therefore provided no grounds on which the Board could grant review because it has not explained how the District's response could have been in error. *See Prairie State*, *supra*, PSD Appeal No. 05-05, slip op. at 145.

Moreover, there can be no basis on the merits for granting review on this issue either, as a permitting agency is clearly required to follow the PSD BACT requirement as set forth in CAA Sections 165(a)(4) and 169(3) when issuing PSD permits, regardless of the language that may

[14] Not only is an EPA regional office incapable of rewriting the Clean Air Act, it is also incapable of rewriting the provisions of 40 C.F.R. Section 52.21, which have been adopted in the Code of Federal Regulations after notice and comment. It would take a further notice-and-comment rulemaking to authorize any departure from those regulations (which would also have to be consistent with Congress's direction in the Clean Air Act).

[15] The District also explicitly addressed the situation with the Delegation Agreement and the fact that the Delegation Agreement cannot be read to override federal regulations in situations where District Regulation 2, Rule 2 may be inconsistent with federal requirements. *See* Response to Comments at p. 195, Comment XVI.1 (Compliance With PSD Delegation Agreement).

have been used in a PSD delegation agreement. The EAB has clearly established this principle in *In re West Suburban Recycling and Energy Center, L.P.*, 6 E.A.D. 692 (EAB 1996), where the Board was presented with the identical argument that language in EPA Region V's Delegation Agreement with the Illinois Environmental Protection Agency ("IEPA") required IEPA to apply the requirements of Illinois's SIP-approved Non-Attainment NSR permitting program to PSD Permits issued under the Delegation Agreement. IEPA denied a PSD permit under this theory "for failure to demonstrate compliance with certain requirements of Illinois law, including a demonstration of . . . 'lowest achievable emission rate' (LAER) . . . under Illinois State Implementation Plant (SIP) requirements for nonattainment area pollutants" (among other requirements). 6 E.A.D. at 696. The Board was then faced with a Petition for Review objecting to the IEPA's having included LAER as part of its PSD review, given that PSD permitting under 40 C.F.R. Section 52.21 requires only a BACT level of control, not LAER. *See* 40 C.F.R. §§ 52.21(j), 52.21(b)(12).

IEPA argued that its Delegation Agreement – which required IEPA to issue PSD permits as an integral part of its SIP-approved non-attainment NSR permitting program, as the District's Delegation Agreement does here – authorized it to apply its SIP-approved non-attainment NSR requirements (including LAER) to PSD permits issued under the Delegation Agreement. *See West Suburban*, 6 E.A.D. at 700. As the Board described this position, "IEPA claims that USEPA has 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 (citations and internal quotation marks omitted). Under this view, EPA's Delegation Agreement establishing that PSD permitting would be conducted in an integrated proceeding with SIP-approved Non-Attainment NSR permitting under state law created an affirmative duty on the part of the permitting agency to impose LAER and other Non-Attainment NSR requirements in PSD permits issued pursuant to 40 C.F.R. Section 52.21.

The EAB vehemently disagreed, finding that IEPA's view that its "role in reviewing PSD preconstruction permit applications is controlled by the substantive and procedural requirements

[of Illinois law] is both inexplicable and plainly erroneous." *Id.* at 704 (citations and internal quotation marks omitted). The EAB further explained that "Illinois does not have an approved SIP for the PSD program, and therefore IEPA acts only to implement the *federal* PSD requirements." *Id.* at 703. It further explained that "a permit issuer exercising delegated PSD permit authority only 'stands in the shoes' of U.S. EPA. Obviously, U.S. EPA would not be free to deny a federal PSD permit solely on the basis of failure to comply with state permitting requirements. Therefore IEPA may not do so." *Id*. at 707 (citation omitted). The Board concluded that failure to comply with the state-law requirements of Illinois's SIP-approved non-attainment NSR program – including LAER – were not valid grounds on which to deny a PSD permit. *Id.* at 708. This same principle applies here: failure to implement LAER as required by District regulations for Non-Attainment NSR permitting is not grounds for denial of this PSD permit, and nothing in a Delegation Agreement with EPA Region IX can alter that fundamental fact.

B. The "6x16" Startup Profile the District Used in its Cost Effectiveness Analysis Had a Well-Reasoned and Well-Documented Evidentiary Basis

Petitioner next asserts that the District did not adequately determine the amount of emission reductions that could be achieved from using an auxiliary boiler. Petitioner argues that the District did not adequately determine the facility's operating scenario and the number of startups it would have per year. Without having adequately determined how many startups the facility will have, Petitioner argues, the District could not adequately calculate what impact an auxiliary boiler would have in reducing startup emissions. Petitioner therefore requests that the Board "remand the permit for a cost effectiveness calculation that has a basis in the tons that an auxiliary boiler can reduce." Petition 10-03 at 21-22.

Once again, Petitioner is simply wrong that the District did not use a credible operating scenario and startup profile as the basis for its cost-effectiveness analysis. As explained in detail in Section I.A. above, the District based its analysis on the "6 x 16" operating scenario that this facility is being built to serve under Calpine's Power Purchase Agreement with PG&E. "6 x 16"

operation means operating for 16 hours per day, shutting down at night, and then starting up again in the morning; and repeating this profile six out of seven days per week, with only limited prolonged downtime. Operating in this manner means 6 hot startups per week after an overnight shutdown and 1 warm startup per week after a day-long shutdown. Operating 50 weeks per year in this manner leads to 250 hot startups and 50 warm startups per year, with only minimal cold startups after a longer shutdown. The District therefore used a startup profile of 3 cold startups and 50 warm startups per year (6 cold starts and 100 warm starts for the two turbines combined) as the basis for its cost-effectiveness analysis. (Hot startups were excluded because an auxiliary boiler has no effect on hot startups, when the equipment is already at high temperature.) As explained above, the District had a sound evidentiary basis for this operating scenario and startup profile based on the Power Purchase Agreement and all other indications that the District reviewed that were consistent with this assumption.

Furthermore, in the Response to Comments, the District discussed the comments it received that "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 . . . ." Response to Comments at 115. The District responded that this operating profile "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," as discussed above. Response to Comments at 115-16. The District also noted that even if its assumptions about the number of startups were off by a factor of two or more, as Petitioner seems to suggest here, the cost-effectiveness analysis would still come to the same conclusion. Petitioner has failed to suggest any way in which this response is inadequate, and there is none.[16]

[16] Petitioner also claims that it is the applicant's burden to establish that a control technology is not cost effective. Petition 10-03 at 21 (citing *Knauf Fiber Glass, GmbH ("Knauf I")*, 8 E.A.D. 121, 131). But *Knauf I* simply holds that a BACT determination must reflect the agency's "considered judgment" on the issue. If the agency shows that it has given the issue its "considered judgment" and documented it on the record, as the District has done here, the burden then shifts to the petitioner to show how the agency's response was inadequate. And Petitioner has made no attempt to shoulder its burden here to explain how the District's response was

Petitioner's arguments must therefore also fail for not explaining how the District's responses to comments were insufficient, *see Prairie State, supra*, slip op. at 145, in addition to failing on the merits because the District properly used a well-considered and well-documented startup profile.

C. The District Reasonably Based Its Estimate of Potential Emission Reductions on a Similar Facility

Finally, the Petition also challenges the data on which the District relied in evaluating what additional emission reductions could be achieved from cold and warm startups using an auxiliary boiler. *See* Petition 10-03 at 22. The data the District relied on came from a similar facility in Mankato, Minnesota, that is equipped with an auxiliary boiler. As the District explained in the Additional Statement of Basis:

> For 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. The 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 impacts on hot startups, as the HRSG and steam turbine are already at a high temperature).

Additional Statement of Basis at 69 (citing the excel spreadsheet "Aux Boiler start profile DJ.xls" containing the Mankato data, Crockett Decl. Exh. 11.b.1). The District then calculated the resulting annual emissions reductions assuming a "6 x 16" operating profile (6 cold starts and 100 warm starts) as 0.9 tons of NO_2 and 12.4 tons of CO. The District received comments questioning whether it had properly determined what emission reductions could be received (although not from Petitioner CAP here), and these comments provided emission estimates from another facility (the Lake Side power plant in Utah) from Siemens Westinghouse Power Corporation. Those comments asserted that, based on this Siemens data, an auxiliary boiler could actually achieve 89.9 tons per year of CO emission reductions, which would result in a cost-effectiveness calculation of $11,515 per ton of CO reduced. *See* CLP 9/16/09 Comment, Crockett Decl. Exh. 9, at 3-4. The District conducted its own evaluation of the data sheets

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inadequate here, other than simply reciting its earlier arguments that the "6 x 16" operating scenario lacked an evidentiary basis.

submitted with the comment letter and found that they actually showed potential reductions of 48.7 tons, which would result in a cost-effectiveness calculation of $21,140 per ton of CO reduced. But the District concluded that any such difference in calculated emissions reductions from the Lake Side emission estimates was ultimately moot, as the auxiliary boiler would not be sufficiently cost-effective to require as BACT at either $21,140 per ton or $11,515 per ton. *See* Responses to Public Comments at 114-15.

Petitioner concedes that the District documented its BACT determination on this underlying data and analysis in the record. *See* Petition 10-03 at 22 (citing District's Responses to Public Comments). But Petitioner argues that this data and analysis was insufficient because the District allegedly did not explain how the Mankato data can be used to set BACT for the Russell City facility, did not explain how "reliable" the Mankato data is, and did not explain "what the numbers represent." *See id.* The Petition then uses these criticisms of the District's analysis to claim that "there is no support for the District's calculation" and that "the cost effectiveness calculation lacks an ascertainable basis." *Id.*

At the outset, Petitioner's challenge to the District's calculations here must be rejected because this issue was not raised in comments. Although the District received a comment (from a different commenter) stating that it would be more appropriate to use the emissions estimates from the Siemens data sheets in the calculation instead of the data from the Mankato facility, no commenters at any time questioned whether the Mankato data were not reliable, accurate or representative, and no commenters ever requested that the District provide further explanation or justification for the data set forth in the spreadsheet that the District cited in the Additional Statement of Basis. Petitioner cannot unfairly sand-bag the District here by failing to raise these concerns before the District issued the permit, and then later using them as a reason to appeal after the District issued the permit. *See In re Kendall New Century* Development, 11 E.A.D. 40, 54-55 (EAB 2003); *In re Avon Custom Mixing*, 10 E.A.D. 700, 706 (EAB 2002). Moreover, Petitioner cannot rely on the comment suggesting that the District use the Siemens data sheets instead of the Mankato data as a basis for its claim now. That comment suggested that there may

be other data that could be more appropriate to use in the BACT analysis, but it did nothing to suggest that the Mankato data was unreliable, inaccurate, unrepresentative, or otherwise of a type that could not be used to support a BACT determination.

But even so, Petitioner's argument that the District did not have any basis for its calculation is false, as can be seen by a quick review of the record here. Petitioner claims that the District did not explain how the numbers from the Mankato facility can reasonably be used for setting BACT at the Russell City facility, but the District did explain this point, stating that "the [Mankato] plant allows a direct comparison of the actual emissions reduction impact from using this technology" because it uses the auxiliary boiler for some startups and does not use it for others. Additional Statement of Basis at 69; Responses to Public Comments at 114. Petitioner also claims that the District did not explain how reliable the numbers from the Mankato facility are, but the District did note that the information from Mankato was "data" that documented "the actual emission reduction impact" from using the technology, *id.*, which shows that the information is hard evidence from actual experience on real equipment and thus of the type that permitting agencies normally rely on in BACT determinations. Petitioner also claims that the District did not explain "what the numbers represent," but again the District explained that they represent a comparison of startup emissions from when the facility uses the auxiliary boiler and when it does not, and thus provide "a direct comparison of actual emissions reduction impact from using this technology." *Id.*[17] This discussion clearly provided an adequate foundation for relying on the Mankato data, especially in light of the fact that nobody questioned it or asked for more explanation during the comment period.

For all of these reasons, Petitioner's claim that the District had "no support" for its cost-effectiveness calculation is simply wrong. Although Petitioner may now disagree with the

[17] Petitioner also questions some of the notations used by the person who prepared the spreadsheet. To the extent that Petitioner finds any of these notations are questionable, it had a duty to pose such questions during the comment period and allow the District an opportunity to clarify any areas were Petitioner might have concerns. Petitioner cannot use these claims as a basis for appeal now where it did not identify them during the comment periods.

District's conclusion, the District made the basis for its conclusion clear on the record, and Petitioner has provided no grounds for granting review on this issue.

III. The District Did Not Abuse Its Discretion By Basing its BACT Emissions Limits For Startups On Data From Similar Facilities and Incorporating A Reasonable Safety Margin To Ensure That The Limits Will Be Achievable.

In addition to Petitioner's claims regarding the District's selection of the BACT control technology for limiting emissions from turbine startups, Petitioner also objects to two of the specific BACT emissions limits the District imposed for startups. Specifically, Petitioner claims that (i) the NO_2 emissions limit for cold startups of 480 pounds per startup, and (ii) the NO_2 emissions limit for hot startups of 95 pounds per startup were not sufficiently justified. *See* Petition 10-03 at Section IV, pp. 23-28. Petitioner's claim is, essentially, that the District should have imposed lower NO_2 limits for cold and hot startups because data from other facilities using similar equipment shows, according to Petitioner, that lower limits would be "achievable" for purposes of the BACT requirement. But as with so much of this Petition, a review of the record shows that Petitioner's assertions are simply wrong. The data in the record on which the District based its BACT analysis show that startup emissions are highly variable, and that the limits had to be set at levels that would enable them to be consistently achievable over the life of the facility. Petitioner is correct that some data points at some facilities show that sometimes turbines will be able to achieve startups with lower emissions than these maximum not-to-exceed permit limits. But Petitioner is wrong that the existence of such data points means that the BACT limit must be set at that level of emissions performance. To the contrary, the EAB caselaw is clear that BACT must be set at a level that the facility can consistently achieve under all operating scenarios, as the District did here.

A. The District Did Not Limit Its BACT Analysis To Emissions Limits That Could Be Achieved With Already-Purchased Equipment

At the outset, Petitioner claims that the District erred in considering only the startup emissions performance that could be achieved with equipment that the applicant had already purchased for the project. *See* Petition 10-03 at Section IV.A., pp. 23-24. But again, this

contention is simply not true. With respect to the use of equipment that the applicant had already purchased, the District addressed this concern in both the Additional Statement of Basis (at pp. 7-9) and in the Responses to Public Comments (at pp. 4-7), and explained that the applicant will be upgrading its equipment so that it will have the emissions performance of the most modern state-of-the-art equipment available today. The District also specifically addressed concerns that, with respect to startup emissions, the District had rejected additional startup-related control technologies because they would be too costly to retrofit to the existing equipment. *See* discussion *supra* Section I.E (addressing Petitioner's argument that the District based its BACT determination on outdated technology), and record citations therein. Furthermore, the record shows that the District did in fact consider additional technologies beyond what the applicant has already purchased for this facility. As noted above, the District considered using additional technologies such as Fast-Start technology and an auxiliary boiler, but rejected them as BACT because they would not achieve enough additional startup-related emission reduction benefits to justify the offsetting energy penalty and/or cost impacts. Petitioner's further claim here that the District's analysis of appropriate startup limits was not based on a proper review what can be achieved by current, state-of-the-art equipment is simply false.

B. The District Did Not Commit Clear Error In Establishing The Cold-Startup NO2 Emissions Limits of 480 Pounds Per Startup Based On Available Data From Similar Facilities.

Petitioner then challenges the District's 480-pound limit on NO_2 emissions from cold startups. *See* Petition at Section IV.B.1., pp. 24-27. But a review of the District's analysis shows that the District provided a sound and well-reasoned technical justification that is more than sufficient to support this limit under the PSD BACT requirement.

The District based this limit on the cold-startup permit limit for the Metcalf Energy Center, the most recent similar power plant that the District has permitted, which is 480 pounds. *See* Statement of Basis at 44. The District then evaluated actual emissions data from performance tests at the Metcalf facility and three other similar facilities to determine if an even

more stringent limit would be consistently achievable for this type of equipment. With respect to cold startups, the data showed a very high degree of variability, with the lowest test result at 103 pounds and the highest test result at 499 pounds. *See id*. at 45-46. Notably, there were four test results that came in at or above the 480-pound limit (499, 488, 485, and 480). *See id.*

The District explained its assessment of the available data in the Statement of Basis, stating:

> 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 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.

Id. at 44. Based on this review of the data, the District concluded that imposing a maximum not-to-exceed BACT limit for NO_2 emissions during cold startups of less than 480 pounds would not be consistently achievable. The District was aware that some data points showed emissions for specific startups below this 480-pound limit. But the data also showed a high degree of variability, and indicated that during some startups emissions were at a level that was at or near the 480-pound limit (and in a few cases, were even over 480 pounds). The District therefore concluded that a limit below 480 pounds would not be consistently achievable. As the District explained:

> 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 [*i.e.*, 480 pounds for cold startups] 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. The District therefore proposed the 480-pound cold start NO_2 limit in the December 2008 draft permit.

During the initial comment period, the District received comments that it should also examine available data from the Palomar Energy Center in Escondido, CA, which commenters claimed was achieving superior startup performance compared to other, older plants. (The Palomar facility has permit limits for startups that are far higher than the startup limits the District imposed here,[18] but commenters stated that apart from the permit limits the facility was actually achieving startup emissions performance that was far lower.) In response to these comments, the District obtained and analyzed operating data from the Palomar facility. *See* Additional Statement of Basis at 60-63. There were only five cold startups in the available data from Palomar (which is consistent with the fact that cold startups from facilities like this are relatively uncommon events). These five data points were highly consistent with the range of data from the other facilities that the District had evaluated in the Statement of Basis, with an average of 182.8 pounds of NOx emitted and a maximum of either 375 or 437 pounds of NOx emitted, depending on whether one uses the District's calculation or the calculation of the San Diego Air Pollution Control District, the air district with jurisdiction over the Palomar facility. *See id.* at 60-61. The District concluded that, on the basis of these five data points at least, there was no definitive indication that Palomar was performing significantly better that the other facilities the District had examined, or that the District's initial assessment based on those other facilities was inaccurate. *See id*. at 61. The District did note that the highest of the five data points – 375 pounds or 437 pounds, depending on which calculation is used – was 9% or 22% (depending on the calculation used) below the 480 pound proposed permit limit. But the District concluded that including a 9%-22% compliance margin in a permit limit based on these five data points would not be inappropriate, for several reasons. As the District explained:

[18] *See* Additional Statement of Basis at 60 n.111 (noting that the Palomar NOx startup limit is 400 pounds *per hour*, meaning that total startup emissions for a multi-hour startup could be several multiples of 400 pounds).

> First, the data from Palomar includes only five available data points for cold startups, 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 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 NO_2 is a reasonable BACT limit that is consistent with the startup emissions performance seen at the Palomar facility.

Id.

During the second comment period, the District received further comment on this issue. The comments criticized the District for setting the BACT limit at a level that would accommodate the highest levels of emissions seen in actual startups from similar facilities. The comments claimed that the District should base the BACT limit on the average emissions performance from other facilities, not the highest emissions experienced (or near-highest, as the comments recognized that some of the data points were actually above the 480-pound limit). *See* Responses to Public Comments at 100 (describing comments received). In response, the District disagreed that the BACT limit should be based on average emissions seen in data from other facilities. As the 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 operations 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*. With respect to the Palomar data specifically, the District also added that its conclusion 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." *Id*.

Petitioner now claims that the District committed clear error in establishing the 480-pound limit on cold-startup NO_2 emissions based on this permitting record. As explained in

detail below, Petitioner's arguments are misplaced because the District's determination is more than adequately justified by this permitting record.

1) District Did Not Err In Looking To Emissions Data From Similar Facilities to Establish an Achievable BACT Limit.

Petitioner first claims that the District erred in considering emissions data from existing facilities using similar equipment to what will be used at the Russell City facility. *See* Petition at 23. But Petitioner offers no reason why it could be inappropriate to look to real-life data from actual emissions performance tests in establishing BACT limits, and it ignores recent precedents from the Environmental Appeals Board explicitly encouraging permitting agencies to use such data in their BACT determinations.

The Board has addressed this issue extensively in two recent cases, *In re Prairie State Generating Co.*, 13 E.A.D. __, PSD Appeal No. 05-05 (EAB Aug. 24, 2006), *aff'd sub nom.*, *Sierra Club v. EPA*, 499 F.3d 653 (7th Cir. 2007), and *In re Newmont Nevada Energy Investment, L.L.C.*, 12 E.A.D. 429 (EAB 2005), and in both cases it rejected claims identical to Petitioner's here that the permitting agency could not use data from existing facilities in establishing a BACT limit. In those cases, the petitioners argued that if permitting agencies could rely on data from existing facilities then BACT would never advance over time and the term "achievable" as used in the statute and regulations would essentially be re-written as "achieved" by existing technology. This is the argument that Petitioner raises here with its claim that "[i]t is hard to imagine how technological improvements required by the PSD regulations would ever be incorporated into new sources" if permitting agencies use emissions data from existing facilities in setting BACT limits for new facilities. Petition 10-02 at 23. The Board agreed with the principle that the BACT limit needs to be forward-looking and must reflect the maximum achievable emissions limits, but it held that this principle is fully consistent with evaluating data from existing facilities to determine exactly what limits are achievable. As the Board explained in *Prairie State*:

> In *Newmont*, we concluded that the word "achievable" as used in the statute and regulations, "although forward-looking, also constrains the permit issuer's discretion by prohibiting BACT limits that would require pollution reductions greater than what can be achieved with available methods." *Newmont,* slip op. at 16-17, 12 E.A.D. at __. In this regard, "[t]he BACT analysis * * * must be solidly grounded on what is presently known about the selected technology's effectiveness at controlling pollutant emissions." ***Id.*** For example, we have observed that "[i]n reaching [the] facility-specific result, the emission limitations achieved by other facilities and corresponding control technologies used at other facilities are an important source of information in determining what constitutes *best available*." *In re Knauf Fiber Glass, GmbH,* 8 E.A.D. 121, 128-29 (EAB 1999).

Prairie State, *supra*, slip op. at 70. The Board also cited the guidance from the NSR Workshop Manual stating that "Manufacturer's data, engineering estimates and the experience of other sources provide the basis for determining achievable limits," (*id.*, citing NSR Workshop Manual B.24); and it observed that "past performance of the selected technology informs the analysis of what the proposed facility can be expected to achieve in the future," (*id.* n.54).

Petitioner's argument must fail here for the same reasons that it failed in *Prairie State* and *Newmont*. The District's analysis considered emissions data from other facilities not because it was backward-looking, but because the District needed to assess all of the available evidence about what startup emissions performance the facility could consistently achieve over time. This is exactly the approach that the EAB has condoned in these cases, and Petitioner has provided nothing to distinguish them.

2) Emissions Data From Individual Performance Tests at Other Similar Facilities Do Not Constitute Achieved Emissions "Limits"

Petitioner also erroneously claims that the other facilities that the District evaluated have achieved emission limits that are lower than the 480 pounds-per-startup that the District imposed as the BACT limit here. The Petition states that "the District dismissed limits that have been achieved in fact and are lower than the proposed [*sic*] limit of 480 lbs per startup event." Petition 10-03 at 24; *see also* Petition at 24, heading IV.B.1. ("The District failed in its burden because cold startup limits are higher than already achieved limits"). This assertion is false. Petitioner has not pointed to a single facility with a cold startup NO_2 limit of less than 480

pounds, either in its comments or in its Petition, and the District did not find any in its BACT review, either. *See* Statement of Basis at 44-47; Additional Statement of Basis at 59-65; Responses to Public Comments at 93-101. Instead, Petitioner points to individual test results in the record showing particular cold startups that were achieved with less than 480 pounds of NO_2 emissions. *See, e.g.*, Petition at 24 (claiming that other facilities "have demonstrated that they can emit as low as 86 pounds").[19] But an individual test result does not establish that an enforceable emissions limit has been consistently achieved for purposes of a BACT analysis. The EAB stressed this point as well in *Prairie State* and *Newmont*, explaining that a BACT analysis needs to make 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." *Prairie State*, *supra*, slip. op. at 70 (citing *Newmont*, slip. op. at 18 [12 E.A.D. at 442]). The District did exactly that: Based on evidence from measured emissions rates from similar facilities, it established a BACT emissions limitation at a level that it determined was the lowest that would be consistently achievable throughout the facility's life. Petitioner cannot alter this reality by claiming that lower emission rates seen in specific measurements from other facilities somehow constitute established BACT limits.

3) Average Emissions From Other Facilities Do Not Provide A Sound Basis For A Maximum Not-To-Exceed BACT Permit Limit.

Petitioner similarly claims that the District erred in not basing the cold-startup NO_2 limit on the average emissions seen in the data from other facilities. *See* Petition 10-03 at 24-25. But again, this argument misunderstands how a BACT limit must necessarily be established. As the

[19] Notably, Petitioner's claim that other facilities have achieved cold startups with as little as 86 pounds of NOx emissions has no basis in the record. Petitioner cites page 45 the District's initial Statement of Basis, but the data on that page (and the next) show no test results at 86 pounds of NOx, and indeed no cold startups with anything less than triple-digit emissions. But even if there were an 86-pound data point, the totality of the data shows widely varying emissions with some startups ranging as high as 499 pounds.

Board has explained in *Prairie State*, *Newmont*, and countless other cases, a BACT limit should not be established at the maximum control efficiency that a technology can achieve, or even at the average control efficiency, but at a level that the facility can consistently achieve over time. The Board has especially stressed this principle in cases such as this one, where the emissions performance can vary widely from one startup to the next. The Board explained the reasoning for this principle in *Prairie State*, stating that "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." *Prairie State*, *supra*, slip. op. at 72 (citing *In re Masonite Corp.*, 5 E.A.D. 551, 560 (EAB 1994). As a result, the Board continued:

> Thus, we have held that 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. *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." *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).

Prairie State, *supra*, slip op. at 72-73; *see also Newmont*, 12 E.A.D. at 442. The District was therefore not required to base the BACT limit on the lowest-emissions startup ever achieved with equipment of the type that will be used at this facility, or even on the average emissions performance that can be achieved over time. To the contrary, the District was fully justified in setting the BACT emissions limit at a level that can consistently be achieved for every startup. Indeed, setting the not-to-exceed BACT limit at the *average* emissions that the facility will be able to achieve would necessarily cause the facility to be in violation for half of its startups, as half of the startups will be below the average, but half of the startups will be above it. Doing so would make violations of the permit unavoidable, which is exactly the concern the EAB has recognized in concluding that permitting agencies need to establish permit limits that are achievable on a consistent basis.

4) The District Properly Justified Its Use of a "Compliance Margin" In Evaluating the Available Data On What Cold-Startup NO2 Emissions Limit Is "Achievable" For This Facility.

Ultimately, despite the arguments outlined above, Petitioner does appear to recognize the fundamental principle that a BACT limit needs to be established at a level that can be consistently achieved over time, as it concedes that under *Prairie State* and other EAB precedents that a "compliance margin" or "safety factor" should be built into the BACT limit to ensure that it will be achievable. *See* Petition at 26 (citing *Prairie State*, slip. op. at 73). As the paragraph Petitioner quotes from *Prairie State* reads:

> [T]he 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. For example, we have approved the use of a safety factor to take into account variability and fluctuation in expected performance of the pollution control methods, or test method variability.

Prairie State, *supra*, slip. op. at 73. As described above, this is exactly what the District did here in establishing the BACT limit. The District evaluated data from other facilities and found that there was a large amount of variability in the data. The District therefore established a BACT limit that was higher than the best emissions performance seen in any particular test, and was instead at a level that the District determined would be consistently achievable given the high degree of variability and the level of emissions seen in the data from other similar facilities. Establishing a BACT limit with a "safety factor to take into account variability and fluctuation" in emissions performance in this way is exactly what the Board has consistently found to be justified in *Prairie State* and multiple other cases. *See Prairie State*, slip. op. at 76 ("Variability in the observed performance of a control technology has long been recognized as an appropriate circumstance for the permitting authority to use a safety factor in setting the Permit's BACT limit."); *In re Knauf Fiber Glass GmbH ("Knauf II")*, 9 E.A.D. 1, 15 (EAB 2000) (25% "variability" factor appropriate in light of potential variations in fiberglass manufacturing process); *Masonite*, 5 E.A.D. at 560 ("the control efficiency achievable through the use of technology may fluctuate, so that it would not always achieve its optimal control efficiency").

Petitioner now criticizes the District's analysis as insufficiently justified under *Prairie State*. The Petition claims that the District "failed to identify foreseeable scenarios that might contribute to such high variability"; that "there is no analysis of why there is variability"; and that the District "failed to demonstrate that there are 'source-specific factors or other relevant information that provide a technical, economic, energy or environmental justification' " for the high level of variability that the District used to justify the BACT limit. Petition 10-03 at 26. But this assertion is belied by the District's discussion of the variability in the record. As the District stated:

> 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 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.

Statement of Basis at 44. This discussion makes clear that the District did in fact properly consider and document what the reasons were for the variability, and that it properly accounted for them in setting the BACT limit with sufficient margin to ensure that it would be achievable given the variability. In this respect, the present case is almost exactly identical to the situation the Board approved of in *Prairie State*, in which the Illinois Environmental Protection Agency ("IEPA") adopted a BACT limit that incorporated a safety factor to account for variability in test data regarding what level of PM emissions the facility could achieve. IEPA explained in the record that "the emission limit being set for filterable particulate matter . . . represents the maximum degree of reduction, with an appropriate safety factor to accommodate normal variation in performance when the control system is properly operated and maintained." *Prairie State*, *supra*, slip. op. at 100. It stated that "the extensive database of test results [referred to by the comment] confirms the significant variability in the tested PM/PM_{10} emissions of power plants." *Id.* It also stated that "individual tests do not provide an adequate basis to set BACT for filterable PM_{10} as they do not address the normal variability in the performance of a boiler and

its control system for particulate." *Id.* A petitioner then challenged the BACT limit as not being adequately justified in the record as Petitioner claims here, and the Board rejected the claim. The Board found that IEPA's discussion and analysis "demonstrate the futility of Petitioner's argument that 'the record contains no evidence' to support IEPA's conclusion that the use of a safety factor is appropriate in this case." *Id*. Based on the District's documented discussion and analysis of the inherent variability in startup emissions, Petitioner's argument is equally futile here.

Perhaps recognizing that the District did in fact discuss and document the high degree of variability in startup emissions in justifying the BACT limit, Petitioner goes on to claim that the District did not evaluate in more detail the reasons for the variability and whether there may additional measures that the facility could take to reduce emissions. But Petitioner has failed to provide any reason – either in its comments or in its Petition – to believe that a facility could do any more to address the factors that cause startups emissions to be so variable, and the District is not aware of any. Such speculation is not sufficient to warrant review of a BACT determination, as the Board has consistently held. Indeed, Petitioner's argument here is again exactly on point with a similar argument that the Board rejected in *Prairie State*. There, the petitioner speculated that the variability in PM emissions at other plants was due to variability in the ash content of the coal being fired, whereas the facility under review would get its coal from a single source which, presumably, would not have the same variability in ash content. The petitioner therefore challenged IEPA's use of a safety factor to account for variability in test data on the grounds that IEPA's basis for finding variability in the first place was not adequately explained. The EAB rejected this argument as well, explaining that:

> Petitioners . . . have not provided any record evidence demonstrating that the ash content of the fuel used during the stack tests they cite explains the variability in the filterable PM data. Without such analysis demonstrating that the variability in the data is, in fact, explained by the ash content of the coal supply, Petitioners' ash-content theory is merely a speculative explanation for the observed data variability. Such speculation does not show clear error in IEPA's permitting

> decision. *In re Three Mountain Power, LLC*, 10 E.A.D. 39, 58 (EAB 2001) ("The Board will not overturn a permit provision based on speculative arguments.").
>
> Moreover, because Petitioners have not provided an analysis of the range of variability in the stack test data, Petitioners have provided no basis for us to conclude that the "safety factor" applied by IEPA is excessive or would allow variability beyond what can reasonably be expected based on the data in the record. Accordingly, the stack test data on which Petitioner relies, standing alone, do not establish clear error in the Region's application of a safety factor for the filterable PM limit.

Prairie State, slip. op. at 101-02. Petitioner's claim here that there could be additional available means to further reduce startup emissions that could justify a lower BACT limit is similarly speculative, and its challenge to the level of compliance margin that the District provided to address the variability is similarly unfounded in any concrete analysis. The Board should therefore dismiss it as it did in *Prairie State*.

Petitioner also claims that the District did not adequately respond to comments citing data from five cold startups at the Palomar Energy Center, a similar facility in Escondido, CA. *See* Petition 10-03 at 25. The Petition notes that the highest of these five startups had emissions of 375 or 432 pounds of NOx, depending on which of two alternate calculations is used, and that the 480 pound BACT limit is 9% or 22% above this data point, depending on which calculation is used. *Id.* But the District did explicitly address this point, and determined that the additional headroom in the permit limit was necessary to account for the variability in the data as well as the fact that, with only five data points, the highest test result seen in that data would not necessarily be the highest emissions the facility would ever experience. *See* Responses to Public Comments at 100-01. Petitioner has not provided any reason to disagree with this conclusion.

Finally, Petitioner also claims that "there is no precedent for allowing such a large [safety] margin", citing *Prairie State* and *Masonite*, 5 E.A.D. at 561. *See* Petition 10-03 at 27. Petitioner's claim in this respect is that in those cases, the EAB considered permit limits with a safety margin of only a few percent, whereas in this case the District's BACT limit is 9% or 22% above the highest emissions level seen in the five data points from the Palomar facility. But in approving the safety factor provided in those cases, the Board did not hold that a safety factor

must be limited to only a few percent. To the contrary, the Board's reasoning in those cases clearly shows that the safety factor needs to be tailored to the degree of variability seen in the performance of the control technology at issue, and not limited to an arbitrary percentage number. And in other cases, the Board has approved of permit limits that incorporated safety margins well over 9% or even 22%. For example, in *Newmont*, the Board upheld a BACT limit that was established based on a control efficiency of 66.5%, even though there was evidence that under the best circumstances the technology could achieve a control efficiency of 80-90%. *See Newmont*, 12 E.A.D. at 59-64. In that case, the safety margin between the best performance and what was used to set the BACT limit was 17-26%. Similarly, in *In re Kendall New Century Development*, the Board approved of a BACT permit limit of 25 ppm CO where there was evidence in the record that another facility was achieving 20 ppm CO – a 25% compliance margin – noting that "[t]here is nothing inherently wrong with setting an emissions limitation that takes into account a reasonable safety factor" *In re Kendall New Century Development*, 11 E.A.D. 40, 53 (quoting *Knauf II*, 9 E.A.D. at 15). And in *Knauf II*, the Board also upheld a 25% safety factor based on the degree of variability in the underlying manufacturing process. 9 E.A.D. at 15. These examples show that the Board has never limited the use of safety margins in setting BACT limits to a few percentage points. To the contrary, the Board has consistently found that larger safety margins can well be appropriate and consistent with the BACT requirement where they are justified by factors such as a large amount of variability in the performance of the equipment, as the District found in this case.

For all of these reasons, Petitioner's claim that the District did not justify its use of a reasonable compliance margin in establishing a BACT limit that would be consistently achievable over time must be rejected. The District provided a modest and reasonable safety margin that was fully justified in light of the large amount of variability inherent in startup emissions, and fully explained its decision in the record. Petitioner has no credible argument to the contrary.

5) Petitioner Is Incorrect That The District Based The Cold Startup NO_2 Limit on Equipment Degradation Over Time

Petitioner also claims that "the District chose as BACT for the performance [*sic*] the equipment the District speculates might achieve after years of unspecified degradation." Petition 10-03 at 25. But this contention implies that the District based its cold-startup NO_2 limit on a level of startup emissions performance that declines over time as the equipment degrades, which is simply not true. Petitioner fails to point to any discussion in the record about how such considerations could have been part of the District's BACT analysis on this issue, and there is nothing in the record to this effect. Petitioner's contention is based solely on a single passage discussing the scant five data points from the Palomar Energy Center, which Petitioner reads completely out of context. Specifically, Petitioner cites the District's statement that the Palomar data "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 life of the facility." Petition 10-03 at 25 (quoting Responses to Public Comments at 96) (emphasis added by Petitioner). But this statement simply observes that the District needed to establish the BACT emission limit at a level that can be consistently achieved over time, and cannot be read to imply that that there was evidence that startup emissions performance will degrade over time (let alone that the District relied on any such evidence in its BACT analysis). Indeed, this observation by the District tracks language used by the EAB itself in upholding emissions limits established in this fashion in the *Prairie State* and *Newmont Nevada* cases, which did not involve concerns about degradation over time. *See Prairie State*, *supra*, slip. op at 71 ("[W]e have 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*.' . . . As we held in *Newmont,* '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 a long term . . . .' ") (citing *Newmont,* slip op. at 18 [12 E.A.D. at 442] (emphasis added)). In referring to the "life of the facility", the District was simply reflecting the fact that the BACT limits need to be established at a level that is achievable over the long term, just as the EAB was doing in these two cases. There is simply no substance to Petitioner's claim on this point.

In a similar vein, Petitioner also asserts that the District did not respond to comments asking for a "staggered limit" if "there was a basis for assuming that the equipment could not be reasonably maintained over time." Petition 10-03 at 25 (citing CAP 2/09 Comments at 16; CAP 9/09 Comments at 5). But nothing in either of the comments Petitioner references makes any mention of a "staggered limit" (which Petition does not explain, but presumably would be a limit that becomes progressively less stringent as time goes on to account for degradation). Nor do the referenced comments make any mention of cold-startup NO_2 performance degrading over time because of maintenance concerns. To the contrary, page 16 of CAP's February, 2009, comments discusses greenhouse gas emission limits, and says nothing about NO_2 emissions from cold startups. Page 5 of Petitioner's September, 2009, comments does discuss cold-startup NO_2 emissions, but it concerns the District's provision of a compliance margin in this case to ensure that the permit limits will be consistently achievable, and does not mention a "staggered limit" or concerns about performance degradation over time. The District therefore cannot be faulted for not specifically addressing this issue in its Responses to Public Comments, as it was not raised with specificity in the comments to begin with. And even if Petitioner had raised the possibility in its comments of a "staggered limit" to account for potential cold-startup performance degradation over time, the District would have disagreed that a "staggered limit" is appropriate because the District did not find any indication of any appreciable startup performance degradation over time. The District would have therefore rejected a "staggered limit" that becomes less stringent over time in favor of a constant limit that maintains the most stringent limit achievable throughout the facility's entire operation.

6) The District Properly Declined to Impose Average Cold-Startup NO_2 Limits In Addition To Specific Limits For Each Individual Cold Startup.

Petitioner also claims – again, falsely – that the District failed to explain why it did not impose both a maximum NO_2 limit on individual cold startups and an average NO_2 limit for multiple cold startups combined. *See* Petition 10-03 at 25. But once again, a review of the record belies this claim. The District clearly explained its analysis on this point in its Response to Comment VIII.B.3., "Average Startup Limits". *See* Responses to Public Comments at 104-05. The District explained that it had received comments suggesting that it should require cold startup NO_2 emissions to meet an overall average limit as well as a maximum limit for each individual startup event, and responded that upon further examination of the issue the District concluded that imposing a maximum limit only would be sufficient to ensure compliance with the PSD BACT requirement. The District determined that startup performance is highly variable, and as a result it would be difficult to ascertain with any certainty what performance could be achievable as a not-to-exceed permit limit for any particular averaging period. The District also noted that imposing a maximum limit will require 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 during any given period. The District also noted that average startup emissions are also indirectly limited by the annual limit on NO_2 emissions, which includes emissions from startups throughout the year. For all of these reasons, the District concluded that the short-term emissions limits applicable to individual startups would be sufficient to implement the BACT requirement, and declined to impose additional longer-term average limits. In this regard, the District also pointed to the fact that the PSD BACT requirement generally favors short-term emission limits over longer-term limits. *See* Responses to Public Comments at 104-05.

Petitioner once again completely ignores the detailed analysis the District provided on this issue and the comprehensive discussion it provided in the Responses to Comments. Indeed, it is striking to compare the level of analysis that Petitioner provided in its comment on this issue

– which amounted to a single clause in a single sentence in its comment letter stating that the District "fail[ed] to explain . . . why [it] could not have set both an average and maximum emission limit . . ." – with the District's well-reasoned response providing multiple reasons why an average emission limit was not needed to implement BACT. *Compare* CAP 9/16/09 Comment, Petition 10-03 Exh. 7, at p. 5, *with* Responses to Public Comments at 104-05. Instead of addressing the District's response, Petitioner simply rephrased its comment, asserting without explanation that the District "failed to justify why a limit could not be set for both an average and maximum emissions [*sic*] . . . ." Petition 10-03 at 25. Simply restating comments without explaining how the agency's response was inadequate is not sufficient for obtaining review by the EAB, and in this regard the Petition must be dismissed on its face with respect to this issue. *See Prairie State*, *supra*, slip. op. at 145 (collecting cases).

C. The District Did Not Commit Clear Error In Establishing The Hot-Startup NO2 Emissions Limits of 95 Pounds Per Startup Based On Available Data From Similar Facilities.

Finally, Petitioner also offers nine brief lines of text challenging the District's NO_2 limit for hot startups of 95 pounds. *See* Petition 10-03 at 28. As with its claims regarding the cold startup NO_2 limit, Petitioner claims (i) that the District should have based the not-to-exceed BACT limit on the average emissions seen in the data from other facilities; and (ii) that the District failed to provide a justification for a compliance margin to ensure that the facility can achieve the permit limits under all foreseeable operating circumstances. Petitioner concludes that "for all the reasons that the District failed to comply with BACT requirements as to cold startups, the District has failed to comply with BACT requirements as to hot startups." Petition 10-03 at 28.

For all the reasons that Petitioner's arguments fail with respect to cold startups as discussed above, Petitioner's arguments also fail here with respect to hot startups. Specifically, the District did not commit clear error in basing its BACT permit limit on all of the emissions performance data from other similar facilities, and not simply on the average emissions seen in

the data. The District explained its analysis of the data in the Additional Statement of Basis, where it explained that it had reviewed hot startup data from the Delta Energy Center and from the Palomar Energy Center. The District first noted that there was a data point from Palomar showing a 145-pound startup event, but explained that it was conservatively excluding this data point as an "outlier" as it was of questionable reliability. *See* Additional Statement of Basis at 62. Excluding this "outlier", the Palomar data showed average hot startup emission at 30.3 pounds, with the highest data point from the period reviewed at 75 pounds. *See id.* The District found that this emissions performance was fairly close to the performance that was being achieved at the Delta Energy Center, which showed average NO_2 emissions of 25 to 29.8 pounds per hot startup for the years 2005 through 2008, just slightly below the average seen at Palomar. *See id.* The highest data point from Delta was 82.2 pounds of NO_2, which the District also found to be very similar to Palomar, where the highest data point was 75 pounds as noted above. *See id.* The Air District therefore concluded, based on the data before it, that Palomar was achieving a very similar level of emissions performance to Delta. *See id.* The District also concluded that, based on this data, a lower limit than the 125 pounds it initially proposed would be achievable. The District therefore proposed a lowered limit of 95 pounds of NO_2 per hot startup, which the District concluded would be consistently achievable for this type of equipment. *See id.* The District did not propose a limit below 95 pounds based on this data, and it explained that it was doing so to provide "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.*

The District then received comments during the second comment period claiming, as the Petition does here, that the District should base the hot startup NO_2 limit the average emissions rates seen in the 25-30 pound range, and not at a level designed to accommodate the maximum emissions that could foreseeably be experienced during a hot startup events. The District responded that:

> 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.

Responses to Public Comments at 100. In particular, the District noted that the preliminary data from Palomar showed emissions of up to 75 pounds (discounting the 145-pound apparent outlier), and that it was reasonable to establish an additional safety margin given that the highest data point seen in the preliminary data may not necessarily be the highest startup that the facility will ever experience during its entire lifetime. *See id.* On this basis, the District determined that the 95-pound hot startup NO_2 limit satisfied the BACT limit. *See id.* at 100-01.

Petitioner now claims that the District committed clear error in using data from these other facilities in establishing its BACT limit, and also for utilizing a safety margin to ensure that the limit would be consistently achievable over time. *See* Petition 10-03 at 28. These arguments simply repeat Petitioner's objections raised in comments without explaining with any specificity how the District's response could be flawed in any way, and should be dismissed for this threshold reason alone. *See Prairie State*, *supra*, slip. op. at 145 (collecting cases). But even if the Board does consider them on the merits, it must reject them because, for the same reasons discussed above, proceeding in this manner was fully consistent with how a permitting agency is supposed to establish a BACT permit limit, and the Petition presents no grounds for finding clear error.

First of all, permitting agencies are allowed and indeed encouraged to look to what other similar facilities can achieve in setting BACT limits. As the Board explained in *Prairie State* and *Newmont*, "[t]he BACT analysis . . . must be solidly grounded on what is presently known about the selected technology's effectiveness at controlling pollutant emissions," and in establishing such a solid grounding, "the emission limitations achieved by other facilities and corresponding control technologies used at other facilities are an important source of information in determining what constitutes *best available*." *Prairie State*, *supra*, slip op. at 70. Petitioner cannot fault the District for doing so here.

Furthermore, it was not error for the District to have incorporated a reasonable safety margin in setting the not-to-exceed BACT permit limit for NO_2 at 95 pounds per hot startup, based on the data before it. As that data showed, hot startup NO_2 emissions are highly variable, with averages from similar equipment at around the 30-pound mark but on some occasions rising as high as 75 pounds at Palomar (excluding the 145-pound apparent outlier) to 82.2 pounds at Delta, both of which are more than 2.5 times higher than the average. The District was fully justified on this record in establishing the permit limit at 95 pounds to account for this high degree of variability, and also in recognition that the data it had before it may not necessarily have reflected the highest emissions that could reasonably be foreseen over the entire life of the facility, as the District explained in the Responses to Comments (*see* pp. 100-01). As the Board made clear in *Prairie State*, this is exactly the situation where the use of a "safety factor" is appropriate "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" and to "to take into account variability and fluctuation in expected performance of the pollution control methods . . . ." *Prairie State*, *supra*, slip. op. at 73; *see also Knauf II* (25% "variability" factor appropriate in light of potential variations in fiberglass manufacturing process); *Masonite*, 5 E.A.D. at 560 ("the control efficiency achievable through the use of technology may fluctuate, so that it would not always achieve its optimal control efficiency").

For all of these reasons, Petitioner's objections to the District's hot startup NO_2 limit must be rejected for the same reasons its objections to the cold startup NO_2 limit.

CONCLUSION

For the foregoing reasons, the Petition should be DISMISSED.

Dated: April 23, 2010

Respectfully Submitted

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