

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

In re:)
)
)
Palmdale Energy, LLC)
Palmdale Energy Project) Appeal No. PSD 18-01
)
PSD Permit No. SE 17-01)

)

**EPA REGION 9'S RESPONSE TO
PETITION FOR REVIEW**

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4. Final PSD Permit for Palmdale Energy Project, 4/25/2018 (“Final Permit”) (AR 13.1)
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8. Memorandum Re: Ambient Air from G.T. Helms, Chief, Control Programs Operations Branch, EPA Office of Air Quality Planning and Standards, to Steve Rothblatt, Chief, Air Branch, EPA Region V, 4/30/1987 (“1987 Helms Memo”) (AR 12.28)
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Introduction

The EPA Environmental Appeals Board (“EAB” or “Board”) should deny review of the challenge brought by Center for Biological Diversity, Desert Citizens Against Pollution, California Communities Against Toxics, and Sierra Club (“Petitioners” or “Conservation Groups”) to the Clean Air Act (“CAA” or “Act”) Prevention of Significant Deterioration (“PSD”) permit issued by EPA Region 9 (“the Region” or “Region 9”) on April 25, 2018 to Palmdale Energy, LLC (“Applicant”) authorizing the construction and operation of the Palmdale Energy Project (“PEP” or “Project”). The Region’s PSD permit decision for the PEP is fully supported by the record, including a detailed Fact Sheet (“Fact Sheet” or “FS”) and response to comments document (“RTC”), and Petitioners have failed to demonstrate clear error, an abuse of discretion, or an important policy consideration warranting review of Region 9’s decision. In addition, Petitioners have failed in some instances to meet the EAB’s pleading requirements, including demonstrating that issues have been preserved for Board review.

Factual and Procedural Background

On August 17, 2017, Region 9 proposed to issue a PSD permit (“Proposed Permit”) to the Applicant for the PEP. RTC at 2. The PEP, which would be located in Palmdale, California, is a 645-megawatt combined-cycle natural gas-fired power plant that is generally intended to serve as an intermediate/load-following or flexible capacity unit, and may at times operate as a peaking plant or temporary baseload plant in response to changes in demand from the electric grid.¹ FS at 1-6.

¹ In 2012, Region 9 issued a final PSD permit to the City of Palmdale authorizing the construction of a somewhat similar project that had been previously proposed at the site of the proposed PEP, known as the Palmdale Hybrid

The Fact Sheet accompanying the Proposed Permit described the Region’s finding that the Proposed Permit was consistent with PSD requirements, because, among other things, the Proposed Permit required the Best Available Control Technology (“BACT”) to limit emissions of nitrogen oxides (“NO_x”), carbon monoxide (“CO”), total particulate matter, particulate matter less than or equal to 10 micrometers (µm) in diameter (“PM₁₀”), particulate matter less than or equal to 2.5 µm in diameter (“PM_{2.5}”), and greenhouse gases (“GHG”), to the greatest extent feasible; and the proposed emission limits would protect the National Ambient Air Quality Standards (“NAAQS”) for nitrogen dioxide (“NO₂”), CO, PM₁₀, and PM_{2.5}. FS at 1.

The public comment period for the Proposed Permit ran from August 17, 2017 to October 6, 2017. RTC at 2. Region 9 also held a public hearing to receive public comments on September 21, 2017. *Id.* After careful consideration of the public comments regarding the Proposed Permit submitted by Petitioners, the Applicant, and other interested parties, on April 25, 2018, Region 9 issued a final decision to grant the Applicant a PSD permit for the PEP. See Final Permit. Along with the Final Permit, Region 9 prepared the 80-page RTC, which provided detailed responses to the comments received, including the basis for any permit changes made and additional analyses conducted by the Region as part of its response. *See generally* RTC.

Power Plant (PHPP). The PHPP was also the subject of a petition for review to the Board. *See In re City of Palmdale*, 15 E.A.D. 700 (EAB 2012). However, the PHPP was never constructed, and its PSD permit expired. Palmdale Energy, LLC subsequently obtained ownership of a portion of the site that was associated with the PHPP, and developed its own power plant project, the PEP. The PSD permit for the PEP is based on the PSD permit application submitted by the Applicant for the PEP and a new review and analysis by Region 9 determining that the PEP met all PSD requirements. *See* FS at 7.

EAB Pleading Requirements and Standard and Scope of Review

When considering a petition for review of a PSD permit, the Board “first considers whether the petitioner has met key threshold pleading requirements such as . . . issue preservation. . . . [I]n order to demonstrate that an issue has been preserved for appeal, a petitioner must show that any issues being appealed were raised with reasonable specificity during the public comment period.” *In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 143 (EAB 2006) (internal citations and footnotes omitted); *see also* 40 CFR 124.19(a)(4)(ii) (petitioner must demonstrate issues raised during comment period by providing specific citation to administrative record). The burden of establishing that issues have been preserved for review rests squarely with the petitioner. *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 250 (EAB 1999) (“*Encogen*”). Where an issue or argument was not raised previously, the petitioner must demonstrate that the issue or argument was not reasonably ascertainable during the public comment period. 40 CFR 124.13, 124.19(a)(4)(ii); *see Encogen*, 8 E.A.D. at 250 n.8. A petitioner must not only specify objections to the permit but also must explain why the permit issuer's response to those objections is clearly erroneous or otherwise warrants review. *E.g., In re City of Palmdale*, 15 E.A.D. 700, 705-6 (EAB 2012) (“*City of Palmdale*”); *see also* 40 CFR 124.19(a)(4)(ii) (petitioner must provide citation to relevant comment and response and explain why Region’s response was erroneous or otherwise warrants review).

If these threshold pleading requirements are met,

The Board's review of a PSD permit is . . . discretionary. Ordinarily, the Board will not review a PSD permit unless the permit decision either is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review . . . [using] an abuse of discretion standard. . . . [T]he Board examines the administrative record prepared in support of the permit to determine whether the permit issuer exercised his or her considered judgment. The permit issuer

must articulate with reasonable clarity the reasons supporting its conclusion and the significance of the crucial facts it relied upon when reaching its conclusion.... *On matters that are fundamentally technical or scientific in nature, the Board will typically defer to a permit issuer's technical expertise and experience, as long as the permit issuer adequately explains its rationale and supports its reasoning in the administrative record.*

City of Palmdale, 15 E.A.D. at 705-06 (citations, quotation marks, parentheticals and brackets omitted; emphasis added).

Argument

Petitioners argue that deficiencies in Region 9's BACT determination for the Project and deficiencies in the air quality analyses for the Project, warrant Board review and a remand of the Region's PSD permit decision. However, as demonstrated below, the Region's decisions with respect to these technical matters were reasonable and well-supported in the record, and the Region thoroughly addressed Petitioners' comments on these issues to the extent they were raised during the public comment period. Further, Petitioners have failed in some instances to preserve issues for Board review, and have failed in other cases to explain why Region 9's responses to Petitioners' earlier comments were clearly erroneous or otherwise warrant Board review. Thus, Petitioners fail to satisfy their burden of demonstrating that Region 9's PSD permitting decision for the PEP constituted clear error, or involved an abuse of discretion or an important policy consideration warranting Board review.

I. Petitioners Fail to Demonstrate Error in Region 9's Decision Not to Require Replacement of Duct Burners with Battery Storage as BACT

Petitioners claim that the PSD BACT provisions require replacing duct burners with battery storage. However, Petitioners at times misstates, misunderstands, or misconstrues Region

9's actions and analysis concerning this issue.² The record, including the Region's RTC, makes clear that the Region was fully justified in not requiring battery storage to meet the BACT requirement for CO or NO_x BACT for the Project's combustion turbines ("CTs"). Petitioners fail to demonstrate that the use of a battery storage component in lieu of duct burners is clearly superior to the selected CO or NO_x BACT.

In Region 9's Proposed Permit and BACT analysis, as described in the Fact Sheet, the Region did not analyze the type of battery storage that Petitioners now advocate as BACT. Fact Sheet at 14–21. This makes sense because Petitioners' suggested configuration would be novel to consider for NO_x or CO BACT.³

In public comments, Petitioners generally raised the idea that EPA should consider for NO_x and CO BACT replacing the duct burners with battery storage to meet peak demand and that this option would not redefine the source. *See* Petitioners' Comments ("Comments") at 4–6. The comments asserted that battery storage was technically feasible and that there were commercially available batteries of the size needed to meet the demand of approximately 60,000 MWh that Petitioners estimated PEP would need to replace the duct burners. Comments at 4. The comments pointed to one example of a Tesla 100 MW project in Australia. *Id.* The comments noted that "between January and July . . . of 2017, 12 MW of utility scale batteries

² For example, Petitioners criticizes the Region for setting BACT at the "highest expected emissions," which it claims is "the exact opposite of BACT." Petition at 9. Petitioners misunderstand or are misconstruing the Region's action in this regard. The language cited by Petitioners is from the Region's evaluation at Step 5 of the BACT process. EPA's guidance makes clear that permitting authorities "have the discretion to select limits that do not necessarily reflect the highest possible control efficiencies but that will allow compliance on a consistent basis." *See, e.g.,* PSD and Title V Permitting Guidance for Greenhouse Gases at 44 (March 2011).

³ The Region rejected independent battery storage as GHG BACT because it believed that this option would redefine the source. FS at 29, n.49.

were installed in the U.S.,” and pointed to several examples of planned battery storage projects. *Id.* at 4–5. The comments then argued that replacing the duct burners with battery storage would not redefine the source. *Id.* at 5. The comments stated that “EPA acknowledges that the duct burners have higher NO_x and CO emission rates than the combustion turbines,” and argued that therefore the facility could meet lower BACT limits without the duct burners. *Id.* Finally, the comments argued that replacing duct burners with battery storage would “allow the source to better service its stated business need” since it would allow “at least one additional function.” *Id.* at 5–6.

In responding to Petitioners’ comments, Region 9 considered the information submitted by Petitioners and determined that using battery storage to replace duct burners⁴ could be rejected as BACT because this option was not technically feasible (Step 2), would potentially not rank higher than the use of duct burners (Step 3), and would be cost-prohibitive (Step 4).⁵ Region 9 did not evaluate whether replacing duct burners with battery storage would redefine the source in Step 1 of the BACT analysis.⁶

⁴ The RTC refers to this as a “hybrid design,” RTC at 16, but the Region clearly was analyzing this novel suggestion by the comments—a design that the Region is unaware of in practice—rather than hybrid battery storage designs (batteries providing initial power while the turbines spin up) that the Region initially considered and rejected. *Id.*

⁵ Petitioners suggests that all of this analysis was “back of the envelope,” Petition at 18, because the Region at one point described it as a “preliminary analysis.” RTC at 18. Again, this mischaracterizes what the Region was saying. The preliminary analysis examined the costs of replacing duct burners with battery storage. Because of the limited nature of the information provided by the commenters, the Region conducted a preliminary analysis of the costs of this proffered option, and found that even based on this preliminary analysis, Petitioners’ suggested configuration would clearly be cost-prohibitive. *See infra* Section I.C.

⁶ Petitioners states that “Region 9 did **not** reject [replacing] duct burners [with battery storage] as redefining the source.” See Petition at 18 (emphasis in original), 24–26. However, Region 9 did not actually analyze this issue, much less determine that replacing duct burners with battery storage would not redefine the source. The Region

The Region properly rejected requiring the duct burners to be replaced by battery storage in determining CO or NO_x BACT for the PEP's CTs. Petitioners suggest that the general, non-detailed comments they provided on this option⁷ require the Region to undertake an extensive investigation of the technical feasibility, cost, and potential environmental impact of their proffered alternative. The Region properly considered the information actually provided by the comments, and responded with an appropriate level of detail in rejecting the alternative suggested in the comments.

A. Petitioners Failed to Demonstrate that Replacement of Duct Burners with Battery Storage is Technically Feasible

The Region properly rejected battery storage to replace duct burners on the basis that it was not demonstrated to be technically feasible. While the Petition spends much time discussing commercially available battery storage, *see* Petition at 12–16, 26–34, the comments submitted by Petitioners were not nearly so detailed. In fact, the only battery storage project discussed in any detail in the portion of Petitioners' comments regarding replacing duct burners with battery storage⁸ was a Tesla battery storage project in Australia. Comments at 4–6. Other than this one project, the comments cited only summary tables from the Energy Information Agency that provided scant detail regarding the projects referenced by the comment, and some of these

determined that the configuration would have been rejected at later steps in the BACT analysis, regardless of whether it would redefine the source. Accordingly, the Board need not reach the issue.

⁷ Petitioner cite other portions of their comments, but these portions of the comments proposed hybrid solar-battery storage configurations. Comments at 8–10. The whole of the comments submitted by Petitioners on replacing the duct burners with battery storage covered little more than two pages.

⁸ This portion of the comments was titled “NO_x and CO BACT for GEN1 and GEN2.” Comments at 4.

projects were merely planned.⁹ The Region properly analyzed the information that was actually submitted in comments—details regarding the Tesla project—and determined that this type of project would not meet the technical needs of the PEP because it would not provide sufficient megawatt-hours to cover potential peak demand. RTC at 16–17.¹⁰

Petitioners belatedly attempt to supplement their earlier comments by citing in the Petition to several other examples of battery storage projects beyond the Tesla project in Australia, and then fault the Region’s dismissal of battery storage as not demonstrated to be technically feasible because the Region failed to consider these examples. *See* Petition at 12–15, 20. However, the Region made clear in the Fact Sheet that the literature review extensively cited by Petitioners to support this argument was conducted as part of the Region’s evaluation of the state of hybrid battery storage technology in which the batteries provide for initial demand while the turbines spin up, allowing the turbines to operate in standby mode and not consume fuel. *Id.* at 29–30. This literature review led the Region to reject this type of hybrid battery storage technology as an option. *Id.* This literature review did not consider the novel configuration suggested by Petitioners in their comments: a hybrid natural gas-battery storage configuration in which the batteries replace duct burners to provide additional power while the turbines are

⁹ https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_03;
https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_05.

¹⁰ Petitioners attempt to narrowly define the purpose and potential use of duct burners as only a peaking power source. *See, e.g.*, Petition at 19. However, duct burners do not operate like independent peaking power plants. Duct burners are an economical method to produce additional steam for the heat recovery steam generator of a combined-cycle unit during highest demand for the facility, but not necessarily only during the overall peak of energy demand from the grid. *See* FS at 5. By trying to define narrowly the purpose and potential use of duct burners, Petitioners are attempting to avoid some of the technical and cost considerations of replacing duct burners with battery storage that led the Region to reject them as BACT.

operating. In responding to comments advocating the use of battery storage to replace the duct burners, the Region only considered the 100 MW Tesla facility because this is the only project that the comments pointed to with any level of detail. If Petitioners wanted the other projects cited in the Petition considered as part of its evaluation of Petitioners' proffered alternative, it was incumbent on Petitioners to discuss these projects in their comments on the Proposed Permit. The general comments submitted by Petitioners during the public comment period did not require the Region to begin its evaluation from scratch and conduct a full independent evaluation. RTC 16–17.

In any event, even considering these additional projects that were raised for the first time in the Petition to support Petitioners' argument concerning the duct burners, neither the Petition nor Petitioners' comments provide any information whatsoever as to whether the collocated batteries in these projects are intended to meet the need that the duct burners are intended for: the provision of *additional* energy generation during the highest demand, *operationally integrated* with a combined-cycle CT. That is, the duct burners are designed to work directly with the combined-cycle CTs. While it is true that both combined-cycle CTs and utility-scale battery storage of some size have been demonstrated to be technically feasible, Petitioners have not shown that the operational pairing of these two technologies to meet the needs of the PEP has been demonstrated in practice. While Petitioners are correct that collocation is not a technology, Petition at 28, the ability to integrate the operation of two different energy generating units to work as one is a potential technical barrier.¹¹ The only operationally integrated example specified

¹¹ The Petition and comments assume that the integration of control room and switch yard operations is a simple task without providing any concrete examples or analysis. *See* Petition at 18.

in the Petition is the hybrid natural gas-battery storage project that the Region analyzed and determined to not be technically feasible for the PEP. *See* FS at 29–30; RTC at 16. The other projects that include collocation of natural gas generation and battery storage may be intended for an entirely different purpose such as allowing the CTs to run at a more efficient higher load when demand is lower by absorbing power generated in the batteries and later distributing it, or may simply have no integration of operation at all. Without additional information, it is impossible to know whether these projects—even had they been raised during the public comment period—demonstrate the technical feasibility of being able to pair battery storage with the PEP’s CTs to provide peak energy generation during highest demand.

In sum, the Region properly determined that the comments did not demonstrate that the replacement of duct burners with battery storage would be technically feasible,¹² and Petitioners fail to meet their burden to show that the Region’s determination in this regard was clearly erroneous.

¹² Petitioners seem to contend that because there are limits on the operation of the duct burners, they cannot meet PEP’s business purpose. *See* Comments at 4; Petition at 32–33. This argument, and its focus on “proving” that there was an uninterruptible supply of natural gas for the duct burners, is confusing because the duct burners will only operate when the CTs are operating. *See* RTC at 18; Final Permit at Condition 21. Therefore, the natural gas supply to PEP would, by definition, not be interrupted and would be available for the duct burners, even if PEP had an interruptible supply of natural gas. While duct burners and battery storage should not be evaluated using different metrics, the fact that the natural gas supply may be interruptible is beside the point as to whether the duct burners meet the need to provide the required additional power during the normal operation of the CTs. The Region properly considered the PEP’s business purpose and determined that battery storage could not meet the need to provide the required additional power during the normal operation of the CTs.

B. The Region Properly Determined that Battery Storage Did Not Clearly Rank Higher than Duct Burners at Step 3 of the BACT Analysis

Petitioners assume that battery storage would be ranked higher than duct burners for control effectiveness at Step 3 of the BACT analysis for the Project's CTs. However, depending on how the batteries are charged, this may not be the case. Given that Petitioners' comments provided limited detail on how to evaluate the level of control that would be provided by battery storage, the Region properly responded to the comments and determined that the information provided did not clearly demonstrate that replacing duct burners with battery storage would lead to measurable or meaningful¹³ reductions in emissions.

Petitioners in their comments simply assumed, based on the difference in emission limits when the duct burners are operating, that replacing them with battery storage would result in lower emissions. While it is technically true that the BACT limit for the CTs would be lower, this does not necessarily reflect lower overall emissions from the facility depending on how the batteries are recharged. If the batteries were recharged from the CTs, there may not be a measurable change in the annual emissions.¹⁴ The same number of megawatt-hours would need to be generated from the combustion of natural gas regardless of whether that natural gas were to be combusted by the duct burners or by the CTs to charge batteries. The only change in

¹³ The Region intended the "measurable" language to indicate that, as described below, if the batteries were to be recharged by the CTs, even if *hourly* emissions were reduced, *annual* emissions may not be lowered. RTC at 17. The tons per year numbers cited by Petitioners assume that the batteries would be recharged using grid energy, ignoring any outside the fence line emissions. Petition at 35–36. In any event, as described below, it is enough to say that any annual emissions reductions from replacing the duct burners with battery storage would not be meaningful.

¹⁴ The comments and Petition provide little support for the contention that battery storage would rank higher than duct burners at Step 3. For instance, neither mentions or attempts to account for the fact that the concentration limits for NO_x and CO are the same regardless of whether the duct burners are in operation. *See* FS at 13. The only difference is in the hourly limits, as the duct burners allow the facility to burn more natural gas per hour. *Id.*

emissions would be from the marginal difference between the efficiency of the CTs and the duct burners. The Region determined that this difference would be slight, not warranting further investigation into whether it was measurable.

Petitioners are correct that if the batteries were charged by purchasing energy from the grid, this could lead to a reduction in pollution from the Project. However, based on the Region's review of the limited information provided in Petitioners' comments, the Region properly determined that the difference in control effectiveness between duct burners and battery storage for the PEP was not sufficient to warrant further evaluation. As the Region noted, "the duct burners only operate when the CTs are in normal operation, at which time NO_x and CO are well-controlled." RTC at 17. While the Petition is correct that the Region erred in its calculations by counting the potential emission reductions from only one duct burner instead of two, this miscalculation was not significant in terms of the Region's ultimate determination because the error suggested a potential reduction of NO_x and CO emissions of 0.7% rather than the 1.4% to 1.5% of the overall emissions considering both duct burners.¹⁵ While this reduction does reflect a slight decrease in potential emissions with battery storage, the Region properly determined that

¹⁵ These values were based on the difference in maximum emissions when the duct burners are operating and when they are not multiplied by the 1,500 hours of available operation of the duct burners. *See* FS at 7. Similarly, calculating the maximum GHG emission reductions indicate that even those emissions reductions are not meaningful. Using a GHG emission factor of 820 lb of CO₂/MWh, *see* Table R-5 of Applicant Response to Dec. 2016 Request for Additional Information Letter and Attachment from G. Darvin to L. Beckham at 13 (AR 12.31) (providing that with duct burners, the net PEP output is 704 MW and the CO₂ emissions rate is 577,928 lb/hr, which is 820 lb/MW), emissions can be calculated using the 78,000 MWh from duct burner use, multiplied by 820 lb CO₂/MWh, and then divided by 2,000 lb/ton resulted in a maximum reduction of 31,980 tons CO₂ per year. This represents 1.5% of overall GHG emissions from the Project.

the comments did not demonstrate that replacing duct burners with battery storage would be a clearly superior choice at Step 3.

C. Region 9 Properly Determined that Replacing Duct Burners with Battery Storage Could Be Rejected Due to Cost at Step 4 of the BACT Analysis

In the RTC, the Region properly conducted a preliminary cost analysis and determined that replacing duct burners with battery storage could be eliminated at Step 4 as cost-prohibitive.¹⁶ See RTC at 17–18. The comments submitted by Petitioners provided no information regarding how to assess the cost of replacing the duct burners with battery storage. See Comments at 4–6. To be thorough, even though the Region did not believe that replacing duct burners with battery storage was technically feasible or would result in meaningful emissions reductions, the Region conducted a preliminary and conservative cost analysis to get a rough sense of whether this option would be cost-effective. The preliminary nature of this cost analysis was appropriate because the suggested design is hypothetical, the information submitted during public comments included no cost data associated with replacing duct burners with battery storage, and the Region had already determined that this option could be rejected at Steps 2 and 3 of the BACT analysis. Petitioners argue that there were numerous deficiencies with the Region’s cost analysis, but they have not demonstrated that the general approach to the cost

¹⁶ Petitioners claims, incorrectly, that the Region suggested that “there are no energy or environmental impacts associated with using duct burners.” Petition at 22. The Region indicated that there were no such impacts that would lead to the *elimination of duct burners at Step 4*. RTC at 17. That is because the environmental and energy impact of duct burners would be in line with those for the rest of the Project, given that the duct burners would only combust natural gas, just like the CTs. Petitioners also wrongly suggests that duct burners presents the risks of catastrophic disasters like the Aliso Canyon disaster. Petition at 22. Not only do the duct burners account for a mere fraction of the PEP’s natural gas usage, but the PEP is a natural gas combustion source, not a natural gas well like Aliso Canyon, and will not even have onsite natural gas storage.

analysis undertaken by the Region in responding to their comments was inappropriate given this context.

First, to the extent the Petition now suggests that replacing the duct burners with battery storage would be cost effective as GHG BACT, Petition at 15, this issue was not raised with reasonable specificity during the public comment period. While the comments mentioned that battery storage would *also* reduce GHGs, the comments said that would be discussed elsewhere, and the section specifically on GHG BACT does not mention replacing duct burners with battery storage. *Compare* Comments at 4–6 (suggesting replacing the duct burners with battery storage for NO_x and CO BACT) *with* Comments at 8–10 (challenging EPA’s GHG BACT determination, but not mentioning replacing the duct burners with battery storage).¹⁷ Indeed, the portion of the comments that included the concept of replacing the duct burners with battery storage was titled “NO_x and CO BACT for GEN1 and GEN2.” Comments at 4. Thus, to the extent that Petitioners raise the cost effectiveness of battery storage in lieu of duct burners for GHG BACT, they have not properly preserved that issue because considering this configuration as GHG BACT was not raised with reasonable specificity in public comments. *In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 143 (EAB 2006).

¹⁷ Petitioners’ comments did suggest a type of battery storage as GHG BACT for a different configuration: an integrated hybrid project using batteries on a peaking unit to operate in a standby mode without using fuel. Comments at 10–11. The Region clearly rejected that alternative as not technically feasible for the PEP. RTC at 28–29. Petitioners do not challenge that analysis or the Region’s conclusion. The comments also suggested that “EPA needs to consider the cost per ton by combining the tons of NO_x, CO, and GHG,” but provided no suggestion for a mechanism to do so. While *not* performing any kind of combined cost-effectiveness analysis, the Region noted “if the reductions of NO_x, CO, and GHGs were combined for cost effectiveness analysis, a large-scale battery system to remove the duct burners would not be cost-effective.” RTC at 17–18.

Although further refinement of this cost analysis for NO_x and CO BACT is not necessary, even if the cost analysis were refined to the level of detail suggested in the Petition and included certain changes to the cost calculation that the Petition claims are appropriate,¹⁸ the replacement of the duct burners with battery storage would still clearly be cost-prohibitive, as discussed below. Thus, to the extent that there were any errors in the Region’s preliminary cost assessment, they are harmless because even the more refined analysis below shows that replacing the duct burners with battery storage does not constitute BACT. *E.g., In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 791 (June 2015). Notwithstanding the fact that the Region’s preliminary analysis was sufficient given the circumstances, many of Petitioners’ criticisms of the Region’s calculation of the cost of replacing duct burners with battery storage are groundless, are provided with insufficient detail, or make an incorrect comparison.

For instance, Petitioners’ arguments regarding the capital costs of battery storage are meritless. The Petition claims that the Region should not have used the present cost of battery storage because the facility could “purchase its battery system in 2020” which could result in a reduction of \$136 million in capital costs, Petition at 40, but cites no precedent or reasoning for this novel concept of guessing when a facility may purchase a required piece of equipment or projecting the capital costs at some point in the future. Nor is the Region aware of any BACT analysis using this approach. Many cost metrics of which the Region is aware speak to current values. *See, e.g., Cost Control Manual Chapter 2, Section 4* (Nov. 2017) (“[E]ngineers determine

¹⁸ We explain below why other changes suggested by Petitioners should be rejected or the approach modified if a more detailed cost analysis were to be conducted.

a series of equal payments over a long period of time that fully funds a capital project (and its operation and maintenance) by multiplying the *present* value of those costs by a capital recovery factor, which produces an Equivalent Uniform Annual Cost . . . value.” (emphasis added)).¹⁹ Furthermore, the cost projections cited by Petitioners are simply too speculative to be relied upon in determining BACT.

Even where Petitioners’ suggestions concerning factors to be considered in a more detailed analysis are more reasonable, Petitioners’ analysis based on those factors is flawed, and an appropriate analysis based on those factors shows that Petitioners’ proffered alternative is not cost-effective. First, Petitioners argues that the calculation should consider that the Applicant may be able to buy electricity at a low wholesale price to charge the battery storage facility, then later sell it at a higher wholesale price. This is the wrong comparison to make, because it incorrectly assumes that the facility would have full control over when it purchases and sells electricity. And, even more fundamentally, it fails to account for the fact that the use of the duct burners would also result in profits from selling the electricity generated by their use. The correct comparison is the method used by the Region: the cost to purchase electricity to recharge the batteries versus the fuel cost for the natural gas for the duct burners. *See* RTC at 17 n.15. Even using an average wholesale value of \$31.19/MWh,²⁰ instead of the retail value of \$113.5/MWh

¹⁹ The Region notes that one of the conservative steps it took in its preliminary cost evaluation was to not include a capital recovery factor to the capital cost of battery storage.

²⁰ This is based on the Region’s analysis of real-time wholesale cost data across CAISO during 2017. *See* www.energyonline.com. The wholesale cost values referenced by Petitioners were based on a report from the Energy Information Administration, which used data from the same source.

used in the Region’s preliminary analysis,²¹ the annual cost to buy electricity off the grid to recharge the batteries to provide up to 78,000 MWh²² would be \$2.4 million per year. The Region calculated the cost of natural gas to provide the same megawatt-hours from the duct burners to be \$1.1 million per year. RTC at 17 n.15. Therefore, even at wholesale prices, the cost difference of replacing duct burners with battery storage would add \$1.3 million to the annual “fuel” cost (as determined by subtracting the \$1.1 million fuel cost for the duct burners from the electricity cost for batteries of \$2.4 million). Since this change would result in reductions of only 2.0 tons per year of NO_x and 5.2 tons per year of CO,²³ it should be plainly obvious that just considering the incremental cost in fuel costs alone—the dollars per ton of additional pollution reduced— \$650,000/ton for NO_x reductions and \$250,000/ton for CO reductions would be cost-prohibitive and would not be considered BACT.²⁴

Next, Petitioners claim that the Region’s cost analysis was erroneous for not considering potential cost savings from eliminating duct burners provided no suggestion on how to reliably

²¹ Petitioners state repeatedly that the Region erred by not considering FERC Order 841. It is important to note that Petitioners did not provide this information, or any information about the price that the Applicant would pay to purchase energy off the grid for battery storage, in their comments. The Region therefore based its analysis on the only information on this issue it had before it: information from the operator of an existing natural gas combustion and battery storage operation. RTC at 17. However, as shown, even if Petitioners are correct concerning the cost to charge using energy from the grid, the replacement of duct burners with battery storage would still not be cost-effective as NO_x or CO BACT.

²² The Region estimates that each duct burner provides approximately 52 MW. Multiplied by 1,500 hours of permitted operation, this is approximately 78,000 MWh. RTC at 16.

²³ Petitioners are correct that the Region neglected to account for both duct burners when calculating the emissions decrease. However, as also noted above, this difference is not truly meaningful. *See* Section I.B.

²⁴ For instance, the Region rejected the use of an SCR for NO_x BACT as not cost-effective because the incremental cost would be \$88,000/ton. FS at 37.

determine this value and is equally unpersuasive.²⁵ While it is true that this *potential* cost savings was not included in the Region’s preliminary cost analysis, because the CTs themselves are expected to be the bulk of the cost of the PEP, any such cost savings would be comparatively minor to the overall cost of the project. Given that the duct burners provide 8% of the maximum MWs for the Project, even assuming that elimination of the burners could potentially result in an 8% reduction in size of the power plant and an associated 8% reduction in capital costs,²⁶ a dubious proposition, this would not render the replacement of the duct burners with battery storage cost-effective. With a projected total project cost of approximately \$600 million, see RTC at 17 n.15, this would only result in a potential reduction of \$48 million in the capital cost compared to the estimate of \$200 million for the installation of sufficient battery storage.²⁷

²⁵ The Petition also faults the Region for failing to consider “revenue stacking,” such as “ancillary services like frequency regulation, managing demand during peak periods, and providing reliable back-up power.” Petition at 39. However, these services were not part of the Applicant’s stated business purpose. While Petitioners may believe the Applicant should have an expanded business purpose, it is not EPA’s role in evaluating BACT to assume modifications in an applicant’s business model in order to increase revenue and thereby reduce the cost of a control technology. Where cost savings or additional revenue is inherent in an alternative, it may be considered, such as the cost savings from a reduced need for carbon credits. However, the “revenue stacking” services are not inherent in the use of battery storage to replace duct burners, as is obvious from their description as “ancillary.”

²⁶ The comments and Petition provide no analysis to show that even this level of capital cost reductions would actually occur at the facility.

²⁷ The Region assumed that to meet the same needs as the duct burners, PEP would need to purchase four batteries the size of the Tesla example provided in comments, which the Region found cost at least \$50 million each. RTC at 17 n.15. The Petition takes issue with this assumption and implies that there is no need for the size of batteries used in the Region’s analysis. The Petition points to how an independent battery storage project is expected to operate (charging during the day, discharging during the evening ramp, charging overnight, and discharging again during the morning ramp) and states there is no reason to think the PEP would not do the same. While this suggested scenario follows the typical expected day-to-day curve and how the PEP expects most often to operate as an intermediate/load following unit, energy demand does not always follow the typical daily curve and PEP requires the flexibility to operate in longer baseload scenarios (when duct burner use is more typical). FS at 6. Operating in different modes to respond to market demand is inherent to the PEP’s basic business purpose and design. FS at 26; RTC at 23. Petitioners did submit comments on this defined business purpose, Comments at 1–4, the Region

The facility could actualize savings from purchasing fewer carbon credits. Currently, the price of carbon credits is approximately \$15 per ton of CO₂²⁸ but, as shown below, any savings would be marginal. To estimate the cost savings from this, the maximum GHG emission reductions calculation should be refined. The Region previously used a rough estimate of GHG emissions reductions of 177,000 tons per year, which represents 8% of overall GHG emissions, using the 8% reduction in the total MW size of the PEP from removing the duct burners. *See* RTC at 16–17. This rough estimate did not reflect that the duct burners do not operate continuously and instead are only available 1,500 hours per year. If, instead, potential GHG reduction are calculated from 1,500 hours of duct burner use, the maximum GHG emissions reductions from replacing the duct burners with battery storage would be approximately 32,000 tons per year.²⁹

Thus, even if the cost analysis is refined per Petitioners’ suggestions by 1) considering potential cost savings from not building duct burners, 2) revising the cost to buy electricity for the batteries using wholesale prices, and 3) considering cost savings from having to buy fewer carbon credits, the analysis still shows that replacing duct burners with batteries is not cost-effective. In the preliminary analysis, the Region considered increases in capital costs (estimated

responded, RTC at 13–14, and the Petition does not challenge this response. The Region reasonably assumed that to provide operational flexibility similar to that of the duct burners, a 2 x 2 configuration of batteries would be necessary, with two batteries being able to operate while the others idle or recharge, providing approximately 52 MW for 10 hours. *Cf.* RTC at 18 (“We acknowledge that being able to provide battery storage for a continuous period of 1500 hours is not the correct metric . . .”).

²⁸ <http://calcarbondash.org/>

²⁹ The GHG emissions reductions were calculated using an emission factor of 820 lb of CO₂/MWh. *See* note 15. 78,000 MWh from duct burner use * 820 lb CO₂/MWh / 2,000 lb/ton = 31,980 tons CO₂ per year.

at \$6.67 million per year) and increases in fuel costs (estimated at \$7.8 million). RTC at 17, n.15. After refining those values and including the savings from purchasing fewer carbon credits in response to Petitioners' argument, the capital cost for battery storage would instead be \$5.07 million per year when amortized over 30 years, by using a capital cost of \$152 million that accounts for the \$200 million capital cost of batteries and a savings of \$48 million from the incredibly rough estimate of capital cost reductions from not building the duct burners and downsizing the power plant, as estimated above. In the yearly operational costs would include an increase in "fuel" costs of \$1.3 million per year, as calculated above. This brings the increased yearly cost for replacing duct burners with battery storage to \$6.37 million, which is reduced to \$5.89 million when including the cost savings of \$480,000 per year from purchasing 32,000 tons per year less in carbon credits. Again, it is plain that incremental costs of \$2.945 million/ton NO_x and \$1.13 million/ton CO would not be cost effective and can be eliminated as BACT.³⁰

II. Petitioners Fail to Demonstrate that Region 9's Determinations Regarding 1-hour NO₂ Modeling Constituted Clear Error or Otherwise Warrant Board Review

Under section 165(a)(3) of the Act, a PSD permit cannot be issued unless the permit applicant demonstrates that emissions from the proposed source will not cause or contribute to a violation of the applicable NAAQS or PSD increments. See also 40 CFR 52.21(k). This requirement was fully satisfied for the PEP PSD permit, and Petitioners have failed to identify any clear error in Region 9's air quality analyses related to these demonstrations. These issues are highly technical, and Petitioners therefore bear a heavy burden before this Board. *E.g., In Re Peabody Western Coal Co.*, 12 E.A.D. 22, 33 (EAB 2005).

³⁰ Even using Petitioners' rosier capital cost evaluations, *see* Petition at 40–41, which should be rejected as inappropriate, *supra*, these costs would still be \$1.48 million/ton NO_x and \$570,000/ton CO.

Petitioners' challenge to the analysis of the Project's impact on the 1-hour NO₂ NAAQS largely repeats arguments that Petitioners made in their comments, while adding a few criticisms of the Region's RTC. Petitioners have not demonstrated that Region 9's comment responses on these issues were inadequate, and have failed to meet their heavy burden to demonstrate that the Region's technical determinations were clearly erroneous or otherwise warrant Board review, as explained below. Furthermore, Petitioners have in some instances failed to preserve for Board review arguments that were not raised in their public comments with adequate specificity.

Petitioners assert that Region 9 should have considered impacts on modeling receptors within the fenceline of the neighboring United States Air Force Plant 42 facility ("Plant 42") from stationary sources and aircraft operations located at Plant 42, and impacts on modeling receptors outside the Plant 42 fenceline from Plant 42 jet engines. As explained in detail in the Fact Sheet and other materials in the administrative record, and as fully and clearly addressed in the Region's RTC, Region 9 reasonably determined that the impact analysis that was conducted for the 1-hour NO₂ NAAQS demonstrated that the PEP would not cause or contribute to a violation of that NAAQS, as shown below.

The impact analysis that was conducted for 1-hour NO₂ consisted of two components: the cumulative impact modeling conducted for areas outside of the boundaries of Plant 42, and the preliminary analysis as it pertained to the Project's impacts within Plant 42. The cumulative impact modeling for receptors outside of Plant 42 considered (1) Project-only impacts, (2) background monitoring data, which the Region determined conservatively represented background in the Project area, and (3) the impacts of the stationary sources at Plant 42. This analysis showed an impact on 1-hour NO₂ of 126 µg/m³, which was comfortably below the NAAQS of 188 µg/m³. See FS at 58, Table 25, and 70; RTC at 55-56. The preliminary analysis

for 1-hour NO₂, which included modeling receptors within Plant 42, considered not only the Project's impacts but also the background monitoring concentrations for determining compliance with the NAAQS. In this part of the analysis, the modeled Project-only impacts for 1-hour NO₂ added to the relevant background concentrations were also well below the NAAQS, as shown in Table 24 of the Fact Sheet. FS at 57; RTC at 55-56.³¹ Petitioners have not demonstrated clear error in the different approaches applied outside and inside the Plant 42 boundary, both of which were fully consistent with longstanding EPA practice.

A. Petitioners Fail to Demonstrate that the 1-hour NO₂ Impact Analysis Did Not Appropriately Address Impacts to Ambient Air

1. The Region's Approach to Modeling 1-hour NO₂ Concentrations at Receptors Within Plant 42 Was Reasonable, Supported by the Record, and Consistent with Longstanding EPA Practice

Petitioners assert that the impact analysis for the 1-hour NO₂ NAAQS improperly excluded impacts from stationary sources and aircraft within the Plant 42 boundaries on modeling receptors inside the Plant 42 fenceline. The RTC explained, however, that the treatment of such impacts in the modeling analysis for the 1-hour NO₂ NAAQS was appropriate and consistent with EPA's regulatory definition of the term "ambient air" and EPA's historic

³¹ As Petitioners briefly noted in their Petition, Region 9 conducted additional cumulative modeling for 1-hour NO₂ that included impacts from Plant 42 stationary sources on receptors both within and outside Plant 42 for informational purposes to confirm that a spike in the modeled concentrations just outside the northwest corner of Plant 42 was caused by sources within Plant 42 and not by the PEP. Those impacts were not seen in the Project-only analysis and had appeared to be an anomaly. The Region included these additional modeling results as Appendix 6 to the Fact Sheet. As discussed in detail *infra* in Section II.A, the Region had determined that it was not necessary to model the impact of Plant 42 sources on receptors within Plant 42 as part of the Region's determination that the Project would not cause or contribute to a NAAQS or increment violation. The maximum impacts for the 1-hour NO₂ NAAQS for the Region's cumulative modeling analysis were presented in Table 25 of the Fact Sheet, and the Project's impacts on receptors within Plant 42 were considered in the preliminary analysis as reflected in Table 24 of the Fact Sheet. See Petition at 45; RTC at 62 n.76; FS at 74 n.99 and App. 6.

application of it in similar situations. When considering emissions from sources within Plant 42, the area inside the Plant 42 fenceline is not an area “to which the general public has access.” 40 CFR 50.1(e); RTC at 56.

Petitioners’ comments noted that the Fact Sheet showed that the impact analysis for 1-hour NO₂ excluded Plant 42 sources’ impacts inside Plant 42’s fenceline, and asserted that the Fact Sheet did not provide a basis for this approach. See Comments at 15-16. The comments stated that this was concerning because the Fact Sheet seemed to indicate the maximum impact was on the border of Plant 42. *Id.* The comments stated that “EPA’s long-standing interpretation of ambient air allows a company to poison its own workers but not someone else’s workers on an adjacent property.” *Id.* The comments argued that the Applicant does not own Plant 42, and therefore Plant 42 is ambient air, which must have receptors in it for all of the modeling, and that the Region must redo the modeling, issue a new Fact Sheet for public comment. *Id.*

The RTC provided a complete and detailed response, explaining why the Region disagreed with the comments. RTC at 54-57. The RTC noted that Plant 42 is a government-owned, contractor-operated facility for the development, manufacturing and testing of high performance aircraft, with a boundary that is in part adjacent to that of the PEP. RTC at 54-55; FS at 4 (Figure 1), 67. In referring to Plant 42, the Region included the Palmdale Regional Airport within the Plant 42 complex, which has been closed to commercial operations since 2008. RTC at 55.³² The Plant 42 installation “consists of eight separate production sites that share a common airfield infrastructure,” and the primary mission at Plant 42 is to provide and

³² As noted in the RTC, a strip of area that was treated as ambient air in the southern portion of Plant 42 leading to the Palmdale Regional Airport terminal now appears to be closed to public access (as represented in EPA’s figures in the Fact Sheet). However, modeling receptors were still included in this area to be conservative. RTC at 56 n.64.

maintain facilities for the final assembly of jet-powered, high performance aircraft, production engineering and flight test programs, and Air Force acceptance flight tests of jet aircraft. *Id.* The RTC reiterated that Plant 42 supports the major aircraft manufacturers Boeing, Lockheed, and Northrop Grumman. *Id.*

The RTC further explained, as discussed above, that the impact analysis for 1-hour NO₂ included both the cumulative impact modeling conducted for areas outside of the Plant 42 boundaries that showed compliance with the NAAQS, and the preliminary analysis as it pertained to the PEP's impacts within Plant 42, which considered both Project-only impacts and background concentrations and did not show a NAAQS or increment violation at any Plant 42 receptor (or any other receptor). RTC at 55-56. The RTC noted that modeling receptors were included in all areas outside the PEP fenceline out to 10 or 20 km, and specifically included modeling of the PEP's impacts for the 1-hour NO₂ NAAQS. RTC at 55. It also noted that, as explained in the Fact Sheet, the additional cumulative modeling conducted by the Applicant for 1-hour NO₂ did not include Plant 42 receptors because: (1) the Applicant did not need to model Plant 42's impacts within Plant 42's own fenceline, (2) there were no additional nearby sources outside Plant 42 that required modeling, and (3) the PEP's impacts within the Plant 42 fenceline had already been modeled in the Project-only analysis. RTC at 55.

The RTC explained that the nature of the modeling at receptors within Plant 42 was based on the fact that Plant 42 is closed to public access and the EPA policy that modeling for a PSD permit need only include the air quality impacts of emissions where the impacts are projected to occur in the "ambient air." RTC at 56; FS at 74. The RTC noted that "ambient air" is defined as "that portion of the atmosphere, external to buildings, to which the general public has access," 40 CFR 50.1(e). It explained that EPA's general policy is that the atmosphere over land

owned or controlled by a source and to which public access is precluded by a fence or other physical barriers is not considered “ambient air” for PSD modeling purposes for that source. Thus, based on the regulatory definition of “ambient air,” and EPA’s longstanding policy, the Region considered the air outside the PEP’s boundaries, including within Plant 42, to be ambient air with respect to the PEP and its emissions source. Similarly, the Region considered the air outside the Plant 42 boundaries to be ambient air with respect to emissions sources located within Plant 42. Furthermore, the Region did not consider the air within Plant 42 to be ambient air *with respect to Plant 42 emissions sources* because Plant 42 is closed to public access. See RTC at 56 (including n.62-64).

Each of these premises is consistent with EPA’s longstanding interpretation and application of the definition of ambient air, which Region 9 referenced in this portion of its response to Petitioners’ comment. RTC at 56 n.62. In the 1980s, Administrator Costle articulated, and Administrator Reilly affirmed, that an area closed to public access may be excluded from ambient air. *In re Hibbing Taconite*, 2 E.A.D. 838 (Adm’r 1989). With respect to the placement of receptors on the property of a neighboring stationary source, in a 1987 memo, EPA said that receptors should be placed “over another source’s property to measure the contribution of the outside source to its neighbor’s ambient air.” 1987 Helms Memo at 2 (AR 12.28). Shortly thereafter, in a similar situation involving placing receptors inside the fenceline of a neighboring stationary source, EPA also identified the following corollary to this principle: “[W]here a receptor is located on plant B’s [a neighbor’s] nonambient air property, the contribution from plant B (only) may be subtracted from the total contribution.” 1989 Bauman Memo (AR 12.29). Petitioners have not demonstrated that it was clear error or an abuse of discretion for Region 9 to continue to follow this approach for the PEP permit.

2. Petitioners Have Not Preserved for Review or Carried their Burden on Their Arguments that Plant 42 is Open to the Public and that the Region Must Analyze the Relationships Among Sources within Plant 42

For the first time, in their permit appeal, Petitioners present two new arguments concerning the Region's decision not to model the impact of emission sources within Plant 42 on locations within the Plant 42 fenceline. They argue now that Plant 42 is, in fact, open to the public, and that the Region must analyze the relationship between the several emission sources located within Plant 42.

While Petitioners' comments expressed their general disagreement with the nature of the modeling inside Plant 42 in the impact analysis for 1-hour NO₂, arguing that because the Applicant does not own Plant 42, it must be considered "ambient air," Petitioners did not argue in their comments that Plant 42 was in fact open to access by the general public and should therefore be considered "ambient air" as to Plant 42 sources. Nor did Petitioners argue that the fact that multiple entities operate at Plant 42 means that parts of the area within Plant 42 are "ambient air" as to Plant 42 sources. Petitioners have not demonstrated that these arguments were not reasonably ascertainable during the public comment period, nor can they. The Fact Sheet made clear that Region 9 had determined that modeling of impacts from Plant 42 sources on receptors "inside the Plant 42 fence line" was not conducted in the impact analysis for 1-hour NO₂ because such impacts were not considered to be impacts on "ambient air," and also showed the Lockheed-Martin, Northrup, and Boeing facilities within Plant 42. FS at 4, 73-74; see also RTC at 56. Furthermore, as Petitioners have noted, the PSD permit application for the PEP stated that impacts from Plant 42 sources within the Plant 42 fenceline were not calculated as part of the cumulative modeling analysis because Plant 42 was closed to public access, and made clear

that Plant 42 included Lockheed-Martin, Northrup, and Boeing facilities. Petition at 44; Application at 6.4-1-6.4-2.³³

Review of these arguments should be denied because Petitioners failed to raise them with reasonable specificity during the public comment period. Petitioners must “raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position” during the comment period on the draft permit. 40 CFR 124.13; *see City of Palmdale*, 15 E.A.D. at 737. This requirement is made a prerequisite to appeal to the EAB by 40 CFR 124.19(a), and the Board routinely denies review of issues or arguments that were raised on appeal but were not raised during the public comment period. *City of Palmdale*, 15 E.A.D. at 737; *In re ConocoPhillips Co.*, 13 E.A.D. 768, 800-801 (EAB 2007). Issues must also be raised with a reasonable level of specificity and clarity during the comment period in order to be preserved for review. *Id.* Petitioners clearly have failed to satisfy these prerequisites to Board review.

Even if Petitioners were not precluded from raising these new arguments on appeal, the new arguments and information provided by Petitioners are speculative in nature, and are not sufficient to demonstrate clear error in the Region’s determination that when modeling the impacts of emission sources located in Plant 42, the area within the Plant 42 fenceline is reasonably considered not to be ambient air because it is not an area “to which the general public has access.” The Region’s determination is consistent with the regulatory definition of “ambient

³³ The modeling protocol for the PEP, which was in the administrative record, also made clear that receptors at Plant 42 would not be included in the cumulative modeling analysis for the PEP, and that the same approach for modeling receptors at Plant 42 had been used for the project previously proposed for the same site, the PHPP. See Mod. Prot. at 25.

air” and supported by the information in the record concerning the status of Plant 42 and the Palmdale Regional Airport, including the PSD permit application and modeling protocol, and other materials. See Application at 6.4-1-6.4-2; Mod. Prot. at 25; March 2018 Email Exchange (AR 12.31); Palmdale Regional Airport Article, Wikipedia (AR 12.27).

Petitioners assert, based on a footnote in the RTC, that the record references “transient aircraft” using the runways at Plant 42, which they allege means that Plant 42 offers public access. Petition at 48. However, given the nature of the operations at Plant 42, the Region reasonably assumed that the reference to transient aircraft in the document referred to by Petitioners and mentioned in the footnote, which was included in the administrative record, instead referred to flights related to and in support of Plant 42 operations, and the document supports the Region’s reading. See Plant 42 AICUZ Study Excerpt (AR 12.26) at 2-9, 2-12 (referring to new “F-35” as transient aircraft and noting transient aircraft generally fall into one of three categories consisting of VIP transport, heavy airlift, and fighter aircraft based elsewhere that are temporarily visiting Plant 42 or using it as emergency divert field). Petitioners also offer what appears to be a snapshot from “FlightAware” to argue that a particular civilian aircraft landed at Plant 42. But without further information, it is not clear what the nature of this aircraft or its passengers may have been with respect to Plant 42 operations. Similarly, Petitioners’ new argument that the meteorological monitoring station necessitates civilian access is speculative and does not explain what types of personnel would be accessing the monitor and under what circumstances, and what relationship such personnel may have to Plant 42 operations. And the argument that the Palmdale Regional Airport, which has been closed for a decade, may reopen to the public “someday” is wholly unpersuasive; indeed, almost any area closed to public access

under the regulatory definition of “ambient air” at 40 CFR 50.1(e) could be opened to the public “someday”.

Finally, Petitioners’ arguments about the control relationships between various entities operating out of Plant 42 are also based on speculation. They do not clearly demonstrate that it was erroneous for the Region to treat Plant 42 as one government-owned facility with several defense contractors operating on it and that it is closed to public access, for purposes of the air quality analysis for the PEP.

B. The Impact Analysis for the 1-hour NO₂ NAAQS Properly Addressed Impacts from Aircraft at Plant 42

Petitioners next argue that the impact analysis for the 1-hour NO₂ NAAQS that was conducted for the Project was erroneous because it did not consider the impacts from jet engines from Plant 42 on modeling receptors outside the Plant 42 fence line. Petition at 52. However, the Region’s 1-hour NO₂ NAAQS analysis appropriately took these emissions into account, as the Region’s response to Petitioners’ comments explained in detail. Accordingly, Petitioners fail to demonstrate that the Region’s technical determination in this regard was clearly erroneous or otherwise warrants Board review.

Petitioners’ comments on the Proposed Permit argued that the cumulative impact analysis for the 1-hour NO₂ NAAQS should have considered impacts from military jets at neighboring Plant 42, asserting that emissions from these military aircraft could be substantial. Comments at 15. The RTC explained that Petitioners’ concerns were misplaced, as the impact analysis for 1-hour NO₂ for the PEP did appropriately consider emissions from the aircraft at Plant 42. RTC at 58-62.

As described above, the RTC reiterated that the modeling analysis for the 1-hour NO₂ NAAQS for receptors outside of Plant 42, which demonstrated compliance with the 1-hour NO₂ NAAQS in that area, considered (1) Project-only impacts, (2) background monitoring data, which the Region determined conservatively represented background in the Project area, and (3) the impacts of the stationary sources at Plant 42, with results well below the 1-hour NO₂ NAAQS. FS at 58, Table 25, and 70; RTC at 55-56.

The Region provided a detailed explanation regarding why impacts outside the Plant 42 fenceline from Plant 42 aircraft emissions were conservatively represented in the second item in this list -- the background monitoring data. See RTC at 58-62. The Region's response first noted that the Lancaster-Division Street monitor that was chosen for the modeling analysis was just 2.5 miles from the Project, and only 110 meters from a highway, 50 meters from commuter traffic on Division Street, and 80 meters from the Southern Pacific Railway, and was thus considered highly impacted by mobile source emissions. The roadways and railway are all within 150 meters of the monitor, and impacts from mobile source emissions are generally known to be highest within 150 to 180 meters from a roadway.³⁴ RTC at 60. In contrast, the Project is not located near any major roadways, and there are no stationary emissions sources within 150-180 meters of the PEP boundary. *Id.*

Region 9 then explained in further detail why Plant 42 aircraft emissions would be adequately represented by these monitored background levels from the Lancaster-Division Street monitor. *See generally* RTC at 60-62. The Region noted in conclusion that, given that the Region

³⁴ The Region noted that mobile source emissions occur near ground level, as compared to stationary sources that have stacks that are higher off the ground, and result in higher impacts on ground level ambient concentrations. RTC at 60.

expected the highest concentration gradient from aircraft emissions to be well within the Plant 42 boundary, and that the Plant 42 runways are not particularly busy compared to commercial airports, Plant 42 aircraft emissions would not have a significant concentration gradient in the area of modeled impacts from the PEP outside the PEP and Plant 42 boundaries. *Id.* at 60. The Region expected contributions from Plant 42 aircraft emissions to the relevant pollutant concentrations, including 1-hour NO₂, annual NO₂, and CO, in any area outside the Plant 42 boundary to be similar to or less than the contributions from vehicle traffic. *Id.* The Region further noted that it could conclude that the highest impacts would not coincide with the maximum impacts from the PEP. *Id.* The Region explained that, based on its consideration of the numerous factors articulated in the RTC, it had determined that any aircraft emissions impacts outside the Plant 42 boundary were adequately and appropriately accounted for in its consideration of monitored background concentrations, which relied on a monitor heavily impacted by mobile source emissions, and that it did not find the emissions from Plant 42 aircraft to raise a concern about compliance with the applicable NAAQS or increments for the Project. *Id.* at 60-61.

In their Petition, Petitioners do not challenge the vast majority of the Region's response on this issue. Petitioners assert that Region 9 used a post hoc, non-modeling, qualitative analysis about expected NO_x impacts, which is not an acceptable substitute for modeling. Petition at 52. Petitioners fail to respond, however, to the Region's explanation in the Fact Sheet and RTC that the background monitoring data adequately accounted for the aircraft emissions and, thus, that there was no need to model those emissions. See RTC at 58-62.

Petitioners also assert that the Region did not adequately address the fact that the aircraft would be located within 10 kilometers of the Project or focus on the fact that the aircraft at Plant

42 are military jets that are not subject to emission limitations. Petition at 52-53. Petitioners further argue that the Region considered irrelevant factors, such as information indicating the direction of takeoffs and landings and wind speed at Plant 42, which Petitioners claim are irrelevant given the nature of the 1-hour NO₂ NAAQS. Petition at 53.

In response, as noted above, the RTC explained that only those sources with a significant concentration gradient need to be separately modeled rather than being accounted for in background monitoring data, and the Region determined that the aircraft emissions from Plant 42 would not have a significant concentration gradient in areas outside the PEP and Plant 42 boundaries and were adequately represented by the background monitoring data. See RTC at 58-61. Furthermore, with respect to Petitioner's argument that the Region did not consider the fact that Plant 42 features military aircraft, the Region considered studies showing that even emissions from large commercial airports with significantly greater air traffic than Petitioners' air traffic estimates for Plant 42³⁵ impact air quality less than emissions from motor vehicle traffic at nearby roadways, supporting the Region's determination that the monitoring data used in this case, which were highly impacted by motor vehicle emissions, were conservatively representative. RTC at 61. Petitioners have not demonstrated that it was unreasonable for the Region to rely on such an analysis based on emissions from commercial airports with significantly more air traffic than Plant 42 simply because Plant 42 features military aircraft. Moreover, whether aircraft are civilian or military, a key point made by the Region in its RTC

³⁵ The RTC noted that other data suggested that the airport traffic at Plant 42 was significantly lower than that estimated by Petitioners in their comments and repeated in the Petition. See RTC at 61 n.72.

was that emissions disperse at a relatively short distance from the aircraft when taking off or landing, and therefore such emissions would not be a concern outside Plant 42's boundaries. *Id.*

Petitioners' argument that the Region considered irrelevant factors in its determination not to require modeling for 42 aircraft emissions from Plant 42 is equally unpersuasive. Petitioners argue that the Region's consideration of prevailing wind direction, and the fact that takeoffs and landings in certain directions "rarely occur" at Plant 42, is irrelevant and arbitrary given the nature of the 1-hour NO₂ standard. However, the predominant direction and location of aircraft takeoffs and landings and wind direction was certainly relevant to the Region's evaluation of the likely location of the maximum impact from Plant 42 aircraft emissions, which was only one aspect of the Region's detailed analysis supporting its determination that modeling of Plant 42 aircraft was not necessary. Petitioners' cursory argument in this regard does not demonstrate clear error in the Region's determination that impacts from Plant 42 aircraft need not be separately modeled.

The Region's analysis, as shown in the record, concerning the impact of these Plant 42 aircraft emissions in the context of assessing the air quality impact of emissions from the PEP was reasonable and clearly explained. Petitioners have failed to meet their heavy burden of demonstrating that this technical determination was clearly erroneous or otherwise warrants Board review. *E.g., In re Shell Offshore, Inc.*, 15 E.A.D. 536, 597 (EAB 2012).

III. Petitioners Fail to Demonstrate Grounds to Review Region 9's Determinations Regarding the Modeling for the Annual NO₂ NAAQS or Increment or the CO NAAQS

As discussed above, under section 165(a)(3) of the Act, a permit applicant must demonstrate that emissions from the proposed source will not cause or contribute to a violation

of the NAAQS or PSD increments. This CAA requirement is fully satisfied for the PEP permit with respect to the annual NO₂ NAAQS and increment and CO NAAQS.

In their challenge to the modeling analysis that was conducted for the annual NO₂ NAAQS and increment and the CO NAAQS, Petitioners again largely repeat arguments they made in their comments, adding a few criticisms of the RTC. They assert that Region 9 erred by not requiring the Applicant to conduct a cumulative impact analysis to demonstrate the Project's compliance with the annual NO₂ NAAQS and increment and the CO NAAQS. Petition at 53-59. Petitioners also argue that Region 9 inappropriately relied on significant impacts levels ("SILs") and the fact that the Project-only impacts and background concentrations were very small to determine that a cumulative impact analysis was not required, asserting that aircraft and stationary source emissions were not adequately considered in the analysis. *Id.* However, the Region's analysis, as shown in the record, was reasonable and clearly supports its technical determinations. On some issues, Petitioners have failed to address the Region's RTC, and on other issues, Petitioners have failed to meet their heavy burden of demonstrating that the Region's technical determination was clearly erroneous or otherwise warrants Board review.

The record shows that Region 9 required the Applicant to demonstrate that construction of the proposed Project would not cause or contribute to a violation of the 1-hour and 8-hour CO NAAQS or the annual NO₂ NAAQS and Class II increment. FS at 51-57, including Table 24; RTC at 46-47. The air quality impact analysis for the PEP, as described in the Fact Sheet, included modeling to assess the impact of the Project's own emissions for CO and annual NO₂, and also considered the monitored background concentrations for these pollutants and averaging times, which fully supported Region 9's determination that emissions from the proposed Project would not cause or contribute to a violation of the CO NAAQS or the annual NO₂ NAAQS or

increment. *Id.* As explained in the Fact Sheet, the air quality analyses also appropriately used SILs to help demonstrate that the impact of the proposed source on the CO and annual NO₂ concentrations would not cause or contribute to a violation of the relevant NAAQS or PSD increment. *Id.*

A. Petitioners Fail to Demonstrate Clear Error in Region 9's Decision Not to Explicitly Model Plant 42 Sources in its Air Quality Analysis for the Annual NO₂ NAAQS and Increment and the CO NAAQS

Petitioners argue that Region 9 should have conducted a cumulative impact analysis that included explicit modeling of emissions from aircraft and stationary sources at Plant 42 because these sources were not appropriately addressed in the analysis for CO and annual NO₂. Petition at 53-39. The RTC fully addressed Petitioners' comments, in this regard, however, and explained how the modeling that was conducted was sufficient to demonstrate compliance with the applicable NAAQS and increment for annual NO₂ and CO. RTC at 46-49.

The Region first explained that for 1-hour CO, 8-hour CO, and annual NO₂, the analysis that was conducted showed that modeled Project-only impacts were *very* low compared to the applicable NAAQS and increment for annual NO₂ and CO – each *less than 4%* of the applicable values. FS at 57; RTC at 47-48. Further, when background concentrations were considered by adding them to the maximum Project-only impacts and comparing the summed values to the applicable NAAQS, the projected impacts from the proposed Project were still well below these NAAQS – *less than 17%* of each NAAQS. RTC at 47-48; see also FS at 51-57 (including Table 24). Based on this information, Region 9 determined that the proposed Project would not cause or contribute to a violation of the CO NAAQS or annual NO₂ NAAQS and increment, and therefore, a more comprehensive air quality analysis that involved explicit modeling of other sources was not needed to make this demonstration. RTC at 47-48.

The Region provided a detailed and well-reasoned explanation in the RTC concerning why it did not expect the impacts from Plant 42 stationary sources³⁶ and aircraft to be of concern in the area outside of Plant 42.³⁷ RTC at 58-62. Region 9 also provided a detailed explanation of why the background monitoring data that was used was conservatively representative, given that its location is heavily influenced by mobile source emissions, considering Plant 42 sources. *Id.*; FS at 70. Consistent with the Guideline on Air Quality Models, the Region concluded that Plant 42 sources would not have a significant concentration gradient outside of Plant 42 and that such emissions were adequately represented by monitored background data. RTC at 59. Accordingly, the Region reasonably concluded that potential emissions from the Plant 42 sources did not call into question its conclusion, based on modeling of emissions from the PEP and monitoring data, that the proposed source would not cause or contribute to a violation of the applicable NAAQS or increment. See RTC at 58-62.

³⁶ Other than a brief mention that stationary sources at Plant 42 were not separately modeled for CO and annual NO₂, the Petition does not explain how or why Petitioners are concerned about emissions from such stationary sources in the context of the air quality analyses for CO and annual NO₂. The Region's RTC explained in detail why the Region had determined that the background monitoring data that was used adequately accounted for emissions from stationary sources at Plant 42, in addition to noting the very low emissions of CO and annual NO₂ from the PEP. See RTC at 47-48, 58-59. Petitioners do not address these responses in their petition.

³⁷ The Petition appears to suggest that the Region changed its CO and annual NO₂ analysis in response to comments on this issue and that such changes arose from changes between the draft and final permit, Petition at 53-54, but this is not the case. In responding to Petitioners' comments, the Region provided a detailed explanation of the CO and annual NO₂ analyses that had already been conducted, including the rationale for why impacts from Plant 42 sources were not modeled for receptors within the fence line of Plant 42, and also provided further reasoning as to why Petitioners' comments on emissions from Plant 42 sources did not demonstrate that a cumulative impact analysis for CO and annual NO₂ was necessary. RTC at 46-49, 58-62. However, the data and analysis showing the relevant Project impacts and background concentrations on which the Region relied to determine that the Project would not violate the annual NO₂ NAAQS or increment or the CO NAAQS were presented in the Fact Sheet and data included in the administrative record at the time the Region issued the Proposed Permit. *See id.*; FS at 53-59, 70, 73-74.

Petitioners argue that the emissions from the aircraft could be substantial, and that because the air quality monitor providing the background data considered by the Region as part of this analysis was located 2.5 miles from the Project and in an urban area, it would not have captured the emissions from these aircraft, which operate at a closer distance to the proposed Project and which have NO_x emissions released very close to ground height with almost no vertical exit velocity. Petition at 55-56. Petitioners also argue that Region 9's analysis for the annual NO₂ increment is not sufficient and that Region 9's analysis amounts to guesswork. Petition at 56.

However, the Region's RTC provided a detailed, cogent response to the same basic arguments presented in the Petition to support the Region's technical determination that its air quality analysis was adequate and a cumulative impact analysis was not required, and the Petition does not demonstrate that the Region's analysis or conclusion in this regard was clearly erroneous.

As discussed above, the preliminary analysis showed that the impacts of the Project are well below the NAAQS and increment, and relied on background monitoring concentrations for the CO and annual NO₂ NAAQS that were based on very conservative data and sufficiently accounted for potential impacts outside the Plant 42 boundary caused by aircraft emissions and stationary sources within Plant 42. RTC at 46-49, 58-62. The Region also explained in detail why it does not expect the aircraft emissions to be of concern outside of Plant 42. RTC at 58-62.

Petitioners do not dispute or address the fact that the modeled impact of the emissions from the Project are very low as compared with the annual NO₂ NAAQS and increment³⁸ and the CO NAAQS or that the modeled impact of those emissions plus background levels from the monitor selected are also well below the NAAQS. Rather, the Petition focuses on arguments related to Petitioners' earlier comments that aircraft emissions from aircraft at Plant 42 could be substantial and that the background monitoring data that was considered is not adequately representative of the area near the Project given the distance between the monitor and such aircraft emissions.³⁹ Petitioners reason that the monitor providing the monitoring data would not "capture" the emissions from such aircraft, and therefore the monitoring data may not be relied upon. Petition at 57. Petitioners misread the Region's rationale. The Region explained in the RTC that the area near the Lancaster-Division Street monitor is heavily impacted by mobile source emissions and would thus be conservatively representative, including taking into account the aircraft emissions. RTC at 58-62. Petitioners allege that it is "impossible to discern" how the Region arrived at this conclusion, but fail to address much of the rationale provided by the Region in the RTC to support this technical determination, and therefore have not demonstrated clear error in the Region's determination.

³⁸ In fact, with respect to their argument about the annual NO₂ increment, Petitioners simply repeat the argument from their comments that the Region's analysis was effectively guesswork, and fail to explain why the Region's response concerning the Project's very low emissions of annual NO₂ was inadequate. With respect to this issue, Board review should therefore be denied. *City of Palmdale*, 15 E.A.D. at 705-6.

³⁹ The Petition does not appear to be arguing that the cumulative impact analysis Petitioners assert is required for CO and annual NO₂ must include modeling for Plant 42 sources on Plant 42 receptors, but if it were, this issue is addressed in Section II.A, *supra* and the RTC. *See* RTC at 54-56.

As discussed in detail in Section II, *supra*, the Region's response explained in detail how the Lancaster-Division Street monitor that was chosen for the modeling analysis was heavily impacted by emissions of mobile sources not found closer to the PEP and thus was conservatively representative for the area near the Project. RTC at 60-62. The Region determined that any aircraft emissions impacts outside the Plant 42 boundary were adequately and appropriately accounted for in the Region's consideration of monitored background concentrations that relied on this monitor that was heavily impacted by other mobile source emissions, and concluded that the emissions from the aircraft at Plant 42 did not raise a concern about compliance with the applicable NAAQS or increments for the Project. RTC at 58-62. The RTC explained that: (1) Plant 42 aircraft emissions would not have a significant concentration gradient in the area of modeled impacts from the Project outside the Project and Plant 42 boundaries; (2) contributions from Plant 42 aircraft emissions to the CO and annual NO₂ concentrations in any area outside the Plant 42 boundary were expected to be similar to or less than the contributions from vehicle traffic; and (3) the highest impacts from aircraft emissions would not coincide with the maximum impacts from the Project, which are closer to the Project boundary and far to the west of the area where takeoffs and landings would occur. RTC at 58-62.

B. Petitioners Completely Fail to Address Region 9's Response to Comments on the Use of SILs

Petitioners' comments on the Region's air quality impact analysis for CO and annual NO₂ also argued that the Region's use of SILs to avoid cumulative impact analyses was inappropriate, based on the general argument that the use of SILs is not permissible for determining that a cumulative impact analysis is unnecessary. Petition at 53-55. Petitioners' comments further argued that the regulatory provision cited as the basis for the CO SILs, 40 CFR

51.165(b)(2), did not apply to the permit but rather prescribed what must be in state permitting programs. *Id.* at 54-55.

The RTC explained that the Region's air quality analyses and conclusions concerning the Project were valid without any reliance on SILs. RTC at 48. However, the Region also believed that the use of SILs in assessing the impacts of the Project was appropriate and the commenters had not shown otherwise. RTC at 48-49. The Region cited a Legal Memorandum issued by EPA that shows how the Act may be read to allow the use of SILs as part of an air quality demonstration required for the issuance of a PSD permit under CAA section 165(a)(3). *Id.* The RTC further noted that EPA has long used the CO and annual NO₂ values in 40 CFR 51.165(b)(2) as a compliance demonstration tool on a case-by-case basis in the context of PSD air quality analyses and explained why it was reasonable to continue doing so in the context of this permit. RTC at 48-49 (including n. 50). Region 9 explained that it was not reading section 51.165(b) to be a binding legal requirement in air quality analyses for EPA-issued PSD permits, but rather that the values in this regulation could be used in this context to identify the degree of air quality impact that would "cause or contribute to" a violation of a NAAQS or PSD increment, and thus Region 9 could use the values on a case-by-case basis to support the conclusion that a demonstration that a PSD source does not have an impact above these values in the ambient air is sufficient to show that the source will not cause or contribute to a violation of the applicable NAAQS or PSD increment.⁴⁰ *Id.*

⁴⁰ As discussed above, the Region's CO and annual NO₂ analyses for the PEP also focused on the fact that the Project's modeled impacts and background levels were well below the applicable NAAQS and increment.

The Petition briefly challenges the Region's air quality analyses for annual NO₂ and CO based on an argument that SILs in general, including SILs based on the values listed in 40 CFR 51.165(b)(2), may not be used by the permitting authority as a compliance demonstration tool when modeling the impacts of a PSD source. In doing so, however, the Petition repeats the same arguments that Petitioners made in their comments, citing the Fact Sheet, and does not acknowledge or refer to, much less refute, the Region's detailed response to these arguments. Comments at 53-55. In failing to address the Region's response to the comments on this issue, Petitioners fail to meet the requirement that they explain why the Region's previous response to their arguments is clearly erroneous or otherwise warrants review, and therefore review based on these arguments should be denied. *See, e.g., In Re Pio Pico Energy Center*, 16 E.A.D. 56, 65, 99-101, 121, 127, 144, 147, 149 (EAB 2013).

Conclusion

For all of the reasons stated above, Region 9 respectfully requests that the Board deny review of Region 9's Final Permit for the PEP.

Date: June 19, 2018

Respectfully submitted,

/S/ Julie Walters

Julie Walters
Office of Regional Counsel
EPA Region 9 (MC ORC-2)
75 Hawthorne St.
San Francisco, CA 94105
Telephone: (415) 972-3892
Facsimile: (415) 947-3570
Email: Walters.Julie@epa.gov

John Krallman
Air and Radiation Law Office
Office of General Counsel (MC 2344-A)
Environmental Protection Agency
1200 Pennsylvania Ave. N.W.
Washington, DC 20460
Telephone: (202) 564-0904
Facsimile: (202) 564-5603
Email: Krallman.John@epa.gov

STATEMENT OF COMPLIANCE WITH WORD COUNT LIMITATION

I hereby certify that this Response to Petition for Review submitted by EPA Region 9, exclusive of the Table of Contents, this Statement of Compliance, and the attached Certificate of Service, contains 13,977 words, as calculated using Microsoft Word word-processing software.

/S/ Julie Walters

Julie Walters

CERTIFICATE OF SERVICE

I hereby certify that I caused a copy of **EPA REGION 9'S RESPONSE TO PETITION FOR REVIEW** and **EPA REGION 9'S EXCERPTS OF RECORD** in the matter of Palmdale Energy, LLC, Palmdale Energy Project, EAB Appeal No. PSD 18-01, to be served by electronic mail upon the persons listed below.

Dated: June 19, 2018

/S/ Julie Walters

Julie Walters

Lisa T. Belenky, Senior Attorney
Center for Biological Diversity
1212 Broadway, Suite 800
Oakland, CA 94612
(510) 844-7107
lbelenky@biologicaldiversity.org

Robert Ukeiley, Senior Attorney
Center for Biological Diversity
1536 Wynkoop St., Ste 421
Denver, CO 80202
(720) 496-8568
rukeiley@biologicaldiversity.org